

Freeport-McMoRan Chino Mines Company  
P.O. Box 10  
Bayard, NM 88023

June 30, 2016



**Certified Mail #70153010000206571488**  
**Return Receipt Requested**

David Ennis  
Energy, Minerals and Natural Resources Department  
Mining and Minerals Division  
Mining Act Reclamation Program  
1220 South St. Francis Drive  
Santa Fe, New Mexico 87505

Dear Mr. Ennis:

**Re: Chino Response to MMD Technical Comments on Proposed Modification 16-1: Closure Closeout Plan Update, Permit No. GR009RE**

Freeport-McMoRan Chino Mines Company (Chino) submitted an application dated January 20, 2016 to revise Permit Number GR009RE to address Design Limit expansion and a closure plan for the construction of the North Lampbright Waste Rock Stockpile. The Mining and Minerals Division (MMD) in a letter dated March 2, 2016 deemed this application administratively complete. This letter provides responses to comments from MMD and cooperating agencies as well as in a letter dated May 24, 2016 to Chino. The cooperating agencies include the State of New Mexico Department of Game and Fish, Office of the State Engineer Hydrology Bureau, New Mexico Energy, Minerals and Natural Resources Department-Forestry Division as well as the New Mexico Environmental Department (NMED) Ground Water, Surface Water and Air Quality Bureaus and their comments can be found at the end of this letter. The comments are italicized and Chino responses follow.

**MMD Comments:**

1. *Please provide any technical data that Chino or its consultant has collected on the Rubio Peak formation including test pit locations, soil logs, photographs, physical and chemical laboratory analyses, etc. Depending on the data presented, a workplan for additional characterization of the Rubio Peak formation through sampling and laboratory analysis may be required by MMD as a condition in the permit.*

An As-built report has been developed for the North Lampbright demonstration plot. Requested information can be found on Figures 2, 5, 6, Appendix A and Appendix B of the Rubio Peak Formation As-Built Report.

2. *Please provide an "as-built" description of the construction methodology and heavy equipment used by Chino to create the Rubio Peak demonstration plot. Please include:*
  - a. *date(s) of construction;*
  - b. *construction methodology (i.e., blasting, ripping, etc.);*
  - c. *heavy equipment utilized during construction;*

- d. *method of scarification or seed-bed preparation;*
- e. *seed mix, application method and rate of application;*
- f. *mulch application rate and method of crimping;*
- g. *other information deemed pertinent by Chino.*

*While demonstration plots can provide useful data, MMD has a formalized process through which proposed cover materials are evaluated. As an example, the cover material at Upper South and STS2 is currently being tested through a formalized test plot program. MMD envisions that the Rubio Peak formation will also require evaluation through a formalized test plot program as a condition in the permit.*

See attached Rubio Peak Formation Demonstration Plot As- Built Report

3. *Please provide an estimate of the quantity/volumetrics of Rubio Peak formation available compared to the estimated 924,440 yd<sup>3</sup> of reclamation cover material needed for the NLS. Please include and describe the methods/assumptions used to estimate the volume of Rubio Peak formation available.*

A field reconnaissance survey was conducted in the summer of 2014 to estimate the potential volume of Rubio Peak Formation reclamation cover material (RCM) available northeast of Lampbright Stockpile. The volume of material available was estimated based on the thickness and areal extent of the deposit. A exposure of the Rubio Peak Conglomerate in an adjacent tributary, which lies approximately 500 feet from the demonstration plot is approximately 30 feet thick. The aerial extent of the unconsolidated Rubio Peak Formation was mapped in the field and occupies approximately 192 acres. Thus, using a minimum thickness of 30 feet approximately 9,300,000 yd<sup>3</sup> of Rubio Peak Conglomerate is available as RCM.

4. *The NLS Closure/Closeout Plan ("CCP") prepared by Golder Associates and dated January 15, 2016 refers to a pedestrian wildlife survey conducted by Golder Associated in August 2015. MMD requests a copy of this report.*

Attached to this response letter is a copy of the North Lampbright Stockpile and Northeast Stockpile Extension Areas Biology Study Report.

5. *Page 13 of the CCP states that "inter-bench out slopes will be graded...with uninterrupted slope lengths of no greater than 300 feet" at closure. Elsewhere in the CCP (e.g., page 12 and Table 4-1), a maximum uninterrupted slope length of 200 feet at closure is proposed. Please confirm that a maximum uninterrupted slope length of 200 feet is proposed for reclamation of the NLS.*

In accordance with Copper Mine Rule, a maximum uninterrupted slope length of 200 feet is proposed for the closure of this facility as indicated in the design criteria on Table 4-1.

6. The following comments apply to Appendix A:

- a. *Capital indirects: Chino proposes capital indirect costs of 22.5%, which will continue to be evaluated throughout the Revision 16-1 process. MMD is in the process of updating our cost estimation guidelines, which will be performed simultaneously during Revision 16-1.*

Thank you for your comment. Chino recognized several years ago that the indirect cost percentage estimate in the original approved Freeport closure closeout plans was inconsistent with MMD and

OSM guidance, other western state regulatory practice and therefore needed to be updated. Freeport-McMoRan over the last several years as part of closeout cost updates have made several indirect cost percentage presentations to MMD and NMED underscoring those proposed changes. It is common practice when updating cost estimates to make updates to the FA cost estimate when new information or an error is identified. Chino appreciates MMD's review and looks forward in addressing any concerns or questions as part of this permit revision process.

*Table 1 (Equipment Production Factors):*

- b. Parameter: Swell Factor Stockpiles and Tailings. In the cost estimate, please show the stockpile swell calculation in the manner in which the 3A waste rock pile calculation was performed.*

As requested by MMD, Chino will update the North Lampbright Stockpile cost estimate to show a swell factor of 8% in the manner it was applied to the 3A Waste Rock Pile.

- c. Parameter: Production Method/Blade Factor. Please justify the proposed slot dozing factor of 1.2 for reclamation of the NLS and the proposed.*

The Production Method/Blade Factor of 1.2 was taken directly from the CAT Handbook (Edition 44, 19-55) and is consistent with the approved cost estimates for Little Rock, Tyrone 9AX Stockpile, and Chino 3A Waste Rock Pile.

- 7. Please provide a detailed financial assurance cost estimate for the NLS for MMD's review. The CCP contains numerous pages from pertinent references (e.g., pages from R.S. Means, Caterpillar Handbook, etc.), which should be re-submitted with the financial assurance cost estimate as a package so that the logic behind the cost estimate can be followed by MMD.*

Chino and the agencies during working meetings agreed to approve the scope of work and cost basis prior to the development of a FA cost estimate. The FA cost estimate factors are taken from the most recent RS Means and Caterpillar Handbook publications as well as direct quotes from experienced contractors. This step by step approach allows the proposed FA cost estimate to be as timely as possible as well as reducing duplicative submittals. Chino respectfully requests that MMD and NMED approve the scope of work prior to development of the FA cost estimate. If MMD or NMED have any questions or concerns prior to the development of the FA cost estimate Chino would like to set up a meeting at your earliest convenience.

*New Mexico Game and Fish Comments:*

- 1. Sumps 1, 2 and 3 exist at the base of the Main Lampbright Leach Stockpile and collect pregnant leach solution (PLS), which is toxic to wildlife. Construction of the NLS will cover these sumps, requiring design and implementation of a new PLS collection system and sumps. The current system relies upon floating bird balls and hazing to deter wildlife from accessing the PLS. However, the Department observed areas of exposed PLS where winds had piled the bird balls up into corners so they did not adequately cover the PLS. The Department recommends frequent monitoring of bird balls utilized in PLS sumps to ensure that the balls redistribute fully after wind events to prevent exposure of the PLS surface to wildlife.*

Construction of the NLS will cover over the existing Sumps 1, 2 and 3. Chino does not intend to construct an open PLS sump as a replacement for these facilities. As noted, Chino relies upon bird balls and hazing to deter wildlife from using other open PLS containments or sumps. New bird balls are routinely placed into these sumps in order to insure adequate aerial coverage across the sumps. Chino will continue to monitor PLS sumps to insure they are effective at deterring wildlife from using them and continues to comply with the federal Migratory Treaty Bird Act.

2. *The Department also recommends use of wildlife-friendly enclosures and escape ramps to prevent wildlife from becoming trapped in toxic or hazardous waters. Guidelines for fencing and escape ramps, to prevent adverse impacts to wildlife from mining site water bodies, are available on the NMDGF website at [www.wildlife.state.nm.us/conservation/habitat-information/habitat-handbook/](http://www.wildlife.state.nm.us/conservation/habitat-information/habitat-handbook/).*

A field fence will be installed around the East Headwall Impoundment.

New Mexico Office of the State Engineer Comments:

- 1) *On Page 3 of the Closure/Closeout Plan it indicates that 18 currently existing monitor wells that lie within the proposed footprint of the NLS will be plugged and abandoned. It then states that “the specific number, schedule, and location of the replacement wells will be determined in consultation with the NMED”. It should further state that the replacement of these wells will be in accordance with Article 72-12 NMSA and with all applicable OSE regulations regarding well replacement and construction.*

Chino appreciates your comment. Construction of any new wells associated with the NLS will be in accordance with applicable OSE regulations. Chino Mines has worked very closely with OSE and has followed OSE regulations in these instances. Chino will reference Article 72-12 NMSA in future discussions.

- 2) *On Page 7 of the Closure/Closeout Plan it states that “suitable soils for cover material will be salvaged from the footprint of the NLS extension area prior to the initial build-out of the stockpiles” with between 97,000 and 145,000 cubic yards potentially salvaged and stockpiled. However, no indication is given as to where this material will be stockpiled and how it will be stored to prevent excessive erosion of the material. This should be included in the Plan.*

It is difficult to accurately determine a practical location for salvaged topsoil prior to construction. Chino therefore proposed in the closure plan to provide a location of the topsoil stockpile to MMD as soon as it is available. Most likely the salvaged topsoil will be stockpiled close to the NLS. The salvaged topsoil will be placed at a secure location and placed at a slope angle no steeper than angle of repose. It is Chino’s experience, like on the Upper South reclamation stockpile, that volunteer plants will revegetate the salvaged topsoil stockpile.

- 3) *On Page 13 of the Closure/Closeout Plan it states that “run-on from the surrounding terrain and the NLS will be controlled by perimeter channels located around the NLS”. It goes on to say that “the channels will be designed to accommodate the peak discharge from the 100-year, 24-hour storm event”. It should be noted that storms of long duration tend to be less intense than storms of shorter duration. Weather station data for Fort Bayard shows the highest extreme daily precipitation amounts occur mostly in July through September which is the summer monsoon season, so large precipitation events therefore come most often in the form of one or more intense short-duration cloudbursts. It is important that the perimeter channels be designed to*

*accommodate the 100-year storm of whatever duration results in maximum runoff from the NLS. Therefore, it should not be restricted to the 100-year 24-hour storm event.*

The channels have been designed in accordance with the Copper Mine Rules (20.6.7.33.A NMAC) and the Mining Act Rule (19.10.5.508 NMAC) which also accounts for storm intensity.

*EMNED-Forestry Division Comment:*

*Thank you for giving me the opportunity to review and comment on the construction of the North Lampbright Stockpile New Unit and Expansion and the Extension of the Santa Rita Beneficiation Design Limit, Revision 16-1, at the Chino Mine, in Grant County, NM (Permit No. GR009RE). I do not anticipate any impacts to state listed endangered plants from the proposed construction of the stockpile, nor the expansion and extension of the design limit. With respect to the North Lampbright Waste Rock Stockpile Extension Closure/Closeout Plan, I am concerned about the use of non-native plant species in the proposed reclamation seed mix, specifically the use of white sweet clover (*Melilotus alba*) and smooth brome (*Bromus inermis*). These plants have shown to have a potential of spreading and invading rangelands and lowering native plant biodiversity. I highly recommend removing these introduced species from the reclamation seed mix. In addition, I recommend the development of a weed management plan to address the management and eradication of invasive species once reclamation has taken place.*

The plant species mentioned above and the species included in the CCP for the NLS are identical to those listed in the Chino Mining Act Permit GR009RE, Appendix C. Chino typically uses native species, although New Mexico mine regulation does allow for adapted non-native species. Prior to reclamation of any facility, Chino submits a seed mix to MMD for final approval.

*Department of Cultural Affairs Historic Preservation Division Comment:*

*According to our records, there are no cultural resources listed on either the National Register of Historic Places or the State Register of Cultural Properties within the proposed expansion and extension area. Furthermore, our records show that an archaeological survey was conducted in 1997 and although two archaeological sites were identified within the expansion area; both sites were determined ineligible for listing to the State or National Registers. Based on this information, the proposed project will have No Effect on Historic Properties and HPD has no concerns with the permit revision.*

Chino appreciates your comment and will comply with all standards as listed in the Cultural Properties Act, NMSA 1978, Section 18-6-1 to 27 and regulations promulgated pursuant thereto.

*Surface Water Quality Bureau Comment:*

*The proposed construction of the NLS intersects two ephemeral tributaries of Lampbright Draw (Tributary 1 and Tributary 2) which join the main Lampbright Draw, also ephemeral. Designated uses for ephemeral drainages include livestock watering, wildlife habitat, limited aquatic life and secondary human contact. Use-specific numeric criteria for water quality standard attainment are summarized in 20.6.4.900 NMAC.*

Chino Mine currently has National Pollutant Discharge Elimination System coverage under Multi-Sector General Permit #NMR053259, and the Surface Water Quality Bureau (SWQB) recently completed an inspection of the facility and Best Management Practices. The NLS would be included in the existing MSGP.

*The NLS will store mine rock with the potential to produce degraded quality water, according to characterization studies summarized in the permit application. At closure, the store-and-release cover design will likely mitigate any adverse impacts to surface water, assuming the Rubio Peak Conglomerate is an adequate growth medium to ensure vegetative growth on the reclaimed stockpile. However, during the operational period surface waters may become degraded via run-on of surface water interacting with the stored mine rock, precipitation run-off from the stored mine rock, or interaction of mine rock with ground-water and subsequent lateral movement and discharge of groundwater to the surface at topographic lows and drainages bottoms.*

*The proposed stormwater channels will divert surface flows around the NLS to prevent water quality degradation. Run-on flows on the north and northwest sides of the NLS will be directed into the mine, while flows on the northeast and east sides will be diverted and discharged into Tributary 2. While these stormwater controls appear adequate to prevent water quality degradation, the SWQB recommends monitoring of surface waters in Tributary 2 to verify that water quality is not being impacted by the NLS and meets current water quality standards.*

*Surface water quality testing in Tributary 2 was included in Discharge Permit 376 (DP-376) under the Lampbright Tributary 2 Corrective Action Completion Report and Administrative Compliance Order. However, the stormwater sampling was only required in September 2010. As DP-376 is modified to include the NLS, additional stormwater sampling in Tributary 2 should be included to verify that the NLS is not contributing to surface water quality degradation.*

Chino appreciates the historical background summarized in this comment. As noted, Discharge Permit (DP) 376 required surface water sampling in 2010 to confirm that standards have been met and complete the Lampbright Tributary 2 Corrective Action. The 2007 operational site corrective actions are in place to prevent any future releases into Tributary 2 from the Main Lampbright Stockpile operation, as documented in communications under DP-376. Chino has proposed as part of the NLS permit application a robust containment system that meets the Copper Rule design requirements, including a down gradient monitoring well used to measure ground water quality.

Ground Water Quality Bureau Comment:

*The CCP was submitted to the NMED Mining Environmental Compliance Section (MECS) as part of the Ground Water Discharge Permit modification application (application) for Discharge Permit 376 (DP-376) dated January 15, 2016 and supplemented with additional information on February 8, 2016. Technical review of the application pursuant to the Water Quality Act (WQA) and the Water Quality Control Commission (WQCC) Regulations, including the Copper Mine Rule (20.6.7 NMAC), is currently in progress. MECS expects to have comments based on technical review of the application and associated operational, monitoring and closure plans, including the CCP. As such, comments on the application and CCP will be submitted under separate letterhead directly to Freeport-McMoRan Chino Mines Company with copy to MMD.*

NMED Summary Comment:

*NMED finds that environmental standards will be met pending review of the CCP by MECS, and if the above comments are addressed.*

Determination:

*NMED is withholding issuance of the determination pending completion of technical review of the application and CCP associated with DP-376.*

Chino will respond directly to comments from the Ground Water Quality Bureau as part of Permit modification application (application) for Discharge Permit 376 (DP-376).

Air Quality Bureau Comment:

*The New Mexico Air Quality Bureau (AQB) has completed its review of the submittal from Freeport-McMoRan Chino Mines Company ("Chino") entitled, Freeport-McMoRan Chino Mines Company: Application To Revise Mining Permit GR009RE For North Lampbright Waste Rock Stockpile, dated January 19, 2016. Pursuant to the New Mexico Mining Act Rules, the AQB has the following comments:*

Air Quality Permitting History:

*Chino Mines has submitted an NSR Significant Revision application to revise their current construction permit, NSR Permit 0298-M7, to update operations at the Chino mine and the Cobre mine (Cobre) portions of the facility. The application file has been assigned Permit No. 0298- M8. The exact location of the facility is at latitude 32 degrees, 47 minutes, 0.94 seconds and longitude -108 degrees, 4 minutes, 9.1 seconds, Datum: WGS84; approximately 3.89 miles northeast of Bayard, NM in Grant County. The proposed modification will consist of increasing throughputs of copper ore and waste from the Chino and Cobre portions of the facility; expanding the Lampbright Stockpile area; adding a new waste stockpile ("NSPE Stockpile" a/k/a "NLS"); updating haul roads; updating Santa Rita Pit mining; and adding two new mining scenarios for Chino which are based on the NSPE stockpile. Mining scenario 1 represents filling the NSPE stockpile at maximum throughput and mining scenario 2 represents operation after NSPE stockpile is full. The use of two additional operating scenarios is proposed as this will allow Chino Mines to adjust the amount and type of emission control necessary based on the mining throughputs. The NMED has conducted a preliminary review of the information submitted with the permit application. The preliminary review and applicant's dispersion modeling analysis indicates that the facility's air emissions will meet the ambient air quality standards for NOx, CO, SO2, TSP, and PM10. A full review will evaluate the estimated emission rates and the air quality dispersion modeling analysis to determine compliance with ambient air standards. Based on the applicant's analysis, a preliminary determination is that this facility will comply with the requirements of Title 20, New Mexico Administrative Code (NMAC), Chapter 2, Parts 3, 7, 22, 61, 72, and 73; 40 CFR 50; 40 CFR 60 Subparts A, De, GG, and LL; 40 CFR 63 Subparts A, ZZZZ, and CCCCCC; and the New Mexico Air Quality Control Act. Therefore, the preliminary intent of NMED is to issue the air quality permit on or before July 12, 2016. This source is a PSD minor source according to 20.2.74 NMAC. To ensure compliance with state and federal air regulations, the permit is expected to include conditions that limit the emissions, hours of operation, production rate, and conditions that will require record keeping and reporting to the Department.*

Details:

*On January 25, 2016, the Mining and Minerals Division ("MMD") received an "Application to Revise Mining Permit GR009RE for North Lampbright Waste Rock Stockpile (NLS)" dated January 19, 2016 and the associated "North Lampbright Waste Rock Stockpile Extension Closure/Closeout Plan ('CCP')" dated January 15, 2016 from Chino. MMD is processing the application as Permit Revision 16-1 to Permit No. GR009RE. Chino proposes to expand the Santa Rita Beneficiation Design Limit (DL) by 273 acres and update the CCP in accordance with 19.10.5 NMAC. The proposed changes to the DL include increasing the DL by 200 acres north of the Main Lampbright Stockpile and an increase of 73 acres in the area proximal to Reservoir 6. The increase in DL north of the Main Lampbright Stockpile is to accommodate the proposed construction of the NLS. The NLS will be constructed from mine waste rock and thus will not be part of the leach system.*

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*The above is not intended to be an exhaustive list of all requirements that could apply. The applicant should be aware that this assessment does not supersede the requirements of any current federal or state air quality requirement. This written evaluation does not preclude the applicability of any forthcoming state or federal regulations. The AQB has no objection to the current request.*

Chino appreciates the AQB review of the NLS permit revision and CCP. Chino is working closely with AQB to revise NSR Permit 0298-M7.

Chino looks forward to meeting with MMD in the near future to address any further comments. Please contact me at (575) 912-5235 if you have additional questions concerning the NLS application.

Sincerely,

A handwritten signature in black ink that reads "Lynn A. Lande". The signature is written in a cursive style with a large initial "L".

Lynn A. Lande, Chief Environmental Engineer  
Environmental/Sustainable Development

LAL:rlm  
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Enclosures