



State of New Mexico
ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT
and the
ENVIRONMENT DEPARTMENT

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Electronic Transmission

December 4, 2020

Kariann Sokulsky, Chief Environmental Engineer
Freeport-McMoRan Chino Mines Company
P.O. Box 10
Bayard, NM 88023

**Re: Joint Agency Comments on Continental Mine Borrow Materials Investigation Update, MMD
No. GR002RE and NMED DP-1403**

Dear Ms. Sokulsky,

The Energy, Minerals and Natural Resources Department, Mining and Minerals Division (MMD) and the New Mexico Environment Department (NMED) reviewed the Freeport-McMoRan Chino Mines Company – Continental Mine (FMI Chino) – October 30, 2020 submittal of a work plan entitled *Continental Mine Borrow Materials Investigation Update* (Work Plan).

General Comments

1. Due to the shortage of Hanover Mountain Reclamation Cover material (HMRCM), the WP proposes a shift to the East Waste Rock Facility (East WRF). The agencies are concerned with this shift of dependency, for the bulk of cover material, to the East WRF. Previous evaluation of East WRF material has repeatedly failed to provide satisfactory results, when used in test plots. As indicated previously in joint agency letters for the Hanover Mountain test plot work plan in 11/12/2019 and restated the point in 2/10/2020 for the conditionally approved work plan:

“...If the test plots lack evidence of, or a trend towards successful establishment of vegetation based on plant density and percent cover after three growing seasons (fall of 2022) or later, the agencies will require additional test plots to evaluate modification of the Hanover Mountain RCM (HMRCM) textural characteristics and addition of organic amendments.”

Since the HMRCM will not be tested due to volume and textural limitations of the material, MMD and NMED (“the agencies”) require organic amendments and screening of other cover material to address textural issues for any subsequent test plots. Other materials should not be limited to East WRF material. Other materials might also include other stockpiled materials, or borrow materials, at the Continental Mine or Chino Mine.

2. Condition 8.M.3 of Mining Act Permit No. GR002RE required a Borrow Materials Investigation Work Plan to be submitted to the agencies that focused on determining the volume of available HMRCM and East WRF material compared to the total volume needed at closure. It is important to note that the agencies were on a trajectory to further evaluate the viability of the HMRCM through an approved test plot program. The borrow materials investigation was a component of the overall evaluation of available HMRCM. Given the significant deviation in plans to test the HMRCM, the agencies are unclear what FMI Chino envisions are next steps towards demonstrating that suitable reclamation cover materials are available onsite. These next steps likely include modifying and amending permit conditions that related to HMRCM test plots. It would be helpful for the agencies to better understand how the additional characterization of the East WRF material will be used to demonstrate that this material is potentially suitable for reclamation cover material. The East WRF material has been characterized in numerous studies over the years and test plots have been constructed from this material **with poor results**. A clear outline of next steps needs to be provided to the agencies with an estimated schedule of deliverables.
3. Given the approved Financial Assurance is based on use of HMRCM, the agencies will need to revisit the costs associated with reclamation cover material. Both the Mining Act permit and Discharge Permit (DP) 1403 will expire in 2023 and 2024, respectively. Permit renewal applications will need to be submitted in 2023 for both permits. Reevaluation of costs for viable reclamation cover material will need to be done at that time. In the interim, a separate agency letter responds to the recent 2020 appraisals for collateral properties, which are part of the approved Financial Assurance instruments.

Specific Comments on the Work Plan:

1. Introduction, Section 1.0. The Work Plan does include mention of the deliverable of an updated materials handling plan describing the proposed method for determining whether the selected

material is suitable for reclamation purposes as required by the MMD Permit Condition No. 8.M.3 of GR002RE.

2. Introduction, Section 1.0. The Work Plan does include mention of the deliverable of an updated volumetrics of cover material in the form of a mass balance of the volume of material available relative to the quantity required for reclamation. Provide a mass balance analysis of the volume of cover materials available relative to the quantity required for reclamation, as required by Condition 8.M.3 of Permit GR002RE, and identify the stockpiles that have viable cover materials with consideration for a percentage of material that would need to be rejected.
3. Section 2.0, Background. This section describes that the cover materials at the Continental Mine were previously evaluated in a series of reports ranging from 1999 to 2015. Provide an explanation why the results from this proposed sampling plan would differ from what was presented in previous reports.
4. Section 2.0, Background. Please provide the calculated water holding capacity as required by Section 20.6.7.33.F(2) NMAC.
5. Table 1. Analytical parameters. Add cation exchange capacity (CEC), sodium adsorption ratio (SAR), boron (B), iron (Fe), selenium (Se) and zinc (Zn).
6. Section 3.1, Figure 3. Figure 3 shows the proposed sampling locations of the test pits. Additional samples are proposed to be taken from only the larger lobe of the East Overburden Stockpile. Provide an explanation of how these locations were selected. Add sample locations from the two, smaller lobes of the East Overburden Stockpile.
7. Section 3.1 Field Methods. The Work Plan proposes to excavate 10 test pits with target depths of 10 feet below ground surface. One composite sample will be taken from each test pit representing material from the 0-10 ft strata. . Provide an estimate of how many subsamples will be collected for each composite sample.
8. Section 3.1. Provide an estimate of how many selected samples of the 10 test pits will have hydraulic sampling. Add samples at multiple depths within the test pits.
9. Section 3.1 Field Methods. This section describes collecting samples <75mm for the soil hydraulic characterization and "field volumetric estimates will be made of the oversize fraction". Using the cited rock fragment conversion factor (Cm) requires accurate measurements of the un-sieved material, not field estimates. Please explain how the volume of the un-sieved cover material (volume moist whole soil cm³) will be measured in the field and/or laboratory. Recent publications such as Arias et al., 2019, question the efficacy of the agricultural soil field methods to stony soils. Provide an estimate of the potential error introduced using the proposed method.

10. Section 3.2.2 Soil Hydraulic Testing. FMI-Chino proposes to calculate water holding capacity between the values of 100 centimeters (cm) and 15,000 cm based on a convention used for coarse textured agricultural soils. While 100 cm may be representative of field capacity for some coarse soils, FMI-Chino shall demonstrate that a value of 100 cm approximates field capacity for the HMRCM. A description of how this demonstration will be performed shall be provided in the final Work Plan. If a field capacity of 100 cm is not appropriate, FMI-Chino shall propose a more representative approximation of field capacity that is based on the site-specific data.
11. Table 3. The final report deliverable date should be April 23, 2021 instead of 2020.
12. Figure 3. Provide an estimate of losses of East WRF material due to contact with coarser HMRCM and provide a plan where the HMRCM material would be placed to access East WRF material, if this material is approved for reclamation.
13. References. A Golder report dated March 10, 2020, is cited in the text and references. This report includes HM cover material testing and was only submitted to the FMI-Chino. Provide a copy of this report to the agencies.
14. Will FMI Chino be looking at other candidate material to be used for borrow material testing, either at the Continental Mine or Chino Mine?

Please contact respective MMD and NMED permit leads Kevin Myers at 505-490-0726 and Anne Maurer at 505-660-8878 with any questions regarding permitting issues for the Continental Mine.

Sincerely,

Anne R. Maurer
Digitally signed
by Anne R.
Maurer
Date: 2020.12.04
11:30:24 -07'00'

Anne Maurer
Mining Environmental Compliance Section
Ground Water Quality Bureau - NMED



Kevin Myers
Mining Act Reclamation Program
Mining and Minerals Division-EMNRD

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