20140520-002

NEW MEXICO
ENVIRONMENT DEPARTMENT

Harold Runnels Building
1190 St. Francis Drive
P.O. Box 5469, Santa Fe, New Mexico 87502-5469
Phone (505) 827-2855 Fax (505) 827-2965
www.nmenv.state.nm.us

SUSANA MARTINEZ
Governor

JOHN A. SANCHEZ
Lieutenant Governor

RYAN FLYNN
Secretary

BUTCH TONGATE
Deputy Secretary

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

May 15, 2014

Ms. Sherry Burt-Kested, Manager
Environmental Services
Freeport-McMoRan Chino Mines Company
P.O. Box 10
Bayard, New Mexico 88023

RE: Comments on the Groundhog No. 5 Stockpile Draft Work Plan for Additional Characterization and Controls for the Hanover Creek and Whitewater Creeks Investigation Unit, Chino Administrative Order on Consent

Dear Ms. Burt-Kested:

The Ground Water Quality Bureau of the New Mexico Environment Department (NMED) has reviewed the Golder Associates (Golder) submittal titled, *Draft, Groundhog No. 5 Stockpile Interim Remedial Action Work Plan for Additional Characterization and Controls, Hanover and Whitewater Creek Investigation Units* (Work Plan) dated April 28, 2014. The Work Plan was prepared by Golder on behalf of Freeport McMoRan Copper & Gold, Chino Mines Company (Chino). The Work Plan was submitted in response to a letter dated March 12, 2014 in which NMED requested that Chino prepare a draft work plan to further characterize and monitor the Groundhog No. 5 Stockpile seepage water quality.

The Work Plan includes a proposal to construct a seepage collection trench along the toe of the stockpile. During a quarterly meeting on May 8, 2014 between representatives of the Mining and Minerals Division (MMD), Chino, and NMED, issues regarding the proposed seepage collection trench were discussed. Based on information provided during the discussion and information in the Work Plan, NMED hereby authorizes construction of the seepage collection trench. NMED shall be notified a minimum of three days before beginning construction of the seepage collection trench to allow NMED the option of being present during construction of the trench. Additional information is required prior to NMED approving the remainder of the work plan.

Comments and Request for Additional Information

1. The second paragraph in Section 2.0 includes a detailed description of the stockpile material and Hernon, R., et al (1964) are cited as the source of the information. The citation refers to a document titled *Geology of the Santa Rita Quadrangle*. Please clarify how a regional geologic quadrangle map would include detailed descriptions of stockpile material.

2. The second paragraph on Page 3 refers to a supplemental investigation conducted by Golder in 2006, and indicates that the results of this supplemental investigation confirmed the results of the 2005 site investigation report by Golder that the stockpile materials near the surface are not acid generating and the stockpile materials are not a significant source of leachable metals. A 2009 report by Golder titled *Administrative Order on Consent Site Investigation Report Addendum Groundhog No. 5 Stockpile Hanover and Whitewater Creeks Investigation Unit* concludes that stockpile materials near the re-graded surface are not acid generating and the stockpile materials are not a significant source of leachable metals. Based on this information, it is unclear to NMED if only the stockpile materials near the surface are not acid generating, or are these statements meant to imply that the entire stockpile is not acid generating. Additionally, it is not clear to NMED what is meant by the stockpile material not being a *significant* source of leachable metals. Please clarify.

3. Figure 3 is a diagrammatic cross section through the stockpile showing a conceptual model for water inflows and outflows for the area of Groundhog No. 5. The cross section uses blue arrows to show that precipitation falling on the stockpile infiltrates to the base of the stockpile and flows along the top of the underlying colluvium where it exits at the toe of the stockpile. However, the third paragraph of Section 3.0 indicates that infiltration into the stockpile that reaches a depth below the influence of evaporation will migrate downward to the colluvium and either flow along the top of the colluvium, along the colluvium-bedrock contact, or downward into the regional groundwater in the bedrock. Please clarify why the diagrammatic cross section shows water that infiltrates into the stockpile flows along the stockpile-colluvium contact, but the text indicates this is likely not the case. Additionally, please discuss the possibility that the reason monitoring well GH-97-04 often contains very little or no water is because water that infiltrates into the stockpile may be migrating downward through the colluvium into the regional water table.

4. The third paragraph in Section 3.0 indicates that up-gradient surface water has been diverted around the stockpile in diversion ditches constructed during re-grading of the stockpile in 2006, and the only known inflow of water to the stockpile is incident precipitation. Figure 2 shows that the diversion ditches are immediately adjacent to the

stockpile and Figure 3 indicates that the diversion ditches were excavated into colluvium, with stockpile material exposed on the inner wall of the diversion ditches. In addition to the Work Plan indicating water may be infiltrating through the stockpile and colluvium to regional groundwater in the bedrock (see Comment 3 above), descriptions of material encountered in the test pit logs from previous reports indicate the stockpile and colluvium are likely highly permeable. As such, it is NMED's opinion that water from the diversion ditches is likely infiltrating into the stockpile, contrary to Section 3.0 indicating the only known inflow of water to the stockpile is incident precipitation. Please discuss.

5. Section 4.0 of the Work Plan indicates that additional surface water drainage channels are in the process of being constructed at the top of the stockpile where the surface gradient is shallow to shed incident precipitation more quickly during rainfall events, and the channels will be *field fit*. The Work Plan does not indicate that the top surface will be re-graded to direct surface flows to the channels. It is not clear to NMED how the channels will collect water from the top surface if the top surface is not regarded to direct runoff to the channels. Please discuss. Additionally, if the channels are going to be *field fit*, please indicate at what gradient the channels will be constructed and discuss what measures will be taken to insure that the gradient of the channels will be adequate to minimize infiltration of water into the stockpile. It has been NMED's experience that top surface channels can be a significant source of infiltration.

6. Section 5.0 indicates that once samples are collected from the proposed seepage collection trench, a geochemical model will be developed to evaluate the relationship of the stockpile on the final water quality at the toe of the stockpile, using a simple mass balance and mass loading model, and estimates of infiltration through the stockpile will be made based on the quantity of water reporting to the seepage collection trench. It is not clear to NMED how the results of the model will be applied and what variables will be introduced into the model, such as the likely possibility that water from the diversion ditches infiltrates into the stockpile and colluvium, and water in the stockpile may infiltrate through the stockpile into the underlying regional groundwater. Please discuss these issues and provide additional information regarding the model and how it will be applied to the Groundhog No. 5 stockpile.

7. Figure 2 (topographic map) does not include a scale. Any maps or aerial photos submitted to NMED should have appropriate scales included with them.

8. Figure 4 is an aerial photograph showing the location of the proposed collection trench. Based on the photo, it is not clear to NMED if the proposed collection trench will extend across the entire toe of the stockpile, including the west end of the stockpile. Please indicate if the proposed seepage collection trench will extend across the entire toe of the stockpile, and if not, the reason why it will not.

If you have any questions, please contact me at (575)-956-1550.

Sincerely,

Matt Schultz, Chino AOC Project Manager
Mining Environmental Compliance Section
Ground Water Quality Bureau
New Mexico Environment Department
Silver City Field Office

cc: Petra Sanchez, USEPA (via email)
Kurt Vollbrecht, NMED (via email)
Brad Reid, NMED (via email)
Joseph Fox, NMED (via email
Jerry Schoeppner, NMED (via email)
Chris Eustice, MMD (via email)
Holland Shepard, MMD (via email)
Ned Hall, Freeport-McMoRan Copper & Gold (via email)
Pam Pinson, Freeport-McMoRan Chino Mines Company (via email)