

**STATE OF NEW MEXICO  
WATER QUALITY CONTROL COMMISSION**

**IN THE MATTER OF:** )  
 )  
**PETITION FOR VARIANCE FOR** )  
**THE LEE HILL LEACH STOCKPILE,** )  
 )  
**FREEPORT-MCMORAN** )  
**CHINO MINES COMPANY,** )  
 )  
**Petitioner.** )  
\_\_\_\_\_ )

**WQCC 12-05 (V)**



**NEW MEXICO ENVIRONMENT DEPARTMENT'S  
RESPONSE TO VARIANCE PETITION**

Pursuant to the Adjudicatory Procedures of the New Mexico Water Quality Control Commission (“Commission”), 20.1.3.18.A(3) NMAC, the New Mexico Environment Department (“Department”) hereby submits its Response to Variance Petition (“Response”), in response to the Petition for Variance, WQCC Regulations 20.6.2.3109.C and 20.6.2.3109.H(3) NMAC Lee Hill Leach Stockpile (“Petition”), filed by the Petitioner, Freeport-McMoRan Chino Mines Company. (“Chino”) on June 12, 2012. The Department does not object to the Petition, and recommends that the Commission grant the Petition with conditions.

**I. BACKGROUND**

Chino operates a porphyry open-pit copper mine and processing facility in Hurley, New Mexico, approximately fifteen miles east of Silver City. One of the two methods of ore beneficiation used at Chino to recover copper is leaching. An acidic leach solution (raffinate) is applied to the tops of leach ore stockpiles. The raffinate leaches copper from the ore as it moves through the stockpiles. Following passage through the leach ore stockpiles the pregnant leach solution (PLS) is collected at the toe of the stockpile for further processing. The PLS is processed in a solution

extraction/electrowinning (SX/EW) facility to produce copper cathodes.

At a hearing before the Water Quality Control Commission (WQCC) on May 23, 2007, the WQCC approved, with conditions recommended by the Department, a Petition for Variance for the Lee Hill Leach Stockpile submitted by Chino. That variance became effective on June 12, 2007 and was valid for a period of five years. Further, the Department issued discharge permit 1568 (DP-1568) on September 17, 2007 which incorporated the conditions of the variance. Chino is seeking renewal of DP-1568, and in order to do so must also seek renewal of the variance for the Lee Hill Leach Stockpile.

On June 12, 2012, Chino submitted a Petition for Variance pursuant to the Water Quality Act (“WQA”), NMSA 1978, § 74-6-4(G), and Water Quality Control Commission Regulations (“WQCC Regulations”), 20.6.2.1210 NMAC. Chino requests a variance from the requirements of section 20.6.2.3109.C(1) and (2) NMAC and 20.6.2.3109.H(3) NMAC for proposed leaching and stockpiling operations at the Lee Hill site within the Santa Rita Pit at the Chino Mine site (“Lee Hill”). Section 20.6.2.1210 NMAC permits a variance from requirements of WQA and WQCC Regulations if a discharger shows the requirements impose an “unreasonable burden” on the discharger’s activities.

The Department has determined that the ground water within the Santa Rita Pit is protected under the WQA and the WQCC Regulations, 20.6.2 NMAC, and specifically that the ground water represents a place of withdrawal of water for present and reasonably foreseeable future use under section 74-6-5(E)(3) of the WQA. Therefore, any discharge to the ground water in this area requires a discharge permit under WQCC Regulations, and the discharge permit must meet all requirements for approval of such a permit pursuant to section 20.6.2.3109 NMAC.

Chino requests to vary from section 20.6.2.3109(C) NMAC, which provides:

Provided that the other requirements of this part are met and the proposed discharge plan, modification or renewal demonstrates that neither a hazard to public health nor undue risk to property will result, the secretary shall approve the proposed discharge plan, modification or renewal if the following requirements are met:

(1) groundwater that has a TDS [total dissolved solids] concentration of 10,000 mg/l [milligrams per liter] or less will not be affected by the discharge, or

(2) the person proposing the discharge demonstrates that the approval of the discharge plan, modification or renewal will not result in concentrations in excess of the standards of 20.6.2.3103 NMAC or the presence of any toxic pollutant at any place of withdrawal of water for present or reasonably foreseeable future use, except for contaminants in the water diverted as provided in Subsection D of 20.6.2.3109 NMAC, or

(3) the proposed discharge plan conforms to either Subparagraph (a) or (b) below and Subparagraph (c) below:...

The Department has determined that Chino must seek a variance from the requirements of section 20.6.2.3109.C(1) and (2) NMAC because ground water within the Santa Rita Pit has a concentration of 10,000 mg/l or less and the discharge from Lee Hill operations will result in concentrations in ground water in excess of ground water quality standards of Section 20.6.2.3103 NMAC.

Chino also requests a variance from the application of Section 20.6.2.3109.H(3) NMAC, which prohibits the Department Secretary from approving a “discharge of any water contaminant which may result in a hazard to public health . . . .” A “hazard to public health” is defined in section 20.6.2.7.AA NMAC as existing when:

. . . .water which is used or is reasonable expected to be used in the future as a human drinking water supply exceeds at the time and place of such use, one or more of the numerical standards of Subsection A of 20.6.2.3103 NMAC, or the naturally occurring concentrations, whichever is higher, or if any toxic pollutant affecting human health is present in the water . . . .

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1 This paragraph identifies three alternative criteria for approval of a discharge plan. The Department has determined that Chino would not meet the requirements of either subparagraphs (1) or (2), and that subparagraph (3) is not applicable to the Lee Hill operations.

The Department has determined that Chino must seek a variance from the requirements of section 20.6.2.3109.H(3) because the discharge from Lee Hill will result in concentrations of water contaminants in ground water in excess of the human-health based ground water quality standards of section 20.6.2.3103.A NMAC.

Section 20.1.3.300.B NMAC requires the Department to review a petition for variance within 60 days after receipt and file a recommendation with the Commission to grant, grant with conditions, or deny the petition. The Department recommends granting Chino's Petition for Variance with conditions. If the Department recommends granting a variance, the Commission must hold a public hearing on whether to grant the variance.

## **II. RECCOMENDATION**

The Department recommends that the Commission grant the variance from sections 20.6.2.3109.C and 20.6.2.3109.H NMAC for the construction and operation of the Lee Hill Leach Stockpile in the Santa Rita Pit, subject to the conditions set forth in Section III below.

## **III. CONDITIONS**

Any variance granted by the Commission should be subject to the following conditions, some of which are required by the WQA and the regulations:

1. Preliminarily, the Commission must find that the requirements of the regulations would place an "undue burden" on Chino if the variance is not granted. NMSA 1978 § 74-6-4(H).
2. The variance is applicable only to the Lee Hill facility and the effects the Lee Hill facility will have on ground water within the confines of the hydrologic sink of the Santa Rita Pit as indicated in Figure 3 of the Petition.

3. Chino must conduct all operations and activities in accordance with discharge permit 1568 (DP-1568) as approved by the Department.

3. Chino must monitor ground water impacts related to the waste rock storage and leaching operations at the Lee Hill facility.

4. With the exception of lining the Lee Hill Stockpile, Chino must take all reasonable and technologically possible pollution prevention measures possible to limit other sources of ground water contamination from the Lee Hill operations including but not limited to: (a) synthetically lining collection ponds, sumps and pumping stations, and (b) installing high density polyethylene pipelines and lined collection tunnels for conveyance of water contaminants generated.

5. Upon completion of mining operations, Chino shall abate water pollution in the Santa Rita Pit in accordance with the Commission's pollution abatement regulations in section 20.6.2.4000 to 20.6.2.4115 NMAC.

6. Chino must comply with any applicable closure and financial assurance requirements required under Chino's Supplemental Discharge Permit for Closure, DP-1340, which includes DP-1568.

#### **IV. REASONS**

In general, the Department believes that a variance from the WQCC Regulations should be allowed sparingly, and only in a unique set of circumstances where the goals of the WQA are not undermined. A variance should not be granted, for example, simply because it is more expensive for a discharger to comply with the WQCC Regulations than not to comply. It is often the case that compliance with environmental regulations is more expensive than not complying with such regulations. Expense alone, even substantial expense, does not justify not complying with WQCC

regulations designed for protection of New Mexico's limited ground water resources. Moreover, granting a variance based on expense alone would result in an unfair playing field for other operators in the industry who have complied with WQCC regulations, paid the costs for compliance, and built those costs into their operations (and the price ultimately paid by the consumer). In this case, the leaching and stockpiling activities at Lee Hill represent a unique set of circumstances which support the unusual action of allowing a variance.

The Department submits the following reasons for recommending that the Commission grant the variance with the conditions set forth in Section III above.

**1. *Hydrogeology***

The Lee Hill location is within a unique hydrogeological feature, a passive hydrologic sink, which will limit and constrain the contamination of ground water. Based on the extensive fracture network and sub-pit elevations, the area that would be affected by discharges at the Lee Hill stockpile would include the Lee Hill, Estrella, and East sub-pits within the Santa Rita Pit. The current Santa Rita pit exposes rock below the ground water table such that ground water is discharging within the pit. In this area ground water flow converges radially toward the exposed pit walls around the circumference of the pit and forms a seepage face whereby water is then transmitted by gravity to the bottom of the pit. In addition, the extreme hydraulic head created by the depth of the open pit also causes ground water to discharge vertically upward through the bottom of the pit. The unique effects of this hydrogeology is that the large hydraulic discontinuity created by the Santa Rita Pit passively collects water as a hydrologic sink, and that ground water is naturally contained without pumping or other measures. Therefore, the upward hydraulic gradient and hydrologic sink should limit the affected area to within the Santa Rita Pit and below the elevation of approximately

6040 feet above mean sea level (the approximate elevation of the seepage face) and inclusive of the Land Bridge Area within the Santa Rita Pit. Chino has represented the area potentially affected in Figure 4 of the Petition. The hydrologic sink will capture and contain the contaminants resulting from the Lee Hill operations.

## **2. *Technical Infeasibility***

During operations, compliance with the applicable ground water quality standards for the affected area is not feasible by the maximum use of technology. As Chino's Petition describes, Lee Hill is within the Santa Rita Pit. The irregular and sometimes unstable surfaces of the pit wall render placement of synthetic liners at best ineffective and at worst technically infeasible. At the bottom of the sub-pit area, a partial liner will be limited in its effectiveness because of the difficulty to connect with the existing Lee Hill waste rock pile and its existing liner system. Further, the upward vertical gradient causes inflow of ground water which would put pressure on any liner system, such that it may partially float a liner in the bottom of the Lee Hill sub-pit during or after installation thereby damaging the integrity of the liner. The pit walls will also unravel over time and would further puncture and abrade any liner or bedding system for a liner, again compromising the integrity of the liner. Other technologies, such as grouting, would also be ineffective given the extensive fracture systems that exist within the Santa Rita Pit.

## **3. *Extent of Disturbance***

Locating the leaching and stockpiling operations at Lee Hill will limit the footprint of the mining operations to an area whose ground water is already heavily impacted. The potential contaminants from the discharge from Lee Hill include lead, chromium, cadmium, fluoride, aluminum, cobalt, copper, iron, manganese, nickel, sulfate, TDS, zinc, and low pH. The discharge

from Lee Hill will result in leachate that will exceed section 20.6.2.3103 NMAC numerical standards and will greatly exceed existing water quality.

The pit wall configuration in the Santa Rita pit is not uniform, and therefore some ground water along the pit margins will be impacted by leachate from Lee Hill before the ground water reports to the Lee Hill, Estrella, or East sub-pits. In addition, migration of water contaminants from leaching operations in Lee Hill will likely flow into the Land Bridge between the Lee Hill sub-pit and the East and Estrella sub-pits due to the elevation differences between the sub-pits. The ground water beneath the Land Bridge will also likely be impacted. While Chino will use pollution prevention measures such as synthetically lined collection ponds, booster stations, high density polyethylene pipelines and lined collection tunnels, these measures will not eliminate or prevent all ground water pollution.

These potentially impacted areas do contain ground water with a TDS concentration of less than 10,000 mg/l. However, significant portions of ground water in the pit are already contaminated by a variety of operational mining activities from both before and after the promulgation of section 20.6.2 NMAC and also by ground water naturally coming in contact with subsurface ores. The current ground water quality in the area to be affected by the discharge at Lee Hill varies from under 1,000 to over 70,000 mg/l TDS.

As the ground water within the Santa Rita Pit is already heavily impacted by many years of mining and by natural conditions, waste rock storage and leaching operations at the proposed Lee Hill facility would ensure that water contaminants remain in already impacted areas. Establishing a new leaching and stockpile operation in undisturbed new surface areas would present a greater risk to ground water than in areas already impacted.

#### **4. *Limited Stockpile Capacity***

Chino represents that its mining operations may have to cease unless a variance is granted. According to Chino, its operations may have to cease if the variance for the Lee Hill operations is not granted. While the Department does not have the expertise to fully evaluate this representation, stoppage of mining operations at Chino would impose an “unreasonable burden” on Chino itself as well as have a substantial adverse affect on the local economy. The Department has not received any discharge permit applications from Chino for an alternative leaching and stockpile operation, but the time necessary for permitting of a new leach facility on undisturbed ground would likely exceed the time, as represented by Chino, that current leach capacity will be exceeded.

#### **5. *Compliance with Other Requirements***

Chino will comply with other requirements of a discharge permit. Although Chino will not be required to meet water quality standards at Lee Hill during operations, Chino will be required to comply with other requirements of a discharge permit in its discharge permit 1568. These other requirements include:

a. Taking certain operational measures that would reduce the contamination where technologically feasible and practical such as lining the collection sump in Estrella pit and any new booster pumping stations;

b. Undertaking monitoring and reporting requirements;

c. Implementing contingency plan requirements;

d. Complying with the abatement requirements required by 20.6.2.4000 to 20.6.2.4115 NMAC; and

e. Complying with all applicable closure and financial assurance requirements, as

required under Chino's Supplemental Discharge Permit for Closure, DP-1340, which will include DP-1568 upon renewal.

While ground water quality standards would not have to be met during operations, the Department would nonetheless require monitoring and reporting of ground water quality. Monitoring would provide the Department with information on the effects of the Lee Hill operations on ground water, which the Department would use to ensure that the provisions of the variance and DP-1568 are met, and to evaluate any future petition for variance for Lee Hill. The variance may last only five years, and must be renewed with the Commission after that time period.

#### **6. *Abatement of Pollution***

Chino will be required to abate water pollution consistent with Sections 20.6.2.4000 to 20.6.2.4115 NMAC. Section 74-6-4(G) of the Water Quality Act provides that the Commission "may only grant a variance conditioned upon a person effecting a particular abatement of water pollution within a reasonable period of time." Chino will be required to abate the water pollution resulting from the Lee Hill operations in accordance with the Commission's abatement regulations.

### **V. RESERVATION OF RIGHTS**

Nothing in this Response shall be construed to infer that groundwater affected by the proposed discharge is not located at a "place of withdrawal of water for present or reasonably foreseeable future use" based upon an interpretation of the WQA, the WQCC Regulations, and the decision in *Phelps Dodge Tyrone, Inc. v. Water Quality Control Commission*, 2006 NMCA 115, 143 P.3d 502 (Ct. App. 2006). Further, the Department does not intend statements made in this Response to be, nor shall they be construed as, a waiver of the Department's position in any proceedings related to a determination of groundwater having a "place of withdrawal of water for

present or reasonably foreseeable future use” and no parts of this Response shall be used in a manner inconsistent with the Department’s reservation of rights.

**VI. CONCLUSION**

For the foregoing reasons, the Department recommends that the Commission grant the variance subject to the conditions set forth in Section III.

Respectfully submitted,

NEW MEXICO ENVIRONMENT DEPARTMENT

Dated: August 13, 2012



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CERTIFICATE OF SERVICE

I hereby certify that on this 13th day of August, 2011, a copy of the foregoing New Mexico Environment Department's Response to Variance Petition was served by electronic and first class mail on the following:

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