

	)	
<b>In the Matter of:</b>	)	
	)	
	)	
<b>PROPOSED AMENDMENT</b>	)	<b>No. WQCC 12-01(R)</b>
<b>TO 20.6.2 NMAC (Copper Rule)</b>	)	
	)	
	)	

My name is Lynn Lande, and I am the [Chief Environmental Engineer] for Freeport-McMoRan Chino Mines Company. I am presenting this written rebuttal testimony on behalf of Freeport regarding the Petition to Adopt 20.6.7 and Request for Hearing filed by the New Mexico Environment Department (“NMED”) on October 30, 2012 and the Amended Petition filed by the Department on February 18, 2013, which propose new rules for copper mines (“Proposed Rule”). My experience and qualifications are presented in my written direct testimony previously filed in this matter.

I have the following comment and testimony regarding the addition of paragraph (5) to subsection A of Section 20.6.7.24 NMAC. This is a new paragraph that is not well-explained by the Department's direct testimony and could have unintended consequences. In particular, there is an environmental preference to locate leach stockpiles and waste stockpiles within the open pit surface drainage area when practicable to take advantage of the capture and containment provided by the open pit and to take advantage of opportunities to place stockpiles in areas already disturbed by mining, rather than disturbing new areas. Other business factors are

considered by a mine operator, including whether placement of a stockpile within the open pit area would restrict access to mine ore and the haul distance to alternative stockpile locations.

The “open pit surface drainage area” is defined as “the area in which stormwater drains into an open pit and cannot feasibly be diverted outside the pit perimeter, and the underlying ground water is hydrologically contained by pumping or evaporation of water from the open pit.” Consequently, a stockpile placed inside this area, by definition, would not drain away from the open pit surface drainage area, as specified in the new paragraph (5). Consequently, the language proposed by the Department for this paragraph conflicts with the definition.

If a stockpile is located within an open pit and ultimately rises to an elevation above the pit rim, then it would be feasible at that point to grade the top surface of the stockpile to drain away from the open pit surface drainage area. This is a reasonable approach, and an operator would have an incentive to grade the top surface to drain away from the open pit to reduce the volume of water collected in the open pit and that may have to be pumped out and possibly treated. In effect, this approach would modify the “open pit surface drainage area” as defined in the Proposed Rule.

Freeport is concerned that paragraph (5), as drafted, could be interpreted to require stockpiles located within the open pit surface drainage area at a high elevation to allow for drainage away from the open pit, even if other factors would require the stockpile to be placed lower within the open pit surface drainage area. In some instances, paragraph (5) might even be interpreted to require a portion of a stockpile to be located outside of the open pit surface drainage area, and the resulting capture area, to meet the requirements. For these reasons, Freeport opposes the Commission’s adoption of paragraph (5) of subsection A, Section 20.6.7.24.A NMAC.

For the reasons explained in Mr. Blandford's rebuttal testimony, Freeport also opposes the Commission's adoption of all of the Department's proposed changes to subsections H and I of Section 20.6.7.28 NMAC. Subsection H allows a permittee to request a reduction of the sampling frequency for particular analytes for an existing copper mine facility. The preceding subsection G states that, for existing facilities, sampling shall include the analytes specified in an existing discharge permit at the frequency specified in the permit. Under subsection H, the only basis identified for a reduction in analytes or frequency is a showing that the analyte is not present or could not be generated from the unit being monitored. There are other reasons that may justify a reduction in analytes or monitoring frequency for particular analytes. For example, concentrations of some analytes may be very closely correlated, such that monitoring for one analyte would indicate whether concentrations of other analytes have changed. Concentrations of an analyte may be very stable over time such that a reduction of frequency may be warranted. Limiting a request for a reduction to the permit renewal period also may be unduly limiting. While the list of analytes to be monitored and their frequency needs to be sufficient to detect changes in conditions, collection of too much data not only wastes time and money but can complicate analysis of the data. To address these concerns, Freeport proposes the addition of the following sentence to subsection H: "A permittee also may request approval from the department to reduce the sampling frequency of an individual analyte if it has not been detected in a particularly monitoring well, is consistently below the applicable standard, or is stable and predictable for eight consecutive quarters."

Subsection I appears to require quarterly sampling, without provision for a reduction in analytes or frequency, and appears to allow consideration only of the geochemical characteristics of the solution or material contained in the unit to be monitored, as well as the specified field

parameters. This subsection as proposed in the Amended Petition does not account for the other considerations discussed above. To address these concerns, Freeport recommends the addition of a two new sentences at the end of Subsection I that read: “The proposed list shall be sufficiently complete to identify changes in water quality through time through representative analytes, but need not include every possible analyte. After a period of at least eight quarters of monitoring following operation of the facility being monitored, a permittee may request a reduction in the analyte list or the frequency of monitoring of an individual analyte for the reasons stated in subsection H of this section.”

## **II. REBUTTAL TESTIMONY IN RESPONSE TO WRITTEN DIRECT TESTIMONY OF MS. CONNIE TRAVERS**

On page 3 of Ms. Travers’ testimony she asserts that prevention of contamination is more efficient than remediation, citing the need to manage remediation systems for generations, “essentially in perpetuity.” Ms. Travers’ testimony does not give specific examples or calculations to support this assertion. The Proposed Rule requires a comprehensive closure plan that includes measures such as the installation of covers to reduce infiltration of precipitation through materials that can produce leachate. These measures, along with natural weathering of exposed pit walls, can be expected to result in decreased discharges of leachate and improvements in water quality over time. There is not a sufficient history of experience with these reclamation measures to produce sufficient data to demonstrate how quickly these changes will occur, but as a geologist, I know these processes occur over time, so it is speculative, in my opinion, to assert that pump and treat systems at closed mines will have to be managed and operated “essentially in perpetuity.” I believe that the goal of zero environmental risk is not achievable under any circumstances. The Copper Rule is a serious proposal that balances environmental risk in the pursuit for reasonable natural resource and economic development.

As discussed in my written direct testimony, it is not practicable to eliminate all ground water impacts from a large copper mine. Consequently, when there is no feasible means of preventing ground water impacts, there is not a choice between prevention and remediation.

On page 8 of her testimony, Ms. Travers asserts that plumes of contaminated ground water emanate from open pit areas at the existing copper mines. Although there is evidence of ground water impacts from leach stockpiles and some historic waste rock stockpiles outside of the area of hydrologic containment provided by the open pits, there is no evidence of any plumes of contaminated ground water migrating from the open pits. In fact, as discussed in Mr. Blandford's testimony and elsewhere, the evidence demonstrates that any contaminated ground water within the hydrologic capture zones of the open pits migrates toward and into the open pits.

On page 9 of her testimony, Ms. Travers states that, as a result of the Proposed Rule language allowing an alternative design that varies from the specific engineered liner system requirements for leach stockpiles, a liner would not be required and operations would be subject only to open pit capture systems. This statement is speculative regarding the potential for alternative liner systems and solution capture systems that a permit applicant might propose and the department might accept. For example, even within the open pit area, a permit applicant has an economic incentive to capture copper-containing leach solutions and minimize to the extent practicable the commingling of these copper solutions with ground water that enters the pit. These matters are always considered in the design and operation of in-pit leach collection systems.

On page 12 of her testimony, Ms. Travers discusses how the "point of compliance" approach of the Proposed Rule compares with other states, suggesting that Montana has more

rigid requirements. I have reviewed the Montana regulations regarding the allowance of mixing zones that can be approved for mines, and I believe that the requirements of the Proposed Rule compares favorably to the Montana requirements with respect to protection of ground water. For example, section 17.30.502 of the Montana regulations defines a “mixing zone” to include - a portion of an aquifer where initial dilution of a discharge takes place, where water quality changes may occur, and where certain water quality standards may be exceeded. The limitations on mixing zones in section 17.30.508 provide that human health-based ground water standards must not be exceeded “beyond the boundaries of the mixing zone” and that a mixing zone is not allowed if the zone of influence of an existing drinking water supply well will intercept the mixing zone. The combination of several requirements in the Proposed Rule, including the requirements for monitoring well locations, the setback provisions, and the limitation on issuing a discharge permit if there would be a “hazard to public health,” ensure that the Proposed Rule is at least as protective of ground water and drinking water supplies as the mixing rule provisions used in Montana.

On page 13, Ms. Travers criticizes the guidance for location of monitoring wells in the Proposed Rule. The existing Commission rules provide virtually no guidance on where monitoring wells should be located, so the Proposed Rule certainly compares favorably with the existing Commission rules. A review of the mining laws and regulations in neighboring states, Arizona, Colorado and Nevada, indicates that there is very little specific guidance, and broad agency discretion, to determine monitoring well locations. The Proposed Rule contains the most specific and detailed guidance on monitoring well locations, as well as other specific requirements for monitoring wells, compared to any other states’ mining laws and regulations that I could locate.

I do not agree with Ms. Travers' testimony on page 15 interpreting the Proposed Rule as it applies to "flow-through pits." I would note that the Department's amended petition proposes changes to the applicable provision, 20.6.7.33.D(2) NMAC. The amended language states that if a potential discharge from such an open pit could cause an exceedance of standards at monitoring well locations specified by the Proposed Rule, then the permittee must either meet ground water standards within the pit or pump water from the open pit to maintain hydrologic containment. While I do not agree with Ms. Travers' interpretation of the language proposed with the October 30, 2012 Petition, the Department's revised language should address any concern.

### **III. REBUTTAL TESTIMONY IN RESPONSE TO WRITTEN DIRECT TESTIMONY OF MR. JAMES KUIPERS**

On page 4 of his testimony, Mr. Kuipers proposes that process water should be defined to include "seepage" and intercepted ground water. Mr. Kuipers testimony provides little explanation for this proposed change, and his testimony does not define either "seepage" or "intercepted ground water." In its Amended Petition, the Department proposes to define "seepage," but does not include this term in the definition of "process water."

As suggested by the Department's definition of seepage, it can come from multiple sources. In some instances, such as a waste rock stockpile, "seepage" may be associated with, and may appear only during and shortly after, precipitation events. In such case, "seepage" would more likely fit the definition of "stormwater." Consequently, it would not be appropriate to define all "seepage" as "process water."

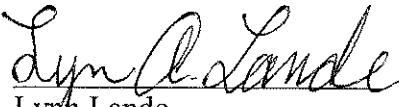
Moreover, the Department's definition of "seepage" includes seepage that is discharged from a waste rock stockpile or tailing impoundment, and the definition of "process water," unchanged from the Department's original petition, already includes "leachate collected from

waste rock stockpiles, leach stockpiles and tailings impoundments” as well as “intercepted ground water.” In order to fall within the definition of “process water,” however, the water must contain contaminants in excess of the standards of 20.6.2.3103 NMAC. Based upon the definitions as proposed by the Department, I see no reason to make the changes proposed by Mr. Kuipers.

On pages 6-7 of his testimony, Mr. Kuipers asserts that the engineering requirements for waste rock stockpiles contained in the August 17 discussion draft, including mandatory liner requirements, was based in part on the “state of the art” as reflected by other regulations, citing generally to Arizona, Nevada and BLM. I could find no specific requirements to line waste rock stockpiles in regulations or guidance utilized in Arizona, Nevada or the BLM. As discussed in Mr. Grass’s direct testimony, the lining of waste rock stockpiles is not industry practice and is not specifically required in other U.S. jurisdictions. Nevertheless, the Proposed Rule, while requiring measures other than liners as standard practice, still states that the Department can propose permit conditions requiring lining of a waste rock stockpile as an “additional condition” reflecting site-specific circumstances.

V. **CONCLUSION**

In conclusion, I urge the Commission to reject the changes to the Proposed Rule advocated by Ms. Travers and Mr. Kuipers on the point discussed above. I also request that the Commission consider the proposed changes to the Proposed Rule as contained in the Department’s Amended Petition discussed in my rebuttal testimony. This concludes my written rebuttal testimony.

  
Lynn Lande