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February 16, 2022

Brad Reid
Ground Water Quality Bureau
New Mexico Environment Department
PO Box 5469
Santa Fe, NM 87502-5469

RE: Comments on Draft Discharge Permit Renewal and Modification, DP-1236, Little Rock Mine, Freeport-McMoRan Tyrone Inc.

Dear Mr. Reid:

Please find below our public comments on the draft discharge permit renewal and modification for DP-1236 for the Little Rock Mine. Our technical consultant, Jim Kuipers, has prepared these comments on behalf of GRIP.

1) Cover Letter item 6 Condition C110.D.1

The reason for this condition is to ensure adequate financial assurance is in place for post closure monitoring. The time frame that post-closure monitoring may be required is uncertain. Providing financial assurance for 100 years of post-closure monitoring provides certainty for the State that FA will be in place for as long as monitoring is necessary.

C110.D.1 *The permittee shall perform post-closure monitoring until NMED determines that post-closure monitoring is no longer required. The financial assurance described in C111 shall provide for a minimum of 100 years of post-closure monitoring.*

Comments: The following clarifications are recommended:

1. Modify the first sentence to add "... is in place for post closure monitoring *in the event the owner is no longer present to perform those activities.*" The owner ideally will continue to perform and pay for post-closure monitoring. Financial assurance is just a contingency for if or when they cease to do so.
2. Modify the second sentence "... will be in place for 100 years *if the required tasks and financial factors are as predicted in the financial assurance cost estimate.* There is no

assurance that the amount of financial assurance will be adequate for 100 years, and the amount of financial assurance is not adequate “for as long as monitoring is necessary” as that could be for hundreds of years. In order to capture 98% of what might be needed in the long term, NMED should base the financial assurance on the assumption of 500 years in duration as the U.S. Bureau of Land Management does in similar cases.

2) C100 Little Rock Open Pit

C. The permittee shall review and reevaluate or calibrate the existing geochemical model as necessary using available data to determine if applicable standards will be met at closure. The results of the existing pit lake model review shall be provided with the application for renewal of DP-1236.

Comments: The requirements for a geochemical model do not address the need to carry the model out until it reaches geochemical equilibrium (e.g., water quality reaches steady state). As the pit lake is expected to be a terminal sink, over time evapo-concentration will almost certainly result in increasing concentrations of metals and other contaminants of concern, and therefore it may be centuries or longer before the pit lake reaches geochemical equilibrium, if it ever does. The requirements need to address the following:

1. When does “closure” occur at a pit lake? Is it when the pit is no longer being mined, when the water level equilibrates, or when the geochemistry equilibrates? If when the geochemistry equilibrates, given evapo-concentration, does “closure” ever occur?
2. Given that geochemistry equilibration might not be achieved, how far out should water quality predictions be required and how should predicted impacts such as those 100, 200 or 500 years in the future be addressed? In order to address long-term liabilities, the model should be run for 100-year increments up to at least 500 years, and the potential for any liabilities to occur should be addressed in the present plans rather than deferred to the future.
3. What are the present “applicable standards” for the pit lake? The actual applicable standards should be cited and provided as part of the permit. This is a major gap in the present permit and supporting documents, and until those standards are clearly stated as they would apply, the permit should be considered incomplete and the public comment period remain open.
4. What Monitoring and Reporting requirements are applicable to the pit lake in Table 1 of the DP?

3) C108 Monitoring and Reporting

2. The permittee shall collect samples from the Little Rock Open Pit bottom sump in the first and third quarter of each year for analyses in accordance with Table 1, and applicable requirements of Subsection F of 20.6.7.28 NMAC. Analytical results shall be submitted in the semi-annual monitoring reports in the format specified by Subsection C of 20.6.7.29 NMAC.

Comments: NMED requires quarterly water quality monitoring at the Continental open pit lake at closure (see DP-1403). Given the potential for the same process of evapo-concentration and the eventual exceedance of water quality standards for selenium and copper toxic to wildlife, we recommend that this section and Table 1 be revised to require quarterly water quality monitoring of the pit lake post closure.

4) C109 Contingency Plan

The purpose of this section is to provide for the ability of the agencies to require the company to react to unexpected or unpredicted impacts to groundwater or surface water quality. However, we believe that this is not consistent with best practices in that it relies on an entirely reactive approach, rather than a preventative approach coupled with advance planning in the event of unexpected impacts. This approach is commonly referred to as Adaptive Management Planning. In general, adaptive management is a planned and systematic process for continuously improving environmental management practices by learning about their outcomes. Adaptive management provides flexibility to identify and implement new mitigation measures or to modify existing ones during the life of a project.

Planning for adaptive management should commence as early as possible in the mine planning process. While specific adaptive management measures may not be identifiable at that point, a strategy or plan should be developed to provide context on when, how and where adaptive management may be used. Decisions to adopt specific adaptive management measures can be identified later during the project life-cycle as a result of the analysis of data generated by a rigorously implemented follow-up or monitoring programs.

Comments: The agencies and Freeport-McMoRan should undertake to further understand and consider the concept of Adaptive Management Planning and consider the advantage of having a plan that has already considered potential impacts to water quality and the measures to prevent or mitigate them rather than rely solely on the reactive approach of a contingency plan.

5) C110D. Closure Plan – Post-Closure Requirements

The post-closure requirements in Section D should require reporting of pit lake water quality by the operator to Mining and Minerals Division (MMD) if water quality becomes unsafe for wildlife. The MMD permit requires the operator to be conducting wildlife monitoring and pit lake inspections to ensure that wildlife is not adversely affected. Given the likelihood that pit lake water quality will exceed safe levels for selenium and copper because of evapo-concentration, there needs to be some mechanism to require that this information is communicated to MMD. In turn, MMD would ensure that the operator takes the appropriate action to protect wildlife.

6) C110 Closure Plan - Financial Assurance

1. The permittee shall perform post-closure monitoring until NMED determines that post-closure monitoring is no longer required. The financial assurance described in C111 shall provide for a minimum of 100 years of post-closure monitoring.

As contained in our presentation and testimony at the MMD June 3, 2021 public hearing on the Little Rock Closure/Closeout Plan, the financial assurance estimate provided by FMI just prior to the hearing is not sufficient to cover water quality monitoring and abatement for 100 years post closure. The financial assurance estimate available to the public assumes monitoring and maintenance for 12 years related to revegetation/post-mining land use and only 30 years for ground water quality. However, given it will take at least 100 years for the open pit water to reach chemical equilibrium, and there is a significant risk of water quality exceedances for copper and selenium given the uncertainty in existing predictions, we would anticipate NMED to require pit lake monitoring until the pit lake achieves equilibrium and actual water quality can be determined to be acceptable, or alternatively require abatement to meet applicable standards.

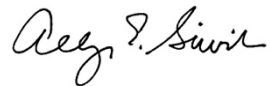
Comments: NMED and MMD should work with Freeport-McMoRan on a new reclamation cost estimate sufficient to cover future water quality monitoring and abatement that may be required 100 years post-closure as required in C110D.1. As discussed above, we believe that FA sufficient to cover monitoring and abatement beyond 100 years is likely.

GRIP would like to be kept informed of progress made in updating the FA for Little Rock to comply with C110D.1.

Thank you for your consideration of our comments.

Please let us know if you have any questions. We can be available to discuss them further as necessary.

Sincerely,

A handwritten signature in cursive script that reads "Allyson Siwik".

Allyson Siwik
Executive Director

Cc: Jim Kuipers, Kuipers and Associates
Holland Shepherd, MMD
David Otori, MMD