

I attended the August 16, 2022 public hearing on the proposed Tyrone expansion and Emma Pit operations, and I have read and reviewed the CCP (Closure/Closeout Plan) prepared for the Emma Pit. This is my input:

1. Water Supply and Water Quantity – it seems that the greatest concern about Freeport’s expansion is water supply. According to the CCP (Appendix C), an average annual inflow of 20.1 gpm with an estimated maximum of 34.8 gpm will be pumped into perpetuity beginning with the penetration of the water table in the proposed open pit. Even if the State Engineer’s Office determines that Freeport has sufficient water rights to continually pump this amount of water, it is questionable how these actions will affect adjacent residential wells. How will Emma Pit operations impair neighboring water rights?

Groundwater data in the CCP are inadequate to determine potential impacts on neighboring wells. At the least, a survey should be prepared of existing residential wells in the Apache Mound subdivision, and because of the concerns of residents from the Loma Blanca subdivision who spoke at the 8/16/22 public hearing I recommend that Freeport extend its groundwater investigations to Loma Blanca. It is my understanding that Freeport has been open to the concerns of area residents and at the public hearing claimed to be a good neighbor. If this is the case then it should be no problem for Freeport to expand its investigations and area of potential impact.

While Freeport claims that groundwater will be drawn down two to seven feet, data from hydrogeologist Dylan Duverge who spoke at the public hearing indicate a draw down of 10 feet after 10 years. Additional information on residential wells adjacent to the proposed pit would provide better and needed baseline data for modeling groundwater. In addition, just as there is no guarantee that adjacent wells will not be impacted by mining operations, there is no mention of what Freeport plans to do in case neighboring wells are impacted. It is recommended that Freeport prepare a mitigation plan that addresses potential impacts. Such a plan might include the provision of a water system to adjacent properties if needed.

These concerns become even greater because of antiquated information and data used for purposes of modeling such as Hedlund (1978), which glosses over site specific conditions with a broad brush. Just as topographic features have changed and are updated with a USGS map for Tyrone Mine in the CCP (Figure 2-2), groundwater features and conditions should be updated as much as possible to determine changes since the 1970s. Further data collection of adjacent wells would help provide a clearer and more accurate picture of actual groundwater conditions.

2. Water Quality – Table 2-1 in the CCP provides water quality data for Monitoring Well 396-2021-01 from 5/21/21, and 8/25/21, presumably the latest date water was tested. While levels of arsenic, cadmium, chromium, cobalt, copper, iron, and lead tested on 8/25/21 were below water quality standards, levels for all of these contaminants exceeded standards on 5/21/21. What actions (if any) affected the changes in water quality levels? What assurances/guarantees does Freeport provide to prevent further increases because while the Water Management and Treatment Plan outlined by Golder (Appendix C) is designed to treat exceedances of sulfates and TDS levels, it does not account for other and potentially more hazardous contaminants like cadmium, lead and arsenic?

A representative from Freeport at the public hearing stated that groundwater pumping would be done to control and reduce possible contamination, but if this is the case then how does an increase in pumping affect water quantity? Keeping in mind that this same representative claimed that Emma does not require additional groundwater pumping (?), have such proposed increases in groundwater pumping

been accounted for in Freeport's models? What is the portion of additional groundwater pumping at Emma Pit to overall groundwater pumping done at Tyrone?

This representative also stated that existing monitoring wells are upgradient of the proposed pit. How does Freeport determine the source of contamination in monitoring wells *downgradient* of Emma and any of the Tyrone pits? What are the requirements for regular water monitoring? Of additional concern to water quality is the fact that the Sprouse-Copeland Fault intersects the northwestern part of the groundwater capture zone as shown on Figure 3-1 in the CCP.

Dylan Duverge explained at the public hearing that most of the groundwater in the area of Tyrone is found in fractures. He states that there is an *increase* in hydrological conductivity rather than a decrease, which contradicts Freeport's finding and suggests a potential for increased impacts to water quality of neighboring residential wells. A survey of residential wells (i.e. Apache Mound) could include water quality information, which would provide a better baseline for water quality at the proposed Emma Pit.

DP-1341, which addresses operational, closure, and post-closure water quality issues and includes Emma Pit, is registered under the name of Phelps Dodge (issued 4/8/2003). Perhaps this is a technicality, but shouldn't the name of DP-1341 be changed to "Freeport" prior to approval of the CCP? Who/what entity is legally responsible for water quality at Tyrone, and in the event that there is an emergency, such as a spill? In addition, Figure 1 of Golder's Report (Appendix C of the CCP) shows a flow chart of water treatment with a surface discharge, but does not indicate where the water is discharged to. Where is the point of discharge? This information should be made available and disclosed to the public.

3. Stockpiles and Storm Events - Drawings by Golder in the CCP (Appendix A-1) show northern and western portions of EMW wastepiles to be located in Oak Grove Wash. The CCP indicates that the design of mining operations and closure activities are modeled on a 100-year storm event. With changing weather patterns forecast to be more unpredictable in the future, it becomes exigent to design closure activities and construction of stockpiles to withstand a 500-year storm event.

Finally, what does Freeport do in case of a power failure to keep pumps running and for purposes of water treatment? Is there a contingency plan to address power failures and emergency events such as flooding or line breaks? If so, such a plan should be made available to the public and included as part of the CCP. If not a plan should be prepared.

Thank you for providing me the opportunity to comment on the proposed Emma Pit expansion at the Tyrone Mine.

Sincerely,

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