

# SIERRITA PRODUCTION CURTAILMENT WATER MANAGEMENT PLAN

## FAQ

### **What is meant by the production curtailments to 75% of capacity and a full curtailment? Are you walking away from the mine altogether?**

On January 18, 2016, Sierrita began implementation of its previously announced production curtailment plan, done in response to low copper and molybdenum prices, reducing mining and milling operations to 75% of capacity. A full curtailment of mining and milling operations is anticipated in mid-2016. While the mine and mill will move to care and maintenance mode, operations of the molybdenum leaching and packaging facilities and residual copper leaching and cathode production will continue. Sierrita is not planning to permanently shut down the operation.

### **What is sulfate and where does it come from?**

Sulfate can be produced when sulfide minerals, such as those found naturally in Sierrita and elsewhere, are exposed to air and water. Most sulfates dissolve readily in water. Sulfate is not considered hazardous by environmental regulations but can affect the color, taste and odor of water. Ingestion of water with high concentrations of sulfate is known to have a laxative effect.

### **Why is the sulfate getting into the groundwater?**

Over decades of operation, water seeping from the Sierrita Tailings Impoundment, which contains sulfate, was not fully contained by the collector well system and migrated down gradient of the wells, resulting in sulfate-affected groundwater.

### **What went wrong with the Sierrita Tailings Impoundment to allow sulfate getting into the groundwater?**

The impoundment is designed to drain to ensure stability.

### **What are the different types of wells you have and what do they do?**

There are four sets of Mitigation Order on Consent (MOC) wells (36 wells in total) that are used to pump water to prevent migration of the sulfate plume: Interceptor wells at the toe of the dam; Focused Feasibility Study Wells; Plume Stabilization Wells; and Mass Capture Wells. There are approximately 50 Monitor Wells located between the Sierrita Tailings Impoundment and the drinking water wells that are sampled either quarterly, semi-annually or annually (depending on their location) for sulfate concentrations. Additionally, there is a set of nine Sentinel Wells, located near the drinking water wells, which serve as additional sulfate concentration monitors and alert system.

### **What was the former well pumping rate, and what is the proposed new rate?**

The MOC well pumping rate varied, ranging between 10,500 gpm and 13,500 gpm. The proposed reduced rate is expected to average 7,750 gpm.

### **How was the 7,750 gpm, and which wells would be run, decided upon?**

Various models were run, initially adjusting pump group flows, to determine the effects on the sulfate plume, generating the best general strategy. Changes in flows to the individual wells in the group were then modeled to refine the plan. An additional safety factor was provided to the minimum pumping volume, resulting in the planned 7,750 gpm pumping rate. Sierrita then conducted a water balance calculation to confirm that the 7,750 gpm could be effectively managed in a full curtailment scenario with the water management plan to be implemented.

### **How do you know that the reduced MOC pumping rates will be able to prevent migration that could affect the drinking water supply?**

Sierrita has conducted extensive modelling on the proposed pumping plan which has shown that the revised plan will continue to prevent migration of sulfate toward drinking water supply wells east and north of the plume.

### **How will you know if the revised plan is working?**

We will know if the plan is working if there is no significant migration of the plume detected by groundwater monitoring. Groundwater monitoring consisting of water level monitoring and sulfate sampling will be expanded under the contingency plan. Additional groundwater monitoring wells will be installed at the north end of the sulfate plume to better delineate sulfate concentrations and water levels in the vicinity of the Plume Stabilization wells. These wells will be sampled quarterly throughout the curtailment. Mitigation performance reviews will be conducted annually to evaluate water level and sulfate data to determine the effectiveness of the contingency plan pumping. The mitigation performance reviews are submitted to ADEQ and posted on the project website.

### **What will you do if you see that the plan is not working?**

We will revise the pumping plans to ensure we protect drinking water supply wells.

### **Since Sierrita will no longer be producing a significant amount of revenue once the mine and mill are fully curtailed, how will the continued operation and maintenance of the wellfield be funded?**

Freeport-McMoRan is committed to support Sierrita's obligations under the MOC.

