

Sierrita Facts from FCX

Sulfate Information at Sierrita

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Mining in the area around Green Valley started in the late 1800s and the modern open-pit Sierrita operation dates to 1959.

- Since the 1970s, the 3,600-acre Sierrita Tailings Impoundment (STI) has been the final repository for the crushed rock from which essential copper and molybdenum have been extracted.
- Over decades of operation, water seeping from the STI, which contains sulfate, was not fully contained by the collector well system and migrated down gradient of the wells, resulting in sulfate impacted groundwater.
- 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. There are locations in Arizona, as well as other states, with elevated levels of naturally-occurring sulfate in groundwater.
- In June 2006, Sierrita signed a Mitigation Order on Consent with the Arizona Department of Environmental Quality (ADEQ), by which Sierrita voluntarily committed to practically and cost effectively provide the owner/operator of an existing drinking water supply, that was impacted by the plume from the STI, with a drinking water supply with sulfate concentrations less than 250 parts per million. This standard is among the most stringent in the nation.
- Sierrita prepared and submitted a feasibility study for the sulfate plume in October 2008 and ADEQ approved the study in March 2009. The study evaluated five mitigation alternatives that used different combinations of source control and plume management to accomplish the mitigation objective. The recommended mitigation alternative calls for:
 1. Moving the location of groundwater pumps that are needed to supply the Sierrita mining operations to locations where pumping will control migration of the sulfate plume into unimpacted portions of the basin fill aquifer, which will reduce the extent of the plume over time.
 2. Developing a new tailings impoundment to replace the current STI.
- Sierrita submitted the Mitigation Plan in May 2009. It describes the process to implement, operate, monitor, adapt, terminate and report measures to address sulfate with respect to drinking water supplies. After discussion and revision, and when ADEQ approves the plan, Sierrita will begin implementation.
- Sierrita spent in excess of \$13 million to replace two drinking water wells operated by the Community Water Company of Green Valley that had sulfate levels greater than 250 parts per million.
- Additionally, a Community Advisory Group meets to hear updates from the company and ADEQ, ask questions, and participate in the progress of the Mitigation Order on Consent.



For additional information, visit <http://fcx.com/sierrita>.