

# Water levels require work at toxic Alpine County mine

**Publisher's note:** *This update on the Leviathan Mine in Alpine County will be in the Lahontan Water Board's May 2011 executive officer's report.*

**By Chuck Curtis**

The Lahontan Water Board's emergency contractor has been successfully treating polluted water at the Leviathan Mine Superfund Site this spring to prevent ponds at the site from overflowing. The water board manages the site, a former sulfur mine, for the state of California, which owns the property.

The site is located north of Monitor Pass at an elevation of approximately 7,000 feet, between Markleeville and Topaz Lake.

Mining operations exposed sulfur in the rocks and mine wastes to air and water, and that caused the creation of sulfuric acid. The acid dissolves minerals, including arsenic, aluminum, nickel, and others, in the rock and waste materials. This metal-rich acidic wastewater is termed acid mine drainage, or AMD.



The treatment system at one of the ponds at the Leviathan

Mine.

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The state purchased the site in the early 1980s to build a pollution abatement project, as the owner at the time had no means to reduce the flow of AMD from discharging to Leviathan Creek. Without capture or treatment, the AMD created toxic conditions in the creek, effectively killing aquatic life as far as about ten miles below the mine, where the creek joins the East Fork Carson River.

The state's pollution abatement project included construction of a series of evaporation ponds to collect two sources of the AMD discharge at the site. Starting in 1999, the water board's contractors have treated AMD in the ponds each summer to reduce pond overflows that happened in the spring following wet winters. Since 2000, there have been essentially no polluted water discharges from the ponds managed by the State.

Due to heavy precipitation at the site this winter (160 percent of normal as of April 14, 2011), water board staff determined that the ponds would overflow this spring without emergency treatment actions. Water board staff arranged an emergency contract to treat the AMD in the ponds to prevent an uncontrolled pond discharge.

On April 1, the contractor cleared the 10-mile-long road to the site of snow, and, on April 5, treatment operations at the site began. Those operations, in which lime is mixed with the water in the smallest of the ponds, have continued every day since. The lime neutralizes the acid, and the toxic metals in the AMD settle to the pond bottom.

Successful treatment and discharge of the first batch of pond water occurred on April 9, and the second batch was discharged on April 14. Approximately 800,000 gallons of AMD was treated and discharged to the creek in those two batches. Treatment

operations will continue until the threat of pond overflow has passed. A significant precipitation event this spring could still overwhelm the ponds and our emergency treatment operations, but that possibility decreases with each day of treatment.



The overflow structure at the upper ponds has about 3 inches to go before overflow.

Doug Carey, engineering geologist with the water board's Leviathan Mine Unit, led a tour of the site for the U.S. Environmental Protection Agency's Superfund project manager and U.S. Forest Service staff on April 13. The USEPA was pleased with the actions that the water board has taken under difficult conditions to prevent pond overflow and its harmful effects on the creek and its aquatic life. Those difficult conditions have included snowstorms and single digit nighttime temperatures.

The Forest Service acknowledged that snow removal was completed in compliance with its specifications, and no damage to the road base occurred as a result of snow removal activities; the Forest Service owns the Leviathan Mine Road that provides access to the site.

In addition to observing the water board's emergency treatment

operations, the tour included viewing areas at and downstream of the site that are affected by the former mining operations. In addition to the water board, Atlantic Richfield Company is conducting pollution abatement activities at the Leviathan Mine site, and it has been required by the USEPA to conduct a Remedial Investigation and Feasibility Study to evaluate the nature and extent of contamination and to develop a final cleanup remedy for the site. The USEPA named Atlantic Richfield as a potentially responsible party for the pollution at Leviathan Mine due to its purchase of Anaconda Mining Company, which conducted mining at the site in the 1950s and 1960s.

*Chuck Curtis is division manager of the Cleanup and Enforcement Division of the California Regional Water Quality Control Board, Lahontan Region.*