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Scientists encouraged by environmental work on toxic mine

By Jeff DeLong
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Treatment of toxic runoff from an abandoned Sierra sulfur mine is finished for the season, and Environmental Protection Agency officials say they're increasingly encouraged.

Enough runoff trapped in holding ponds at Leviathan Mine was treated and discharged over the summer that overflow into the Carson River's tributaries appears virtually impossible next spring, EAP Project Manager Kevin Mayer said.

And an experimental treatment system being tested by researchers from University of Nevada, Reno also worked surprisingly well, raising new hope for future cleanup efforts.

"The news is pretty fabulous," Mayer said.

Declared a Superfund site last May, Leviathan Mine has been leaking a toxic mix of acids and metals into creeks that drain into the Carson River for years, rendering portions of those tributaries void of aquatic life and worrying downstream water users over potential health impacts. Located in Alpine County, Calif., 25 miles southwest of Gardnerville, Leviathan Mine produced copper sulfate from 1863 until 1872, then was reopened for a six-year period to produce sulfur beginning in 1936. From the 1950s to early 1960s, open-pit mining was used to extract sulfur until the mine was finally shut down in 1962.

State and federal agencies have spent more than \$7 million since 1982 trying to halt acidic pollution that drains into Leviathan Creek and eventually into the

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Carson River. In July officials with California's Lahontan Regional Water Quality Control Board started work in a second season of chemically treating runoff in the mine's holding ponds. The goal was to prevent overflows of the type that nearly occurred this spring and which did occur the two previous years.

This summer's treatment left the ponds with some 13 million gallons of capacity, enough room to make any overflow in the winter or spring of 2001 highly unlikely.

"We'd have to have a monumental winter to overflow," Mayer said.

Mayer also is encouraged about biological treatment of mine drainage being tested by UNR researchers. UNR scientist Glenn Miller has been using bacteria mixed with ethanol and methanol to treat runoff, reducing acidity and precipitating metals out of solution. The process is being employed at a location where drainage is seeping from the mine downhill from the holding ponds and appears to be highly effective.

Biological treatment is less costly than the chemical process being used at the ponds and offers a long-term possibility of treating some of the less concentrated mine drainage year-round, Miller and Mayer agree.

"It's working quite well," Miller said. "I'm very enthusiastic about the prospects."

For years officials have despaired over making much difference at Leviathan. Progress made this summer offers long-term hope, though the effort will certainly take decades and cost millions.

"Everyone's feeling pretty good about Leviathan Mine as a whole now," Miller said. "There's a good chance this is going to be turned around."

Did you know?

Water draining through mine tailings at Leviathan Mine turns sulfur into sulfuric acid which in turn dissolves minerals like arsenic and aluminum. The toxic mix drains into creeks that drain into the Carson River, killing fish and other aquatic life. Through chemical and biological treatment, acidity of mine drainage is lowered and metals precipitate out of solution. Cleansed runoff can then be safely released into the environment.

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