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Progress made in Leviathan cleanup

[Tim Anderson](#)
RENO GAZETTE-JOURNAL
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Major progress is being made to clean up the highly contaminated Leviathan Mine near Markleeville, Calif., through three separate treatment systems, officials in charge of monitoring the site said Wednesday.

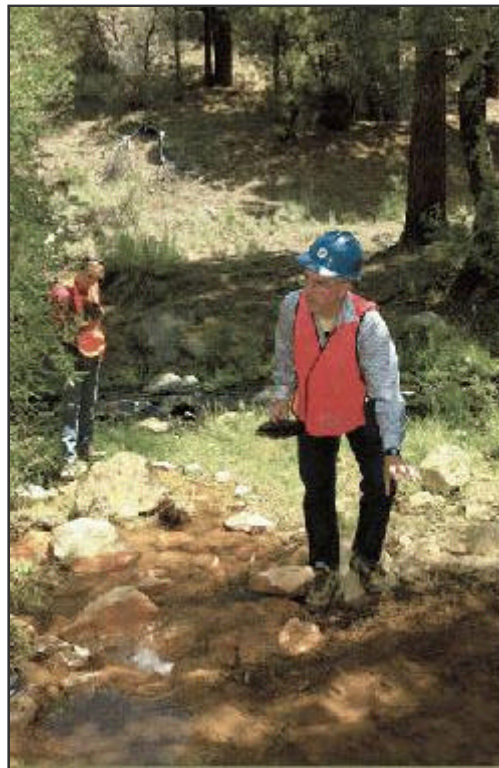
But during a tour of the former sulfur mine, officials said a long-term solution to deal with acid drainage is still several years away.

"We're only at the beginning of the process. This is a complex problem, and it won't be solved quickly, easily or inexpensively," said Kevin Mayer, San Francisco-based project manager for the Environmental Protection Agency's Superfund site.

Mayer said research and information collected at the site — 25 miles southwest of Gardnerville in a mountainous region of Alpine County — will be used in a solution-oriented feasibility study expected to be completed in about four years. He said experimental and innovative treatment programs under way will be important elements in determining a final remedy.

A toxic mix of acid and dissolved heavy metals has collected at the 250-acre site for half a century to create a significant environmental problem. After persistent complaints from a number of groups, especially the Washoe Tribe of Nevada and California and the Carson Water Subconservancy District, the EPA listed Leviathan as a Superfund site in 2000.

Representatives of several federal agencies, along with officials for California and Nevada agencies, news media and citizens, took part in Wednesday's EPA-arranged tour of the mine and watershed. The site has been owned by the state of California since 1984.



Lisa J.Tolda/RENO GAZETTE-JOURNAL

Kevin Mayer, project manager with the Environmental Protection Agency, right, walks over Leviathan Creek, which still has a rust-colored tint.

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Polluted Leviathan Creek flows from the site and meets with pristine Mountaineer Creek three miles downstream on Forest Service land. The two then become Bryant Creek, which flows into the East Fork of the Carson River eight miles further.

On a tour stop where Leviathan and Mountaineer creeks merge, Mayer said he was encouraged by the looks of the stream coming directly from the former mine. He said this is the result of treatment at the site that was renewed about four weeks ago.

"A month ago, Leviathan Creek was very murky. Now it's not as bad. The programs are working," Mayer said.

But the creek still can't sustain life, he said. For contrast, he picked up a rock from Mountaineer Creek and showed the underside, which was loaded with bugs. The latter stream also sustains fish life.

"The EPA's goal here is to get the damaged system to a point where it doesn't pose a risk but not necessarily to return it to where it was originally," Mayer said.

However, Rob Greenbaum, resources policy advisor for the tribe, said the goal should be set higher. He said the key stakeholders along the Carson River, including the tribe, Forest Service, U.S. Fish and Wildlife Service and state fish and game officials, have loftier objectives.

"We want to push further and go beyond what the EPA has in mind. We're looking at watershed restoration," Greenbaum said.

Among the three treatments in place at the mine is a lime neutralization method used by California's Lahontan Regional Water Quality Control Board. The agency began using this three years ago to treat highly contaminated water stored in evaporated ponds. Iron has been removed through this process.

Chris Stetler, senior engineer for the state agency, said the success has continued this year. A major goal is to get the treated water out of the ponds so they won't overflow.

In the past, especially during wet years, the ponds have overflowed. Officials said this led to major difficulties because some of the most tainted water on site collected in the ponds.

Atlantic Richfield Co., the mine owner before California acquired the site, is testing a system to capture and treat contaminated ground water. Water from nearby sources is pumped to a pond, where another type of lime treatment is applied.

In two months of operation last year and another month this year, test results show decreased levels of iron and arsenic and overall water quality improvements.

A biological treatment system that began as a University of Nevada research project at one of the mine's major seeps has also become part of the overall effort to clean up the site. This involves using bacteria to remove sulfur, iron and other metals from the water.

In all, as much as \$5 million has been spent on remedial work at the site — six miles east of Markleeville — over the past five years, Mayer said. He said another \$5 million is likely to be needed over the next three years.

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Mayer said an important element in reaching a final remediation plan is to hear from people who use the general area for recreational purposes.

One of the major roadblocks to cleanup activities is the inability to get heavy equipment to the site until the summer is well under way, Mayer said. At 7,000 feet in elevation, the area is faced with the possibility of a heavy snowpack late into the year.

Officials said the site was first developed in 1863 as a source of copper sulfate for processing silver ore on the Comstock Lode in Virginia City. The mine later closed but was reopened for sulfur mining from 1935 to 1941.

When the Anaconda Co. purchased the property in 1951, open pit mining was launched to extract the sulfur. This was used in the company's copper mining process at Weed Heights in Lyon County.

An open pit mine was operated at Leviathan for about 10 years. EPA officials said this generated tens of millions of cubic yards of mine waste.

In 1952, a major fish kill occurred in the Carson River and Bryant Creek when an old mine shaft was breached and a large amount of highly acidic and toxic water flowed into Leviathan Creek. The EPA said Anaconda didn't take effective measures to stop the pollution.

During the early 1960s, the mine was sold to a private individual. After he was consistently unable to meet waste discharge requirements and after numerous complaints, the state of California acquired the site in 1984 for \$50,000.

The state sought help from Atlantic Richfield, which had taken over from Anaconda. Ultimately, ARCO gave \$2.4 million to the state. This financed construction of facilities on site in 1985, which includes a concrete drain rerouting part of Leviathan Creek.



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