

# Nevada City, Sierra Streams Institute continue cleanup of abandoned mine sites

**Teresa Yinmeng Liu, The Union News, 6-13-16**

Back in the heyday of California's Gold Rush, Nevada City's Providence Mine was one of the most productive mines in the area. Between 1850s and 1920s, it produced nearly \$20 million worth of gold and silver.

Today the 45-acre abandoned mine site, located along the south side of Deer Creek where the Environs section of Tribute Trail loops through, is littered with piles of mine waste containing high level of hazardous material such as lead, arsenic and mercury. Some of the mine waste has eroded into Deer Creek. The contamination made the mine the focus of a cleanup project headed up by Nevada City and Sierra Streams Institute.

"It's one of the worst areas that I know of in Nevada City; we have up to 20 times the hazardous waste level of lead, and about 10 times the hazard waste level of mercury," said Kyle Leach, a geologist with Sierra Streams Institute, who is leading a project to remove hazardous waste from the old Providence Mine.

The project aims to reduce residents' exposure to contaminated soil and also expand the Tribute Trail.

After completing two cleanup phrases on the property last summer, experts are moving on to an area where an old stamp mill was located and where the highest level of contamination was found.

"They (gold-miners) took out the quartz and took it across the road there, where there was the stamp mill; they crushed it and added mercury to it. Then that helped get gold out of the ore," explained Leach, as he pointed toward a hillside now blooming with purple flowers. The gold processing likely released mercury and heavy materials, leaving the stamp mill site with contaminated soil containing high level of lead, mercury and arsenic.

Leach said the contamination is mostly contained to the soil, and it is not an immediate threat unless people are exposed to the chemicals on a daily basis for a long period of time or accidentally inhale a huge amount of the dust.

"Unless people were digging the dirt, and having lunch and getting their hands dirty, or kicking up dust and breathing it," said Leach, "not so much of that is going around."

It would take more than 10 years of small daily exposure to arsenic, a carcinogenic chemical, for people to be really affected by it, Leach said. But lead and mercury, which are neurotoxin chemicals, will cause brain damage over shorter period of time if people eat or breath in a huge amount of them. They are especially harmful to women who are breast-feeding, he added.

Leach said employees at Sierra Streams Institute wrote a report on the stamp mill site and sought funding to clean it up. On May 20, Leach received news that Nevada City is one of five cities in California to be awarded parts of \$2,692,000 federal funds from the U.S. Environmental Protection Agency to clean up brownfields. The grant the city receives totaled \$200,000 and will be available in the fall.

Leach anticipates the cleanup to start next summer or the summer after. He said the project will take about a month to complete, but there will be a year of planning before the project could be launched.

“We will have to work with the state to write a cleanup plan, and get its approval on environmental permitting and stuff like that,” he said. “The money is not available until October or November, that is when we start writing the plan.”

Once the project starts, workers will dig up the areas with the highest contamination and dispose the hazardous waste. Then they will consolidate, scrape and place new dirt over the moderately contaminated sections. A confirmation testing will be conducted to see if the cleanup is done properly. Workers will also regrade the site and expand the Tribute Trail.

Leach said a parking lot will be built on the site of the stamp mill for hikers and visitors alike. He said signs will be erected along the site to warn people where the contamination was.

The Providence Mine Brownfield cleanup started in 2006 when Sierra Streams Institute received Brownfields Community Wide Assessment grant from EPA to sample four city-owned mine sites: Pioneer Park, Stiles Mill, Hirschman’s Pond, and Providence Mine. The organization continued to receive more grants from the EPA, the Sierra Nevada Conservancy and the Rose Foundation over the years to clean up the Providence mine site. Sierra Streams Institute completed an initial cleanup and an additional cleanup of a landslide and unstable mine waste above Deer Creek.