State officials say old West Marin mercury mine finally stabilized

Mark Prado, Marin Independent Journal, 10-30-11

The flow of toxic mercury from an abandoned mine into Tomales Bay has all but ceased after federal and state efforts to stabilize the site with native plants and a series of concrete drainages to channel water off the site.

With a decade's worth of samples showing a sharp decline of mercury leaving the West Marin site, automated monitoring efforts are now winding down.

"Whatever mercury is here now is buried," said Dyan Whyte, assistant executive officer with the state Regional Water Quality Control Board, a former West Marin resident who spent much of her early career on the project. "It's not going anywhere. The whole thing is about keeping the land intact rather than having it run off and have it take mercury into Walker Creek and into the bay."

Rather than capping the mine with man-made material, Whyte and her crews hit on an idea to grow native plants at the site to hold the hillside in place. Native sage brush, cyanotis and oak were planted and now have greened the once barren site.

"EPA was a little nervous about it because it was not their normal approach, but this was done for a more natural way," said Whyte, as she walked on the mine site that still contains dilapidated cement buildings, including the mill — reminders of the operation.

A series of drainages lined with concrete were installed at the site to limit erosion during the rainy season. The U.S. Environmental Protection Agency authorized the $3 million cleanup, with the state contributing another $2 million. Work began in 1998 and was finished in 2000.

Now, a decade later, sampling shows the work has paid off.

"What we see is a statistically significant drop of about 93 percent of the (mercury flow)," Whyte said. "You will always have a little natural-occurring mercury, but we are pleased."

Whyte and others recently published a paper on their work at the site in the journal Environmental Science and Technology.

The flow of mercury into Tomales Bay from the old mine site was a major environmental concern that had its origins in an operation that began in the 1960s.

Buttes Gas and Oil Co. approached rancher Alvin Gambonini about leasing land and setting up a mercury mine. Being in an earthquake fault area, the property is rich in ore deposits and was ideal for extracting mercury for use in thermometers, dental fillings, fluorescent lights and high-temperature military gauges. At the time, mercury was listed by the military as a controlled substance, which increased its value.

By the early 1970s, the military removed mercury from its list of controlled materials. The market for mercury dropped and Buttes Gas and Oil decided to leave the site. In its six years of operation, the company produced an estimated 190 tons of mercury.

Before leaving, the company built an earthen dam in a ravine to hold back the mercury tailings. That worked until January 1982, but then the dam gave way as Marin was pounded by the worst storm of the century.

Between 1982 and the late 1990s, every time heavy rains hit West Marin more toxins from the 14-acre, sloping hillside would be pushed down a ravine, into a channel and into West Marin waterways that feed Tomales Bay.

When the state measured the amount of mercury washing from the mine during the rainy months of January and February 1998, scientists were stunned. Results showed 180 pounds of the metal flowed from the site in the two months. As a comparison, state regulators allow just half that amount to be discharged by businesses into San Francisco Bay during an entire year.

In 2000, the high levels of mercury caused local and state officials to warn people to stop eating types of shark meat and to limit consumption of five other fish species caught in Tomales Bay. Mercury can damage the nervous system.

Commercial shellfish in Tomales Bay — oysters, clams and mussels — were tested and have been deemed safe by health officials.

While the more intensive automated tests will cease, the site still will be watched.

"We can do a visual assessment now to see if the erosion control is still working," said Carrie Austin, environmental engineer with the water board, who helped author the paper in Environmental Science and Technology. "We are confident with the sampling results. It is a success."