

## Mines & Mercury, Part 1: Mines add little to global mercury pool

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ELKO — Nevada mining companies, particularly those mines on the gold trends in the state's northeast region, have weathered heavy criticism in recent years for the mercury emitted from mine sites during processing.

While gold mines certainly contribute to the global mercury pool, they are, when put in context, a tiny contributor. Of the 158 tons of mercury released by companies in the U.S. in 2005, Nevada gold mining was responsible for 1.2 percent.

Worldwide, the annual tonnage released hovers between 5,500 and 6,000 tons, according to the federal Environmental Protection Agency, of which northern Nevada mines contribute 1/10th of 1 percent.

Regardless of the role mining plays, the industry has long acknowledged mercury poses a serious problem and has worked to capture it and reduce emissions. They have seen stunning success in recent years.

In 2000, Nevada mining giants Barrick Gold of North America and Newmont Mining Corp., along with the smaller Jerritt Canyon operation (formerly Anglo Gold before the Queenstake acquisition and the recent Yukon Nevada merger) and Placer Dome (before Barrick acquired the company in 2005) teamed up on the Voluntary Mercury Reduction Program. That year the companies for the first time reported numbers to the EPA's Toxic Release Inventory.

“We found we had significant emissions,” said Bill Upton, director of Barrick's Environmental division.

The four companies, along with the Nevada Division of Environmental Protection and the federal EPA's Region 9, began the task of testing emissions and putting in the controls needed to capture mercury.

Mercury is a dangerous neurotoxin that poses a significant threat to young children and unborn babies through the ingestion of tainted fish, so there was a sense of urgency.

The goal, said Upton, was to reduce emissions by 30 percent in 2003 and 50 percent in 2005.

“We achieved in excess of 50 percent by 2003 and 75 to 80 percent by '05.”

Environmental groups disputed the numbers, and there was disputed evidence one mine, Jerritt Canyon, released far more mercury than what was reported. Jerritt Canyon believed test results were incorrect and a subsequent study indicated the mine's roaster stacks created a cyclonic flow that resulted in

inaccurate readings.

Earlier this summer two new stacks were installed that feature “straightening vanes” designed to stabilize flow. Prior to the stack work, Jerritt Canyon became the first — and so far the only — Nevada mine put on formal notice its emissions exceeded state standards.

In October 2006, mercury emissions were codified into state law under a program called the Nevada Mercury Air Emissions Control Program, using “Maximum Achievable Control Technology.”

Said Upton: “In context to the global mercury pool, mining is a pretty small contributor, but we are a contributor. You have to be concerned. It’s a health risk through fish consumption where anaerobic bacteria does its magic.”

That bacteria, which occurs naturally in watersheds, morphs elemental mercury into methylmercury. Older, bigger fish and fish that eat other fish routinely have the highest concentrations.

The 10-month old program establishes detailed permitting requirements for all mercury emitting units, Upton said, including monitoring and testing, which may include continuous emission monitoring when “appropriate technology becomes available.”

In-depth recordkeeping and reporting are other requirements.

The regulations, said Upton, “prohibits backsliding on controls installed under the Voluntary Mercury Reduction Program.”

That limiting emissions to workers is good for business and morale goes largely unspoken, but the risk to Nevada miners is minimal.

Upton said federal guidelines established by the ACGIA allow continuous exposure to 300 nanograms of mercury before a worker’s health and safety is compromised, or 25,000 nanograms in an 8-hour shift.

In contrast, a University of Nevada-Reno research project at Barrick’s Cortez Mine in Crescent Valley, workers were exposed from 0.5 to .46 nanograms per cubic meter. Higher readings, but still far below federal thresholds, were found at Barrick’s flagship mine Goldstrike on the Carlin Trend.

There, scientists with the Idaho Conservation League, a sometime foe of Nevada mining, in 2005 measured 713 nanograms per cubic meter, less than 3 percent of the federal limit.