Nevada Blazes Trail to Control Airborne Mercury

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RENO--(Mineweb.com) While the media and environmental groups claim that Nevada mines are poisoning the environment with airborne mercury emissions, the state is responding with a cutting-edge mercury regulatory program, the first of its kind in the United States.

As Nevada transforms its current voluntary mercury control program into state law, the lengthy federal rule-making process is being bypassed, which, in turn, may result in faster mitigation of mining-related pollution. If successful, the Nevada mercury regulatory model could be applied in other U.S. Environmental Protection Agency jurisdictions to address hardrock mining-generated pollution.

In 2001, after high mercury levels were discovered, Idaho Department of Health and Welfare regulators warned fishermen at the Salmon Falls Reservoir near the Idaho/Nevada border to limit the number of fish they consumed. Idaho Department of Environmental Quality officials said they detected mercury levels in a reservoir near Twin Falls, which are reportedly 150 times the highest levels ever found in lake in the northeastern United States, which have been impacted by mercury from coal-fired power plant emissions.

By October 2004, Idaho Department of Environmental Quality officials asked to monitor the air along the Nevada/Idaho border to see if mercury pollution from 10 Nevada gold mines was harming the health of residents in Southern Idaho.

Scientists from the Idaho National Laboratory are now studying the mercury levels in their state, and trying to pinpoint their potential sources. However, INL Scientist Michael Abbott told the Idaho Statesman last month that "the miners are the only sources big enough" to cause mercury levels to peak in the Idaho reservoir.

Federal officials first realized of the possibility of air-borne mining-related mercury pollution when the Toxic Release Inventory (TRI) requirements went into effect in 1998. Ore in Nevada is particularly high in mercury content. At that time, four northern Nevada gold mines reported emitting a total of 13,560 pounds of mercury into the air. Most of these emissions came from gold mines using roasters. These releases came as a surprise to both miners and regional and state regulators. Even though mercury is classified as a hazardous air pollutant under the federal Clean Air Act, there are no federal regulatory requirements for mines to control airborne mercury emissions.

Meanwhile, federal scientists studying the Great Salt Lake in Utah found some of the highest levels of methyl mercury ever measured. Utah's Statewide Mercury Work Group has expressed concerns about mercury levels in two water bodies and two species of waterfowl. However, the U.S. Geological Survey studies have not found any evidence that the mercury has entered the human food chain. Rick Sprott, Director of the Utah Division of Air Quality, said Utah officials are concerned about mercury emissions from mines but are now satisfied with the steps being taken to address the problem.

Nevertheless, it should also be noted that both Idaho and Utah are home to both historic and current mining operation and processing facilities.

Four northeastern Nevada mines--Newmont Mining, Barrick Goldstrike, Placer Dome Cortez and Queenstake Resources' Jerritt Canyon--began voluntarily reducing their mercury emissions from roasters in 2001. "These voluntary efforts seemed compelling considering the traditional approach: establishing standards for the mines through the EPA's Maximum Available Control Technology (MACT) regulatory process. A MACT requirement identifies and requires the use of the most effective emissions control technology and set air emissions limits. Such a rulemaking processing is lengthy and cost for government and the industry," declared EPA's Region 9.

The EPA, the mines and the Nevada Division of Environmental Protection developed a program which provided two alternatives: installing controls that represent the most effective emissions control technology, or installing those or similar controls in addition to pollution prevention or waste minimization measures. The goal was to achieve a 33% reduction in mercury air emissions by the end of 2003 and at least 50% by the end of this year. Amazingly, mercury emissions were reduced 40% in 2002, followed by a 75% reduction in 2003.

Wayne Nastri, Administrator of EPA Pacific Southwest Office, declared that "Nevada's voluntary program with the industry was remarkable in that it reduced emissions in advance of any formal regulatory framework."

In a recent interview with Mineweb, Russ Fields, President of the Nevada Mining Association, said miners are especially concerned about limiting mercury emissions on site and off site. Basically, if employees at a minesite are protected and safe from mercury emissions, changes are excellent people living offsite are also protected.

Fields called the voluntary program "a fantastic program," which enabled Nevada miners to save at least nine to ten years in reducing mercury emissions. In most cases, the mines are able to utilize best practices in reducing airborne mercury emissions, he added. At least one mining operation is experimenting with chelation chemical processes to bind the mercury before it is discharged.

Meanwhile, in a recent interview with Mineweb, EPA Region 9 manager David Jones said the TRI reporting mechanism has provided more monitoring, reporting and enforceability regarding airborne mercury emissions from hardrock mines. Meanwhile, the voluntary mercury reduction program achieved an 82% reduction in emission in only two years. Jones said the program is a particularly remarkable accomplishment considering the "alternative is nothing." According to the EPA's most recent report, annual mercury air emissions from Nevada mines are at 3,755 pounds, a reduction of 17,343 pounds from the program's 2001 baseline emissions of 21,098 pounds.

The voluntary reduction program had the secondary benefit of allowing the regulators to develop a good working relationship with the Nevada mining industry, and familiarize themselves with the best practices available to reduce pollution, according to Jones.

Queenstake Mining's Jerritt Canyon operation is particularly viewed as an outstanding success, Jones noted, because the company managed to achieve "incredible results" with a relatively modest financial investment.

Meanwhile, the EPA is busy studying the localized impacts of mercury emission reductions, and hoping to collect information from other federal agencies and the states. The agency hopes to analyze mercury load impacts, and eventually calculate the total maximum daily load permitted under the federal Clean Water Act. EPA will also study whether fish advisories should also be considered.

NEVADA REGULATORY PROGRAM

On November 17th, the Nevada Division of Environmental Protection (NDEP) launched the Nevada Mercury Air Emissions Control Program, which adds enhancements and control mechanisms to the voluntary program. The regulatory program will require enhanced monitoring, testing, recording and reporting, expand coverage to all precious metals mines, mandates improved and additional controls, and is applicable to units rather than facilities.

NDEP Deputy Administrator Colleen Cripps said the program is aimed at the "regulation of mercury air emissions from thermal units at precious metal mining operations."

NDEP Administrator Leo Drozdoff called it the first "regulatory program of its kind to control mercury emissions from precious metal mining. ...Our ability to develop a regulatory program of this magnitude and on an aggressive schedule would not be possible without the cooperation of the regulated industry as well as the stakeholders who expressed their concerns regarding the outcome of the program." Michael Elges, NDEP Bureau of Air Pollution Control Chief, said the program "calls for an aggressive schedule of activities necessary to develop a

case-by-case maximum achievable control technology, called MACT for mercury controls in Nevada."

Cripps recently told Mineweb that the new program will develop a mercury permit, mandates an annual review, and hopes to achieve "a better way to do record keeping and reporting and keeping it consistent" when it comes to reporting airborne mercury emissions.

Jeff Salt of the NGO the Great Salt Lakekeeper praised the new Nevada program as a "unique and important solution for reducing mercury levels throughout the intermountain region." However, he added, "we still need to study the details of the regulatory program to determine if the proposed reduction targets are sufficient."

Salt told the Salt Lake Tribune that "having a regulatory requirement is probably more meaningful in terms of compliance. Hopefully, it won't bog down in bureaucracy and lawsuits."

Utah regulator Sprott said that, while he welcomes Nevada's new program, "there is a lot more work that needs to be done."

NDEP will hold public workshops on December 13th and December 14th in Nevada to solicit commits on their proposed new mercury permitting program.