

News

Study looks at fugitive mercury emissions

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ELKO — New research shows that mercury emissions from mining disturbances make up nearly 20 percent of the mercury emissions from a mine site, and the remaining 80 percent of emissions come from processing ore at mills.

The two-year study found that most fugitive air emissions came from leach pads and tailings ponds but can vary greatly depending upon the mining operation, the natural mercury in the ground, the moisture content of tailings and whether a cyanide solution is actively leaching an ore heap.

"The study also shows that current reclamation practices will return these emissions to near natural levels," Nevada Division of Environmental Protection Administrator Leo Drozdoff said in a statement issued with the release of the preliminary study.

"We are pleased to see that, although some mercury is released as a result of mining disturbances, the amount emitted is significantly less than the current point-source emissions where we are, and have been, focusing our mercury reduction efforts," he said.

NDEP has been regulating mercury air emissions since 2006 from mills, including those with roasters or autoclaves, and John Mudge, vice president of environmental and social responsibility for Newmont Mining Corp., said Monday one of the questions that came out of talks on mercury control was "how much mercury comes off the rocks?"

Mudge said the state contracted with Mae Gustin, a professor at the University of Nevada, Reno, to study mercury emissions from sources other than the mill stacks, and NDEP asked the mining industry to help fund the work. The Nevada Mining Association contributed \$250,000.

The researchers looked at waste rock dumps, tailings impoundments, open pits, heap leach pads, reclaimed areas and stockpiles, and they looked at neighboring land where there was no mining activity for comparison.

"This information will be extremely valuable in the future in creating regulations or management practices to minimize future emissions," Nevada Division of Environmental Protection spokeswoman Jill Lufrano said Monday.

"We will continue to work with the state to reduce mercury emissions. We're very proud of the progress we have made on emissions over the last several years," said Barrick Gold of North America Director of Communications and Community Affairs Lou Schack. "The information from the study is very valuable as is any new knowledge on mercury."

Mudge said Newmont believes in protecting the environment and employees and welcomes more information to control mercury emissions.

John Hadder, director of the Great Basin Resource Watch, said Monday he thought the researchers did good work that was definitely needed on the fugitive mercury issue, and the "big elephant in the room" is whether the researchers have enough data to come up with a formula that will apply to other sites.

"We think there are significant emissions, and there needs to be more analysis of the data and algorithm they used and more data from other sites to see if their formula or a modified version could be used. It's a good first step," he said Monday. "It's not simple stuff to do."

The researchers concentrated on two gold mines for examples — Newmont Mining Corp.'s Twin Creeks Mine in Humboldt County and Barrick Gold of North America's Cortez Mine in Lander County.

Twin Creeks was chosen as a site with high emissions and Cortez's Pipeline Complex for its low emissions, and Mudge said much of the variation is because of the natural of the mineralization at the different mines.

Researchers used 2007 NDEP figures of 987.8 pounds for annual point-source mercury emissions from Twin Creeks and 206.81 pounds at Cortez, Lufrano said.

The study then found annual mercury emissions from the mining disturbances were 231 pounds, or 19 percent, at Twin and 41.8 pounds, or 17 percent, at Cortez.

Point sources are the mill facilities and non-point sources are the tailings ponds, leach pads, waste rock dumps, pits and stockpiles. The study also looked at a closed leach pad that has been covered with soil at Twin Creeks for emission comparison.

Mercury is a naturally occurring metal that is geologically concentrated in areas with volcanic, geothermal and past hydrothermal activity, and Nevada is home to large deposits of naturally occurring mercury because it has major mineral resources.

Mercury is often associated with gold and silver deposits, and Nevada produces more gold than any other state in this country, 5.7 million ounces of gold in 2008.

Mercury also is emitted from oceans and land masses worldwide.

The Nevada Mining Association points out in a statement that Nevada gold mining point-source emissions account for less than 1 percent of all global human-caused emissions and 1.5 percent of all human-caused emissions in the United States.

"It's very important people understand that mining is a very minor source of mercury regionally and globally," Schack said.

Mercury finds its way into fish that are then consumed by people, and large quantities of mercury cause learning disabilities in fetuses and young children. The U.S. Environmental Protection Agency said earlier this month that nearly half of the lakes and reservoirs nationwide contain potentially harmful levels of mercury. Gustin and Chris Eckley, a post-doctoral researcher, presented a preview of their findings late Friday afternoon at UNR, and they expect to release the final report in early 2010, after peer review.

"NDEP will be discussing the results of this study over the next few months with industry and other interested stakeholders to evaluate the need for future research opportunities and the availability of possible management practices to minimize these emissions," said Colleen Cripps, deputy NDEP administrator.

Although NDEP started its mandatory mercury control program in 2006, the agency and major Nevada mining companies started a voluntary program back in 2001 to reduce Nevada's mercury air emissions, which NDEP figures show fell from 21,098 pounds in 2001 to 4,892 pounds in 2007.

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