NPL Site Narrative for Lava Cap Mine

LAVA CAP MINE
Nevada City, California

Conditions at Proposal (September 29, 1998): The Lava Cap Mine site occupies approximately 30 acres in a rural residential area of the Sierra Nevada foothills. Gold and silver mining activities were initiated at the site in 1861. From 1861 to 1918, processing of the ore and disposal of the waste rock, overburden, and tailings occurred off site at the Banner mine, which is located approximately 1.5 miles north of the Lava Cap mine.

The Lava Cap mine was inactive from 1918 to 1933 or 1934, at which time mining activities were resumed and a flotation plant was built to process the ore on site. The gold and silver concentrates from the flotation plant were shipped to two smelters, one in California and the other in Washington. In 1940, a cyanide plant was built to recover the concentrates on site. However, this operation proved to be relatively ineffective. From 1941 to 1943, the cyanide plant only handled the middlings and tailings from the flotation plant. The middlings and tailings were ground to a very fine size (i.e., able to pass through a 400-mesh screen) and then vat leached with cyanide to remove the residual gold and silver. Slurries from the flotation and cyanidation processes were deposited in an onsite ravine. Where the ravine steepened and narrowed, a log dam approximately 60 feet high was built to hold the tailings in place. The waste rock and overburden were also deposited on site, in two piles located between the mine shaft and the tailings pond. The Lava Cap mine was shut down in 1943, due to World War II, and has remained inactive since then.

Studies conducted at the site show that arsenic has been detected in samples collected from the on-site tailings pile at concentrations of 997 mg/kg and 1,100 mg/kg. Arsenic has been detected in the two on-site waste rock piles at concentrations of 1,490 mg/kg and 1,900 mg/kg. The cancer risk screening concentration for arsenic is 43 mg/kg. Arsenic has also been detected, at concentrations including 0.41 mg/l to 0.66 mg/l, in the mine drainage that emanates from the on-site adit, which is located between the two waste rock piles.

In 1979, staff from the California Regional Water Quality Control Board (RWQCB), California Department of Fish and Game, and California Division of Mines and Geology inspected the Lava Cap Mine site, in response to citizens' complaints regarding the discharge of tailings from the mine area into Little Clipper Creek, which flows along the eastern boundary of the site. Tailings were observed in Little Clipper Creek from just below the tailings pond dam to 1 mile downstream. The wooden shaft that acts as a glory hole outlet for the dam was observed to have caved in, allowing tailings to escape from the base of the dam. The RWQCB issued a Cleanup and Abatement Order directing the site owners to remove the tailings from the creek, install catchment basins in the creek below the dam, divert all surface runoff around the tailings pond, and improve the structural integrity of the dam. The catchment basins were installed and diversions were constructed; however, the tailings were apparently not removed from the creek and improvements were not made to the dam.

During a major winter storm in January 1997, the upper half of the log dam collapsed, releasing over 10,000 cubic yards of tailings. In May 1997, staff from the California Department of Fish and Game and the Nevada County Department of Environmental Health inspected the site. Extensive deposits of tailings were observed in Little Clipper Creek, Clipper Creek, and Lost Lake. The tailings were also observed in

wetland areas contiguous with these water bodies, in some cases completely covering the vegetation. Lost Lake is a private lake located approximately 1.25 miles downstream of the Lava Cap Mine site. It is used by residents for boating, swimming, and fishing. In June 1997, the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC), issued a fact sheet recommending that users of Lost Lake avoid boating, swimming, and coming in contact with shoreline soils. Issuance of the fact sheet was based on March and April 1997 DTSC sampling results that indicated the presence of arsenic in Lost Lake water at concentrations up to 28.4 g/l and in shoreline soils at concentrations up to 1,130 mg/kg.

In October 1997, the EPA Region 9 Emergency Response Office determined that conditions associated with the tailings release from the Lava Cap Mine site met the National Contingency Plan (NCP) section 300.415(b)(2) criteria for a removal action. During October and November 1997, a contractor to the EPA Region 9 Emergency Response Office removed 4,000 cubic yards of tailings from the damaged dam area and stockpiled them on the waste rock pile immediately to the north of the tailings pile. The lower half of the dam (i.e., approximately 30 feet in height) was determined to be in good condition. The oversteepened slopes of the tailings pile immediately behind the dam were graded and the entire tailings pile was covered with waste rock. Stream diversions were also created around the tailings pile. In February 1998, a second response was conducted at the site to stabilize another tailings release and to further improve drainage. The EPA Region 9 Emergency Response Office anticipates that the removal action will be completed by mid-June 1998, at which time the 4,000 cubic yards of stockpiled tailings will have dried out enough to be covered with a clay cap.

Status (January 1999): EPA is considering various alternatives for the site.

For more information about the hazardous substances identified in this narrative summary, including general information regarding the effects of exposure to these substances on human health, please see the Agency for Toxic Substances and Disease Registry (ATSDR) ToxFAQs. ATSDR ToxFAQs can be found on the Internet at ATSDR - ToxFAQs (http://www.atsdr.cdc.gov/toxfaqs/index.asp) or by telephone at 1-888-42-ATSDR or 1-888-422-8737.