



LAVA CAP MINE SUPERFUND SITE

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY • REGION IX • NOVEMBER 2001

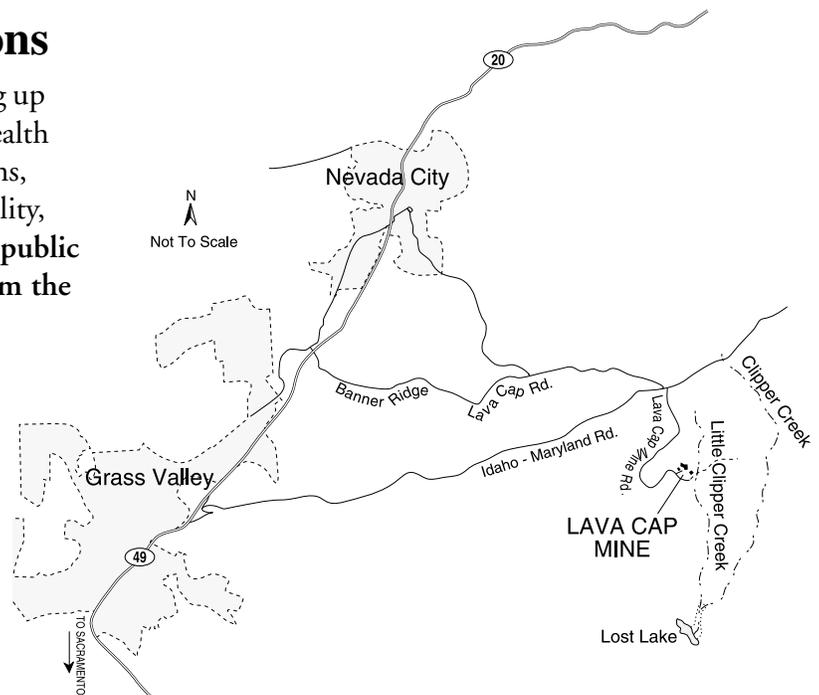
EPA Studies Cleanup Options, Seeks Public Input

After studying the degree of contamination resulting from the 1997 tailings spill from the Lava Cap Mine Superfund site (the Site), EPA has concluded that the Site presents unacceptable risks to human health and the environment. (See EPA's November 2001 Lava Cap Mine fact sheet, "Arsenic poses unacceptable risk to human health".) This fact sheet discusses the range of options EPA is considering for cleaning up contamination from the Site.

Development of Cleanup Options

EPA is beginning to study options for cleaning up the Lava Cap Mine site to reduce risks to human health and the environment. In developing cleanup options, EPA considers a number of factors including feasibility, cost, and community acceptance. **At its upcoming public meetings (see below), EPA would like to hear from the community near the site regarding some of the broad options we are considering.**

For cleanup purposes, EPA has divided the Site into several areas, including the mine property, Little Clipper Creek downstream of the mine, the Lost Lake area, and Clipper and Little Greenhorn creeks downstream of Lost Lake (see map on page 2). The exposed soils and sediments in all these areas contain elevated levels of arsenic and various metals, and all include surface water that can disturb and transport soils and sediments.



Community Meetings

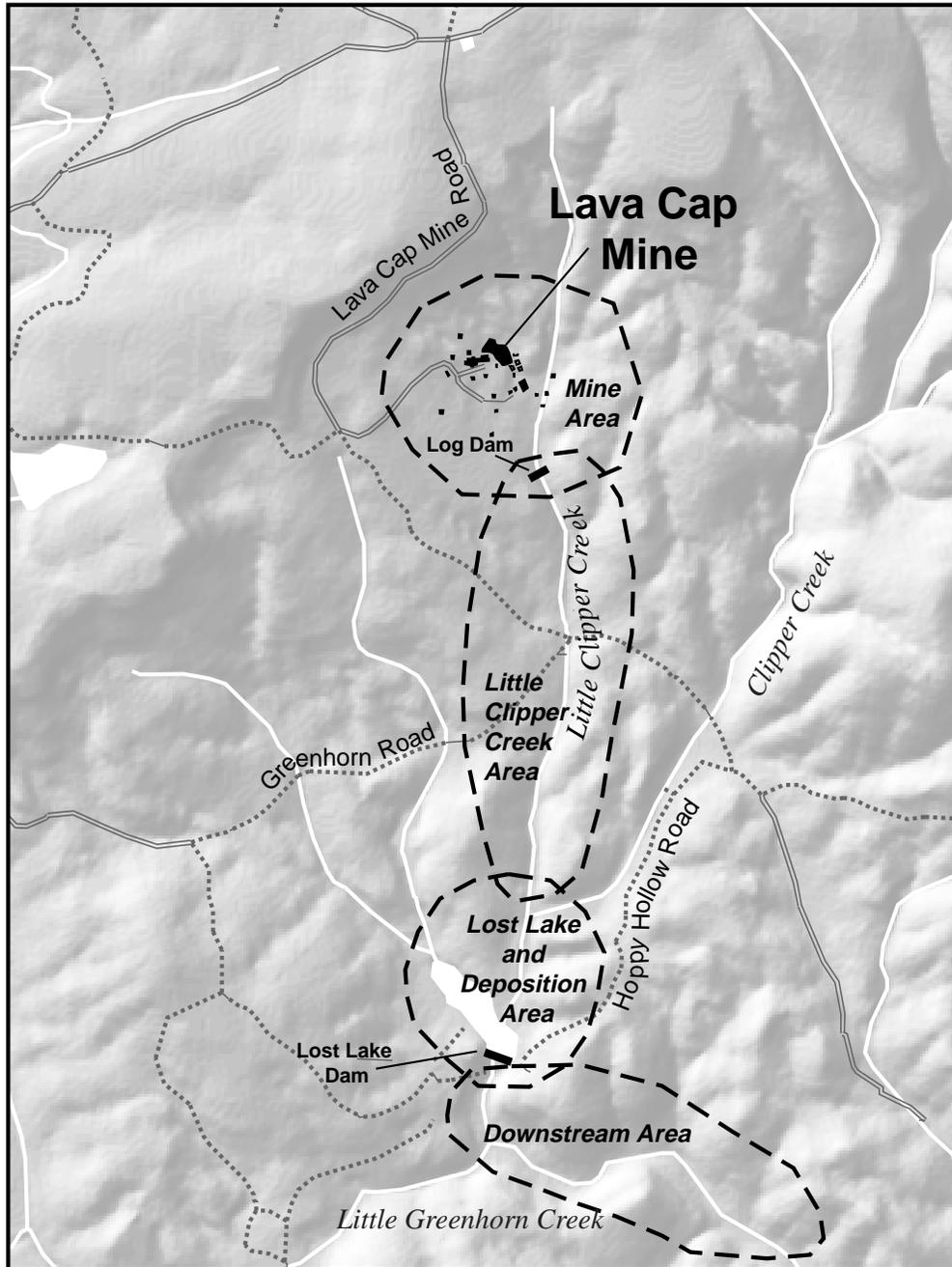
EPA, in cooperation with the Banner Mountain and Greenhorn Road homeowners associations, recipients of a technical assistance grant from EPA for monitoring the work at the Lava Cap Mine site, will hold two public meetings to discuss the results of site studies to date and the plans for future work, and to consult with the community on cleanup options. EPA will make the same presentation at both meetings.

- **Tuesday, November 13, 2001**
7:00 to 9:00 pm
Nevada County Board of Realtors
336 Crown Point Circle
Grass Valley
- **Wednesday, November 14, 2001**
2:30 to 4:30 pm
Nevada County Library
980 Helling Way
Nevada City

Soil and sediment cleanup options

The goal of the soil and sediment cleanup is to prevent people and animals from coming in contact with these materials. A wide range of cleanup options is available. Among the approaches EPA is considering are: revegetating the dry areas; revegetating the areas after

placing additional cover soils; covering aquatic sediments with geotextile fabric or clean soil to immobilize them; removing material and disposing of it in a landfill away from the Site (which will probably prove to be cost-effective only for small areas of contamination such as exist along Little Clipper Creek); and removing materials to a landfill built for this purpose on the Site.



Lava Cap Mine areas

Water management options

The different soil and sediment cleanup options would require different options for managing water flows. The goal of these options is to prevent future storms and flooding from further spreading the tailings or damaging any covers placed on soils and sediments.

Depending on which soil and sediment cleanup options are selected, changes to the Clipper Creek drainage and Lost Lake are likely. For example, the natural stream channel could be re-established, which would involve eliminating Lost Lake. If Lost Lake is to remain, construction projects would be necessary to manage flood flows and to prevent these flows from undoing any improvements made to isolate the soils and sediments. It also appears that, if Lost Lake is to remain, its dam may need improvement to increase its stability and to minimize the further release of soils and sediments downstream.

To improve water quality in Little Clipper Creek, Clipper Creek, Lost Lake, and Little Greenhorn Creek,

some degree of collection and treatment of water high in arsenic may be required. The most likely area to accomplish this would be at the mine, where the surface water highest in arsenic appears to originate.

A final cleanup plan would likely include a combination of soil and sediment and water management actions.

Community Impacts

EPA's cleanup options will affect the surrounding community to varying degrees, as suggested in the table below. For example, some options would result in more truck traffic and construction activity than others. Also, where contaminated soils and sediments are left in place, some restrictions on land use would be required to prevent future exposure to contaminants. For this reason, and to help us understand community opinions and benefit from local expertise, EPA would like your input on the overall cleanup approach and specific components as we develop cleanup alternatives.

Possible impacts to the community of different cleanup options

OPTIONS		IMPACTS					
		Short-term				Long-term	
		Earth moving or quarrying	Truck traffic	Construction noise	Road building	Land use restriction	Surface water use restriction
Soil and sediment	Excavation/ off-site disposal	high	high	high	high	least	low
	Excavation/ on-site disposal	high	locally high	high	locally high	landfill areas	low
	Capping and flood control	medium	medium	medium	locally high	medium	medium
	Revegetation	low - medium	low - medium	low - medium	low	high	
Water management	Upgrading Lost Lake dam, local rock	high	locally high	locally high	locally high		low or medium
	Upgrading Lost Lake dam, imported rock	high	high	locally high	high		low or medium
	Restoring Clipper Creek without Lost Lake	medium	medium	medium	medium		high (no lake)

FOR ADDITIONAL COPIES OF THIS FACT SHEET OR FOR OTHER INFORMATION ON THE LAVA CAP MINE SUPERFUND SITE, PLEASE CONTACT:

For More Information

Dave Seter

Project Manager
Telephone: (415) 972-3250
Fax: (415) 947-3528
Email: seter.david@epa.gov

Don Hodge

Community Involvement Coordinator
Telephone: (415) 972-3240
Fax: (415) 947-3528
Email: hodge.don@epa.gov

U.S. Environmental Protection Agency,
Region 9, 75 Hawthorne Street (SFD-3),
San Francisco, CA 94105-1309

Or, you may leave a message on the EPA's Office of
Community Involvement toll-free line at **(800) 231-3075**
and your call will be returned.

Information Repositories

The EPA will place copies of pertinent documents related to the Lava Cap Mine Superfund site RI/FS at the locations listed below. The documents at the information repositories are part of the Administrative Record for the Lava Cap Mine Superfund site.

- **Superfund Records Center**

(the most extensive collection of documents)
95 Hawthorne Street, Suite 403S
San Francisco, CA 94105
Telephone: (415) 536-2000

- **Nevada County Library**

980 Helling Way
Nevada City, CA 95959
Telephone: (530) 265-7050

- **Grass Valley Public Library**

206 Mill Street
Grass Valley, CA 95945
Telephone: (530) 273-4117

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 U.S. Environmental Protection Agency, Region 9
75 Hawthorne Street (SFD-3)
San Francisco, CA 94105-3901
Attn: Don Hodge

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Arsenic poses unacceptable risk to human health Arsenic and metals pose potential risks to the environment

This fact sheet summarizes the results of the Human Health and Ecological Risk Assessments that EPA conducted as part of its investigations of contamination from the Lava Cap Mine Superfund site (the Site).

Site history

The Lava Cap gold mine operated for 67 years between 1861 and 1943. The process of extracting gold from the local ore, which naturally contains significant amounts of arsenic, left behind “tailings” – powdered rock that is very mobile and contains with even higher levels of arsenic. The tailings were contained in the Little Clipper Creek drainage behind a log dam on the Lava Cap Mine property. In a severe storm in January 1997, the log dam collapsed and allowed over 10,000 cubic yards of tailings to wash down the steep creek bed to the confluence of Clipper Creek and Lost Lake, where they settled out of the water as it spread out and slowed. Some tailings washed over the Lost Lake dam spillway into Clipper Creek below the dam and downstream for a distance of approximately a quarter mile, possibly more, possibly more. Over the next year, EPA stabilized the tailings pile to reduce the chance of further releases.

As a result of this event and due to the likelihood of harmful effects on people and the natural environment, in February 1999, EPA placed the Site — the Lava Cap mine property and areas downstream to which contamination had spread — on its list of the priority sites for cleanup under the Superfund program. Since October 1999, EPA has been studying the Site to determine the nature and extent of contamination and to quantify the risks to human health and the environment from the release of the mine tailings.

Risks to Human Health

EPA’s draft Human Health Risk Assessment is now available at information repositories for review and comment (see back page for details). This study estimates the risks to human health that the Lava Cap Mine Superfund site could pose if EPA takes no action to clean up contamination. The study shows that contact with and ingestion of soils and sediments containing arsenic pose the greatest risk for area residents and potential workers at the mine.

In addition to arsenic in soils and sediment, EPA has found elevated levels of arsenic in a few residential wells near the site. Drinking the water from these wells presents a further significant risk to some residents. EPA will provide data on their well water to individual property owners and will continue to investigate whether the arsenic levels are due to the mine site or to arsenic occurring naturally in the groundwater aquifer. EPA must establish a connection to the release of contaminants from the site in order to include groundwater in the cleanup plan for the site.

For areas of the Site that meet EPA’s standard for taking action under Superfund, EPA will propose projects to reduce the risks. To meet this standard, the risk must be greater than “background” — the risk that would exist regardless of the release of contamination at the site — and greater than EPA’s “acceptable risk range” of one additional cancer case in a population of ten-thousand to a million. At Lava Cap, the background risk due to naturally occurring arsenic in the environment is very close to the acceptable risk range. Therefore, the table of human health risks below shows risks in comparison to the background level. (The draft Human Health Risk Assessment contains the complete table of numerical risk estimates.) At this point it appears that some degree of cleanup will be necessary in several areas of the Site.

Human Health Risks

AREA and USE	CANCER RISK Number of times greater than background	NON-CANCER RISK Number of times greater than background
Future Worker, Lava Cap Mine	529	19
Residents, Lost Lake With recreation Without recreation	2 (Below background)	2 (Below background)
Residents, Lava Cap Mine	10	12
Residents, Little Clipper Creek With recreation Without recreation	3 (Below background)	2 (Below background)
Recreation, Deposition Area	12	20
Recreation, Below Lost Lake	13	25

Risks to the Environment

EPA has also completed its draft Ecological Risk Assessment, which is also available for public review and comment. This study estimates the likelihood of adverse effects to the environment from exposure to contaminants from the Site. The study evaluates risks to plants, mammals, birds, fish, amphibians, earthworms, insects

and other small animals in the sediments, all the way down to soil microbes. In several areas of the Site, one or more of these groups may be at risk from elevated levels of arsenic and various metals. The draft Ecological Risk Assessment provides detailed lists of life forms at risk at various areas of the site.

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(530) 265-7050

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206 Mill Street

Grass Valley, CA 95945

(530) 273-4117

INFORMATION ON THE INTERNET

- **Region 9 Superfund Site Information:**

www.epa.gov/region09/waste/sfund/npl/siteinfo.htm

- **EPA Region 9 Solid & Hazardous Waste Programs:**

www.epa.gov/region09/waste

- **EPA Superfund Program/Information for Communities:**

www.epa.gov/superfund/citizens/index.htm

- **EPA Superfund Program:**

www.epa.gov/superfund

The Nevada County Department of Environmental Health home page has a link to connect you to information about the Lava Cap Mine Superfund site at: www.co.nevada.ca.us/ehhealth/welcome.htm under the "Federal Activities in Nevada County" section.