Lava Cap Mine Superfund Site

U.S. Environmental Protection Agency • Region 9 • San Francisco, CA • June 2011

Open House Invitation

You are invited to attend an open house hosted by EPA to update you about recent and upcoming cleanup activities at the Lava Cap Mine Superfund Site.

The open house will begin with a two-hour poster session followed by an hour-long question and answer session.

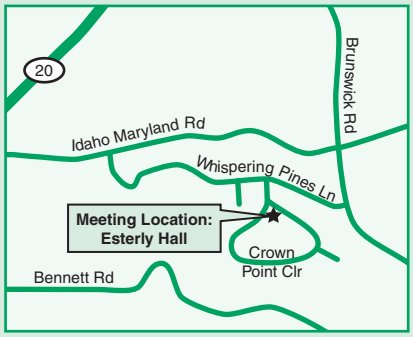
This is an opportunity to meet members of the cleanup team, ask questions, and gather information about EPA's existing and future work at the Lava Cap Mine.

Lava Cap Mine Superfund Site Open House

Tuesday, June 28, 2011
5:00 – 8:00 pm

Esterly Hall
336 Crown Point Circle
Grass Valley

(located in lower level of the Nevada County Association of Realtors building)



Open House Schedule

5:00 pm – 7:00 pm. Visit various EPA poster stations to learn more about the Mine, past activities, plus recent and upcoming work at the Lava Cap Mine Site. EPA Staff will be at each station to answer your questions one-on-one.

7:00 pm – 8:00 pm. Participate in a Question and Answer session.

Operable Units at the Lava Cap Mine Site

In January 1999, EPA placed the Lava Cap Mine Site on its National Priorities List, or NPL (commonly called the Superfund List) and began investigating the Site. To speed up the cleanup in key areas, the Site was divided into the following four operable units (see map on Page 2).

Operable Unit 1 (OU 1): OU-1 consists of the former active mining area, surface mine wastes, discharges from the mine, and impacted surface soil and sediment in and adjacent to Little Clipper Creek upstream of Greenhorn Road. To address these areas, EPA selected consolidation and capping as the cleanup remedy. EPA began the OU-1 remedy construction in May 2006, and completed it in 2007. The remedy for treating the mine discharge has not yet been constructed.

Operable Unit 2 (OU 2): OU-2 pertains to the groundwater at the Site, spanning from the original mine area to Lost Lake. In 2008, EPA selected the construction of a water supply pipeline to address the issue of contaminated

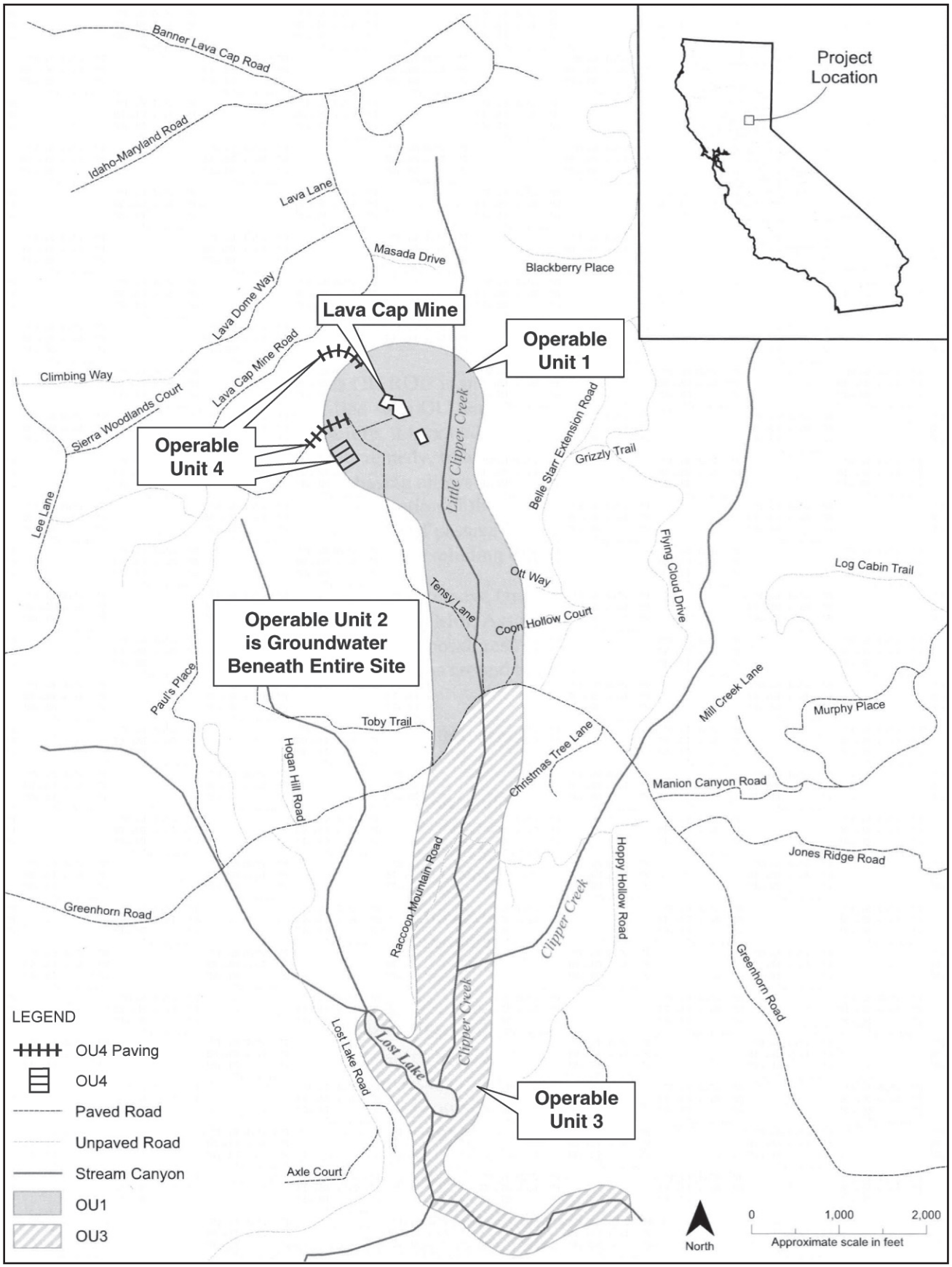


Figure 1: *Lava Cap Mine Operable Unit*

groundwater in drinking water wells. The remedy will provide a reliable municipal water supply from Nevada Irrigation District (NID) to the affected properties. EPA is currently evaluating pipeline routes to implement this remedy, which is complicated by the need to acquire private easements.

Land use notifications and monitoring components are also part of this remedy. EPA will conduct additional studies to determine if additional actions are needed to address contaminated groundwater at the site.

Operable Unit 3 (OU 3): OU-3 includes Lost Lake and the adjacent Deposition Area, Little Clipper Creek downstream of Greenhorn Road, and Clipper Creek above and below Lost Lake. EPA is finalizing a Feasibility Study, which evaluates alternative remedies for this operable unit.

Operable Unit 4 (OU 4): OU-4 was originally a subset of OU-1 and was created to quickly deal with contaminated residences located on the mine property. The OU-4 construction activities were completed in early 2006 during the OU-1 remedial action.

Arsenic is the Contaminant of Concern

Arsenic is the primary contaminant of concern at the Lava Cap Mine Superfund Site. Arsenic is a naturally occurring element widely distributed in the earth's crust.

Exposure to arsenic through contact with soil, inhalation of dust, ingestion of drinking water or contaminated biota (e.g., fish or plants) poses a risk to health, because arsenic is known to cause cancer and other non-cancer health impacts in humans.

The effects of exposure to any substance, including arsenic, depend on the amount you are exposed to, how long you are exposed, how you are exposed, personal traits and habits, and whether other chemicals are present.

Site History

Lava Cap Mine, a 30-acre property located outside of Grass Valley in the northern foothills of the Sierra Nevada Mountains, operated periodically from 1861 until 1943. During the mine's operation, gold and silver were extracted from ore, producing finely ground tailings containing elevated concentrations of naturally occurring arsenic and other metals. Some of the tailings were disposed into the Little Clipper Creek drainage adjacent to the mine's ore processing buildings, contaminating the soil, sediment, and groundwater in the area. Most of the tailings were deposited behind Lost Lake Dam which was constructed as a tailings impoundment on Clipper Creek about 1 mile downstream of the mine.

The tailings on the mine property were contained by a log dam constructed across Little Clipper Creek. During a major storm in January 1997, the log dam partially collapsed and the flood waters spread additional arsenic-laden tailings downstream. EPA has designated the tailings a human health and environmental threat because exposure to these tailings may present a significant health risk to humans and aquatic life.

The groundwater has also been impacted from contaminated water seeping through the soil to the water table. Arsenic concentrations exceeding the drinking water standard (known as the maximum contaminant level or MCL) have been detected in groundwater samples collected at the mine and adjacent properties.

Arsenic concentrations in groundwater have varied greatly, ranging from slightly above to more than ninety times the MCL of 10 micrograms/liter (µg/L). To address arsenic concentrations detected above MCLs in some residential wells, EPA installed in-home treatment units. EPA conducts regular monitoring of these units to ensure that these treatment systems are effective in reducing the levels of arsenic below MCLs in the drinking water.

Where Have Elevated Levels of Arsenic Been Found?

- Surface Mine Wastes, Tailings Piles, and Surface Soil/Sediment on the mine property and in Little Clipper Creek downstream of the mine. EPA has already either removed or capped the arsenic-impacted areas upstream of Greenhorn Road.
- Tailings Piles/Surface Soil/Sediment: Elevated arsenic levels have been found in the Little Clipper Creek watershed down to Clipper Creek, in Clipper Creek above and below Lost Lake, in the Deposition Area above Lost Lake and in Lost Lake.
- Subsurface Soil: Arsenic concentrations in subsurface soil samples in the tailings deposition area above Lost Lake are elevated, with concentrations typically exceeding what is found at the ground surface.
- Surface Water: Arsenic is found at elevated levels in the discharge from the mine and in Little Clipper Creek, Clipper Creek and Lost Lake.
- Groundwater: Arsenic is present in groundwater beneath the mine wastes and on some properties adjacent to the mine.

Is My Drinking Water Safe?

Yes. EPA conducted a sampling program that identified wells contaminated with arsenic above drinking water standards. EPA provided in-home treatment systems to the owners of those wells.

What Can I Do to Limit Exposure?

- Avoid or limit contact to surface water or groundwater that may be impacted by arsenic.
- Avoid or limit consumption of fish from water that may be impacted by arsenic.
- Avoid recreational use of Lost Lake and the adjacent tailings deposition area.
- If you must walk in the tailings area, avoid windy conditions and don't disturb the fine, gray dust.
- After walking around Lost Lake or in the adjacent tailings area, rinse off shoes and pets outside to avoid bringing contaminated soil into a vehicle or home.
- If you come into contact with tailings, wash or shower as soon as possible.

Where are we now?

The figure below highlights each step of the Superfund Process and shows where each of the Operable Units is in the cleanup process.

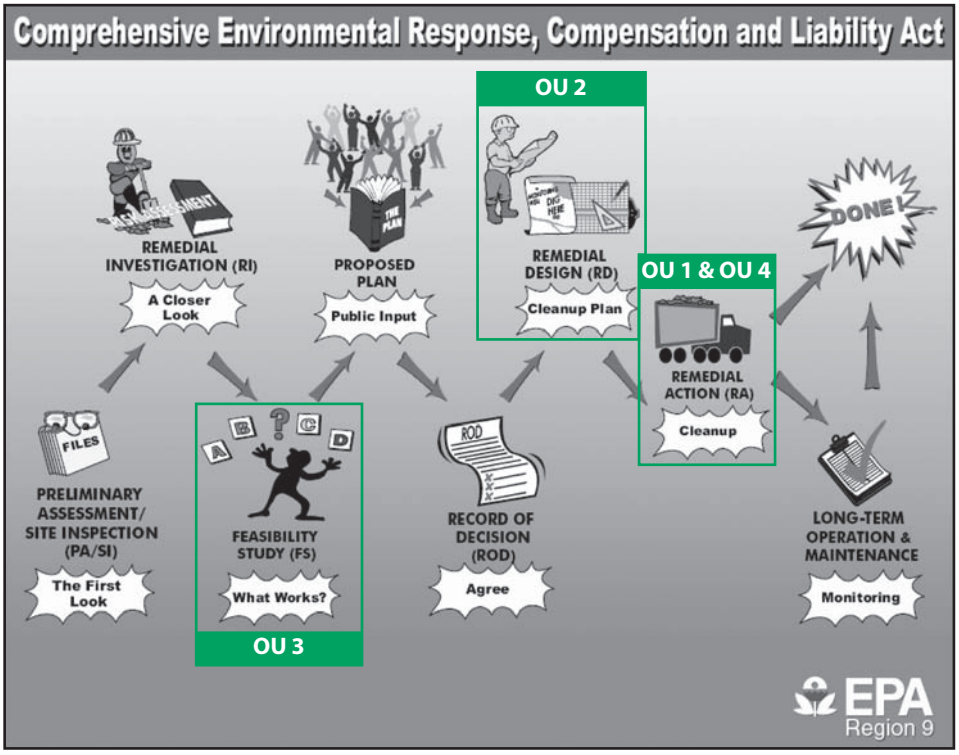


Figure 2: *EPA's Superfund Process*

First 5 Year Review Currently Underway

EPA is working on the first 5 Year Review of constructed remedies at the Site. The purpose of the 5 Year Review is to evaluate whether the selected cleanup remedy in the Mine Area (OU1 and OU4) remains protective of human health and the environment.

The constructed remedy in the Mine Area left mine wastes on site beneath protective covers and beneath mine buildings. When waste is left in place, the Superfund law requires EPA to evaluate the protectiveness of that remedy every five years.

The 5 year review will be available in Fall 2011 on EPA's website, **www.epa.gov/region09/lavacap,** and in the Information Repositories listed below.

Community Involvement

EPA is committed to engaging and involving the public in the cleanup process at the Lava Cap Mine Superfund Site. Its Community Involvement Program focuses on answering the community's questions about the cleanup effort, providing information to the community about site activities, and incorporating community issues and concerns into Agency decisions.

The next major community involvement activity is expected to be the release of EPA's proposed cleanup remedy for Operable Unit 3 (Lost Lake and adjacent areas). At that time, EPA will conduct a formal 30-day comment period on the Proposed Plan and conduct a public meeting to explain the plan and solicit formal comments. Details of the comment period/meeting will be explained in the Proposed Plan. Prior to releasing the Proposed Plan, EPA will issue the OU3 Feasibility Study, which will be available for public review at the Information Repositories listed below.

One convenient place to find major Site documents is to go to EPA's web site: **www.epa.gov/region09/lavacap**.

To learn more about the Site, you will find an extensive amount of information at EPA's Information Repositories. Documents at these repositories are part of the Administrative Record for the Site.

For Further Information

EPA has two points of contact for the Lava Cap Mine Site, the Remedial Project Manager, Brunilda Dávila, and the Community Involvement Coordinator, David Cooper. If you have technical questions about EPA's cleanup effort, please call Brunilda, and if you have general Site questions, please call David Cooper.

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David Cooper
Community Involvement Coordinator
US EPA Region 9
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San Francisco, CA 94105
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cooper.david@epa.gov

You can also call toll-free (800) 231-3075.
Leave a message and your call will be returned.

Information Repositories

Nevada County Library
980 Helling Way
Nevada City, CA 95959
(530) 265-7050

Grass Valley Public Library
206 Mill Street
Grass Valley, CA 95945
(530) 273-4117

Superfund Records Center
95 Hawthorne Street
San Francisco, CA 94105
(415) 536-2000

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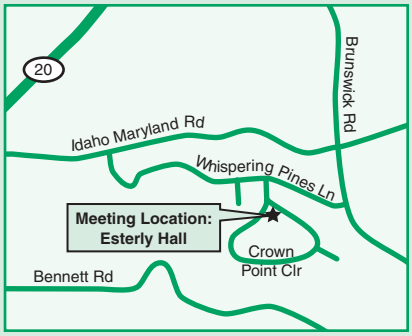

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