

Overlook of the site with Clear Lake in the background.

# 2021 Sulphur Bank Superfund Site Cleanup Update

The U.S. Environmental Protection Agency (EPA) added the Sulphur Bank Mercury Mine Site to its Superfund cleanup program in 1990. The site is large (about 160 acres) and is polluted with arsenic and mercury from historic mining activities. EPA has completed eight short-term cleanup projects at the site to prevent community members and the environment from coming into contact with highly contaminated mine waste (pollution). EPA has also been researching options for a long-term cleanup for the site. For more information view the site webpage at: <a href="https://www.epa.gov/superfund/sulphurbankmercury">www.epa.gov/superfund/sulphurbankmercury</a>

#### This update covers

- How the site affects Clear Lake community health;
- Options for the long-term site cleanup; and
- Timeline and goals for cleanup.

#### **Also Inside:**

- How to reduce contact with site pollutants (pg. 4)
- How to stay involved (pg. 8)



Map in upper-left indicates the location of the site with a red dot.

### **Brief Description of the Sulphur Bank Mercury Mine Superfund Site**

The 160-acre Sulphur Bank Mercury Mine site is an abandoned open pit mercury mine located on the shoreline of Clear Lake in Lake County, California. The Sulphur Bank Mercury Mine was mined for sulphur and mercury between 1865 and 1957. About 150 acres of mine tailings and waste rock and a flooded open pit mine (called the Herman Impoundment) are located on the

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For definitions of the **bolded terms** please go to page 7 of the fact sheet to find the glossary.

property (*see map*). Approximately two million cubic yards of mine waste and tailings remain on the mine site. The Herman Impoundment is filled with acidic water and is 750 feet from the shore of Clear Lake. The Elem Indian Colony is on a portion of the site. Tribal members use the land and resources on and near the site for traditional cultural activities.

The geology of the area naturally contains high levels of mercury. The mining activity in the area brought it to the surface where it has **contaminated** the soil and Clear Lake **sediments**. **Mercury** in the lake sediments gets absorbed by algae and builds up in fish (*see graphic below*). The levels of mercury in the fish in Clear Lake led the state to issue an **advisory** to limit consumption of fish caught in Clear Lake. For more



Close-up of Herman Impoundment water onsite.

information view the state's webpage at: <u>oehha.ca.gov/advisories/clear-lake</u>



Graphic showing how mercury from **mine waste (pollution)** moves with groundwater flow from Herman Impoundment, through the **waste rock dam**, and into Clear Lake where it further contaminates lake sediments.

### SECTION 1 How the Mine Affects Clear Lake Community Health

# How does EPA evaluate the risk to human health?

EPA did a study—called a **Human Health Risk Assessment** to see how pollution from the mine may affect human health. In this assessment, EPA looked at how toxic the chemicals from the mine are and the different ways the Clear Lake community could come into contact with the pollutants **(exposure)**. EPA also worked with the Elem Indian Colony to consider how traditional practices contribute to exposure to the pollution.



EPA gathering soils from the site.



Please note that no one is drinking or using groundwater polluted by the site. Drinking water provided to residents and businesses in the area is safe to drink.

#### What did EPA study in the area?

- Waste materials and soils on the site.
- Residential soils within the Elem Indian Colony (EIC) and other residential areas along Sulphur Bank Mine Road affected by mining waste.
- Sediment samples along the Clear Lake shoreline and upstream from the site.
- Surface water samples onsite and from nearby wetlands.
- Fish tissue (black crappie, bluegill sunfish, channel catfish, common carp, largemouth bass, redear sunfish, Sacramento sucker, silverside, threadfin shad, and tule perch) in different parts of Clear Lake.
- Wild plants (including acorns, tule roots, tule stalks, cattail roots, and cattail stalks) around the site and EIC.

# Who was considered for the Human Health Risk Assessment?

- Traditional tribal users of the land;
- Clear Lake residents;
- Recreational users, including fishermen; and
- $\mathbf{P}$  Trespassers on the site.

# What tribal exposures were considered?

- Traditional practices using the land/soil on the Elem Indian Colony;
- Crinking water from Clear Lake; and
- Eating fish, plants (acorns, tules, and cattails), and waterfowl.

### How to Reduce Your Contact with Pollution From the Site?

#### What pollutants from the site are most risky to community members? What are the ways community members come into contact with them?

**Arsenic** poses the greatest risk, but only to those who may trespass on the site and in some way eat or breathe in surface soils. Arsenic is highly toxic and has a high cancer risk if eaten/breathed in. The site and the land that surrounds it naturally has metals, which is why it was mined for many years. The Clear Lake area has more arsenic in soils than in other parts of the country.



Signage onsite informing about trespassing risks.

Mercury poses a risk to those in tribal communities and in the

general public who may eat more fish than the state recommends. It can cause permanent damage to the nervous system and might result in disabilities for developing fetuses and children.



#### How can I avoid mercury pollution in fish?



The California Office of Environmental Health and Hazard Assessment (OEHHA) issued a limit on eating fish from Clear Lake. It is based on mercury found in edible Clear

Lake fish tissue. OEHHA is the agency responsible for evaluating health impacts from eating polluted fish and recommend safe limits on eating polluted fish. This fish advisory can be viewed at:

www.oehha.ca.gov/advisories/clear-lake

## If the fish are polluted, can I safely swim in the lake?

Pollution from the site does not make it unsafe to swim in Clear Lake. Levels of mercury in the lake water consistently meet state and federal standards. However, there are occasional and naturally occurring algal and cyanobacteria blooms that occur in Clear Lake that can make the water unsafe to swim in. These usually occur in mid to late summer. We advise the community to follow information and instructions from the State of California and the County of Clear Lake on cyanobacteria blooms.

### SECTION 2 Options to Address Pollution from the Site



Site monitoring work in progress.

Since 2017, EPA has studied long-term cleanup options for the Sulphur Bank Mine site. This study is detailed in EPA's **Focused Feasibility Study** document. EPA is finalizing this study and will use it to help make a final decision on how to clean up the site. The next step in the process is the publishing of a proposed cleanup plan (Proposed Plan) for the mine portion of the site. EPA plans to issue this Proposed Plan on the mine site cleanup for public comment in the mid-late Summer of 2021.

Also, EPA continues to study the lake and its sediment to understand how it might reduce the mercury contamination in the lake. Clear Lake's geology and the way mercury moves through the food chain makes the site's pollution in Clear Lake very difficult to clean up. Before cleaning up the lake EPA must determine how each cleanup option would affect levels of mercury in fish. EPA must also understand how mine-related mercury contamination in the lake differs from mercury that is naturally occurring in the area. EPA anticipates the Proposed Plan for the lake and sediment cleanup to be several years away.



### SECTION 3 EPA Cleanup Timeline and Goals

EPA is committed to create the site clean up plan (Proposed Plan) for the mine portion of the site this year. To do this, EPA has been working with stakeholders from:

- EPA Headquarters;
- the Elem Tribal Colony;
- · California Department of Toxic Substances Control; and
- Central Valley Regional Water Quality Control Board.

The stakeholder group has developed goals for the site team for both the near term (next five years) and long term (through 2037). The cleanup plan for the lake and its sediment and wetlands will require further investigation. On the next page there is a site specific timeline that shows where different parts of the site will be in the cleanup process during the next eight years. These are approximate years and subject to delays or change.

### **Site Timeline**

	Mine Site 4	Clear Lake and Sediment 3	North Wetlands 1
2020	Update Human Health Risk Assessment and Focused Feasibility Study 3/4	Evaluate lake data and coordinate study with USGS on mercury in fish tissue 3	Review existing site data
2021	Interim Proposed Plan 5	Refine Site Strategy and collect data 3	Designate new Operable Unit
2022	Interim Record of Decision 6		Remedial Investigation/
2023 - 2028	Interim Record of Decision Phase 1 Remedial Design (RD) <b>7</b>		Feasibility Study (RI/FS) 3/4
		Remedial Investigation/ Feasibility Study (RI/FS) <b>3/4</b>	Proposed Plan Record of Decision
	Interim Record of Decision Phase 1 Remedial Actions (RAs) 8		Remedial Design (RD) Remedial Actions (RAs) 5/6/7/8

Above is a site specific timeline that notes (*with numbers that connect to the Superfund Process Graphic below*) where different parts of the site will be in the process during the next eight years.



#### **Timeline Definitions**

**Human Health Risk Assessment:** An evaluation of how the site impacts human health.

**Focused Feasibility Study:** An evaluation of cleanup options for a specific portion of the site

**Feasibility Study:** An evaluation of cleanup options. **Interim Proposed Plan:** A proposed cleanup plan for only the mine portion of the site.

**Public Comment:** An opportunity for the community / stakeholders to provide comments / concerns about the proposed cleanup.

**Record of Decision:** A document detailing the final cleanup plan selected for the site.

**Remedial Design:** Design specifics for executing the cleanup plan.

**Remedial Actions:** Executing the cleanup. **Site Strategy:** Strategies and goals to ensure the cleanup progresses.

**Operable Unit:** During cleanup, a site can be divided into a number of distinct areas depending on the complexity of site problems. These areas are called operable units (OUs). OUs can address a specific geographical area where a unique action is required. **Parcel Transfer Criteria:** Parcel cleanup goals intended to ensure their transfer to the Bureau of Indian Affairs.

### **Cleanup Goals**

- Ensure site documents and data are easily accessible to the public. EPA will ensure site related information is accessible through the site's webpage.
- Reduce mercury going from the site into Clear Lake. The cleanup efforts will focus on the historic mine waste to decrease the amount of mercury continuing to enter Clear Lake.
- Promptly address unacceptable human exposure to site pollutants. Mining wastes have been found in areas used by the Elem Indian Colony and neighbors south of the mine. EPA's prior cleanup actions have reduced human health risks, and future actions will complete the cleanup of pollution in these areas.
- Reduce mercury in Clear Lake fish tissue. Since 1970, various investigations in Clear Lake have found high levels of mercury in fish tissue. Although mercury comes from many sources, the primary source of mercury in fish tissue is the Sulphur Bank Mercury Mine site. EPA's cleanup plans for the mine site will reduce mercury contributions to Clear Lake. EPA is working to determine what additional cleanup may be needed.
- Facilitate timely transfer of parcels to Bureau of Indian Affairs (BIA). EPA is working with BIA to assist in transferring ownership of parcels previously held by the company that mined Sulphur Bank to the Elem Indian Colony (EIC). These parcels have ancestral significance to EIC. While some of the parcels are clean, others have some site related pollution.

### Glossary

Exposed Acid Generating Rock: Naturally contaminated rock that is highly acidic.

Exposure: Community members coming into contact with pollutants.

Feasibility Study: An evaluation of cleanup options.

Focused Feasibility Study: An evaluation of cleanup options for a specific portion of the site.

Herman Impoundment: See open pit mercury mine.

Human Health Risk Assessment: An evaluation of how the site impacts human health.

**Lake Sediment:** Lake sediments are comprised mainly of particles of clay/ silt/ sand, organic debris, chemicals, or combinations of these that settle into the bottom of a lake.

Mine Tailings: Contaminated materials left over after the mining process.

**Open Pit Mercury Mine / Herman Impoundment:** Mining technique in which a hole is dug to take out minerals that are close to the surface. The open pit on the site is called Herman Impoundment.

Residential Soils: Soils located on private properties with homes and residential use.

**State Fish Advisory:** A recommendation to limit or avoid eating certain species of fish or shellfish caught from specific water bodies.

Waste Rock: Contaminated mine waste.

**Waste Rock Dam:** A pile of contaminated waste rock that was unofficially constructed as a dam to prevent water flow from Herman Impoundment into Clear Lake.

### How to Stay Informed/Involved

EPA is committed to developing a clean up plan for the mine portion of the site this year. As a part of the process, EPA hired public participation contractor Triangle Associates. Their staff are supporting EPA in providing transparent communication and engagement with the public about the ongoing cleanup efforts. This includes holding a virtual community forum in 2021.

#### March 2021 Community Forum Planning Meetings

**EPA will support two community forum planning meetings:** (1) A tribal-specific meeting; and, (2) a local government and general community-specific meeting. These meeting groups will work with EPA to decide an agenda for the Community Forum that will:

- give the community the opportunity to discuss their concerns relating to the site;
- help EPA to get an understanding of how lake health affects different communities;
- make the EPA team available to answer and respond to questions and concerns; and
- help EPA prioritize resources related to lake health and fish consumption outreach.

More information on this will be provided soon.

#### Spring/ Summer 2021 Virtual Community Forum

- EPA is planning to hold both tribal and general Community Forum meetings via Zoom in spring 2021.
- EPA invites the community to join and share their perspectives on the site cleanup. Community input will inform future cleanup work at the site and prioritize our outreach.
- As part of the planning process for the Community Forum, EPA is contacting tribal members, tribal representatives, community members, government agencies, and stakeholders to hear their concerns about the site and understand how to best communicate with the community at large.
- More information on the date, time and software platform will be provided soon.

#### Where to find more information and who to contact

Visit the site website (<u>https://www.epa.gov/superfund/sulphurbankmercury</u>) or contact the site's Community Involvement Coordinator or Remedial Project Manager.

#### **Community Involvement Coordinator**

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