

SUPERFUND

Fact Sheet

Formosa Mine Superfund Site

Douglas County, Oregon

U.S. Environmental Protection Agency, Region 10

August 2008

This fact sheet provides information about the Formosa Mine Superfund Site, located on Silver Butte, one of the headwaters of the South Fork of Middle Creek. This site is located approximately 10 miles south of Riddle, Oregon in Douglas County.

The site was added to the Environmental Protection Agency (EPA) National Priorities List on September 19, 2007, because heavy metals and acid mine drainage at the site pose a risk to people and the environment.

Site Background

The 76-acre Formosa Mine Superfund Site was originally mined for copper and zinc from approximately 1910 to 1937. The mine was reopened in 1989 by Formosa Exploration, Inc. and its parent company Formosa Resources Corporation.

As mining operations ceased in 1993, the mine was filled with mill tailings, crushed ore, and limestone. Acidic water, called acid mine drainage, that flowed from the mine was directed towards a nearby slope of loose rock. An additional 20,000 pounds of low grade ore from the mine was placed into a lined cell and capped. After some reclamation work was done, the mining companies left the area.

In 1997, the acid mine drainage control system failed and toxic drainage was released into the South Fork of Middle Creek and other points downstream. Eighteen miles of fish habitat downstream from the mine was severely degraded, and the documented fishery that had thrived prior to this time was destroyed.

In 2000, the Oregon Department of Environmental Quality began an investigation of the site and installed a water diversion system designed to reduce the amount of contamination flowing into the stream. In 2005, citizens petitioned the EPA to consider adding the site to the National Priorities List (NPL) of the most contaminated sites in the nation. The site was proposed for listing in 2006 and was added to the NPL in 2007.

Also In this Issue:

- What is acid mine drainage and why is it a problem? page 2
- Who will pay for the investigation and cleanup? page 2
- Who is working on the cleanup? page 2
- What has been done so far to clean up the site? page 2
- What happens next? page 3

Community Involvement Information

- You can be involved in cleanup page 3
- Technical assistance grant available page 3
- Public health assessment page 3
- For more information page 4

Introduction to Superfund

Superfund is the nickname for an environmental law enacted in 1980 called the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Under this law, the most contaminated sites in the United States are placed on the National Priorities List. These sites are called Superfund sites.

EPA then follows a careful cleanup planning process that is outlined by the Superfund law in order to come up with a sound plan to remedy problems caused by contamination at the site.

What is acid mine drainage and why is it a problem?

Acid mine drainage (AMD) is the result of chemical reactions between water, oxygen, bacteria and sulfide minerals. At Formosa Mine, there is water and air movement underground that never existed before mining operations began. This created ideal conditions for acid mine drainage to form.

Acid mine drainage typically has a pH of 2.6 to 3.8, which is highly acidic compared to uncontaminated water which has a pH of about 7.0. AMD also contains very high levels of dissolved and suspended metals, such as cadmium, lead, zinc, aluminum, arsenic, copper and iron. It is toxic to fish and other aquatic life, and exposure to untreated AMD can be hazardous to people and wildlife.

The key challenge at the Formosa Mine is to minimize and control acid mine drainage.

Who will pay for the investigation and cleanup?

One of the first tasks for EPA at the Formosa Mine Superfund Site is to identify Potentially Responsible Parties (PRPs) and hold them legally and financially responsible for cleaning up the site under EPA oversight. EPA is actively pursuing PRPs for the Site, but both Formosa Exploration, Inc. and Formosa Resources Company appear to be defunct corporations with no assets.

While EPA continues the pursuit of PRPs for the Formosa Mine Site, we will move forward with the Remedial Investigation (RI) and Feasibility Study (FS) for the site using money appropriated by Congress. The RI will determine the amount and type of contamination, as well as where it is located at the Formosa Mine site. The FS will develop and analyze a range of viable cleanup options for the site.

Who is working on the cleanup?

Over the next several years, EPA will be collaborating with several other federal, state, local and tribal governments to investigate contamination at the site and develop a final cleanup plan. Cooperating agencies include the Oregon Department of Environmental Quality (DEQ), the Bureau of Land Management (BLM), US Fish and Wildlife Service (USFWS), the Department of the Interior (DOI), the Oregon Department of Human Services Environmental Health Assessment Program (EHAP) and the Cow Creek Band of Umpqua Tribe of Indians.

DEQ and BLM have been involved at the site for several years, and their preliminary work provides a starting point for EPA. Officials from Douglas County and the City of Riddle have also provided local information to support the cleanup effort.



Local, state and federal officials view acid mine drainage at the Formosa Mine Site

What has been done so far to clean up the site?

In October 2000, DEQ installed a water diversion system to keep acid mine drainage out of the stream. This system has been periodically monitored and maintained by DEQ and the BLM. In June 2008, EPA cleaned and repaired the diversion system to keep the toxic drainage out of the environment until a final remedy is chosen for the site.

What happens next?

In the next 3-5 years, EPA will complete the Remedial Investigation (RI) and Feasibility Study (FS). EPA will prepare a Project Work Plan that outlines the specific steps for completing the RI/FS. After the work plan has been prepared, we will be able to provide more detail about the type of sampling that might be taking place and the time frames for the various activities that are part of the RI/FS process.

One of the first steps will be to review the information already available from DEQ and BLM to determine what additional data are needed. If EPA finds a problem that needs to be addressed prior to the completion of the RI/FS, we will take early action to correct the problem. The community will be notified if early actions are anticipated.

Public Health Assessment

The Department of Human Services Environmental Health Assessment Program (EHAP) is mandated to complete a public health assessment (PHA) within one year of the Formosa Mine site being listed on the NPL. The PHA is designed to collect community concerns and to determine whether or not conditions at a Superfund Site could cause health effects in people. A PHA also includes recommendations for actions that would reduce human exposure to contaminants at the site. The Formosa Mine PHA will be available at the end of October. You can find more information at: <http://egov.oregon.gov/DHS/ph/shine/fmsite.shtml>



People and wildlife may be at risk from hazardous substances at the Formosa Mine Site

You Can Be Involved In Cleanup

Your input helps EPA understand the values and priorities of the community and provides us with valuable local knowledge that will help inform the scientific investigation.

EPA has prepared a draft Community Involvement Plan (CIP) based on interviews with community members. The CIP describes ways you can be informed or involved about the investigation and cleanup at the Formosa Mine site.

This plan will be updated as needed and your continuing feedback is welcome. You can view the Community Involvement Plan online at: <http://yosemite.epa.gov/R10/CLEANUP.NSF/sites/formosa>, or request a copy from Judy Smith at smith.judy@epa.gov.

Technical Assistance Grant Available

EPA will be offering a Technical Assistance Grant (TAG) of \$50,000 to a qualified group or organization in order to help your community participate in the decision making process at the Formosa Mine. The group receiving the grant would contract with independent advisors to interpret and help the community understand technical information about the site.

In order to be eligible for this grant, members of the group must represent the interests of the affected community and be incorporated as a non-profit organization. One TAG is available for each site listed on the NPL.

More information about Technical Assistance Grants, including apply for a grant, visit: <http://www.epa.gov/superfund/community/tag/faqs.htm>. You can also contact Judy Smith at 503-326-6994 or EPA Region 10 TAG Coordinator Sally Hanft at 206-553-1207.



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On the web:
<http://yosemite.epa.gov/r10/cleanup.nsf/sites/formosa>

Information repositories:

Riddle Library
637 First Avenue, Riddle

Roseburg Library
1409 NE Diamond Lake Blvd, Roseburg



Alternative formats are available. For reasonable accommodation, please call Judy Smith at 503-326-6994. TTY users, please call the Federal Relay Service at 800-877-8339.