

United States Environmental Protection Agency
Region X
POLLUTION REPORT

Date: Sunday, March 29, 2009

From: Daniel Heister

Subject: First and Final

Formosa Mine Emergency Response

25 miles due SW of Riddle, OR, Riddle, OR

Latitude: 42.8558440

Longitude: -123.3827360

POLREP No.:	1	Site #:	10EL
Reporting Period:	3/26-27/2009	D.O. #:	
Start Date:	3/27/2009	Response Authority:	CERCLA
Mob Date:	3/26/2009	Response Type:	Emergency
Demob Date:	3/27/2009	NPL Status:	NPL
Completion Date:	3/27/2009	Incident Category:	Removal Action
CERCLIS ID #:		Contract #	
RCRIS ID #:			

Site Description

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The Formosa Mine site is a former copper and zinc mine located on Silver Butte in Douglas County, Oregon. It is within the South Umpqua Basin, one of three sub-basins of the Umpqua Basin. Four creeks have headwaters near the mine: Middle Creek, South Fork Middle Creek, Russell Creek, and West Fork Canyon Creek. Middle Creek and South Fork Middle Creek are impacted by mine waste contaminants originating from the Formosa Mine site for 18 miles below the mine. The site encompasses approximately 76 acres and is located on both Federal and private land. While the bulk of the mining operation is located on private land, owned by the Formosa Exploration, Inc., approximately two acres of disturbance is located on public land administered by the Bureau of Land Management (BLM). According to the Oregon Department of Geology and Mineral Industries (DOGAMI) Formosa 1 adit, Formosa 2 adit, Formosa 3 adit, the 1090 adit, and the former location of the crusher are all on BLM land. All other features (i.e., Silver Butte Adit, the location of the former mill building, the location of the former million gallon tank, the encapsulation mound, the seep below the encapsulation mound, and two of the three waste rock piles) are on private land owned by Formosa Explorations, Inc. Other property surrounding the Formosa Mine site includes private timberland owned by Silver Butte Timber Company

Formosa Adit Drain System

Upon mine closure, adits were capped with concrete and limestone and a drainage pipe and water-dispersal field were installed. These drain fields failed in 1995/1996 due to precipitation of iron-hydroxide minerals. Drainage from the adits is still controlled and directed downslope of the adits and away from Middle Creek, to an area where bedrock has acid neutralization characteristics. The drainage system requires maintenance on an approximate six-month basis due to the precipitation of iron hydroxide minerals. The precipitates readily clog the drainage system and maintenance consists of removal of these precipitates. The drain pipes also break occasionally, allowing acidic metal-laden mine water to reach Middle Creek via surface runoff. In June of 2008 a similar emergency response was conducted to fix multiple leaks, replace weathered pieces of pipe, and to fortify the system.

Current Activities

Current Activities

Wednesday, March 26, 2009:

U.S. Environmental Protection Agency (EPA) On-Scene Coordinator (OSC) Dan Heister was notified via email by Denise Baker-Kircher, EPA, Remedial Project Manager (RPM) for the site that the adit drainage diversion system at the Formosa Mine near Riddle, Oregon had developed a blockage causing the upper portion of the drainage to leak profusely. The leak was noted the previous week by a remedial contractor during a site walk at the Formosa Mine. The blockage was located in the drain pipe that connected two large concrete weired vaults and was causing a continuous release from the top of the upper tank, such that the released water was flowing overland toward and into the headwaters of Middle Creek.

This was the first site walk of the year as the snow had just melted and fallen trees had been cleared allowing access to this remote site.

After the 2008 emergency response the site had been inspected four times from July 2008 through November 2008 and continued to be in working order. The worst winter in 40 years brought extremely heavy snow and restricted access to the area after late November. There is no way to know when the blockage triggered the release. Most likely it occurred at the height of the snow melt earlier in March, when high flows likely dislodged a significant amount of "yellow boy" (solid precipitate which settles and cakes in the pipes) and blocked the system.

OSC Heister informed Chris Field of EPA of the adit diversion system release into the Middle Creek headwaters. A decision to mobilize immediately to repair the leak to the adit diversion system was made by Field. Heister mobilized ERRS to Canyonville, OR from Seattle, WA on 03/26/2009 to be ready to proceed to the site in the morning on 03/27/2009.

Friday, June 27, 2009:

OSC Heister, and an ERRS crew of three mobilize to the Formosa Mine for the Formosa Mine adit diversion system repair at approximately 730 hrs.

The ERRS crew included project manager (EPM) Bryan Chernick and two laborers. A tailgate safety meeting was conducted. The ERRS resources included two pickup trucks with two trash pumps, hoses, and necessary tools. The objective for the response was to repair the adit diversion system to reduce the potential for a mine drainage release water into Middle Creek during the interim period until the diversion system is replaced (estimated to be late-summer 2009). Specific items included:

- Repair the major blockage identified during the previous weeks site visit.
- Locate and repair other leaks along the pipeline route.
- Modify the existing pipe to alleviate the clogging problem through exterior pipe manipulation and flushing with trash pumps
- As practicable, identify and repair other potential sources of release from the diversion system.

ERRS began the repair work by diverting the adit flow around the blockage by pumping the upper overflowing vault to the second lower vault that was not blocked.

The upper vault was pumped down, the blockage located, and removed. The upper tank was allowed to fill again and then both trash pumps were employed to flush a high volume of water through the 12" pipe connecting the upper and lower vault.

ERRS repaired a small leak in the pipe located on the steep embankment below the BLM road on the northern portion of the pipe system. The flow was restored to the adit diversion piping system, and the repairs tested by surging the pipe with water from the trash pumps.

ERRS cleared sediment from the cascade tier and the open-channeled pipe segment immediately upstream and downstream of the unclogged portion of the pipe. Finally the entire system was visually inspected for any additional problems. None were observed. EPA and ERRS left the site at approximately 1430 hrs on 03/27/09.

Next Steps

A full replacement of the present diversion system need to go forward as scheduled in Aug. 2009

response.epa.gov/formosa09