



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
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**United States  
Department of  
Agriculture**

**Forest  
Service**

**Lewis and Clark National Forest**

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Date: March 20, 2014  
From: Beth Ihle, FS OSC; Roger Hoogerheide, EPA RPM  
To: David Ostrander, Program Director, Preparedness and Emergency Response Program  
Bob Kirkpatrick, Regional Engineer, USDA Forest Service Region One  
Subject: POLREP 1 – Progress  
Carpenter Creek Tailings and Silver Dyke Tailings  
Carpenter Snow Creek NPL Site, Neihart, MT

**ABSTRACT**

Latitude: 46°58'0.67"N  
Longitude: 110°43'4.88"W  
Site #: 089X OU3  
Response Authority: CERCLA  
NPL Status: Listed 09/13/2001 Incident Category: Removal  
Action EPA and USFS Lead CERCLIS ID #: MT0001096353 Superfund Site  
ID - 089X, OU3  
Reporting Period: 2013 Response Type: Time Critical  
Contaminant of Concern: Pb, Zn, Cd, Cu, and As in unconfined mill tailings  
Action Memo. Date: June 11, 2013 Start Date: 09/03/13  
Removal Mob. Date: 09/03/13 Removal Compl. Date: TBD  
DO#: NA Removal Ceiling: NA

1.1.1 Incident Category

CERCLA Time Critical Removal Action

1.1.2 Site Description

1.1.2.1 Location

The Carpenter Snow Creek NPL Site (Site) is within the Neihart Mining District, approximately 50 miles southeast of Great Falls, Montana. The nearest community is Neihart which is within the Site boundary and has about 80 yearlong residents. The Site has been divided into three operable units (OU). This removal action included activities in OU 3, which contains the Silver Dyke mining complex including upper mine sites and tailings in Carpenter Creek to the confluence with Belt Creek. The three main areas focused on in the Removal Action were the upper and lower Carpenter Creek tailings, and the Silver Dyke tailings pile. Water quality in Carpenter Creek is poor throughout the drainage due to degrading influences from the Carpenter Snow Creek Site. Creek waters are subject to active tailings erosion as well as metals contaminants from mine adits. There are general water quality standards exceedences for metals including arsenic, cadmium, copper, lead, and zinc, which can be attributed to these releases. Much higher exceedences of total metals in surface water have been measured during storm events which are directly a result of erosion of the tailings. These metals inhibit aquatic life in the drainage.

1.1.2.2 Description of Threat

Aquatic life surveys conducted in Carpenter Creek below the confluence with Sih-mem Creek, indicate populations of benthic invertebrates are severely impaired and fish populations are absent. Investigations conducted by Montana Fish Wildlife and Parks and the EPA in 2010, 2011, and 2012 (FWP, 2011, 2012, 2013 and TechLaw, 2011, 2012, 2013) clearly indicate that metals contamination associated with ongoing contaminant releases impairs water quality and severely inhibits aquatic life in Carpenter Creek, and suggests that they are contributing to the impairment of aquatic life in Belt Creek below the confluence of Carpenter Creek.

### 1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results

Analyses of samples collected at the Site indicate the presence of high concentrations of heavy metals including zinc, cadmium and lead in waste and sediment. Routine run-off and high flows during spring snow melt continue to cause migration of the tailings materials from the Carpenter Creek and Silver Dyke tailings impoundment into the environment. The Carpenter Creek tailings impoundments show copper concentrations ranging from 114 mg/kg to 2,950 mg/kg with an average of 1,295 mg/kg. The lead concentrations range from 304 mg/kg to 8,763 mg/kg with an average of 4,135 mg/kg. The zinc concentrations range from 184 mg/kg to 2,242 mg/kg with an average of 891 mg/kg (Tetra Tech, 2012).

Table 1 below show the concentrations of hazardous substances found in surface water collected in Carpenter Creek below the lower Carpenter Creek tailings impoundment after a thunderstorm on July 16, 2012.

**Table 1  
Water Quality Results from July 16, 2012, Storm Event**

CSC103	Total Metals ug/L	Dissolved Metals ug/L
Arsenic	3.9	< 2.0
Cadmium	53.5	3.95
Copper	6290	13.1
Lead	10800	2.63
Zinc	7080	231
CSC104A	Total Metals ug/L	Dissolved Metals ug/L
Arsenic	4.83	< 2.0
Cadmium	36.2	18.4
Copper	5440	47
Lead	6450	22.7
Zinc	4950	2160

### 2.1.1 Narrative

The removal action specified included interim response actions at the Silver Dyke tailings and upper and lower Carpenter Creek tailings impoundments to stabilize these tailings until a permanent remedial action is taken. The Forest Service implemented a contract in the 2013 field season to implement the Time Critical Removal Action.

Stabilization activities at various locations within the Carpenter Creek and Silver Dyke tailings impoundments included: 1) Construction of lined surface run-on and run-off ditches on the lower and upper Carpenter Creek tailings to reduce storm flows and snowmelt from eroding tailings; 2) Installation of diversion channels to route clean water around all three tailings impoundments; 3) Installation of erosion check dams at all three tailings features in areas where deep rills have formed in past erosion events; 4) Installation and maintenance of a certified weed- free straw bale erosion berm at the base of the Silver Dyke Tailings, 5)

Application of wood straw mulch over tailings piles as an erosion control measure, 6) Place riprap to stabilize access road to Silver Dyke tailings, and 7) Administrative controls including fencing and signage on the tailings piles in Carpenter Creek to eliminate trespass with recreational vehicles and to educate the public on the potential dangers.

#### 2.1.2 Response Actions to Date

- Mobilization began in late September, 2013.
- The diversion ditch was excavated in the tailings impoundments according to engineering specifications, and prepared for the lining system installation.
- An HDPE channel lining system (Smart Ditch) was installed in the run on diversion ditch on the lower Carpenter Creek tailing pile. Work installing the diversion ditch was complete on October 3, 2013. A total of 960 linear feet of diversion ditch was installed on the lower tailings.
- A total of 5 check dams were placed on the lower tailings.
- The run on ditch installation on the upper Carpenter Creek tailings pile was complete on October 17, 2013. A total of 783 linear feet of diversion ditch was installed on the upper tailings.
- A total of 10 check dams were placed on the upper tailings.
- Wood mulch placement began on October 14, 2013 on the lower tailings pile. A total of 28.29 tons of wood mulch was placed on the lower tailings. The mulch was in place by October 19, 2013.
- Wood mulch placement on the upper tailings pile began on October 19, 2013. A total of 22.85 tons of wood mulch was placed on the upper tailings. The mulch was in place by October 24, 2013.
- Straw bales placement at the Silver Dyke tailings area began on October 15, 2013. Approximately 210 bales were placed at the toe of Silver Dyke tailings to reduce release of tailings into the creek. This work was completed October 17 2013.
- Work was done on October 17, 2013 to stabilize the road at the Silver Dyke tailings area with riprap.
- Work was completed on 11/26/13 to place jackleg fence in areas where traffic was expected to enter the tailings areas.

2.2.1 Future activities are planned at the Silver Dyke Tailings as proposed in the Action Memo. This includes consolidating the Silver Dyke Tailings. In addition, as needed for the above described actions, Post Removal Site Control actions will be implemented as specified in the Post Removal Site Control Plan. These items are expected to include minor road repairs as the ground was freezing and work could not be conducted during the 2013 contract season, inspection and maintenance work on the erosion control ditches as needed, inspection of check dams and any repairs as needed and replacement/addition of straw bale erosion berm as needed.

Attachment 1

Photos

BEFORE	AFTER
	
	
	
	