

US Environmental Protection Agency
10 West 15th Street, Suite 3200
Helena, Montana 59626

Attn: R. Hoogerheide



Carpenter-Snow Creek Superfund Site

Cascade County, Montana

U.S. EPA Region 8 – Montana Office
15 West 10th Street, Suite 3200, Helena, Montana 59626

October 2012

Site Contacts

If you need more information on the work being done, please call or email one of the people listed below:

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Attention Property Owners Who Had Their Property Sampled in 2012

EPA contractors collected samples from one or more environmental media (groundwater, soil, surface water, sediment) at dozens of privately-owned properties where access was granted.

The results of the analysis of these samples will be provided to individual property owners in a letter from EPA in winter 2013, after they have been received from the laboratory and have been reviewed. The results for residential properties will be sent out first.



Document Repositories

Site-related documents are available at the following locations for your information and review:

- **EPA Records Center**, 40 West 15th St., Ste. 3200, Helena, MT 59626, (406) 457-5046, M-F, 8am– 4:30pm
- **U.S. Forest Service**, Belt Ranger Station, 4234 U.S. Hwy 89 N, Neihart, MT 59465, (406) 236-5511, M-F, 8:30am– 4:30pm
- **Cascade County Health Department**, 115 4th Street South, Great Falls, MT 59401, (406) 454-6950, 8am– 5pm



The Carpenter-Snow Creek Superfund site is located in west-central Montana near the town of Neihart. The Neihart Mining District was a major silver producer in the state and the primary producer in Cascade County, producing about \$16 million in silver between 1882 and 1929. The first claim in the district was made in July 1881. Development slowed during the mid- to late 1880s, then began to increase again after construction of the Great Falls smelter and the Belt Mountain branch of the Great Northern Railroad in 1891, connecting Neihart with Great Falls.

The Carpenter-Snow Creek National Priorities List site is approximately 6,629 acres and encompasses the Carpenter and Snow Creek drainages, the mountain slopes east of Neihart, and the town of Neihart.

Of concern are the mill tailings and waste rock found in residential yards in Neihart and along the Carpenter and Belt Creek drainages. The tailings, contaminated soils and waste rock contain average concentrations of arsenic, cadmium, copper, lead, and zinc greater than five times the concentration found in native soil. The tailings along Carpenter Creek were deposited by the blowout of the Silver Dyke tailings pile and placed during mill operation into the upper and lower tailings piles. Both the upper and lower tailings piles have breached, resulting in erosion and deposition of tailings downstream in Belt Creek.

The site has been divided into Operable Unit 1 that contains the Town of Neihart and Operable Unit 2 that contains the Carpenter Creek, Snow Creek, Neihart Slope, and Belt Creek (below Neihart) drainages.

Open House and Public Meeting

EPA, Montana Department of Environmental Quality (DEQ), and the USFS will host an open house/public meeting in Neihart to discuss work conducted to date. The public is encouraged to attend.

November 5, 2012

Monarch/Neihart Senior Center
(200 S Main Street (US Highway 89))

Open House from 6:00 to 8:00 pm
A Short Presentation begins at 6:15 pm



Site Timeline...

- **2001 to 2002**
 - Site added to EPA's National Priorities List
 - EPA Initial Sampling started
- **2003**
 - Public meetings held
 - Sample results released to public
 - Remedial Investigation (RI) Neihart (Operable Unit 1) begins
- **2004**
 - Community Interviews
 - Community Involvement Plan created
 - Remedial Investigation ends
 - Selected areas of Neihart cleaned up
- **2005**
 - RI Report for OU1 completed
 - EPA prepares Human Health Risk Assessment for OU1
 - EPA Feasibility Study (FS) completed for OU1
- **2006**
 - Proposed plan for cleanup of OU1
- **2009**
 - EPA Record of Decision (ROD) issued for OU1
 - Investigations begin in OU2 mines and watersheds
- **2010**
 - Remedial design in OU1 began

2012 Field Season—Carpenter-Snow Creek Superfund Site

2012 Field Season

2012 Field Season – Mines and watershed Carpenter-Snow Creek Superfund Site

EPA continued its investigation of the nature and extent of contamination in the town of Neihart and in the Carpenter, Snow, Neihart slope, and Belt Creek drainages. In general, these activities involved small project teams (usually 2 people) and little if any heavy equipment (e.g. a drill rig or backhoe). Written access was obtained in advance from all property owners where field activities occurred.

Roadbed Metals Concentrations

Data collected in 2011 and observations of the distribution of mine waste indicated that many roads within the site may be contaminated. In July and August of 2012, a field portable XRF was used to measure the concentration of metals at regular intervals along the roadbed soil. Measurements were made along Carpenter Creek road (413 measurements), Neihart slope roads (181 measurements), and Snow Creek roads (284 measurements).

Residential Investigations

Samples were collected from around six residential structures located on the Neihart slope that were not included in the Operable Unit 1 (Town of Neihart) investigation.

Mine Waste Volumes

A detailed topographic survey was completed of all the remaining major piles of mine waste including the waste rock piles in the Snow Creek drainage and on the Neihart slope. The measurements will be used to develop estimates of the volumes of waste in each pile. The volume of tailings along Carpenter Creek was measured in 2011. Samples were also collected at 16 mines to characterize the waste

Plant and Animal Sampling

Aquatic Population Surveys

In 2012, Montana FWP conducted a number of studies in Belt Creek and its tributaries. This included a general survey of fish populations, genetic analyses of westslope cutthroat populations, caged fish studies, and monitoring of movement of the cutthroat trout by fish tagging. In addition to monitoring the fish, FWP also measured stream flow and temperature in the trout's habitat. And collected macro-invertebrates.

Biotic and Mine Waste Sampling

In 2012, EPA continued to evaluate potential risk to terrestrial and aquatic wildlife and plants from mine waste.

Surface water samples were collected from creeks and from seeps during high- and low-flow conditions and sediment and pore water samples were collected from those locations during low-flow conditions. Surface soils, plants, invertebrates and small mammals were captured and sampled in impacted areas.

Streamside Investigations

Investigations completed in 2011 suggested that metals contaminated sediment from the Silver Dyke mine tailings pond blowout as well as erosion of the tailings piles along Carpenter Creek has been deposited along Carpenter Creek and Belt Creek. In addition, erosion of mine waste in the Snow Creek and Neihart slope watersheds may also have contributed sediment.

In July and August of 2012, a field portable X-ray fluorescence spectrometer (XRF) was used to measure the concentration of metals in soil along Carpenter Creek (262 measurements), Mackay Gulch (80 measurements), Snow Creek (331 measurements), Belt Creek (565 measurements), and Neihart slope (68 measurements) drainages. Sixteen test pits were installed to assess depth of contamination. Samples were collected at regular intervals for office and laboratory analysis to validate the field measurements.

Upper and Lower Tailings Piles Water Drainages 2012 Field Season

Portions of the upper and lower tailings piles in the Carpenter Creek drainage are saturated with water. If the tailings are placed in a repository they must be dried or mixed with dry material. The flow directions and presence of saturated areas were mapped to identify areas with saturated tailings. The information needed to design a drainage system was collected. EPA hopes to begin diverting water around the tailings in 2013.

Mine Waste Characteristics

The stability characteristics of different types of mine waste are important when designing a waste repository. Samples were collected from waste rock and tailings piles for geotechnical analysis. The amount of metals that may leach from the waste materials was also measured.

Groundwater Sampling

Three monitoring wells were installed along Carpenter Creek to supplement the 12 existing monitoring wells. The new wells were located in areas where previous sampling suggested that there were data gaps. Three new monitoring wells were also installed in the town of Neihart. In September all the wells were sampled. Pore water was also collected at several locations.

Evaluate Chemical and Physical Hazards

During the 2011 field investigations potentially hazardous mine openings and abandoned chemicals were observed at several locations. In 2012 the locations and amounts of hazardous chemical and physical hazards were documented.

Mackay Gulch Repository Site

Additional test pits and soil borings were installed at the potential Mackay Gulch repository site to assess the presence of groundwater, stability of soils, and availability of borrow material.

Schedule for 2013

EPA

EPA's main goal in 2013 will be to complete the RI report using data collected over the last 3 years. This report is expected to be finalized by September 2013. The RI report will characterize the nature and extent of contamination at the site and will include human health and environmental risk assessments.

EPA expects to begin a feasibility study (FS) in spring 2013. The FS will identify and evaluate options for cleanup. The FS report should be finished in fall 2013.

EPA hopes to issue a proposed plan for cleanup of the site to the public for comment in 2014.

Interim measures will also be implemented to reduce the effects the abandoned mines have on surface water.

EPA will continue performance monitoring of groundwater, surface water, and sediments and continue water balance studies of several mine opening.

Silver Dyke Mine and Broadwater Mine Water Balances

Variations in the amount and quality of water discharging from mine adits can be used to assess the sources of the water and may provide information that can be used to design remedial systems. The fluctuations in the amount and quality of water flowing from the Silver Dyke mine and Broadwater Mine adits was measured at regular intervals from June to the end of September.