

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

June 2013

Site Contacts

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

Roger Hoogerheide, EPA Remedial Project Mgr,
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hoogerheide.roger@epa.gov

Keith Large, Montana DEQ Project Officer,
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Beth Ihle, USFS, On-Scene Coordinator,
(406) 495-3863, bihle@fs.fed.us

**Sandy Johnson, Cascade County Health
Department,** (406) 791-9275,
sjohnson@cascadecountymt.gov



Attention Property Owners Who Have Not Had Their Property Sampled

In 2013, DEQ contractors will collect soil or well water samples from unsampled properties at the owners request.

The sampling and analysis are free. If unacceptable concentrations of site related contaminants are detected the property will be cleaned up by EPA at no cost to the landowner.

For more information on this limited opportunity, call Keith Large (see Site Contacts box).



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, the town of Neihart, and the Belt Creek flood plain downstream to Monarch.

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 (OU1) that contains the Town of Neihart, OU2 that contains the Carpenter Creek, Snow Creek, and Neihart Slope drainages, and OU3 that contains the Silver Dyke Mine and associated tailings along Carpenter Creek and Belt Creek downstream to Monarch.

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.

June 27, 2013

Monarch/Neihart Senior Center

(200 S Main Street (US Highway 89))

Open House from 6:30 to 8:00 pm

A Short Presentation begins at 6:30 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 by rEPA removal action
- **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 begins
- **2011 to 2012**
 - Ongoing Remedial Investigation of OU2 and OU3

2013 Field Season—Operable Units 2 and 3 Carpenter Snow Creek Superfund Site

Planned Activities

EPA and DEQ will transition the investigation activities from characterization of the nature and extent of contamination to collecting data to identify and design remedial actions. 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 will be obtained in advance from all property owners where field activities are planned.

Carpenter Creek Monitoring

The water quality of Carpenter Creek will be monitored at multiple locations to determine the water quality and sediment loading. The turbidity and field parameters of the water will be measured regularly through spring runoff and into the fall. The data will be used to identify the main sediment source areas and prioritize remedial actions.

Adit Discharge Monitoring

There are more than 12 adits within the CSC site that discharge water. In general, the flow rate increases during and after snow melt and then slowly decreases into fall and winter. The concentration of metals can vary greatly depending on whether the water is derived from surface water or groundwater. Water quality and flow rate data will be collected from four adits throughout spring runoff and water quality will be collected from 4 more adits. The data will be used to assess the seasonal changes in water quality and the sources for the water.

Mine Discharge Treatment Bench Scale Study

A number of the mines discharge water that contains metals at concentrations above acceptable levels. Some of this water will require treatment in the future. To assess the viability of different treatment technologies



water will be collected from four mines for use in the treatment testing. The study will help identify, or rule out, possible treatability options for the discharges.

Belt Creek and Neihart Streamside Soil Sampling

In 2012 the flood plain sediments along Belt Creek from the confluence with Carpenter Creek to Monarch were sampled with landowner permission to determine whether contamination is present. A significant amount of contamination was found. In 2013, with landowner permission, samples will be collected along Belt Creek from upstream of Neihart to the confluence with Carpenter Creek. Unsampled properties along Belt Creek from the confluence with Carpenter Creek to Monarch may be sampled at landowner request.

Repository Location Study

There is greater than 1,000,000 cubic yards of mine waste present at the site. One potential remedial alternative is to excavate the waste and place it in an engineered repository. In 2011 and 2012 two repository sites were characterized. In 2013 two additional locations will be characterized to determine whether they are suitable for constructing a mine waste repository. The additional locations are being characterized to provide flexibility.

Monitoring Well Installation and Sampling

In 2011 and 2012 monitoring wells were installed along Carpenter Creek to characterize groundwater quality. There are several adits (Rebellion Mine and Big 7 Mine) in the Snow Creek drainage that are discharging poor quality water. The effects of the mine discharge on the groundwater quality are unknown. Monitoring wells will be installed in the Snow Creek drainage and sampled to better characterize the extent of contamination and existing wells will be sampled in the spring and fall.

Adit Drainage Diversions

At several sites adit drainage flows through waste rock and may emerge with more contamination. It is possible that diversion of the water could improve water quality as an interim measure. At the Broadwater and Moulton Mines the surface water will be diverted around the waste rock piles to determine if contaminant concentrations can be reduced.

Silver Dyke Mine Tracer Study

The glory hole at the Silver Dyke mine is under consideration as a repository location. There is also very poor quality water discharging from the Silver Dyke mine adit. To assess the suitability of the glory hole as a repository the effects of filling and capping have to be better understood. Dye tracers were placed uphill of the Silver Dyke glory hole to identify the source areas for the water draining from the adit. The objectives are to develop a better understanding of relative contributions from snowmelt and groundwater and to assess whether use of the site as a repository will improve or degrade the water quality or quantity discharging from the adit.

Passive Treatment Pilot Test

After the bench scale testing a pilot scale water treatment system will be built at the most promising site using the most promising technology. The system may only treat a portion of the water discharging from an adit. A small scale system is usually built to assess the success of the treatment technology under site conditions before the expense of building a full scale system. The pilot test will be built and monitored to determine whether the treatment technology is suitable for the site.

Revegetation Pilot Test

Much of the mine waste does not have vegetation. The lack of vegetation may be due to metals toxicity or to physical features like grain size, unstable surfaces, or lack of nutrients. At three sites the physical features will be systematically modified in test plots to determine if vegetation can be established on the piles. The objective is to determine the factors that are preventing the growth of vegetation and how best to treat the waste.

Montana Fish Wildlife and Parks

Montana Fish, Wildlife and Parks will evaluate fish numbers and distribution in Belt Creek and determine fish mortality. Caged fish will be placed in select locations to determine mortality rates of these fish. Additional activities will include: marking westslope cutthroat trout with passive integrated transponder tags, sampling for benthic macro-invertebrates, and taking discharge measurements and checking thermographs.

Schedule for 2013

The main goal in 2013 will be to complete the Remedial Investigation (RI) report using data collected over the last 3 years. This report is expected to be finalized by early 2014. The RI report will characterize the nature and extent of contamination at the site and will include human health and environmental risk assessments.

Preliminary scoping of a feasibility study (FS) has begun. The FS will identify and evaluate options for cleanup. The FS report should be finished in fall 2014.

EPA hopes to issue a proposed plan for cleanup of the site to the public for comment in 2015.

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

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

US Forest Service Interim Measure

Visual observations of water turbidity and the presence of large gullies indicate that the upper and lower tailings piles are acting as a source for contaminated sediment in Carpenter Creek. The U.S. Forest Service has prepared a



design for diversion of the water that flows over and through the upper and lower tailings piles. The diversions will be constructed during late summer. The objective is to reduce erosion of the tailings piles and reduce the amount of contaminated tailings entering Carpenter Creek.