

# NPL Site Narrative for Pike Hill Copper Mine

## PIKE HILL COPPER MINE Corinth, Vermont

**Conditions at Proposal (March 8, 2004):** The Pike Hill Copper Mine (PHCM) is an abandoned copper mine located off of Pike Hill Road in the Town of Corinth, Orange County, Vermont. PHCM, approximately 1.5 radial miles northeast of the Village of West Corinth, includes a northern and southern mine, and the total mine property encompasses approximately 216 acres. PHCM is located on Pike Hill, a large hill in a rural and forested area along the eastern flank of the Green Mountains. Mine elevations range from approximately 1,640 feet above mean sea level (MSL), at the southern mine, to approximately 1,965 feet above MSL, at the summit of Pike Hill (near the northern mine).

Copper was discovered on Pike Hill sometime before 1847. Initial attempts to mine the ore at Pike Hill occurred in 1847. The northern and southern mines were historically referred to as the Union Copper Mine, and the Corinth (and later the Eureka) Copper Mine, respectively. These mines, eventually designated as the Pike Hill Mines, operated intermittently between 1847 and 1919 when mining operations at the PHCM property ceased. Between 1863 and 1918, approximately 9,085,298 pounds of copper were mined at PHCM.

Approximately 20,000 tons of mill and mine dumps (tailings), averaging 1.6 percent copper, are scattered over the surface of the two mines. At the northern mine are two tailings piles, and at the southern mine are three tailings piles and two mine shafts; several adits are located around the Pike Hill hillside. Each tailings pile consists of brownish-orange colored fine-grained material with rock fragments. Little vegetative growth exists on the surface of the piles.

The mine tailings are rich in metals and sulfides. As water passes over and through the tailings, sulfuric acid is produced and the metals within the tailings are dissolved and mobilized. This results in acid mine drainage which contributes to an elevated load of metals to Pike Hill Brook and the Waits River. In October 1993, the Corinth Fire Department was informed that smoke was emanating from the mine fill at the PHCM site. According to the U.S. Bureau of Mines, the smoldering was due to spontaneous oxidation and combustion of reactive sulfides in the mine fill.

PHCM was previously investigated by State and Federal agencies and private companies. As part of the various studies, one or more samples of mine tailings, soil, surface water, and sediment were collected and analyzed for metals, volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs), and cyanide. The results indicate metal concentrations that exceed background levels.

A 1997 Vermont Department of Environmental Conservation (VT DEC) study of the macro-invertebrate community and fish populations in surface waters near the site documented a significant impact just downstream of the mine; resulting in a State listing of Pike Hill Brook as an impaired water of the state because of acid mine drainage. The Waits River and the Connecticut River are documented fisheries within the surface water pathway. Sediment and surface water samples of the Waits River show that

inorganic contaminants attributable to the mine are documented within the fishery and pose a potential health risk. The Waits River is designated for recreational purposes.

The area is intermittently used by hunters and for other recreational pursuits, and may pose a threat of exposure via contaminated surface soils.

In addition, the Eastern Small-footed bat (*Myotis Leibii*), a State-threatened species, is located within a 0.25 mile radius of the site. The bat's habitat, documented within the surface water pathway, is therefore subject to contamination.

**Status (July 2004):** EPA is considering various alternatives for this site.

For more information about the hazardous substances identified in this narrative summary, including general information regarding the effects of exposure to these substances on human health, please see the Agency for Toxic Substances and Disease Registry (ATSDR) ToxFAQs. ATSDR ToxFAQs can be found on the Internet at [ATSDR - ToxFAQs](http://www.atsdr.cdc.gov/toxfaqs/index.asp) (<http://www.atsdr.cdc.gov/toxfaqs/index.asp>) or by telephone at 1-888-42-ATSDR or 1-888-422-8737.