

# NPL Partial Site Deletion Narrative

## Torch Lake Houghton County, Michigan

On March 29, 2004, EPA deleted the Hubbell/Tamarack City parcel of Operable Unit (OU) 1 of the Torch Lake site from the National Priorities List (NPL). The Torch Lake site is located on the Keweenaw Peninsula in Houghton County, Michigan. OU1, located on the western shore of Torch Lake, includes surface tailings, drums, and slag piles.

Torch Lake was the site of copper milling and smelting facilities and operations for over 100 years. The lake was a repository of milling wastes, and served as the waterway for the mining industry. Copper extraction was accomplished by crushing or "stamping" the rock into smaller pieces and driving them through successively smaller meshes. The crushed rock particles, called "tailings" were discarded along with mill processing water, typically by pumping into the lakes. Around 1916, advances in technology allowed recovery of copper from tailings previously deposited in Torch Lake. Dredges were used to collect submerged tailings and an ammonia leaching process involving cupric ammonium carbonate was used to recover copper and other metals from conglomerate tailings. During the 1920s, chemical reagents including lime, pyridine oil, coal tar creosote, wood creosote, pine oil, and xanthates were used to further increase the efficiency of reclamation. After reclamation activities were complete, chemically treated tailings were returned to the lakes. During the 1930s and 1940s, the Torch Lake mills operated mainly to recover tailings in Torch Lake. Copper milling had ceased by the late 1960s.

Environmental concerns developed in the 1970s because of the century-long deposition of tailings into Torch Lake. High concentrations of copper and other heavy metals in Torch Lake sediments, toxic discharges into the lakes, and fish abnormalities prompted many investigations into impacts attributed to mine waste disposal. In 1983, the International Joint Commission's Water Quality Board designated the Torch Lake basin as a Great Lakes Area of Concern (AOC) and the Michigan Department of Public Health announced an advisory against the consumption of certain fish due to tumors of unknown origin. The site was placed on the NPL in June 1986.

The EPA began investigation activities in 1988 at Torch Lake, which included a ground penetrating radar and a subbottom profile (seismic) survey to locate drums at the bottom of Torch Lake. In 1989 and 1990, EPA collected 17 samples from drums located on the surface including some drums near Tamarack City. The results indicated that some of these drums may have contained hazardous substances. Based on the drum sampling results and seismic survey, the EPA ordered several companies and individuals to remove 20 drums with unknown contents. A total of 82 drums and minor quantities of underlying soils were removed from the shore of Torch Lake and disposed off-site at a hazardous waste landfill. In 1992, EPA selected a remedy which called for about 800 acres of tailings and slag piles to be covered with soil and vegetation. Deed restrictions were also required to control the use of the tailing piles. The remedy also called for long-term monitoring of Torch Lake to assess the natural recovery and detoxification process after the remedy was implemented. Design of this remedy was completed in September 1998. As of January 1, 2001, the remedial actions at the Lake Linden and Hubbell/Tamarack City portions of OU1 have been completed.

The EPA, with concurrence from the State of Michigan, has determined that all appropriate responses under CERCLA for the Hubbell/Tamarack City parcel of OU1 have been completed, and that no further response actions under CERCLA are necessary. Because hazardous substances will remain at the site above levels that allow for unrestricted use and unlimited exposure, the EPA will conduct periodic reviews at this site. The first five-year review for the Torch Lake site was completed on March 4, 2003.