

NPL Site Narrative for Basin Mining Area

BASIN MINING AREA

Basin, Montana

Conditions at Proposal (July 1999): The Basin Mining Area site is located within the Boulder River watershed, and consists of uncontained mine tailings piles and areas of soil contamination resulting from precious metal mining activities. Mining activities included hard rock mines where veins of quartz, tourmaline, pyrite, galena, tetrahedrite, sphalerite, arsenopyrite, chalcopyrite, and siderite within the Cretaceous Boulder Batholith were explored. Tailings piles are located along Basin and Cataract Creeks and within and adjacent to the Basin town limits. The Town of Basin is situated near the confluence of the Boulder River and Basin Creek. Mining activities in the Basin Mining Area commenced in the late 1800s and continued intermittently into the 1960s. Metals extraction included milling and smelting of ore within the Town of Basin.

The Basin Mining Area includes: Bullion Mine, Buckeye-Enterprise Mine-Mill, Crystal Mine, Boulder Chief Mine, Eva May Mine, Basin Tailings, Jib Tailings, and contaminated soil.

A Montana Bureau of Mines and Geology, Abandoned-Inactive Mines (MBMG AIM) report indicated that the Bullion mine and Buckeye-Enterprise mine in the Basin Creek drainage, and the Crystal mine in the Cataract Creek drainage appear to be major contributors to the dissolved-metals loading in the creeks. The group of mines in the Jack Creek drainage were noted as having the greatest individual and collective impact of any other in the Basin Mining Area. The samples collected from Basin Creek below all of the sampled mines had elevated arsenic concentrations; the MBMG AIM program report indicated possible entrance of ground water and sediments via the Basin Belle or Daily West mines.

EPA conducted a Screening Site Inspection (SSI) in 1989 and in 1991, conducted an Expanded Site Inspection. EPA also sampled in the environs of the Basin School in January of 1990, and the Montana Department of Health and Environmental Sciences sampled the Basin School Yard soils in April and June of 1990. Samples collected during the 1989 SSI from tailings piles located in and around Basin revealed elevated levels of arsenic, cadmium, copper, lead, manganese, mercury, silver and zinc in the uncontained sources. Samples of surface soil showed contamination on residential properties within the Town of Basin. Arsenic was detected in surface soil samples collected from the Basin School playground area at concentrations exceeding the cancer risk level. Basin School officials were advised by the Montana Health Department to restrict student access to documented and suspected areas of contamination on the school's property.

Surface water and sediment samples collected during the 1989 SSI indicated that hazardous substances attributable to the site, specifically arsenic, copper, lead, silver and zinc, were being released from site sources to the Boulder River. Surface water and sediment samples collected during the 1993-1994 Montana Department of State Lands, Abandoned Mine Reclamation Bureau indicated that hazardous substances attributable to the mines, specifically arsenic, cadmium, copper, iron, lead, manganese, mercury, silver, antimony, and zinc in uncontained sources within the Basin Mining Area were being released to surface water. The MBMG AIM samples identified elevated levels of arsenic, cadmium, copper, lead, and zinc in samples collected during their study.

The Boulder River, Basin Creek, and Cataract Creek transect the Basin Mining Area site and are documented recreational fisheries. The State of Montana has classified the Boulder River and Cataract Creek as level B-1 surface water bodies for drinking, culinary, and food processing purposes after conventional treatment. The Basin Creek drainage has been classified by the State of Montana as an A-1 surface water body.

Status (October 1999): EPA is considering various alternatives for the 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.