

# NPL Site Narrative for Madison County Mines

## MADISON COUNTY MINES Fredericktown, Missouri

**Conditions at Proposal (April 30, 2003):** The Madison County Mines site is located in the Old Lead Belt area of southeastern Missouri in the vicinity of Fredericktown, Madison County, Missouri, approximately 80 miles south of St. Louis. The site is being proposed to the NPL because of the presence of metal contamination, including lead, in residential soil and within nearby surface water bodies--the Little St. Francis River and its tributaries. Lead was detected in residential yards at levels as high as 10,000 milligrams per kilogram (mg/kg) or more than 70 times that of background levels. The primary sources of metal contamination are large uncontained tailings and chat piles associated with local historical operations that mined for lead, copper, cobalt, nickel, iron, zinc, silver, and pyrite. Some of these mining operations date back to the 1840s.

Metal contaminants from tailings piles migrated through various routes to residential soil and nearby surface water bodies. In 1977, a tailings pond dam broke and released accumulated tailings into tributaries of the Little St. Francis River. In addition, several tailings piles have grown so large that they have spilled over directly into the Little St. Francis River and its tributaries. For years, residents of Fredericktown have used tailings from piles as fill for yards, gardens, roads, and driveways. This practice is likely responsible for much of the residential soil contamination observed at the site. Other modes of contaminant deposition in residential yards includes flooding of contaminated water bodies and emissions from nearby smelters.

A number of studies and investigations have been undertaken at the site since 1983. Collectively, these have revealed metals contamination in local ground water, surface water and sediments associated with Little St. Francis River and its tributaries, residential soil, and air. Groundwater samples collected from onsite monitoring wells and piezometers revealed arsenic, copper, lead, and nickel concentrations above EPA's Maximum Contaminant Levels (MCL) and greater than three times background concentrations. Surface water sampling revealed concentrations of arsenic, cadmium, copper, chromium, lead, mercury, nickel, and zinc above Ambient Water Quality Criteria (AWQC). Specifically, lead was detected in surface water up to 12 micrograms per liter ( $\mu\text{g/L}$ ) and sediment up to 11,000 mg/kg. Soil sampling in residential yards revealed lead at concentrations as high as 10,000 mg/kg. Air sampling revealed filter concentrations of arsenic, cobalt, copper, lead, and nickel at greater than three times background concentrations.

Metals contamination from the site has impacted the Little St. Francis River, which is an active fishery with documented wetlands and habitats used by state endangered species. In addition, a number of residential properties have also been impacted. EPA has conducted soil screening at 842 residential properties in Fredericktown, Missouri, and identified 201 of these properties with soil lead concentrations above 1200 mg/kg.

**Status (September 2003):** 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.