

# SITE REGISTRY REPORT

## Klondyke Tailings Project

### Klondyke, Graham County, Arizona

The Klondyke tailings are located on a property (the site) on the east bank of Aravaipa Creek, in Aravaipa Valley, Graham County, Arizona, in the southwest quarter of Section 6, Township 7 South, Range 20 East. The site is located approximately 4.5 miles upstream of the Aravaipa Canyon Wilderness Area, approximately 2.1 miles upstream of Stowe gulch, approximately 700 feet upstream of Laurel Canyon confluence with Aravaipa Creek, and approximately 1.2 miles downstream from Klondyke. Mining of lead, zinc, copper, silver and gold was performed in the region throughout the late 1800s to the early to mid 1990s. The geographic coordinates of the site are latitude 32° 51' 02" N, and longitude 110° 20' 37" W. The site is located in the southwest quarter of Section 6, Township 7 South, Range 20 East.

There are two tailings piles at the site. The Upper Tailings (Tailings Pile 1 on the attached map) pile is located approximately 10 to 15 yards from the bank of Aravaipa Creek, approximately 67 yards upstream of the lower tailings pile. This pile contains approximately 32,743 cubic yards of material and is about 2 to 5 yards high. There has been some erosion of tailings into Aravaipa Creek through a small gully on the southern edge. The downstream pile (Tailings Pile 2), referred to as the lower tailings pile is located 20 to 25 yards east of the bank of Aravaipa Creek. The pile is approximately 36,070 cubic yards in volume and its height is up to 7 yards. Although the pile surface is fairly compacted, there has been some erosion at the northwest corner of the tailings pile into a narrow dry wash which flows parallel to the west edge of the tailings pile.

Pathways of concern are the soil, surface water and ground water. In 1993 the Arizona Department of Environmental Quality (ADEQ) sampled the surface water, Aravaipa Creek sediments, and ground water in the area to determine if contamination levels were above relevant regulatory standards. Sampling results indicated concentrations of Arsenic, Beryllium, Cadmium, Manganese, Nickel, Lead, and Zinc exceeded the Arizona Water Quality Standards (AWQSs) in surface water (underflow) at the site. This contaminated underflow indicates that runoff and leaching into Aravaipa Creek could be occurring. Additionally, flooding could send contaminated material into the creek bed. Stream bed sediments at the Upper Tailings contained Lead in concentrations exceeding the Minimum Groundwater Protection Limit.

In 1996-97 tailings/soil samples and ground water samples were taken in the Klondyke site area. Laboratory analysis for the tailings/soil samples indicated that Lead, Cadmium and Arsenic were above their residential and non-residential Soil Remediation Levels (SRLs). Lead concentrations were up to 54,000 mg/kg, which is 27 times higher than the Lead concentrations for non-residential SRL (2,000 mg/kg) and considerably higher than the residential SRL (400 mg/kg). Arsenic was elevated in seven out of twelve samples (ranging from 97 to 280 mg/kg). The Arsenic SRL for both residential and non-residential is 10.0 mg/kg. Cadmium was elevated (ranging from 68 to 110 mg/kg) above the residential SRL of 38.0 mg/kg. Cadmium concentration were not found to be above non-

residential SRL of 850.0 mg/kg. Two out of four tailings/soil samples tested failed the Toxicity Characteristic Leaching Procedure (TCLP) for Cadmium. All but three samples failed TCLP for Lead. None of the samples failed TCLP analysis for Arsenic.

Samples of fish tissue were collected from two locations approximately four miles downstream from the site. The fish were tested for Arsenic, Cadmium, Lead and Mercury.

- , Arsenic - Based on this sampling the US Fish & Wildlife Service concluded that there appears to be little potential for Arsenic related problems in fish at Aravaipa Creek.
- , Cadmium - Even though Cadmium in most Aravaipa Creek fish samples exceeded background concentrations, current levels are far below the lethal threshold for fish.
- , Lead - Although Lead was detected in all the fish that were sampled, none of the levels were above the toxicity levels for Lead.
- , Mercury - There was no Mercury detected in the samples taken at Aravaipa Creek.

Although the data suggests that the fish are contaminated with Lead, Arsenic and Cadmium, it is uncertain whether the contamination is coming from the Klondyke tailings, as other mine sites are located within the same vicinity.

This Site Registry Report (SRR) is based upon information available as of the date shown. The SRR is intended as a historical document meeting the public notification requirements of ARS § 49-287.01 (B) and (D). Site boundaries depicted on the attached Site Boundary Maps represent ADEQ's interpretation of data available at the time the maps were constructed. The maps are intended to provide the public with basic information as to the estimated geographic extent of known contamination as of the date of the SRR. The actual extent of contamination may be different. Therefore the geographic boundaries for this site may change in the future as new information becomes available.

An updated SRR and associated Site Boundary Map **will not** be issued. As new information becomes available it will be made available for public review through placement in the public file.

Based on the most current information above, the current E+E score for the Klondyke Tailings site is 69. A Response Strategy Analysis was completed under a grant provided by the Arizona Water Protection Fund on April 24, 1998.