



River Sediment Rationale Cement Creek and Animas River

Recommendation

Sediment is just one indicator of a healthy river and there is some level of contamination in most Colorado rivers because of past mining activities and the geology of the state. The Colorado Department of Public Health and Environment does not anticipate adverse health effects from exposure to contaminants detected in the sediment during typical recreational activities or through incidental contact with the sediment. The Colorado Department of Public Health and Environment believes the following recommendations are prudent public health practices regarding contact with sediment and surface water:

1. Don't drink untreated water from the river.
2. Wash hands thoroughly with soap and water after contact with the sediment and surface water.
3. Avoid contact in areas where there is visible discoloration in sediment or river water.
4. Wash clothes after contact with sediment and surface water.
5. Young children (<6 years of age) should be supervised by adults when visiting areas along the river.

Analysis and Rationale

Thirty five sediment samples were collected from Cement Creek and along the Animas River. To assess the risk of adverse health effects, the levels of metals in sediment samples were first compared to EPA Regional Screening Levels (RSL) for residential soils. These RSLs are levels of metals in soils that are not likely to result in adverse health effects from daily long-term exposure. These levels are considered acceptable for soil in residential yards.

Only four metals (lead, arsenic, cobalt, and manganese) exceeded RSLs in any of the sediment samples. Levels of these four metals were compared to recreational use screening values developed by EPA Region 8 for typical recreational use exposures (i.e., hiking or camping activities). While these values are considered protective of adverse health effects for adults and children over the age of six, they may NOT be protective for children less than six years of age due to the potential for large amount of soil ingestion. However, for river and waterway sediment exposure, it is assumed that young children will be closely supervised by adults to limit soil ingestion. None of the four metals (lead, arsenic, cobalt, and manganese) exceeded recreational use screening values for any sediment samples collected by CDPHE.

- Arsenic - Levels of arsenic ranged from 40 to 380 mg/kg and exceeded the residential soil screening level at 15 locations. The highest arsenic level was at the Gold King Mine entrance. The arsenic recreational screening value is 4,200 mg/kg.
- Cobalt - Levels of cobalt only exceeded the residential soil screening level in a single sample (Animas River-just upstream of Railroad bridge). The level in this sample was 28 mg/kg compared to the cobalt recreational screening level of 1,000 mg/kg.
- Lead - Levels of lead ranged from 450 to 9,700 mg/kg and exceeded the residential soil screening level at 21 sample locations. The highest level of lead was on the Animas River at Oxbow Park and Preserve. The lead recreational screening value is 20,000 mg/kg
- Manganese - Levels of manganese ranged from 1,900 to 6,000 mg/kg and exceeded the residential soil screening level at 15 locations. The highest level of manganese was at the Animas River above Cement Creek. The manganese recreational screening value is 167,000 mg/kg.

The CDPHE has determined the risk of adverse health effects due to exposure to sediment from typical recreational activities or incidental contact with sediment is low. We will continue to evaluate available sediment data and report results as they become available.