

Initial Assessment of Public Health Risks Associated with the Lava Cap Mine Superfund Site

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Based on my review of several US EPA contractor draft documents and my visit to the Lava Cap Mine Superfund site, I have formed several initial opinions about the public health threat that this site represents to those who live, work or otherwise use properties in the vicinity of the site. The site includes the areas where tailings from the Lava Cap Mine have been carried by water transport into Little Clipper Creek, Clipper Creek, Lost Lake and downstream from there. The site may also include wind borne transport of tailings that have contaminated surface soils above the high water line.

Tailings on Surface Soils and Sediments

From the information available, the primary human health constituent of concern is arsenic associated with the tailings that were generated as part of the mining/ore processing operations. This does not mean that further investigation will not reveal other constituents that are of concern with respect to public health. Further, at this time, the report covering the ecological evaluation of potential impacts of the mine tailings has not been made available for review, although it is supposed to be forth coming any day..

The arsenic is of concern since it is a threat to human health through dermal (skin) contact, inhalation (breathing of dust) and consumption in water and/or food that is contaminated by the tailings. The areas of greatest concern are along Little Clipper Creek and Clipper Creek and around Lost Lake, especially in the "deposition area" where Little Clipper Creek and Clipper Creek join. There is a five- to ten-acre area in this area where there are appreciable tailings on the ground's surface, with arsenic concentrations that are well above those that are considered safe for extended human exposure.

A similar situation exists with Lost Lake sediments and the areas near the shoreline of Lost Lake, above the lake's surface. The public, and especially children, should be kept from extended contact, other than incidental contact, with the sediments around Lost Lake, both above and below the surface, along Little Clipper Creek, Clipper Creek and downstream from Clipper Creek on Little Greenhorn Creek down to Rollins Reservoir. Further, the public should not track the arsenic contaminated sediments into their homes where they could represent areas of extended exposure to elevated arsenic concentrations. The public should avoid extended exposure to air borne dust that could contain tailings from the Lava Cap Mine. During dusty periods, homes should be kept closed to prevent the dust from entering the home.

I am asking the US EPA to prepare a map of the areas where the studies conducted thus far show concentrations of arsenic in surface soils and sediments that are above those that are considered a threat to human health through extended contact. I have also indicated to the US EPA

that I feel that the road leading into the tailings Deposition Area near the confluence of Little Clipper Creek and Clipper Creek, which is not fenced or gated, should be posted to warn anyone that this is an area that should not be used for dirt-biking, picnicking or other activities.

Drinking Water

Thus far, the sampling of residential wells in the areas potentially impacted by the tailings has failed to detect concentrations of arsenic that are considered a threat to the use of the water for domestic purposes. The groundwaters associated with the tailings piles have significantly elevated concentrations of arsenic and, therefore, the arsenic in the tailings is leachable to groundwater and can be transported by groundwaters. Further work needs to be done to define groundwater flow paths to be certain that domestic water supply wells are not contaminated by arsenic at some time in the future.

Site Remediation

From my initial assessment and experience from working on a variety of Superfund sites in various areas, I conclude that it is going to be very difficult and expensive to try to remediate all of the soils/sediments that have been contaminated by tailings, where, through the former mining operations, tailings have been discharged by the mine operators to Lost Lake, as well as the tailings that were carried downstream along Little Clipper Creek to Lost Lake and below, associated with the break of the log tailings dam at the mine site. For now, it will be important to restrict access to the areas where the concentrations of tailings in the sediments/soils are a threat to public health.

Because of the complexity of the groundwater flow patterns and the difficulty of accurately defining the groundwater flow, it will be important for residential users of wells in the area where there is a potential influence by the tailings to have their wells periodically tested for arsenic and other constituents to be sure that arsenic-contaminated groundwater does not contaminate the well. In time, through further study, it will likely be possible to define the areas where there is a potential flow path from areas where arsenic-containing tailings are located to a domestic water supply well.

The remediation of the mine site and its associated tailings pile will, at least initially – possibly effectively forever – likely involve further stabilization of the tailings pile and the associated flows of Little Clipper Creek in that area so that it cannot erode the tailings pile. Further, it will be necessary to eliminate any downstream discharges of groundwater and surface water runoff from the mine site/tailings pile area. There will be need to conduct stormwater runoff monitoring to determine whether there are elevated concentrations of particulate arsenic and other constituents in the runoff from the mine site during stormwater runoff events.