



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8**

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October 18, 2015

MEMORANDUM

SUBJECT: Preliminary Investigation Activities at the Camp Bird Mine

FROM: Martin McComb, Federal On-Scene Coordinator
Emergency Response Unit
Environmental Protection Agency Region 8

TO: Site File
Camp Bird Site (A8H9)
Ouray County, CO

On May 20-21, 2015, a field team contracted by the United States Environmental Protection Agency Response Unit (EPA) and under the direction of EPA's Federal On-Scene Coordinator collected samples, field measurements and visual observations at the Camp Bird Mine Site (Site) located in Ouray County, Colorado. The objective of this effort was to quickly determine the rough scope and costs associated with a potential fund-lead removal action at the Site. The results of this investigation including images, documents, raw data and an interactive map have been posted to www.epaosc.org/campbird.

EPA has not determined whether or not a removal action will occur at the Site. This determination will be made following the completion of a formal Removal Assessment. However, the results of EPA's preliminary investigation indicate that the erosion of soil contaminated with heavy metals (including arsenic, copper, lead and zinc) into Canyon Creek at the Site likely constitutes a threat to the environment as defined by the National Contingency Plan 40 CFR 300.415(b)(2). Canyon Creek, as well as its tributary Imogene Creek, flow in direct proximity to several historic waste piles and a more recently constructed tailings impoundment. On the north side of Canyon Creek, the toe of the tailings impoundment and the northeast tailings/waste pile form the left descending bank of the creek. On the south side of Canyon Creek, the southwest and southeast waste piles form the right descending bank of the creek. There is no room for the creek to flow especially during flood stages without eroding directly into these contaminated soils.

Although the toe of the tailings impoundment has been armored with rip-rap, this armoring appears insufficient and has been filled with soil eroded from further up the slope. Furthermore, the slope of the impoundment above the toe appears to be too steep and was not reinforced with erosion fabric. Erosion features and contaminated soil are visible across the slope of the impoundment. It appears that the slope of the tailings impoundment will need to be laid back to a 3:1 gradient and that erosion fabric and rip rap will need to be properly installed to prevent further erosion.

Similarly, it appears that the toe of the northeast tailings/waste pile will need to be pulled back away from the creek and that the contaminated material will need to be consolidated and capped in a way to support mining operations that may or may not occur in the future.

On the south side of Canyon Creek, the toes of the southeast and southwest waste piles will need to be pulled back away from both creeks and armored with erosion fabric and riprap. The waste piles will need to be re-contoured, capped with suitable topsoil and re-vegetated. The southeast waste pile appears to contain the oldest and most contaminated waste on the Site.

The total volume and area of the constructed tailings impoundment and waste piles are large, encompassing nearly 475,000 cubic yards of material and covering nearly 30 acres. The size of this potential removal action as well as the fact that there appears to be very little harvestable rock and suitable cover soil at the Site means that roughly 1/3 of EPA's top range estimate of \$4.8M is related to purchasing and delivering rock and soil to the base of the road to the Camp Bird mine where it will then need to be trucked up to the mine. EPA also estimates \$75,000 to move the power lines running across the site, \$275,000 in re-vegetation and erosion control costs and 32 weeks of work on-site.

EPA will want to collect additional data and fully explore additional removal options with Potential Responsible Parties before a formal Removal Assessment is finalized.