

The study of the effect of long term water cover on the mill tailings of the Silver Lake Mill # 1, near Silverton, Colorado

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Mining and milling of metals were the primary industries in the study area during the late 1800's into the early 1900's. Wastes from the mining and milling processes are abundant in the area and present a significant environmental threat. Abandoned in 1900, the Silver Lake Mill # 1 is located on Silver Lake, southeast of Silverton, CO. Tailings (mill wastes) are located above and below the lake level providing an excellent location to study long term water cover of mill tailings. The project included water samples from the lake, its outlet and inlets plus tailings samples above and below water. These samples were used to determine if the lake is contaminated and if so, the pollution source. Field parameters of pH, conductivity, temperature, and dissolved oxygen were observed. Samples were analyzed for Al, Fe, Cu, Ni, Zn, Cd, and Pb. All parameters except Ni were found in the lake, but the inlets, which had low concentrations, cannot entirely account for this. Examination of results show the lake holds contaminated water with increasing metal concentrations with depth. It also reveals the source of contamination is primarily transfer from submerged tailings. Lastly, it shows that the contamination is generally contained within the lake.