

*MINING WASTE AS A SECONDARY RESOURCE*

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The amount of stored mining waste in Sweden is estimated at more than x tons, and the annual production is around 150 million tons, more that 70% of the total amount of wastes. The historical storage facilities can pose an environmental risk due to dam failures and as a source of pollution. The main concept of mine waste management in Sweden has largely been to cover the waste after closure or treat contaminated water during operation. The demand for critical raw materials in Europe forces waste management towards reuse of secondary sources like historical mine wastes. There are several benefits with re-mining but also drawbacks. A historical skarn tailings and its downstream water where investigated with aim to determine whether re-processing of the tailings can be favorable from an environmental point of view. The mine tailings are classified as a high risk facility due to high content of hazardous elements. Mineralogical and geochemically study of the tailings shows weathering of skarn bearing minerals such as carbonates, sulfides and scheelite in the upper surface. The oxidation have been ongoing for >30 years, and the oxidation depth was around 1.5m. At the oxidation front high concentration of elements such as Be, Bi, Cu, F, S, W, Zn were found. Released Bi, Cu and W where mainly retained secondarily in the tailings below the oxidation front while released Be and F were found downstream in high concentrations. There are no thresholds for Be in Sweden, and therefore its potential risk unknown. For F, concentrations with moderat to severe effects on humans were detected downstream the tailings repository (max: 2.4 mg/L).