Water Pollution: Case History in the Coeur D'Alene Mining Area, Idaho, USA.

CHAMBERLAIN, V.E., WILLIAMS, B., GILL, S. and OWENS, B. Department of Geology and Geological Engineering, University of Idaho, Moscow, Idaho, USA.

The Coeur d'Alene Mining district, a major world silver producer, located in northeastern Idaho, USA, contains mineralized veins of silver, lead and zinc ore hosted by Precambrian metasediments of the Belt Supergroup. The mineralization, controlled by the Osborn Fault system, is largely confined to the drainage basin of the South Fork of the Coeur d'Alene River and its tributaries. Mining as well as milling has occurred in this area continuously for more than 100 years, and until the construction of tailings ponds in 1968, mining and milling wastes were discarded into the river system.

The Cataldo Flats lies in a flood plain of the South Fork River downstream from of the mines and near a bend in the river where many mining spoils became lodged. These spoils have been dredged from the river over the years and now form a dredge pile 13m thick over an area of one square kilometer. Geochemical analyses of water samples from 20 ground water and 17 surface water sites in and around the dredge pile reveal that the natural flow of the water system has been altered and the water contaminated with heavy metals. Concentrations of heavy metals in micrograms per millilitre range up to 0.009 for Pb, 7.3 for Zn and 0.012 for Cd. In ground water, concentrations range up to 0.39 for Pb, 150 for Zn and 0.43 for Cd.