

THE ENVIRONMENTAL HAZARD OF THE GYÖNGYÖSOROSZI FLOTATION WASTE DUMP (MÁTRA MOUNTAINS, HUNGARY)

MÁDAI, V.

Department of Mineralogy and Petrology, University of Miskolc, H-3515 Miskolc-Egyetemváros, Hungary.

E-mail: askcesar@gold.uni-miskolc.hu

Atmospheric effects can cause weathering of ore bodies. This is a natural phenomenon, which exists since millions of years ago. Originating low pH effluents, which contain solvated toxic metal ions surely cause a dramatic effect on the biota. Species living in surface waters may decrease in numbers, and any biota will be necessarily poorer than before. A new balance come into between the recreation capacity of the nature and the pollution of the weathering of the waste. Low pH and higher toxic metal concentration tolerant species may spread in the polluted region.

ARD (Acid Rock Drainage) is generally regarded to be present if effluent pH is between 5-5.5 because in this pH range there is a negative impact on biota.

Gyöngyösoroszi is situated in the north east part of Hungary in the county of Heves. The village, which is not far from the former mine, lies in the south part of the Mátra Mountains in the valley of Toka Brook. Gyöngyösoroszi Ore Mining Company was established in 1952. The mined ore was crushed, grinded and flotated on the spot. The products were pyrite, sphalerite, galena, and galena with copper. Sphalerite, galena powder were smelted abroad. In 1962

during the reconstruction of the plant a new job was established: the heavy suspension beneficiation. The used aggregate was ferrosilicon (fersilicite). After flotation, waste was put on a flotation waste dump with a pipeline. The dump situated in the middle part of the Száraz Brook Valley. Since 1979, toxic heavy metal containing effluents were treated. The produced high gypsum containing toxic sludge was sampling in the Bence Valley. The mine was abandoned in 1986 because of financial problems.

My task was to examin how hazardous the flotation waste dump of Gyöngyösoroszi from the point of ARD using chemical methods for the determination.

The environmental hazard of the Gyöngyösoroszi flotation waste dump from the point of Acid Rock Drainage using one of the most widely accepted static chemical test method is negligible.

The NPR value: the ratio of NP (Neutralisation Potential) to AP (Acid producing Potencial):

274.25 : 39.8 ~ 7:1.