

POLLUTANT EFFECT OF MINE WATER ON COLBU BROOK

MARINESCU M , POPA R.1 , MARINESCU G. ,Bucharest Univ., Fac. of Geology and Geophysics, George Calinescu Highschool, Bucharest, Romania.

In the area of Ilba-Handal ore deposit, which is situated in Gutai Mountains, a part of Eastern Carpathians (Romania), there was exploited complex ore containing major elements (Pb, Zn, Cu), subordinate elements (Au, Ag) and minor elements. Due to ore exploitation period at E.M. Ilba a lot of solid residues (waste deposits) and liquid residues (mine water, water which washes the waste deposits) have resulted and are still resulting, even the exploitation has stopped. This residues have a negative influence on environment, changing its components. The main pollution effect, from flow rate but also from pollutants concentration point of view, has the mine water. The old mine Ilba is flooded and from it's galleries is coming out mine water with a maximum flow rate of 20 l/s. The water is very acid ($\text{pH} = 2.5 - 4$) and it has a high concentration of metallic ions: Ca - 150, Fe - 159, Mn - 25, Cu - 0.3, Pb - 1, Zn - 70 and Cd - 0.4 mg/l. For the treatment of this water there is a mechanic-chemical treatment station. The neutralised water is evacuated in Colbu brook, a tributary of Ilba river. This water is not always properly neutralised, so that in Colbu brook are discharged annual a high quantity of pollutants. The yearly average contents in polluting substances of the treated water, which was evacuated in Colbu brook were (in mg/l): 321 suspensions, 2966 filterable residues, 830 Ca, 160 extractable substances, 40 Zn, 0.4 Cu, 21 Mn, 22 Fe, 0.2 Pb, 40 Zn and 0.2 Cd. For the future it is necessary an automatic dosage of the lime cream in function of mine water quality and monitoring of this pollution source.