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PREVIOUS EDITIONS

- CEECHE 2008

Abstract Details

Abstract Title

MINE WATER CHEMISTRY FOR SOME CLOSED MINING SITES IN ROMANIA AND THE AVAILABLE TREATMENT TECHNOLOGIES

Abstract Text

Romania has an old tradition of coal and metal mining. Nowadays, the majority of metal ore mines are closed. The mine water issues, discharges of acidic water from abandoned mine and spoil heaps are a major concern across mining perimeters as they may generate significant surface water pollution. The main management effort is done by Ministry of Economy and the state owned company Conversmin SA: mine water inventory, monitoring, design-building and operation of treatment plants, periodic evaluation of the new treatment alternatives. Substantial works were performed in cooperation with ECOIND, ICPM Baia Mare, CEPROMIN Deva and Baia Mare University. High variability of chemical-physical characteristics of the mine waters (pH, heavy metals, alkaline and alkaline earth ions, sulphate and chloride) was found in the main perimeters of MINVEST, REMIN and MINBUCOVINA mining operators. Beside the absolute concentrations, chemical matrices show variable ratios between different heavy metals content and also between alkaline-earth metals and heavy metals which were expected and confirmed to have influence on the treatment efficiencies. In correlation with the main priority – neutralization and heavy metals removal, advanced treatment methods which include the sulphate and calcium removal were tested at lab and pilot scale for several mine water sources, addressing Romanian strict regulations. Sulphate precipitation as ettringite tests were started here by ECOIND in 2008 and the technology was further improved in cooperation with Wisutec Germany and RMGC. This technology proved to be robust at pilot plant level, but the costs are too high to be reasonably sustainable for long term, taking also into account that at least fifty mine water treatment plants are to be built and operated in the near future (for closed operations). The necessity for different regulations for closed mines and projected active mines which generate revenue may be suggested. Some costs/ performance issues are presented.

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Presentation

Contribution proposed for: poster presentation

- CEECHE 2006

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