

INFLUENCE OF THE INTERACTION OF NATURAL AND ANTHROPOGENIC FACTORS ON THE HYDROSPHERE OF THE MINING INDUSTRY REGION

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During the development of pyrite deposits at all stages of the technological process, wastewaters of various chemical composition and concentration of pollutants are formed. The combination of natural and man-made processes occurring during the development of deposits provides a redistribution of the substance. The processes of interaction pass through phases of transformations at the physical (mixing, precipitation), chemical, biological (bacteriological) levels. The resulting water with the infiltration of precipitation through the body dumps with a high content of heavy metals pose the greatest environmental hazard. Under the influence of temperature, air humidity and oxygen, weathering and leaching processes are intensively proceeding, toxic elements accumulate in high concentrations. Along with climatic factors, biochemical processes are active. The most important role in the transfer of metals from technogenically metamorphic ores located in the quarry areas of the open-pit mine, in the pillars of the mine, in mineralized dumps, the concentration of technogenic waters and deposition in the soil is played by hydrothermal processes. The basis of the transfer is the solubility of the ore phases of metals, primary - sulfides and oxidized forms. The incompatibility and limitation of environmental information does not allow for a complete picture of the environmental situation, which makes it difficult to work out common principles for reducing the man-made burden of mining and processing enterprises on the ecosystem. In this regard, it is necessary to apply an integrated approach that takes into account the uniqueness and specificity of the development of each mineral deposit and technological equipment of the mining industry, as well as ensuring the ecological and economic balance. The basic principles of developing tools for the effective formation of a model of a complex of measures that reduce the anthropogenic load on ecosystems should include: systematicity, consistency, standardization, balance, convergence, synchronization, specification.