

Justification of Geotechnology for Complex Extraction of Useful Components from Overlying Rocks of the Uzbek Kumir Coal Mine

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Abstract: This article provides information on the extraction technology of the necessary and useful components located in the cover rocks of the Uzbek Coal mine and information on which part and at which points the necessary components are present in this mine.

Keywords: mine, component, coal, technogen, rock, spectral, technology, factor, chemical, analys.

The efficiency of mining and processing enterprises in recent decades is assessed by the balance of the volumes of the main useful component obtained and the accumulated technogenic waste of mineralized rocks. This is especially relevant during the development of coal deposits. Stored dumps of rock mass are one of the main sources of negative load on the environment: the atmosphere, the earth's surface, surface and groundwater.

Due to the constantly deteriorating state of the ecological situation in the areas where mining enterprises operate and the decrease in the efficiency of deposit development as a result of deteriorating mining and geological conditions, the involvement of mineralized minerals in the processing the type of overlying strata in natural occurrence and stored in dumps of rock mass (technogenic resources) becomes economically feasible. Involvement in processing by geotechnological methods of large volumes of mineralized rock mass, which was considered unbalanced and unprofitable for exploitation, allows for a relatively short period increase metal production significantly. Thus, the implementation of technologies for underground and heap leaching of useful components (PC) allows us to significantly reduce the degree of load on the environment, as well as expand the mineral resource base of the people economy of the country.

The constantly growing level of prices on world markets for metals, especially non-ferrous and rare earth metals, requires the search for new non-traditional approaches to the isolation of massifs of mineralized rocks for geotechnological methods. In this formulation, the task of mastering the physico-chemical geotechnology of complex extraction of valuable components from mineralized rock mass and the scientific substantiation of ways of its implementation is undoubtedly but, it is relevant.

The purpose of the work is to substantiate technologies for underground leaching of mineralized sedimentary rocks of coal mines in natural occurrence when processing rock mass in heap leaching mode, based on studying the effectiveness of filtration processes and the kinetics of the

transition of metals into solution, allows one to obtain valuable components, reduce the concentration of heavy metals and the general mineralization of drainage water in the process of natural leaching, reduce the negative load on the natural environment.

To solve the assigned problems, a comprehensive research method was carried out, which included laboratory, field and experimental industrial work. Spectral, crystal-phase, mineralogical and atomic adsorption analyzes were used. The results obtained were processed using correlation and regression analysis.

1. Identification of the thickness range of rocks with increased mineralization, taking into account the geochemical barrier, is a necessary condition for underground leaching of valuable useful components and reducing the salt load on the aquatic environment under natural conditions. about leaching of waste rocks.
2. Injection slots, constructed using hydraulic technology, reduce the intensity of productivity decline and the negative impact of filtration resistance that arises during the operation of the corresponding fans of wells.
3. The intensity of the leaching process over time is directly proportional to the free energy of the formation of complexes of useful components in ave.

In relation to various mining-geological and hydrogeological conditions of a coal mine, a method has been developed for identifying the power interval in the overlying rock mass with the maximum content of useful components, determining The patterns of reduction in the productivity of injection wells during their operation have been identified and the need for the construction of injection slots has been shown. Based on the identified patterns of propagation of flooded jets and complex jet currents during the construction of long injection and drainage slits, optimal conditions for conducting high-performance technological processes of industrial farming have been developed GT. In relation to various mining and geological and hydrogeological conditions of a coal mine, methods of constructive and technological calculations have been developed for the hydromonitoring construction of injection and drainage slits. Based on the results of this work, under the scientific guidance and direct participation of the author, a project was completed and research methods were developed at an experimental geotechnological site astke.

The results of the dissertation work were used in the design of a pilot industrial site for the complex extraction of useful components from overlying poorly permeable coal rocks using FCGT methods section The obtained research results are used in drawing up technological regulations for the industrial implementation of PV and HF technology at this field.

The obtained parameters characterizing hydrogeochemical conditions were studied and analyzed as factors controlling the process of mineralization formation. In this way, rock material and groundwater were studied - factors that determine the redox conditions of the environment. The overburden rocks of the Neryungri deposit are mainly represented by hard, different-grained sandstones, siltstones and mudstones. All these lithological varieties have a layered texture: the thickness of individual layers ranges from 0.2 - 0.5 to several meters. The criterion for selecting power intervals is the value of total mineralization, as a factor of technological and economic value. Chemical analysis of core samples was carried out in 121 * - wells and rock material from furrow sampling of quarry sides along 8 - profiles selected from averaged lithological differences, interval The averaging range was 25 m, and the results of testing liquid samples at intervals from contact with coal seams.

References

1. A.U.Samadov, Zh.U.Suyarov, N.I.Nosirov Processing of difficult-to-rich gold ores. Eurasian Journal of Academic Research, 3, Part 3, 164-168 art.

2. K.S. Sanakulov, U.A. Ergashev. Theory and practice of development of processing of gold-bearing persistent Kyzylkumov ores. – Tashkent: GP "NIIMR", 2014. – 286 pages.
3. Khudoyarov S.R., Matkarimov S.T., Makhmarejabov D.B. Researching the Possibility of Hydrometallurgical Processing of Hard-Enriched Gold Ores and Their Enrichment Products at the Amantau Mine // International journal of advanced research in science, engineering and technology. – India, 2020. – Vol.7, Issue 10. P.
4. Samadov, A., & Nosirov, N. (2021). A method for extracting valuable components (gold, silver) from mill tailings. InterConf.