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ANALYSIS AND PROSPECTS FOR THE USE OF MINING COMBINES FOR THE DEVELOPMENT OF ROCKS UNDER NON BLASTING TECHNOLOGY TESTING

Modern mining-and-geological and mining-technical conditions prevailing in mining operations significantly impact their feasibility and performance. Saving the cost of commercial products remains a priority.

In this regard, mining and metallurgical enterprises facing the problems associated with the need to increase production volumes at considerable depths, need new, more efficient technological schemes of production using new means of primary massif loosening [1]. The use of non-technological methods of influence on the massif with the purpose of changing its state of aggregation, in our opinion, is the only way out at the conditions of modern iron ore pits. One of the promising directions, which makes it relatively quick and effective enough to deal with is the issue of mining with milling combines.

The aim is to review the analysis of the methods of steeply dipping ore deposit mining by the milling combines.

For mining dense and semi rocks, especially coal and ore there used pit combines of a milling type, which provide for simultaneous continuous crushing, excavation and loading of the rock mass. The practice of their use in underground mining shows they operate effectively in the rocks with a tensile strength of a single-axis compression up to 180-200 mPa. In rocks with the strength coefficient 12÷14 on Professor M.M. Protodiakonov scale due to continuous production and lack of drilling and blasting preparation of the rock mass, mining costs are cut in half. Currently they are successfully used for extraction of building materials, coal, phosphate, bauxite, gypsum. In Yakutia, a successful test of the milling combine was conducted for kimberlite development [2].

A combine mining method is characterized by sufficient technical and economic feasibility, sustainability of the technological process,

low production costs, high productivity and safety of mining operations.

Further investigation implies studying the criteria for milling combines effective operation at iron ore pits, improving the rational variant of their application and rock mining technology.

References

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PECULIARITIES OF HORIZONTAL MINE WORKING DRIVING

Horizontal mine workings are driven in several stages: horizontal cross-section designing, choice and calculation of blast-hole drilling parameters, ventilation designing and operation planning for mine-working driving.

The dimensions of a mine working cross section are determined by the dimensions of vehicles, safety clearance sizes taking into account possible rock displacement and the air current speed. We should also consider the possibility of mine working outline displacement.

The method of drilling blast-holes and the selection of the appropriate drilling equipment is determined by the physical and mechanical properties of the rock massif and the designed schedule of the operation. Portable drills are mainly used for this purpose.

While choosing the type of explosives and initiating means we