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PERSPECTIVE APPLICATION OF MILLING MACHINES DURING WORKING ROCKS OF AVERAGE STRENGTH

Rapid pace of urbanization and a sharp increase in the world's population the decrease of mineral reserves. Most minerals and rocks that we use in our everyday life are non-renewable, that is why the problem to minimize the losses of mining raw materials at the stage of its extraction is quite relevant now.

The use of milling machines, in comparison with the classical cascade method of minerals extraction by drilling and blasting operations, will reduce the number of substandard rocks which accumulate in refuse dumps and also will provide an opportunity to reduce stripping ratio, as well as to narrow the boundaries of the quarry field. Even such little things will help to use the subsoil more rationally, as the area for spoil dumps and for the operation of mining works will decrease [1].

Regarding the process of separating, there is also a number of advantages. Firstly, the cost of extracting one ton of crushed stone materials by layer method, in comparison with cascade method, will decrease by 20-25 per cent. This is due to the decrease in the number of technical operations. Secondly, there is no need for primary crushing as the milling machines provide a stable extraction of raw material with fractions of 30-40 mm. Thirdly, the process of tipping and transportation of mined minerals is simplified and it is possible to select the rock mass directly in the quarry.

The disadvantages of this method are the following: considerable dustiness of the site being worked out; the high cost of the machine and its maintenance; the ability to break the rocks effectively by the compression strength to 150-170 MPa.

This method of development was applied during the working of "Tashkura" deposit, where phosphate ores with a limit of compressive strength of 100-120 MPa are being extracted [2].

After chronometric measurements, it was found out that performing one drivage the machine allows working the rock layer with a depth from 40 to 45 cm. The average milling speed was from 5.5 to 7.2 m /min. The average productivity was 400 cubic m /hour.

REFERENCES

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