

The subject of the doctoral dissertation is "A new method of planning the production volume in a hard coal mine".

In the mining practice so far, the planning process often bears the features of intuitive management. It is based on methods that use the experience of people involved in this process. The lack of appropriate tools to verify all conditionings causes that there are cases of poorly constructed plans, characterized by poor quality.

The novelty presented in the paper is the development of a quantitative method supporting the current qualitative process of planning the volume of production in a mining enterprise extracting hard coal. The new method of production volume planning is based on the fact that both qualitative and quantitative methods were used in its construction.

The dissertation characterizes the risk that accompanies mining exploitation, and also takes into account its influence on the conditions for the construction of coal production plans. For this purpose, the course of the production process that took place during the mining changes in the tested hard coal mine has been analyzed. The longwalls were analyzed. In this way, the statistical material of 3,540 research trials was obtained, which corresponds to the number of mining shifts. The construction and use of the quantitative method is based on a forecast model built on the basis of data on the value of the forecast variable and explanatory variables in the past, as well as on the risk analysis in the researched mine. Therefore, the new method takes into account the actual conditions of the production process.

The paper presents an algorithm for determining the mining capacity of a longwall, which is the basis for planning the mining volume. The method of practical use of the new method of planning the volume of production, building forecasts, which in turn allows for the development of more precise plans was presented in a clear and transparent way.

An innovation in the production volume forecasting process is the use of a generator designed for this purpose, which can be used to predict the occurrence of random events (breakdowns) in the future. The principle of its operation is based on the probability of the occurrence of a breakdown in a mine.

After a proper preparation of the statistical data required in the method, the newly developed method of planning the production volume can be used in other mining plants exploiting hard coal seams.