

can be performed by the calculation based on the principles of quasi-static displacement of plastic substances from shot holes into the formed cracks on the condition of their spending small quantity and uniformity;

- the empirical dependence associating the instrument single impact energy and average volume of the plastic substance introduced to the formed crack at a single impact and rendering possible to define the brittle materials destruction process rate has been suggested and verified experimentally.

The practical value of the performed work carried out at the initial stage consists in the substantiation of the equipment and materials serving for rock failure using plastic substances by the method of their impact displacement from shot holes to the cracks being formed, and the development and implementation of appropriate technologies of work performance at a range of mining and construction enterprises.

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#### **BASIC PRINCIPLES OF MINERAL DEPOSITS EXPLOITATION ENVIRONMENT AND LABOUR CONDITIONS IMPACT EVALUATION**

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In is known that the mining practice impact on the surrounding grounds environment and human goes on simultaneously in several directions. It conditions the necessity of developing a methodological approach allowing carrying out an integral assessment of mining practice environment and working conditions impact. Due to the research carried out by us the general principles of such impact assessment have been developed, they being represented below.

The comparative evaluation of mining practice technologies' environmental impact is necessary to carry out in terms of emissions, toxic substances pumping, and also land resources (soils) outtake, mineral wealth disturbance and solid wastes formation ignoring the efficiency of potential means of collective protection.

The cap stone breaking-out technologies based on the application of plastic substances together with other drill-and-wedge methods are the safest ones,

when speaking on the environmental conditions impact.

To bring the compared mining operations into the matching appearance according to the environmental impact principle they are necessary to be considered in the light of: the same mining method application; the same natural media perceiving the influence of certain elemental composition contaminants being formed; the same aggregative state of the considered contaminants; the same target purpose of the considered mining processes conditioning the appearance and subsequent influence of the contaminants being formed.

The cap stone breaking-out technologies based on the application of plastic substances are connected with other methods of cap stone breaking-out by the only common process – drilling, that makes possible to compare them according to emissions of dust and vapors of oils used for the drilling technique work.

The comparative evaluation of mining technologies' influence on labour conditions needs to be carried out in terms of safety methods and industrial sanitation of the work performance ignoring the efficiency of potential means of collective protection.

The cap stone breaking-out technologies based on the application of plastic substances together with other drill-and-wedge methods are the safest ones, when speaking on the labour conditions impact.

As the only common process connecting the cap stone breaking-out technologies using plastic substances with other breaking-out methods is drilling, the comparison with them on the labour conditions impact should be carried out in terms of noise, vibration of the equipment applied, safe working methods, severity and intensity of work, as well.

At the comparative evaluation of mining technologies serving for cap stone breaking-out, the impacts associated with the contaminants, the concentration of which can be measured (calculated) with the help of their concentrations, should be referred to the environmental safety area, as their impact is beyond the scope of a spatial working place.

At the comparative evaluation of mining technologies serving for cap stone breaking-out, the impacts associated with the contaminants, the concentration of which can be measured (calculated) with the help of impact levels, should be referred to the work safety area, as their impact, in most cases, is not beyond the scope of a spatial working place.

For the purpose of bringing the comparison elements described with numeric values into the matching appearance they need to be reduced to the factors of time, finished commodity volumes or both time and volume of finished commodity.

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