

Development of Technology of Controlled Wave Effects on Low-Carbon Array

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Abstract: The coal production in low-permeability gas-bearing coal seams brings the problems with advance methane recovery from coal array to reduce gas emission in a goaf.

Technology of advance methane recovery from low-permeability coal array aimed at improving safety in coal mines. This stimulates the development of new technology methods improving the properties and state of the environment.

Given the great heterogeneity of the coal properties of the array and the complexity of the exposure active, effective effort is possible only through a series of sequential engineering impacts.

Technology of underground coal array involves solution of the problem of effective management of gassing using vibration and reservoir wells. In this regard, the proposed technological scheme of methane recovery is designed with consideration of the conditions of occurrence of the layer and the desired level of reduction of natural recoil of methane,

To solve this problem, the proposed technology managed wave action, which provides an intensive extraction of methane gas from the low-permeability coal array at the stage of preparation of the reservoir to the hollow.

Introduction

In the activities aiming at improving safety and working conditions in coal mines, there is a need to develop new ways to manage the properties and state of the environment.

The development of research on vibration exposure stimulated interest in doing experiments in the laboratory and field experiments on the mine field.

Results studies and generalizations

Given the great heterogeneity of the data requirements and complexity properties of coal-bearing strata, effective control is possible only through a series of sequential engineering impacts, and until, as happened unloading coal strata, and was found to be the sources of free gas [1].

Technology of underground coal array involves the solution of the problem of effective management of gassing the use of wave action, and wells drilled both from the surface and from underground workings.

In this regard, the technological scheme (Fig.1.) and methods for determining the parameters of methane designed with mining and geological conditions of occurrence of the layer and the desired level of reduction of natural gas ampleness.

However, there is a common origin in engineering means to control gas in coal mines. This General principle is the need to ensure access to remote areas of coal-bearing strata and increase gas recoil from coal seams that it is important to perform the specified engineering solutions.

Because such training is conducted in advance to conduct mining operations or, at least, to conduct experimental work, engineering construction, which enables the preparation may also be a well drilled from the surface [2].

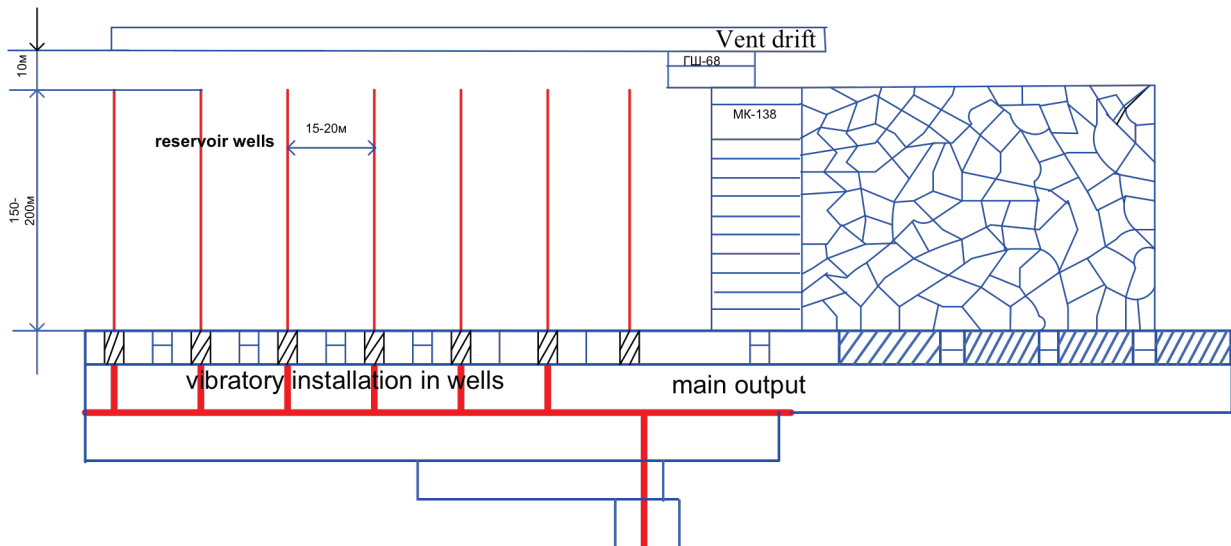


Fig. 1: Technological scheme vibration through underground wells

Development of variants of technological schemes of preparation of a mine field is reduced to drawing up sequence, the combination of influences: drilling method and location of wells, the number of pumped liquid, the exposure time, the required level of reduction of gas-bearing reservoir. So many variants of technological chains, qualitatively different at any stage of the impact, is the set of estimated technological options.

When choosing the method and scheme of complex processing of coal seam occurs the necessity of several competing variants of diversity training array. When choosing the method and circuit of the integrated effect probable cases when you will be limited to one option. The specific option scheme of complex processing of a mine field for safe and efficient testing is based not only on the General principle of selection of the determining factors, but also largely determines the type of work undertaken equipment and significant factors.

To solve this problem is developed and tested on a number of mines the new method is a method of vibration on gas-saturated coal array in order to intensify gas emissions from coal-fired array and its subsequent removal by means of degassing to reduce the concentration of methane in the atmosphere workings [3].

Conclusion

The decrease in methane content coal array is achieved in the process of vibration amplifying diffusion processes, which provide a reduction in the natural the methane content part of the coal seam, increase the filtering process gas from remote areas of the array.

The developed technology of vibration exposure allows you to reduce methane in the mine workings in the impact zone.

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