POLITECHNIKA ŚLĄSKA W GLIWICACH
WYDZIAŁ GÓRNICTWA I GEOLOGII

Zwiększenie efektywności odmetanowania ścian warunkujące poprawę bezpieczeństwa i ochronę środowiska

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Summary of doctoral thesis
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„The increase of methane drainage effectiveness of longwalls is a condition to improve safety and environment protection"

The research within the thesis deals with important and up-to-date issues concerning the design and process of exploitation in methane deposits. The topic of the thesis is tightly connected with methane hazard in the wall environment in heavy methane deposits and with the decrease of methane emission into the atmosphere in the ventillated air.

The work suggests the demethanization effectiveness prediction method to facilitate the choice of demethanization technology. The predicted demethanization effectiveness for projected stages of the panel length at an assumed development is crucial when determining the exploitation conditions and may help to use the correct demethanization method.

Moreover, the algorithm allows to assess in different aspects the ventilation and methane hazard of the projected walls in methane deposits in the range of possible value of demethanization effectiveness.

On the basis of the algorithm there was created a calculation program called PrognozerVM of useful character, which can be used on an ongoing basis in coal mines when planning the exploitation levels

The issue of the increase of demethanization effectiveness in the exploited walls forces to calculate in advance when projecting the walls. The work offers simulations of variant assessment of methane hazard and it allows to determine potential values of demethanization effectiveness on the panel length and still potentially safe during exploitation. It also allows to lower the discharged methane to the ventilation air and thus protect the environment.

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