

عنوان مقاله:

Applying Rock Engineering Systems (RES) approach to Evaluate and Classify the Coal Spontaneous Combustion Potential in Eastern Alborz Coal Mines

محل انتشار:

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خلاصه مقاله:

Subject analysis of the potential of spontaneous combustion in coal layers with analytical and numerical methods has been always considered as a difficult task because of the complexity of the coal behavior and the number of factors influencing it. Empirical methods, due to accounting for certain and specific factors, have not accuracy and efficiency for all positions. The Rock Engineering Systems (RES) approach as a systematic method for analyzing and classifying is proposed in engineering projects. The present study is concerned with employing the RES approach to categorize coal spontaneous combustion in coal regions. Using this approach, the interaction of parameters affecting each other in an equal scale on the coal spontaneous combustion was evaluated. The intrinsic, geological and mining characteristics of coal seams were studied in order to identify important parameters. Then, the main stages of implementation of the RES method i.e. interaction matrix formation, coding matrix and forming a list category were performed. Later, an index of Coal Spontaneous Combustion Potential (CSCP_i) was determined to format the mathematical equation. Then, the obtained data related to the intrinsic, geological and mining, and special index were calculated for each layer in the case study (Pashkalat coal region, Iran). So, the study offers a perfect and comprehensive classification of the layers. Finally, by using the event of spontaneous combustion occurred in Pashkalat coal region, an initial validation for this systematic approach in the study area was conducted, which suggested relatively good concordance in Pashkalat coal region.

کلمات کلیدی:

Coal, Classification, Coal Spontaneous Combustion Potential index (CSCP_i), Rock Engineering Systems (RES), Eastern Alborz Coal Mines

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