

Macro Forecast of Mine Water Disaster in Deep Mining in Northern China

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Abstract The mining depths of many coal mines in northern China are over 1000 m. Many problems will be more serious when mining depth increase, such as gas, roadway deformation. There are also many new characteristics of mine water disaster in deep mining. Water abundance of stratum will be weaker when mining depth increase, although the degrees of this change are not identical of different stratum. On the contrary, the pressure of groundwater will be higher when mining depth increase. Except this two main factors, other influence of mine water disaster such as ground stress will change, in the same time, this change will influence hydraulic conductivity of faults. All these will influence the possibility and seriousness of mine water disaster, rarely abounding with groundwater fist will reduce water irruption quantity, it can also reduce the possibility of water inrush. High pressure of groundwater will increase the possibility of water inrush, but this action are reduced by rarely abounding with groundwater and high ground stress. High ground stress is a complicated factor of mine water disaster which must be studied deeply. Some of popular forecast way of mine water disaster such as "water bursting coefficient" is not fit in deep mining. Finding some new way to forecast mine water disaster in deep mining is a important task for us. The water inrush data in HaiBei coalfield can prove above mentioned view.

Keywords deep mining, macro forecast, rarely abounding with groundwater, high pressure of groundwater