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MONITORING AND ASSESSMENT OF MINING SUBSIDENCE IN A METAL MINE IN CHINA

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Abstract

The occurrence of ground subsidence induced by backfill mining method becomes a new threat to many mines. The current paper presents a typical example in the Jinchuan mine in China. Based on actual situations of mining subsidence and damage, GPS monitoring networks were successively established in three neighboring mine fields in the Jinchuan mine at the beginning of 2001. An integrated monitoring network composed of 848 monitoring points to study mining subsidence was eventually set up in the entire mining area in the first half of 2005. Based on combined field investigation and monitoring, it revealed the characteristics of mining subsidence in the Jinchuan mine. In addition, the mining subsidence mechanisms, comparison between the monitoring results and the ground subsidence, correlations with the damage of underground facilities and the extracted ore tonnage were discussed. Furthermore, several countermeasures were proposed according to the mining subsidence and damage situations.

Key words: assessment, backfill mining, ground subsidence, monitoring

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