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The quality of backfilling of abandoned lignite mines on ground settlement under static and dynamic conditions

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ABSTRACT

It is well known that some sinkholes or subsidence take place from time to time in the areas where abandoned room and pillar type mines exist. The author has been involved with the stability of abandoned mines beneath urbanized residential areas in Tokai region and there is a great concern about the stability of these abandoned mines during large earthquakes as well as in long term. The 2003 Miyagi Hokubu and 2011 Great East Japan earthquakes caused great damage to abandoned mines and resulted in many collapses. Particularly the effect of the quality of backfilling of abandoned mine below the urbanized areas is very important under static and dynamic conditions. The author presents the effect of the quality of backfilling on the formation of sinkholes or ground subsidence associated with abandoned lignite mines on under static and dynamic conditions and discusses its implications on the urbanized areas above abandoned lignite mines in this study.