



## **Estimation of the pore pressure distribution from three dimensional groundwater flow model at mine sites in Korea**

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Mining activities continually change the groundwater flow and associated pore pressure distributions within the rockmass around the mine openings or the open-pit bench during the operational periods. As the pore pressure distributions may substantially affect the mechanical behaviour or stability of the rockmass, it is important to monitor the variation of pore pressure incurred by mining operation. The pore pressure distributions within the rockmass can be derived using a two- or three-dimensional finite element groundwater flow model, adopted to simulate the groundwater flow. While the groundwater inflow at mines has generally been dealt with respect to the working environment, detailed case studies on the distribution of pore water pressure related to the stability analysis of mine openings have been relatively rare in Korea. Recently, however, as the health and safety problems are emerged for sustainable mining practice, these issues are of the major concerns for the mining industries. This study aims to establish a three dimensional groundwater flow model to estimate the pore pressure distributions in order to employ as an input parameter for numerical codes such as the FLAC 3D. Also, the groundwater flow simulated can be used for de-watering design at a mine site. The MINEDW code, a groundwater flow model code specifically developed to simulate the complicated hydro-geologic conditions related to mining, has mainly been used in this study. Based on the data collected from field surveys and literature reviews, a conceptual model was established and sensitivity analysis was performed.