

## **Comparison of two adopted face perpendicular preconditioning techniques**

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### **Abstract**

Face perpendicular preconditioning is one of the mechanisms used in deep gold mines to transfer stress far ahead of the face on the development ends. Although face perpendicular pre-conditioning has been implemented in gold mines, rockbursts are still considered as the most problematic issue faced by deep gold mines. This paper investigates the effectiveness of face-perpendicular preconditioning that was developed for development ends in mechanized gold mines. The investigation comprised a comparison of four face and five face-perpendicular preconditioning holes in a deep gold mine. The results of the study indicated that five face-perpendicular preconditioning is more effective than four face-perpendicular preconditioning holes. The results were validated by adequate fracturing on the mining face, improvement of fracturing in the vicinity of the sockets and rapid decrease in the hangingwall fracturing. Ground Penetrating Radar, borehole periscope, seismic monitoring systems and numerical modelling were used to validate the effectiveness of the methods.