

https://dspace.org/

Assessment of face area hangingwall stability in a hard rock bord and pillar mine

Matsobane, Jeane Mokgadi

2021
https://hdl.handle.net/10539/33349

Downloaded from a DSpace repository. https://dspace.org/

ABSTRACT

The aim of this project was to establish guidelines for TARP team members to assist with issuing support recommendations. To this end, ground conditions that may be intersected within the unsupported face area were assessed. The assessment included evaluation of behaviour of the ground conditions at various panel spans and advances per blast, and evaluations of the influence of the last line of support.

The results show that the effectiveness of the last line of support is influenced by keyblock dimensions, in particular the perimeter exposure of these blocks in the hangingwall. A reduction in span and advance per blast were found to be beneficial in reducing the height of the potential falls of ground. This is important where there are shallow dipping discontinuities, as the analysis showed the main failure of the front line of support to be insufficient bolt length in these situations.

In general, the current support system is sufficient for a 10 m span in normal ground conditions (with only steeply inclined joints), and where parting planes are parallel to the strata. However, a reduction in span and face advance is appropriate whenever a pothole is approached or where there are shallow dipping discontinuities.

Shear zones need to be supported, with good areal support, as soon as practically possible after exposure. The smallest practical span is recommended for these structures. The orientation of the shear zone, zone thickness and the presence of other discontinuities intersecting the shear zone, will determine the advance per blast.