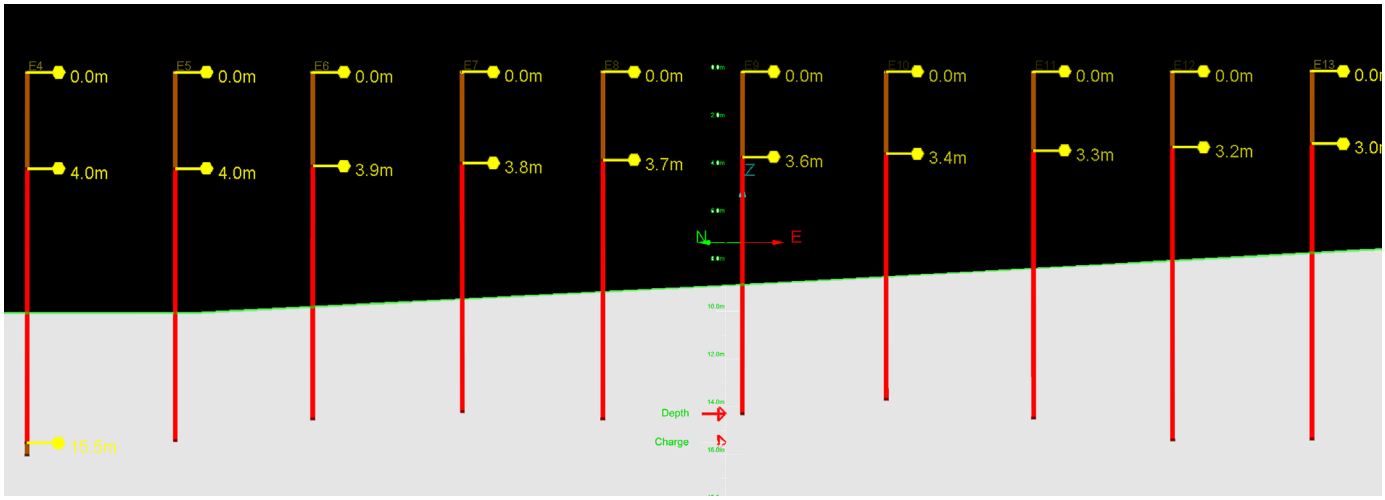
Modelling blast hardness

Productivity and cost challenges in the mining industry require innovative changes across every area of operational activity and technology. Maptek™ BlastLogic™ provides operations with a strategic tool for drill and blast.



Maptek™ BlastLogic™ accuracy management system streamlines processes in open cut drill and blast operations to improve mineral recovery.

The latest example of Maptek innovation sees Measurement Whilst Drilling (MWD) data being used to model hardness within a blast.

This solution involves direct connectivity between Maptek Vulcan™, BlastLogic and major drill guidance systems, resulting in an automated workflow.

During drilling, measurements are taken in up to 20-centimetre increments. MWD data samples include torque, weight-on-bit, RPM, air pressure and rock type. These variables are modelled in Vulcan.

All MWD data is pre-processed, with known outliers and unwanted information removed. Using MWD data a surface can be created in Vulcan that tracks the hardness horizon within a blast.

Average MWD attributes can also be calculated per hole, and drillholes that share common hardness profiles can be grouped using polygons.

> The surface and polygon files from Vulcan are simply imported into BlastLogic using click-drag-drop directly into the view area.

Using these models, the charge design can be optimised in BlastLogic by adjusting the stemming height for harder material prior to blasting.

This is shown in the image above where one MWD attribute was used to model a surface through the blast that tracked variable hardness. The drillholes are displayed with the asloaded amount of charge.

The sophisticated BlastLogic SQL database automatically catalogues blasts, allowing analysis of trends over time.

Future blast designs can be enhanced by relating historical performance to material hardness, explosives used and subsequent digability.