Aussie mines embrace geotechnical software

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Monday, 11 September 2006

SIX Australian mines and several exploration sites over the past few years have taken advantage of a software tool that quickly and accurately logs geotechnical data to aid engineers and geologists during mine planning and development stages.

Using Geoconsult's GPAC software.

Traditionally, geotechnical indices – including Rock Quality Designation (RQD), Rock Mass Rating (RMR), Quality Index (Q) and Coal Mine Unit Rating (CMUR) – have been calculated manually, leaving room for data entry and calculation errors and taking up valuable time.

A geotechnical logging software and database, GPAC (Geology/Geotechnical Plotting and ASCII Collection), automates the calculation of geotechnical indices, which offers geologists and engineers a higher degree of accuracy and standardisation.

The software was developed through a joint venture between software developers and programmers Collective Experience and exploration and mining consultants GeoConsult. The software is now sold, supported and operated by GeoConsult.

"The computation assists with modelling and eliminates the personal rating variance in rock mass characterisation. The application of the GPAC program will provide engineers and geologists with quick, efficient and reliable data for use in the planning stage of mines," principal consultant Warwick Smyth said.

He added computed indices were a step forward in geomechanics allowing engineers and geologists to fully and effectively use results.

GeoConsult has sold the software into four Queensland, two New South Wales and two Indonesian mines and some exploration sites. The consultancy has also just started using the software in the coal seam gas industry.

Centennial's Mandalong mine in New South Wales is the latest operating underground to purchase and install the software into its operations, planning and exploration.

A lot of the groundwork for trialling the software was conducted in 2003 at Xstrata's Newlands operation located 130km west of Mackay. GeoConsult was employed to do the geological and geotechnical assessment of the Northern Underground in 2003, and then a similar study in 2004 for the next proposed underground.

Results from Newlands Northern Underground boreholes showed the manually calculated and GPAC calculated values displayed a strong correlation for RQD, RMR and CMUR. Warwick said GPAC standardised the methodology and provided more objective, accurate values when compared to people calculating indices.

"The output from GPAC will provide development planners with data that is simple to acquire and model. The geotechnical indices can be contoured on proposed operational areas and demonstrate variable ground conditions and hence ground support requirements," he said.

Information generated from GPAC is presented in a format that can be used in

modelling for the planning stage of mine development. The geotechnical indices provide an indication of ground conditions, which assists engineers with anticipating poor ground where more rock support may be required.

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