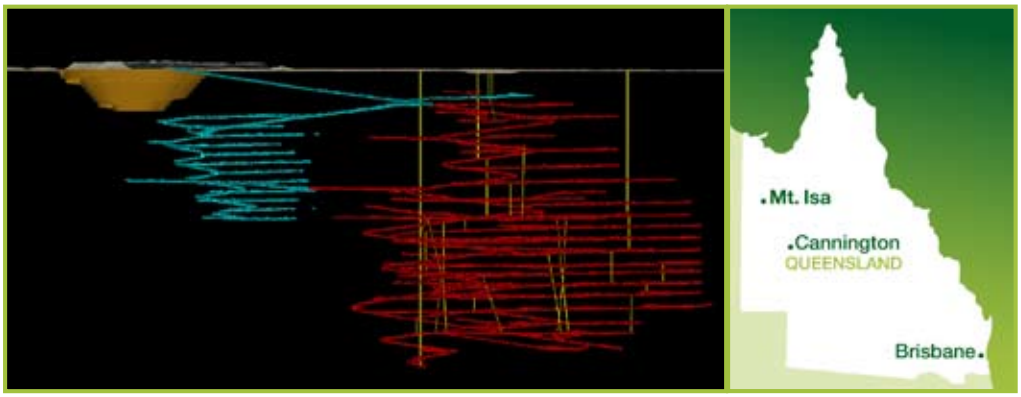
MAPTEK™ Vulcan™

CASE STUDY

Smooth transition from underground to open pit mining

BHP Billiton Cannington mine is a multi-commodity operation 200 km southeast of Mt Isa in northwest Queensland. Cannington, the world's largest single producer of silver and lead, uses Maptek Vulcan™ for mine planning and is applying it to the expansion project.



HIGHLIGHTS

- Maptek provides common platform for geotechnical and planning teams
- Current project to evaluate expansion from underground to open pit operations
- Maptek consulting on site
- Analysing scenarios is easy - a simple click generates calculations instantly

The ore is extracted through a hard rock underground mining operation and then treated at a processing facility to produce lead and zinc concentrates. The mine planning team has been studying growth alternatives - one option involving expansion through an open pit mine.

Maptek Technical Services staff have been consulting on site to help with the project, which is complex in nature due to the transition between the current underground mine and the proposed open pit.

Maptek Vulcan™ was introduced to the open pit study group in 2008 for modelling and evaluation. For this study, Vulcan is being used primarily for phase and dump design, truck fleet estimation and mine planning.

Designing with safety in mind

In designing the phases and dumps, specific emphasis must be placed on the location of the current mining developments (drives, stopes etc.) with the aim of minimising possible instability in the walls of each phase and of the final pit.

Each phase uses a different set of design parameters to maintain the maximum safety standard while improving economic outcomes.

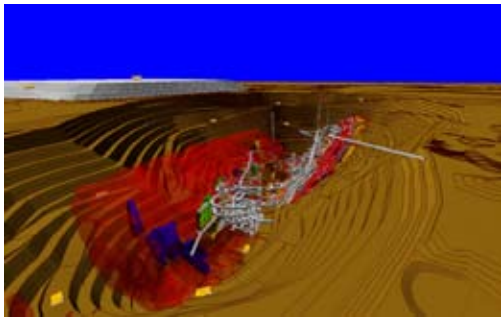
Transport profile scenarios

Truck fleet estimation is streamlined using Vulcan's integrated Haulage Profile tools. Each scenario has a different transport profile which directly affects the number of trucks per period. Vulcan simplifies the process - with mine designs and block models open on the screen, a simple click generates calculations instantly.

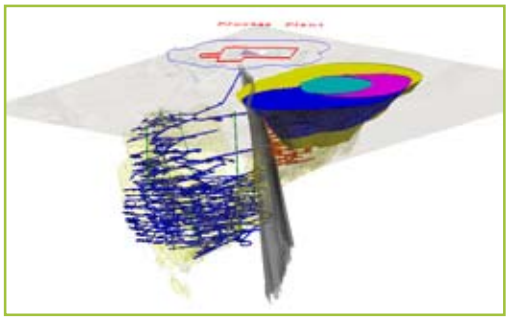
At Cannington, this has permitted rapid generation of the cycle time for each period, making it easy to determine the fleet required to carry out material movement in accordance with the mine plan.

The Haulage Profile module can be applied to open pit and underground operations.

Its greatest benefits are that results are stored in spreadsheets and directly in the Vulcan block model, helping short and long range planners to make rapid decisions on effective haulage routes.



Open pit scenario modelled and visualised in Vulcan



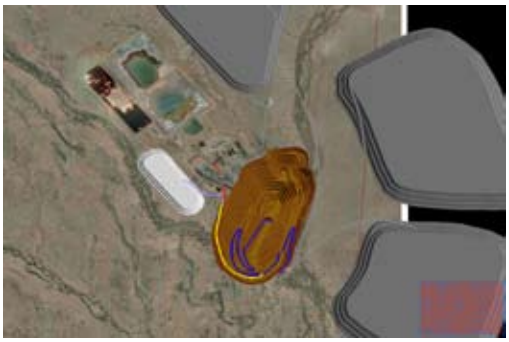
Model showing underground and potential open pit

Accurate mine plans

Open pit mine scheduling at Cannington is accomplished with Maptek Chronos. A life-of-mine plan is traditionally broken down into a long-term or annual plan.

This can be drilled for further detail to obtain monthly plans, allowing the mine engineers to plan the right blend of ore and waste, amount of material movement, and blending if required for production.

Scheduling with Chronos has permitted better control of the material movement as well as provided plans for alternative mine and plant capacities in a short time.



Geotechnical studies

At Cannington, Vulcan has become a key tool in managing geotechnical databases, design of drilling programs, and collecting geotechnical data, as well as for hydrogeological investigation.

Vulcan is now building a common platform between geotechnical and planning teams, where the results of various studies and scenarios are easily translated into accurate and economic mine plans.