MAPTEK Vulcan

Good Grades at Sino Iron

CITIC Pacific Mining has been using Maptek Vulcan™ grade control tools to define grade blocks and to calculate the associated elemental grades, volumes and masses.

'VULCAN IS USED NOT ONLY TO HELP IDENTIFY THE OPTIMAL POSITION FOR THE PIT BUT ALSO TO POSITION THE INFRASTRUCTURE REQUIRED FOR THE PROJECT.'

These tools are designed to improve mining processes through technology and process improvements.

The Sino Iron project is 100 km southwest of Karratha in the Pilbara on the Western Australian coast. The deposit has a measured, indicated and inferred resource of over 4 billion tonnes of magnetite ore. Still in the construction stage, the project is expected to achieve an annual production of 27.6 million tonnes of magnetite pellets and concentrates.

Magnetite mining is yet to be seen on this scale in Australia, with the Sino Iron project the first of its kind and set to become one of the world's largest mining operations.

Intensive processing takes place at the site to produce magnetite concentrate and pellets. This highly technical process includes crushing, milling, separating, thickening and filtering the magnetite ore after mining.

The benefit of magnetite mining is that less energy is required to process the final product into steel than with haematite.

Maptek became involved in the Sino Iron project in 2008 when CITIC Pacific Mining selected Vulcan as its mine planning and geology tool. Grade control was implemented as the initial prestrip of the mine commenced, to define the quality of magnetite ore within the reserve.

The nature of magnetite mining requires extensive on-site infrastructure. Mine planning must take into account that crushers are located within the pit. Vulcan is used by CITIC Pacific Mining to not only help identify the optimal position for the pit but also to position the infrastructure required for the project.

Following the success of Vulcan from the start of the project, CITIC Pacific Mining asked Maptek to enhance the current implementation to allow visualisation of grade control and reconciliation data within the site work flow.

The new functionality provides automated techniques for calculating 'reconciliation' data from a resource block model, onscreen display of multiple blasts and export of blast data to Excel for analysis.

Grade block triangulations, constructed during the block out process, are used in conjunction with a block model to calculate the 'expected' values which can then be compared with the 'actual' values calculated from the drillholes.

CITIC Pacific Mining has invested heavily in the 25-year Sino Iron project, and Maptek looks forward to providing the tools to support the company's mine planning goals.

Thanks to
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