

Software with Brooke Showers

Fortescue Metals Group's processing plant expansion at its iron ore operations in the Pilbara.

Bend it like Bentley

Using three dimensional modelling software brought major cost and time savings to preparing the plans for a major crushing plant.

Iron ore miner Fortescue Metals Group enlisted the skills of T&G Corporation to develop its \$630 million crushing plant in Western Australia's north west.

T&G Corporation, a WA owned 3D drafting company, streamlined its work flow by linking 3D models with two dimensional drawings. It used this to perform the engineering design for steel, concrete, mechanical, electrical, ducting, structural and civil works for FMG.

Austar Coal Mine Pty Ltd convicted for polluting waters near Pelton

Austar Coal Mine Pty Ltd has been convicted by the Land and Environment Court of NSW of having committed an offence against s 120(1) of the *Protection of the Environment Operations Act 1997* of having polluted waters on 29 July 2010. The offence involved an amount of water containing detergent and effluent from a bathhouse facility at the Austar Coal Mine, which Austar had applied to a grassed, transpiration area, seeping into a piped section of Bellbird Creek near Pelton. The incident caused white foam and elevated levels of detergent, nutrients and faecal matter along approximately 2km of Bellbird Creek.

Austar was prosecuted by the Environment Protection Authority (the EPA).

Austar cooperated with the EPA during the course of its investigation and pleaded guilty to the charge. The Land and Environment Court convicted Austar for the offence and ordered Austar to pay \$75,000 to the Hunter-Central Rivers Catchment Management Authority for a rehabilitation project in the Mount View conservation corridor instead of a fine; to pay the EPA's costs and expenses of investigation and legal costs in a total amount of approximately \$42,000; and to publish this notice.

This notice was placed by order of the Land and Environment Court of NSW and was paid for by Austar.

The drafting firm placed as a finalist in the Bentley Systems Be Inspired Awards for innovation in the mining and metals category.

The software primarily used on the FMG project was Bentley ProSteel, which allowed users to visualise and communicate the design concepts and detect clashes in the design.

By linking the 2D information with 3D models, designers could produce and review the 2D drawings for construction.

T&G was able to add value to the project for FMG by working out bottlenecks in the plant design well head of time and saving costs.

Modelling in 3D saved an estimated 30% in time compared to designing solely in 2D, with overall cost savings of about 20%.

Short and long-term benefits can be achieved on capital projects by increasing the efficiency of the design, procurement, and construction of mines and processing plants.

Bentley has produced systems to address mining and transportation strategies surrounding mapping, surveying, civil engineering and infrastructure.

Other software components have been designed for ore processing and refining with equipment analysis, design and life cycle data management.

Bentley's tools for planning and design include 2D and 3D visualisations of plant and terrain layout, building and construction. They also enable material reporting, simulation and easy information access.

The 3D computer-aided-design environment of ProSteel enables greater visibility in the design stages and variations in visual angles. This is handy when presenting the 3D models at meetings to key decision makers.

Bentley is already a major supplier to many of the engineering, procurement and construction companies involved in all areas of mining infrastructure development.

The world's second largest miner, Vale contracted SEI Engenharia to model infrastructure, concrete structures, steel structures and industrial installations for its Cristalino copper project in northern Brazil.

SEI Engenharia used a multi disciplinary design team to assist Vale build a \$2.6 billion copper plant that will produce 16 million tonnes per annum of run-of-mine material with an average annual production of 340,000 tonnes of copper concentrate.

The firm was contracted to perform the front-end loading and deliver a 3D model, which was unprecedented at Vale.

SEI Engenharia was recognised for its efforts on the project when it won the Innovation in Mining and Metals Award at the Bentley Systems Be Inspired Awards in Amsterdam in November. 