The Application

Using a laser scanner and modelling software the dimensions and capacities of plant and equipment are being accurately measured in Thiess operations. Examples include:

- Capacity of excavator & dragline buckets
- Pinion and hoist positions
- Volume of truck payloads

Engineers and maintenance personnel are using this information to check, compare, and identify potential problems that can affect productivity.

For example South Walker Creek Mine used models created through laser scanning to compare two apparently identical dragline buckets. The scan showed that one bucket was 5% narrower... thus affecting dragline productivity...

In another example an excavator bucket was scanned at the Mt Owen Mine Complex. The bucket was rated at 26m$^3$ and measured as 25.9m$^3$.

Data measured by the scanner can be exported into a range of file formats, such as those used by Vulcan and other site planning packages.

The Benefits

- **SPEED.** Scanning a bucket takes only several hours and post-processing about 1 day.
- **SAFETY.** Surveyors do not need to enter active mining areas to conduct their work with a laser scanner. The laser light emitted by the scanner is 100% eye safe.
- **ACCURACY.** Results of laser scanning on a number of operations have been verified against known survey data and mine models.

*What is a Laser Scanner?*

A Laser Scanner is a device that uses pulsed laser light to measure distance to a surface. A rotating mirror inside the scanner and rotating head allows the scanner to scan 80° vertically and 360° horizontally, calculating the location of the point of reflected light in 3 dimensions.

Scanning 12,000 points per second at a range between 1m and 1km with an error of less than 10mm per sample, the Riegl 420 used in Thiess is a highly versatile instrument.

*For further information contact:*

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1 A surface model created from laser scanning of pits I-North and G-South coloured to highlight height contours. 2 A photo taken of the same region.