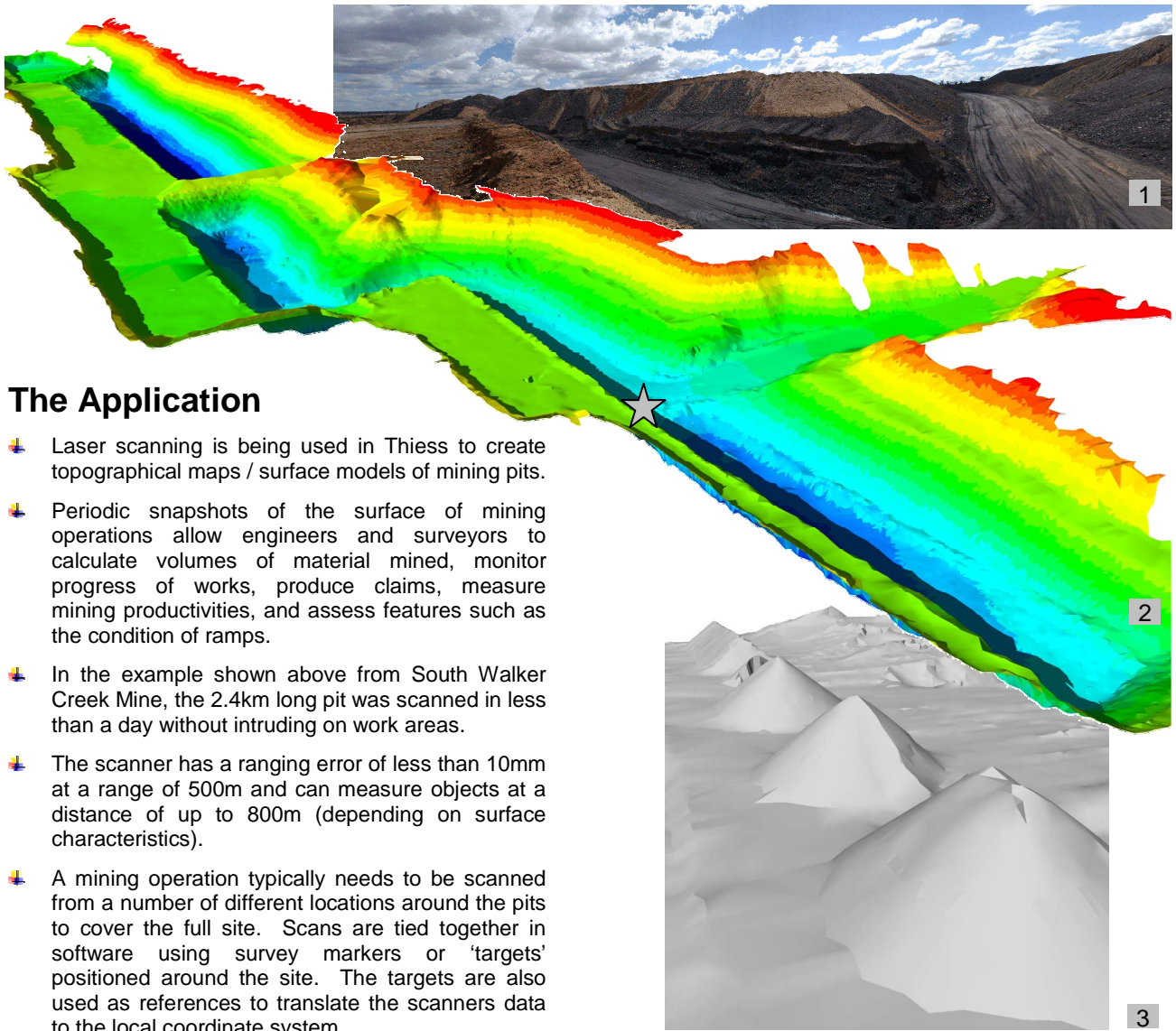


# Laser Scanning – Pits & Stockpiles



## The Application

- ✚ Laser scanning is being used in Thiess to create topographical maps / surface models of mining pits.
- ✚ Periodic snapshots of the surface of mining operations allow engineers and surveyors to calculate volumes of material mined, monitor progress of works, produce claims, measure mining productivities, and assess features such as the condition of ramps.
- ✚ In the example shown above from South Walker Creek Mine, the 2.4km long pit was scanned in less than a day without intruding on work areas.
- ✚ The scanner has a ranging error of less than 10mm at a range of 500m and can measure objects at a distance of up to 800m (depending on surface characteristics).
- ✚ A mining operation typically needs to be scanned from a number of different locations around the pits to cover the full site. Scans are tied together in software using survey markers or 'targets' positioned around the site. The targets are also used as references to translate the scanners data to the local coordinate system.
- ✚ 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.** A full site survey, including all active mining areas and stockpiles can be completed in 1 to 3 days (depending on the size of the operation and available reference targets).
- ✚ **SAFETY.** Surveyors do not need to enter active mining areas to conduct their work with a laser scanner. The near-infrared class-1 laser light emitted by the scanner is totally 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 out to a range of 800m with an error of less than 10mm, the Riegl 420 used in Thiess is a highly versatile instrument.



### FOR FURTHER INFORMATION CONTACT:

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[1] Photo of the pit shown in [2], taken approximately from the position marked by a 'star' [2] A surface model created from laser scanning of pits I-North and G-South at South Walker Creek Mine, coloured to highlight height contours. [3] Stockpiles at Mt. Owen, scanned and modelled for volume calculations.