

MRA ENGINEERING

RECLAIM PERFORMANCE CHECK

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The Reclaim Performance Check analyses the efficiency of a bucket wheel reclaimer in processing a stockpile to quantify potential gains from using our laser optimised turnarounds. The throughput gains in tonnes per hour will show how your existing infrastructure can be leveraged and help build an optimisation business case.

The analysis compares machine trend data from your site against the proven performance from other sites that utilise MRA's award winning Smart Stockyard Management System, providing 'real' potential gains.

The analysis looks at trend data, ideally collected in one second increments, including: long travel position; slew angle; luff angle; bucket wheel power (TPH); and, boom weigher (TPH).

Basic Analysis – projects the increase in tonnes per hour using optimised turnarounds.

Comprehensive Analysis – expands the analysis to review slew speed control and its impact on consistent material flow, long travel step size and bench start and end position. This considers overview drawings of the general arrangement for the machine and the site; a cross-sectional drawing of the pad showing bunds and pad levels; the stacking method used to create the stockpile; and, the approximate dimensions of the reclaimed stockpile in height and width.

MRA's Smart Products Group can liaise with you to facilitate the analysis.



MRA's Smart Stockyard Management System (SMS) won the Innovative Technology Award at Abbot Point for the 11.3% throughput gains achieved by using laser optimised turnarounds compared to an automated reclaimer optimised in the PLC. The stockpile was comprised of three benches and the impact of laser optimisation across each bench was as follows:

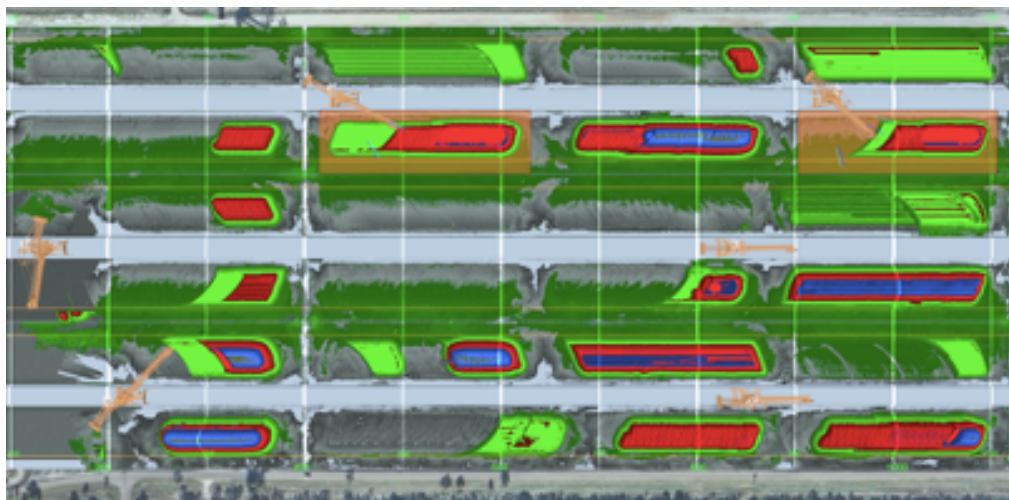
- 19.4% increase in the upper bench
- 11.2% in the middle bench
- 5.5% in the lower bench



SMART STOCKYARD MANAGEMENT SYSTEM

MRA's SMS is mature and operating at four coal terminals that process a combined 250 MTPA and enables the stockyard, stockpiles and machines to be viewed in a highly accurate real time 3D visualisation with key performance metrics.

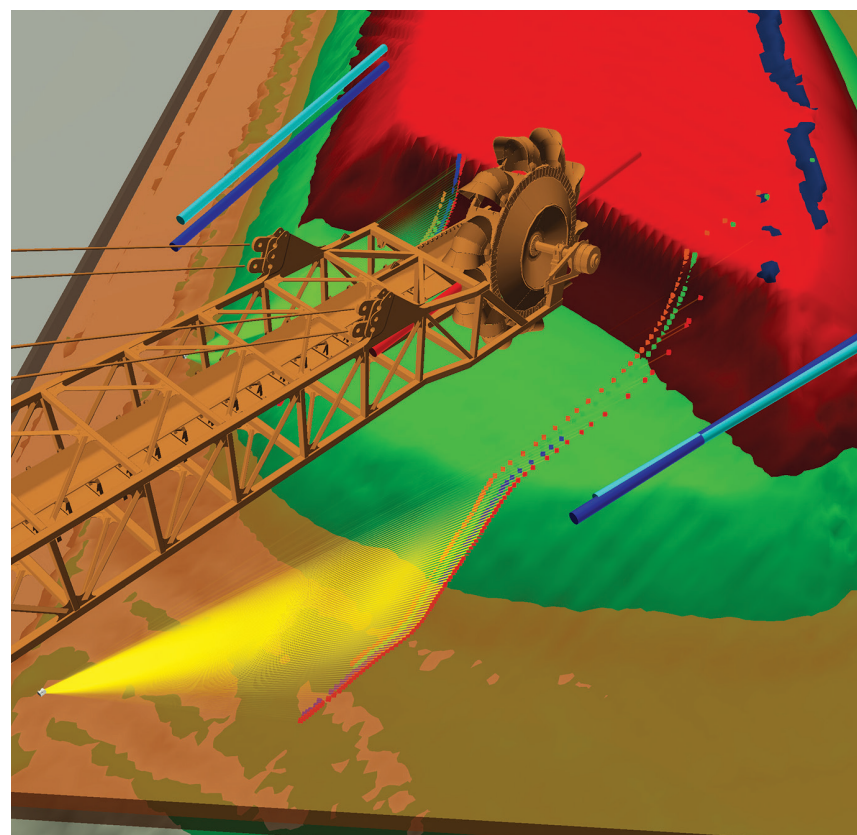
SMS features include short term machine planning and anti-collision, a highly accurate stockpile model, real-time monitoring, quality tracking and laser optimisation.



Abbot Point Abbot Point Stockyard overview showing stacking patterns and stockpile bench heights.

30-Day Playback enables a site to review stockpile and individual machines for performance review and incident investigation.

48-Hour Play Forward can integrate train and vessel schedules to help a site manage daily machine operations including start positions, anti-collision, capacity and stockpile zones; best method for stacking and reclaiming; and quality tracking. Scenarios can be re-run to model changes to train arrival order and timing, vessel berthing and loading times and unplanned outage of equipment.



LASER OPTIMISATION – HOW IT WORKS

Two lasers are installed on each machine and the laser data is used to create an enhanced real-time model of the stockpile that takes into account displacement after stacking, the environmental impact of heavy rains and cyclones and, slumping during the reclaiming process.

The higher accuracy of the laser optimisation helps in several ways. It increases time-in-material or production throughput by reducing the slew-cut turnaround times as the reclaimer sweeps across the stockpile surface

It enables a look-ahead feature that can adjust slew speed to reduce volume spikes which causes machine stress that lowers machine life.

Abbot Point Abbot Point Reclaim optimisation showing laser scanner data points and calculated turnaround slew position for the current and next slew swings.

Keen to find out more?

You're welcome to contact our Engineering Manager Peter McPherson [m 0403 453 250](tel:0403453250) [e peter.mcpherson@mra.com.au](mailto:peter.mcpherson@mra.com.au) [w mra.com.au](http://mra.com.au)