

Proximity Alert System Aids Safety

Automated reporting tools which identify the proximity of equipment can reduce risk and help improve mine safety.

HIGHLIGHTS

- RFID receivers on heavy fleet pick up tags within range
- Operators alerted visually & audibly
- Proximity acknowledged by touching the screen
- Multiple detections identified by name
- Detection cleared once vehicle moves out of range

The Maptek™ MineSuite™ proximity alert functionality has been designed with operators in mind. The in-cab display in certain heavy equipment provides production information to the operator. A visual and audible alarm is activated if any heavy or light vehicles come within proximity range.

The Queensland Department of Mines and Energy recently hosted regional workshops on equipment proximity detection and collision avoidance. Cracow Gold and Maptek were among presenters who shared their experiences.

The Cracow Gold underground mine in central Queensland is a joint venture between Newcrest Mining and Lion Mining. Ore from Cracow's 4 mining areas is hauled to the surface ROM stockpile. Cracow has 50 items of mobile fleet and 85 personnel employed underground.

Cracow is progressively installing Maptek MineSuite™, primarily as an automated reporting system and also as a proximity awareness aid for heavy vehicle operators. Currently, 7 trucks and loaders are fitted with proximity detection equipment. RFID technology is used to identify their location and other equipment underground.

More than 100 locations are tagged, along with every piece of mobile equipment.

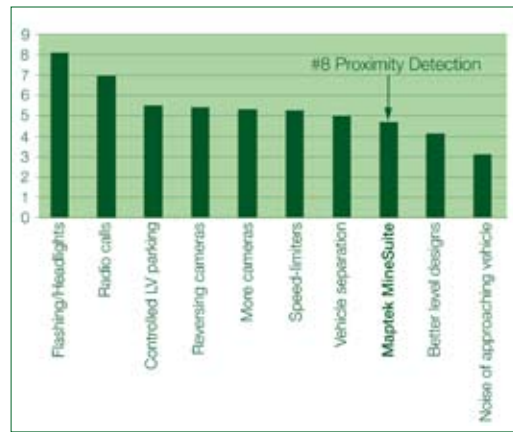


The system talks to the server via periodic wireless 'dumps' at hotspots. Time and motion, delay status and productivity of the fitted machines are all recorded.

The in-cab display in certain heavy equipment provides production information to the operator. The system also activates a visual and audible alarm if any heavy or light vehicles come within proximity range. The system has been expanding since early 2008, with the proximity awareness functionality in place from the start.

In preparation for the DME workshops, Cracow Gold conducted a survey of equipment operators who had been using the system. This highlighted that collisions are most likely to occur:

- > Backed over in a stockpile
- > Leaving a level and entering the decline
- > Driving into the sun
- > Coming around a corner



Best controls against collision rated by 25 vehicle operators



TESTIMONIAL

The combination of proximity detection with automated production reporting is sensible and means the capital cost can be shared.

*Nick Strong, Mine Manager
Cracow Gold*

The survey also showed a general acceptance of the MineSuite system, and that such a system is seen as a worthwhile **addition** to safety controls:

- > 50% of the time vehicles detected were out of sight
- > 40 m was the average detection distance
- > 63% of operators rated it worthwhile

Cracow noted that the system has alerted operators to vehicles outside their field of vision, of which they were unaware, on multiple occasions. Also, the advantages of the system come at additional cost, and there are limitations. Some limitations can be removed by adjusting the system, such as setting up a low/no alert zone as vehicles approach the portal from underground to avoid a barrage of alerts; others are inherent to current technology.

After 18 months of using MineSuite, Cracow has concluded that proximity awareness is effective as one aspect of the safety matrix for underground hard rock mines.

Cracow, the Mining Safety and Health Advisory Council, and Maptek are continuing to work together on finding the best way for operators to receive and acknowledge alerts, as well as improving outcomes in areas of signal strength, detection and cost effectiveness.

*Thanks to Nick Strong
Mine Manager, Cracow Gold*

Maptek MineSuite is a deliberately 'open' system, supporting an approach of integrating with multiple vendors and technologies.

Maptek provides a combination of 3rd party RFID and GPS technology, and has partnered with Mine Site Technologies to offer a solution based on wireless frequency tags.

Technology can provide an additional safety control in some scenarios but is only one part of an integrated approach. The most workable technology for underground hard rock mines is to employ a combination of tags under and above ground, with GPS above ground.