

Asset & People Tracking



Utilising tracking systems to increase safety and productivity

BMA's Crinum underground coal mine located in central Queensland, Australia, investigated productivity factors in the operation of diesel powered machinery.

Operational Challenges

The number of diesel powered machines and personnel present in a longwall panel is limited by the number of Self Contained Self Rescuers (SCSRs), and the ventilation capacity to keep Diesel Particulate Matter (DPM) concentrations within legislated limits.

To maximise the utilisation of machinery, and improve productivity and safety the mine identified the need to automate the token counting and control of the number of personnel and machines in longwall panels.

The mine also wanted the automated tracking system to improve the general organisation and movement of machines and personnel during longwall moves.

The Solution

The mine implemented MST's underground Wi-Fi network and RFID tags to provide real-time location of personnel and machines. The system used 12 strategically placed Wireless Access Points (WAPs) to detect the presence of 140 vehicle tags and 140 miners' Integrated Communications Cap Lamp (ICCL).

MST's ImPact Tracking System kept count of the number of personnel and machines as they entered and left a longwall panel and operated stop-and-go electronic signs to ensure safe limits of personnel and vehicles were maintained.

BUSINESS BENEFITS

- Maximised the number of machines in use without compromising the safety of personnel
- Consistent enforcement of safety limits of the number of personnel and machines within a longwall panel
- Improved morale and productivity
- Improved management and time reductions of longwall moves

Results

The automated system avoided the human errors of a manual system and dramatically improved safety and productivity. By eliminating the need for stop-checks and manually managing access and count limits, personnel and machinery moved more freely resulting in improvements in morale and productivity.

Knowing the location of personnel and equipment during a longwall move provided the real-time identification of deviations from plan, and enabled quicker corrective actions to be taken, thereby ensuring production resumed on, or ahead, of schedule.

Knowledge of personnel's location provided the additional safety benefit of more effective and time efficient emergency mustering, and search and rescue.