



Mt Arthur Coal Project Profile

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Site:

Mt Arthur Coal
Hunter Valley NSW, Australia

Owner:

BHP Billiton

Client/Project Manager:

Sinclair Knight Mertz

Completed:

2003

Business unit:

Wormald Major Projects – Rydalmere, NSW

A successful project for Mt Arthur Coal to provide fire protection for a key mine in the Hunter Valley saw the initial contract, with Wormald’s Major Projects team, expand to include service and maintenance of other fire systems at the mine.

Fire protection is crucial in the mining industry where downtime due to fire, not to mention the risk to personnel and equipment, could have a major impact on the client’s ability to meet contract obligations in Australia and overseas.

Wormald was selected for the work because of our ability to deliver the project on time and on budget. We also had the necessary technical capabilities to provide the best and most cost-effective solution; as

well as the project management skills and resources to deliver the installation.

Site description

Installation of fire protection systems were required in three distinct precincts:

- > Coal Preparation Plant/Domestic Stockpile
- > Mine Industrial Area
- > Export Stockpile/Rail Loading Facility

The three precincts are quite remote from each other (up to several kilometres apart), so the programming/staging of the work needed to be carefully planned.

Products/services supplied

- > Automatic wet sprinkler systems
- > Automatic medium velocity water spray deluge systems
- > F4000 addressable fire detection and alarms

Wormald provided design, equipment, site installation works, commissioning, certification, project management of the construction and ongoing testing and inspection of the systems.

Wormald was the preferred service provider and carried out all testing and

inspection of fire services including fixed systems, portable extinguishers and the existing vehicle systems.

Wormald was successful in securing the maintenance for all fire equipment on the three sites. This involved a quarterly servicing on vehicles - including dump trucks, graders, dozers, and earth moving equipment - and entails checking the vehicles and conducting a simulation test on the fire detection systems.

Wormald also won a contract to upgrade the fire suppression systems on all the excavators to Ansul Dual Agent Systems (replacing those previously installed by another provider), due to the loss of an excavator to fire.

The dual agent system was developed by Ansul system engineers and agent chemists in response to the particular challenge posed by ‘mega class’ equipment such as excavators, haul trucks, wheel loaders and other specialised equipment used in the mining industry. These vehicles contain highly pressurised hydraulic lines with hydraulic fluid creating a substantial source of fuel.



This equipment is susceptible to fire for a number of reasons, and in the event of serious fire damage, can take months to replace; resulting in extensive downtime and business interruption. It could also mean serious injury to the equipment operator. Hence, the installation of the Ansul systems offers vital protection.

Without these systems, and without the work Wormald does on service and maintenance of these systems, the mine could suffer a loss of revenue through the loss of plant and equipment; and loss of business continuity.

Scope of project

Each of the three precincts outlined in the site description is protected separately with an F4000 Main Fire Indicator Panel at each site, fitted with modems and interconnected over a site-wide fibre optic communications loop. This was the first

time the panel had been installed using a modem communication over a fibre network in Australia.

A dedicated water supply for the fire services, consisting of water storage tanks, electric booster pump and diesel booster pump is provided at each site, and are activated automatically in the event of a fire.

Wet pipe sprinklers and fire wire detection are installed in all elevated coal conveyors. The coal conveyors in the reclaim tunnels are protected with deluge water spray systems installed in 30 metre long zones, with dust ignition proof thermal detection for automatic operation. The reclaim tunnel at the export stockpile has over 30 deluge systems to protect the entire length.

Wet pipe sprinklers are installed in the truck maintenance workshops in the mine industrial area.

The coal preparation plant and the various administration facilities are provided with fire alarms and occupant warning systems to alert personnel if they need to evacuate; including visual alarms for personnel in the Coal Preparation Plant due to the noise levels.

Key benefits to Mt Arthur Coal:

- > In a high-risk environment such as the Mining industry, Wormald's state-of-the-art fire protection systems help to ensure the safety of Mt Arthur Coal's employees, and business continuity (the client is in the best position to continue to fulfil its supply contracts to customers).
- > The F4000 Main Fire Indicator Panel fibre optics communications loop allows operators to monitor the entire site from one location.

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