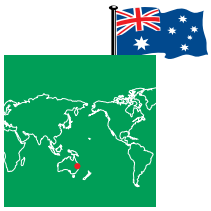
Curragh coal mine SCADA upgrade

Australia



BLACKWATER, QLD

PLC System

The Curragh open-cut coal mine and coal preparation plant at Blackwater, Central Queensland, produces steaming and coking coal for domestic and export markets. Owned and operated by Curragh Queensland Mining P/L, a Wesfarmers Company, the mine's annual production is around six million tonnes.

The mine is approaching the third stage of a long-term expansion program that is opening up new leases and expanding the throughput and yield of the coal production plant, allowing a production increase of approximately 20 percent.

As part of this program, automation and control facilities are being totally upgraded to lay the platform for taking the mine into the future. Modicon PLCs were a key part of the original custom-built SCADA system. Systems integrator HWT Paklog was selected to upgrade this SCADA system and associated facilities. Schneider Electric Modicon equipment was chosen to provide the both the replacement PLCs and the new communications network.

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PLC System

AT A GLANCE

Schneider Electric Ethernet networking solution
Modicon TSX Quantum PLCs
Modicon TSX Momentum PLCs
TCP/IP to Modbus converters

The project

The coal preparation plant's SCADA system had been operating for around 20 years. It was based on a Honeywell TDC 2000 and Modicon 584 PLCs with hard-wired I/O and a Modbus network.
The system had reached the extent of its serviceable life and also lacked the flexibility needed to cope with changes and expansion of the plant. The new communications network and SCADA system had to be able to communicate with the Honeywell TDC, which was being retained, the Modicon 584s and the Modicon TSX Quantums which would replace the 584s during the next stage of the control system upgrade. It also had to provide facilities which would allow the export of plant-related information onto the main business database, remote connectibility to the plant and communication with areas of the plant which had not previously been on the network, such as the train loading control room.

The solution

Schneider Electric's Ethernet networking solution was installed to provide much faster response, better feedback, increased reliability and improved SCADA system efficiency.
The network consists of Modicon Ethernet switches running on a 100Mb fibre optic backbone in fault-tolerant ring topology with 10/100Mb ports to the networked devices. The configuration provides the key benefit of continuing system communications if any part of the fibre optic ring goes down. The network links the main Honeywell system and PLCs across four switchrooms and three substations. Windows NT-based Honeywell PlantScape SCADA software was used to provide enhanced operator interfaces. Modicon Momentum PLCs were used as the interim communications interface to the Modicon 584s so the 584s could talk to the Ethernet network.

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