



**BHP Billiton Mitsubishi Alliance**

*“When we look at criteria such as size, read distance, durability, flexibility, and cost...at the end of the day...the Omni-ID tags are miles ahead of anyone.”*

– Scott Austin, Syscan International Australasia (RFID System Integrator)

## Redefining Inventory Tracking at the Coal Mine

BHP Billiton Mitsubishi Alliance (BMA) is Australia's largest coal miner and exporter, and the world's largest supplier to the seaborne coking coal market. BMA is a 50/50 alliance between the world's largest diversified resources company (BHP Billiton) and the world's largest general trading company (Mitsubishi Development Pty Ltd.). The alliance was formed in June 2001, under which the two companies share equal ownership and management of seven Central Queensland coal mines, including the Norwich Park operation.

### The Problem

BMA's Norwich Park Mine previously used a SAP-based stand-alone inventory and management system to track its assets and equipment inventory in its central maintenance warehouse. The process was both time-consuming and prone to errors. Difficulties arose when personnel 'logged' items they took out of the warehouse; this was reliant on manual handling of the system and was not as efficient as needed. Many items were never logged and the system lacked a real-time component. The resulting inventory discrepancies were difficult to track and correct. The mine lacked an accurate, efficient method of controlling labor and equipment costs.

### The Challenge

BMA needed a real-time system to track and trace its more than 17,000 individual equipment items and the 300 mine personnel who physically enter the warehouse. It also needed to design firmware that would link this information to the existing SAP system as the items are logged out of the warehouse. After considering different technologies, the alliance focused its attention on RFID. Skilled labor on mine sites is expensive in Australia, so an automated, self-regulated honor system—driven by RFID—would be the most cost effective approach.

In 2006, the alliance turned to an Australian RFID system design and integration company (Syscan International). "BMA wanted to deploy an RFID system that could track the movement of personnel, inventory, and work orders going into and leaving their warehouse," says Scott Austin, managing director of Syscan International Australasia. Syscan worked on the project with Computer Sciences Corp. (CSC), BMA's IT services provider and the company that created the RFID test platform. BMA and CSC tasked Syscan with developing an RFID system that included tags, interrogators, support equipment, and a custom middleware solution.

An initial trial utilizing low frequency 124Khz RFID technology demonstrated problems with reliability and performance in the mining environment. In order to meet the requirements of the BMA application, Syscan recommended Gen 2 Ultra high frequency (UHF) passive RFID, which would provide the alliance with a wider range of benefits, including improved coverage and a greater selection of EPC-compliant hardware.

Tag flexibility was another particularly important factor. Motors, pumps, drills, and other heavy duty mining equipment needed to be tagged with hard tags, while miners' helmets and standard inventory items required paper-based smart labels. The plan was to associate each miner with the tools they were to be issued. One of the key requirements of the tags necessitated adequate read ranges—without raising the cost of the tags or sacrificing the requirements of the application. The tags would need to deliver very high read rates when passed through portal doors of varying widths—from 3.3 meter-wide standard personnel doors to 6 meter-wide roll-up truck doors.



The Omni-ID Flex™ tag has been successfully deployed at the BMA Norwich Park mine to automate the tracking and management of 17,000 inventory items and more than 300 mine personnel.

## The Solution

Now fully deployed, the RFID solution—which utilizes the Omni-ID Flex™ tag—caters to all of BMA's requirements for a real-time inventory tracking and management environment. The system has proven its worth by getting miners to their jobs faster, improving database accuracy, and pinpointing lost or stolen equipment.

According to CSC's Cathy Pascoe, "We now have 300 mine personnel with RFID chips embedded into their mine helmets; we have coded all 17,000 items and designed the firmware to link to SAP. RFID portals have been installed at all entrances and exits to the warehouse and every personnel is logged and tracked as they enter or exit the facility."

The fully automated RFID solution provides BMA with greater traceability of inventory—at a lower cost than having to close and manually staff the warehouse 24/7. Simply stated, the cost benefits of the passive RFID system have been enormous.

Syscan's Scott Austin says the feedback has been "extremely positive," noting that the system has actually exceeded BMA's specifications. "The solution delivers transparency in many areas that weren't even part of the business case," he says. If repair parts are needed urgently, for instance, those parts can now be grabbed out of the warehouse without a work order, yet still automatically recorded in the SAP database.

Coming off the successful RFID implementation at the Norwich Park operation, BMA has deployed RFID at three additional mine sites in Central Queensland. Omni-ID tags have been implemented at these sites for inventory management, as well as tool management. The size and flexibility of Omni-ID tags—along with the highly reliable read ranges—continue to demonstrate their worth in some of the most challenging business environments.

Beyond the BHP Billiton Mitsubishi Alliance, global mining companies are looking at the success of BMA Norwich Park as a proving ground for the potential of RFID in mining environments around the world.

## Identifying with Omni-ID

The RFID solution developed for the Norwich Park operation of BHP Billiton Mitsubishi Alliance delivered the following benefits:

- Real-time inventory tracking and traceability
- Long-distance readability of tags
- Reduction in manual logging of items into SAP-based system
- Efficient tracking of mining assets and mine personnel
- Improved accuracy of warehouse inventory system

As a result of this initial success, BHP Billiton is rolling out Omni-ID-enabled asset management solutions for the following applications:

- Tool store management
- Vehicle management
- Container tracking
- Tire management



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