Material Tracking - BHP Billiton Case Study

CLIENT OVERVIEW

BHP Billiton, one of the world's largest producers of major commodities, including iron ore, metallurgical coal, copper and uranium, engaged with RAMP to develop a solution to automate their wear inspection process for its Iron Ore Port in Nelson Point, Port Hedland.

CHALLENGES

BHP Billiton were experiencing difficulties in tracking the wear on their chutes and hoppers which redirects ore between one conveyor to another. These assets are often lined with sacrificial wear plates called liners that are regularly inspected to assess degree of wear and the appropriate time for liner replacement. This is done by manual inspection and requires that the processing plant be shut down during the inspection.

SOLUTION

RAMP implemented an RFID wear sensor Proof of Concept where RFID wear sensors have been designed, built and embedded into ceramic chute liner blocks. The sensors periodically transmit information measuring block wear state to either a fixed RFID read point located at the top of the chute or to handheld RFID reader. The RFID wear sensor system is intended to be able to provide real time monitoring of the wear state of ceramic liner plates.

RESULTS

- Automatic sensing of wear on ceramic chute liners.
- Live wear reporting from operational chute.
- Mitigating down time of repairing chutes and hoppers.
- Preventing the processing plant being shut down during the inspection.

"RAMP developed a wear sensor for BHP that was embedded in ceramic liner plates for use in chutes. Trials were successful with RAMP demonstrating what had never been done before, the ability to provide live wear information form an operational chute. This solution has significant potential and I can highly recommend RAMP for an innovative wireless sensor solution such as this one. With additional production trials I see this innovation as providing the key element in predictive chute maintenance for high wear routes".

Jeff Rowe, Nelson Point Maintenance Manager (2011-2014)
BHP Billiton