

Blast Holes

OVERVIEW

At a Pilbara iron ore operation, low broken stocks had become a critical issue, limiting ore supply to the crushers and affecting production stability. As operations expanded into a new area, the challenges grew. Longer travel distances and operational constraints placed additional pressure on the Blast Crews to maintain a steady flow of blasted material to the crushers.

Business Improvement Specialist Philip Lowe said time studies revealed a significant efficiency gap.

“Only 18 percent of the day was being spent loading blast holes,” he said.

“This limited the amount of time available for loading operations, reducing the blasted material stocks which directly reduced material flow to the crushers.”

That’s where Practical Problem Solving came in. So, what exactly is PPS? At it’s most basic, it’s a practice that enables teams closest to the problem to apply their knowledge and experience to solve the problem.

The Blast and Business Improvement teams got together and used PPS to identify the causes for the low broken stocks and develop solutions.



Rooting around for causes

The team initially focused on why it was taking so long for the MPUs to reach the patterns.

Several root causes were identified. “These included delays caused by vehicle escort wait times, yard entry and exit restrictions, and water accessibility in the emulsion yard,” the blast supervisor said.

The team also obtained AHS vehicles and trained more crew members as AHS escorts. These actions saw vehicle escort-related delays drop from 12 per cent to less than 1 per cent. This represented an average loss up to 6 hours per day across the MPU fleet.

The blast team also “increased crew sizes, split up the crew and reorganised shift start locations.”

Further analysis using a delay tracking tool uncovered a trend of lower MPU performance on Thursdays and Fridays, correlating with fly-in, fly-out transition days.

This insight led to a roster change to help stabilise crew availability and improve week-round consistency.

But it’s one thing to develop solutions and another to embed them into your ways of working.

To help sustain the changes, they established a daily ‘Protect the Plan’ meeting between Mine Ops, Drill and Blast, and the MTS teams to align activities across development, drilling, and blasting.

This also supports quick real-time problem-solving and communication, and keeps teams focused on priority actions.

The shorter term PPS actions have also highlighted a number of longer term actions that are currently being investigated and/or implemented including fitment of AHS equipment in all Blast vehicles, water supply to

the Emulsion yard, new consumables store, new MPU yard, better access to ANFO and emulsion yards and new systems for MPU calibration.

Before these improvements, the blast crews were averaging 153 tonnes loaded per week. Following the changes, that figure has grown to 309 tonnes per week, a 102 per cent increase in performance. This improvement reflects the combined impact of PPS-led problem solving and other operational changes, including increased resourcing, crew restructuring, and improved coordination.

This is a powerful example of what can be achieved when operational leadership and crews work together to address challenges and deliver significant measurable results.