

Case Study

Mining | Coal

Primary Crusher Tip Bin Blockage



Client Background

Coal mining operations mine and deliver coal from open cast pit to a crushing circuit. The crushing circuit reduces the overall coal size of the ROM coal so that it can be handled and processed with ease. This coal is conveyed from the ROM silo to the coal preparation plant to wash, separate and stockpile the coal in grades to transport it to the market.

The primary crusher blocked on oversize material and suffered a breakdown that delayed production for over 24hrs. And as a result the silos were depleted and the coal preparation plant throughput was affected.



Oversized boulders

Key Challenges

- Engineering workshop not yet handed over by Projects Team.
- No tools on site to assist with unblocking the crusher.
- Allowable blocked material is larger than what is specified in the unblocking procedure.



Crusher with foreign material



Value Add

- Faster resolution time to unblock crusher (from average 6hrs to 2.5hrs) due to availability of resources.
- Reduction in crusher stoppages due to blockages.
- Downtime reduced by 40%.
- Reduced impact on Silo levels.
- Silo levels are maintained at minimum of 60%.
- Crusher availability improved by 15%.

“The Pragma team has continued to support the Belfast engineering team through value adding engineering expertise”
Bontle Letlakana – Assistant Engineering Manager

Pragma Intervention

- The Reliability Engineer facilitated the root cause analysis session.
- Review and intensify the maintenance strategy for the crusher based the crushing rate and work load.
- Engaged OEM to consider design changes between the two segment drums to increase crushing efficiencies.
- Supply chain department made arrangements with supplier to avail the resources required for the Engineering Team to improve future response time.
- Engaged the mining to avail a resources on standby to assist with crusher unblocking.
- Provide inputs to unblocking procedure developed to handle major blockages at the Primary Crusher.

Tools and Technology

- SAP EAMS
- MS Excel
- DMIAC problem solving methodology
- OEM specification and technical documentation.