

Case Study

Mining | Coal

LG Cyclone Feed Pipe



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.

This particular coal operation has a coal preparation plant that makes use of gravity separation methods which is performed by two hydro cyclones; a high and a low gravity separation circuit.

The low gravity separation circuit experienced a pipe burst on the low gravity hydro cyclone feed line, which resulted in a total of 13hrs of production loss.

Key Challenges

- No spares on site.
- HDPE pipe size is not standard and has a long order lead time.
- SCM procedures dictate that only a registered vendor can do business in Exxaro.
- No registered supplier for this type of pipe.



Value add

- By implementing condition monitoring and continuously measuring the pipe thickness, unplanned downtime can be avoided.
- The client has an improved planning horizon due to condition monitoring.
- By keeping a spare on site, MTTR is improved from 6hrs to 2.5hrs
- Approximately R4 Million (\$43.00/ ton of coal @ exchange rate of R15.00)



“It was a challenge not having readily available spares or a response procedure clearly communicated . ACC intervention brought relieve to the operations team and confidence in the maintenance team’s response time to breakdowns.”
Sinini Ngwenya - Senior Reliability Engineer

Signed by: Sinini Ngwenya Signed at: 2020-03-19 12:25:53
Reason: I approve this document

Sinini Ngwenya

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Pragma Intervention

- The Reliability Engineer facilitated the root cause analysis session.
- Pragma helped source and identify suppliers that provide the specified pipe.
- They assisted with the vendor application process with the supply chain department and ordered spares to keep on-site.
- They implemented a condition monitoring strategy to measure pipe thickness to track pipe wear and schedule on-time replacement.
- They initiated the process to update maintenance plans to include condition monitoring by the end of 2nd quarter.

Tools and Technology

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