

Client Reference

Mining Coal



Client Background

Our client is a respected coal processing plant situated in Mpumalanga. The plant is designed to beneficiate approximately 16 million tons of ROM coal per annum.

The coal is beneficiated through two dense medium separation circuits into "Export", "Middlings" and "Discard" product streams and coal is supplied to the local and international market.



Key Challenges

- Our client experienced a high number of unplanned DMS pump replacements.
- The DMS pumps are pivotal to the operation of the DMS plant, and breakdowns on these pumps directly result in stoppage of the DMS process which in turn results in other operational issues.
- Production downtime reports are managed manually and data quality and integrity had to be reviewed and corrected.
- The intervention focused on rectifying the basics by considering optimisation of the preventative or condition based replacement strategy of the pumps.



"Having control over planned and calculated (predictable) replacements of your assets will reduce lost production time caused by unnecessary breakdown repairs and will also reduce maintenance costs."

FI TEAM LEADER

Pragma Intervention

- Analysed and cleaned available plant production downtime information and asset failure history.
- Used Pareto Analysis to determine which pumps experience the highest number of breakdowns and contribute the most to the total production downtime.
- Facilitated root cause analysis to identify the root causes and other contributing factors.
- Developed a detailed action plan for the implementation of the solution and relevant best practices.
- Proposed basic pump replacement interval based on more accurate information and history.
- Proposal for accurate pump replacements based on the pump's actual condition.
- Compiled an A3 project report.



Value Add

- Root causes and contributing factors were identified. An inaccurate preventative replacement schedule and poorly defined replacement triggers based on condition contributed to uncontrolled/unplanned pump failures.
- Potential cost saving from implementing the proposed action plan is estimated at R548,000.00 in the reduction of unplanned production downtime. This estimate considers a 70% reduction in unplanned production stops that are due to breakdown pump replacements.
- The investigation and proposed solution provides the maintenance team with shared knowledge on the basic maintenance requirements, best practices, tools and maintenance strategies required for healthy and reliable pumps.

Tools and Technology

- Pareto Analysis
- On Key 5
- Microsoft Excel
- Brainstorming sessions
- Available plant and asset technical information
- Supplier/maintenance contractor scheduled pump replacement plan
- Focused Improvement
- DMAIC process
- Why-Why analysis to identify the root causes and possible contributing factors
- Structured problem solving
- Analytical data analysis
- Mind-Map building software for Why-Why analysis.