Monalco Mining Case Study

How can Monalco reduce the operational maintenance cost by 20% to $40M/year, to operate with a safe profit margin buffer while the iron ore price oscillates around $55M?

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1 Context

Increasing worldwide demand for iron ore ramped up its price to $110/t. Monalco and the competitors invested heavily in equipment and technology to fulfill the market needs. However, this competition increased the supply beyond the demand leading the price to $55/t.
The operational maintenance plan costs must be reduced to $40M/year by the end of June, aiming at the $45M forecasted for 2019.
The equipment will be monitored continuously against excessive wear without neglecting the OEM limits, assuring the operation safety for the employees and equipment.

2 Criteria for success

- Reduce the maintenance costs to $40M/year no later than June 30th, 2019.
- No production interruptions due to equipment damage.

3 Scope of solution space

- One maintenance event at every 50,000 tons of iron ore processed is applicable instead of the current annual maintenance; or
- Maintenance suggested by a predictive model for maintenance services created from the maintenance logs data for continuous monitoring of the equipment.

4 Constraints within solution space

- Iron ore price keeps dropping below $50/t.
- Inaccurate data logged into the systems can lead to a deviated model.
- Abnormal increase of cost of the pieces of the equipment for replacement.

5 Stakeholders to provide key insight

Chanel Adams – Reliability Engineer, Jonas Richards – Asset Integrity Manager, Bruce Banner – Maintenance SME, Jane Steere - Principal Maintenance, Fargo Williams – Change Manager, Tara Starr - Maintenance SME

6 Key data sources

Creation of a model to predict the required maintenances services (Ore Crusher System) using data from the maintenance logs (Ellipse and SAP), the tons of iron ore processed (Data Historian and SAP), the sensors measurements of vibration, temperature, and humidity (T3000 DCS).

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