

# Client Reference

## Manufacturing | Asset Condition Assessments Complementing Plant Acquisition Due Diligence

*The effective use of condition monitoring technologies provides technical assurance to due diligence processes. Information attained adds value by evaluating reliability-related risks before plant acquisition. Confident negotiations and purchases are supported with evidence.*



### Client background

An independent consortium venturing in a new opportunity to manufacture oil and protein adopted technical reliability as one of their due diligence checklist items to support their offer to purchase an ageing processing plant.

The processing plant produces high-protein vegetable products and oils from soybeans. As the market leader in soya protein, quality standards were easily achievable. The second product, oil cakes for animal feed, proved an advantage with optimising raw material use and serving an ever-growing South African industry (agriculture).

Product market share and production outputs were initially evaluated; however, they would also like to achieve sustainability and reliability and maintain quality.

Martec was tasked to lead the reliability evaluation process and provide guidance for success.

### Key challenges

- The lack of equipment identifiers (codification) indicated there was no proper asset tracking for maintenance, lifecycle costing and spares optimisation.
- A recent safety incident led to a catastrophic failure that burned the packaging area down. The owner did not consider refurbishing the area. This was a hindrance to financial forecasting for the new investors.
- Failures proved costly, considering downtime and resource planning to maintain the status quo.
- Lack of skilled resources was noted as staff turnover is high, affecting the quality of maintenance tasks performed.
- Notifications of defects were poorly communicated.
- Due to the short timeline, the team opted to do a baseline condition assessment.

### Value add

- A structured methodology was used during the evaluation, which will be adopted for future assessments.
- Additional technologies (ultrasound) provided insight into asset conditions not previously assessed, such as slow rotating machines and steam traps.
- Electrical assets were identified as critical due to no redundancy, and applicable condition monitoring technologies were recommended.
- Legal compliance procedures were highlighted for future use. Evaluation using historical data with assessment results for a holistic view.
- The concise evaluation of existing practice shortfalls were presented with recommended best practices in the industry for adoption.
- Warning and alarm levels on assets were identified for triggered analysis activities to commence.
- Advisory on Asset Management and Condition Improvement plans were proposed.
- High-risk assets and risk of failure was discussed, indicating focus areas for improvement and attention.
- Training and skills development planning was proposed.

### Martec intervention

- Martec performed an initial plant walk for scope development to evaluate plant reliability.
- Critical assets were identified based on the impact of a failure, taking into account redundancy, lead time and skills required for rectification.
- The identified critical areas were included for a preliminary baseline assessment utilising advanced handheld condition monitoring tools.
- A detailed strategic plan was recommended for a complete plant assessment with expected timelines. •In-time condition monitoring systems with trending and/or diagnosis capabilities on critical assets were identified.
- A recommended 3rd party condition assessment plan was proposed whilst upskilling plant personnel through on-job and structured training interventions.
- The integration of condition monitoring systems with the existing Enterprise Asset Management System for maintenance planning was defined.

### Tools and technology

- Vibration analysis was used on rotating machines
- Infra-red thermography was used for thermal profile analysis
- Ultrasound was used for compressed air and steam leaks
- Risk Ranking Algorithms was used incorporating machine dynamics and compliance criteria
- On Key EAMS was utilised as a start to provide asset identifiers as a building block for future