

Client Reference

Mining | Mechanical Plant Monitoring

The condition monitoring system has improved the detection of mechanical defects by edge computing and remote analysis of vibration, acoustic emission, speed and temperature monitoring. The plant availability has increased due to effective maintenance and resource planning.



Client background

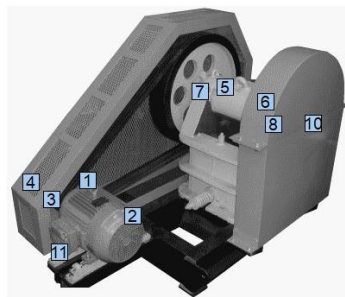
A large independently operated and managed, black empowered manganese ore producer finds themselves under constant pressure to meet production demands with a single line from crushing to load-out for export. A machine failure on the line results in high repair costs as well as downtime, which imposes significant risk.

To ensure the deliverables are met in a safe and responsible manner, producer adopted effective maintenance management principles. This decision led to the journey of condition-based maintenance.

An automated condition monitoring solution integrated to the existing Enterprise Asset Management System provides machine condition assessments and triggers workflow notifications with recommended corrective actions.

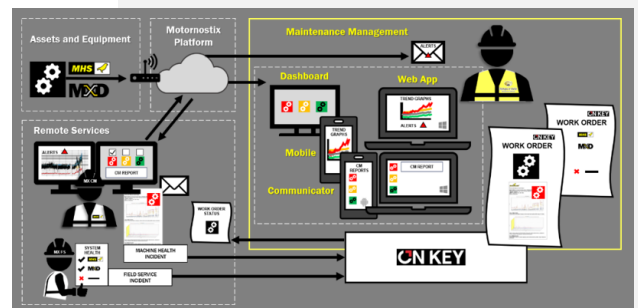
Key challenges

- Machine failures proved costly considering downtime and resource planning to maintain the status quo.
- Scheduled periodic assessments on the critical assets were not reaping the expected benefits, which resulted in more frequent assessments with a high cost.
- Poor analysis reporting with indecisive recommendations contributed to the performance of unconcise maintenance tasks.
- Defect notifications were not communicated effectively.



Value add

- Machines are monitored in near real-time.
- Warning and alarm levels are configured for triggered analysis activities to commence.
- Skilled analysis service is provided remotely, minimising call-outs.
- Communication is provided via visualised dashboards accessible via any internet connection by authorisation logins.
- Notifications are raised to persons responsible for the plant area.
- Automated maintenance management systems prove reduced task planning required, with fewer resources and less time.



Martec intervention

- Identified critical areas with the client to roll-out a cost-effective condition monitoring system.
- Identified vibration, acoustic emission, speed and temperature as valuable measurables related to common failure-modes experienced on the assets.
- Implemented in-time condition monitoring systems with diagnosis capabilities on critical assets and basic trending of significant parameters other identified plant assets.
- Provides skilled resources to remotely assess and diagnose machine defects.
- Hosts history of machine defects, failures, alarms, diagnosis and repairs.
- Integrated the in-time monitoring system with the existing Enterprise Asset Management System for maintenance planning.

Tools and technology

- Machine Health Surveillance (vibration, acoustic emission, speed and temperature)
- Web Analysis application (diagnosis and trending)
- Communicator (online reporting)
- On Key Enterprise Asset Management System