

CASE STUDY

Caterpillar 994K Wheel Loader Maintenance Strategy Development



AT A GLANCE

Challenges

- This was the first time the site had purchased a Caterpillar wheel loader and as a consequence a degree of unfamiliarity associated with the product.
- The client identified that historically condition monitoring was an area that needed improvement.
- There were unknowns regarding oil sampling techniques and the level of skill within the maintenance and engineering department to adequately interpret results and trouble shoot / investigate / fault find.



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"HolisticAM's HsM Software allowed us to deploy risk based maintenance strategies rapidly. HolisticAM's knowledge transfer of condition monitoring techniques and interpretation ensured our maintenance efficiency increased"

Engineering Manager

THE ADDED VALUE

HolisticAM created value for the mining company by:

Value One

Deploying a risk based maintenance strategy that will ensure machine reliability as it ages

Value Two

Increased accuracy of oil sampling results by applying best practices when obtaining oil samples from compartments

Value Three

Increased maintenance efficiency by understanding how to interpret oil analysis results and troubleshoot / investigate / fault find



PROJECT OVERVIEW

The client had purchased a Caterpillar 994K wheel loader and had determined whilst the OEM maintenance strategy was a good starting point, they were concerned that that in the absence of a risk based maintenance strategy the reliability of the loader would be compromised in the long term as the loader ages.

Holistic Asset Management (HolisticAM) was engaged by the mining company during the build phase to develop a Failure Modes Effects and Criticality Analysis (FMECA) maintenance strategy, work instructions and SAP Master Data Requirements.

The key objective was to provide the customer with a risk based maintenance strategy where failure modes, their effects, risk profile and maintenance tasks to address the risks were clearly identified and transparent.

The project utilised a hybrid onsite-offsite execution approach and was delivered on time and within budget. The HolisticAM team remained engaged post strategy implementation to evaluate it's effectiveness.

THE CHALLENGE

Leveraging our OEM and site-based experience we understand the challenges that mining companies face.

This was the first time the site had purchased a Caterpillar wheel loader and as a consequence a degree of unfamiliarity associated with the asset. Despite this, the client was comfortable that the skillset of their maintainers and culture would ensure maintenance was completed to a high standard.

A significant challenge facing the client was particularly around condition monitoring. The client identified that historically condition monitoring was an area that needed improvement. There were unknowns regarding oil sampling techniques and the level of skill within the maintenance and engineering department to adequately interpret results and trouble shoot / investigate / fault find.



THE SOLUTIONS

The client chose HolisticAM based on their OEM, condition-monitoring expertise, on-site experience and proven track of delivering results in the mining industry.

As with all projects executed by HolisticAM, our methodical approach includes identifying the current state, identify and review opportunities for improvement and presenting these opportunities to the client for consideration.

HolisticAM worked closely with the client's engineering, planning and maintenance execution team to undertake the following reliability engineering tasks:

- Develop FMECA based Maintenance strategy with consultation from key site based stakeholders. *Our extensive FMEA Enterprise Library in HsM (Holistic Strategy Management) software contained a Caterpillar 994K Wheel loader with components with known function and failure modes. This enables us to offer a streamlined process for wheel loader FMEA application, which allows for rapid implementation.*
- Provide in-house training on oil sampling techniques to ensure a clean and accurate oil sample is taken
- Provide training on interpreting oil analysis results specific to the wheel loader compartments

THE RESULTS

Key deliverables included:

- FMECA-based maintenance strategy
- Work Instructions that were clear and concise, packaged and sequenced to maximise maintenance efficiency.
- Master Data load sheet generation
- Oil sampling techniques practical training
- Oil analysis interpretation



THE ADDED VALUE

HolisticAM was able to create value by:

- Developing a risk based maintenance strategy that will ensure the continued reliability of the wheel loader
- Increased accuracy of oil sampling results by applying best practices when obtaining oil samples from compartments
- Increased maintenance efficiency by understanding how to interpret oil analysis results and troubleshoot / fault find



Who are we?

Holistic Asset Management is a leading provider of advanced reliability engineering technology and services to the asset intensive industries. We work with our customers to develop tailored solutions that meet the needs of their individual operations and help them realize significant savings in their maintenance costs.

We are proud of the reputation we have earned as a reliable and advanced engineering services provider to the mining industry. Our commitment to our customers is to provide the most reliable and advanced engineering solutions that will help them improve their reliability management systems and ultimately reduce their operational costs.

Unlock the full potential of your assets with our services. Contact us today to schedule a consultation and discover the difference we can make.

www.HolisticAM.com.au