

RELIABILITY SUCCESS STORIES

Best practice condition based maintenance in action

Working to achieve a more reliable and predictable plant operation via condition-based maintenance repairs, lubrication practises and ultrasonic inspections, supported by the Machine Sentry® platform.

THE CHALLENGE

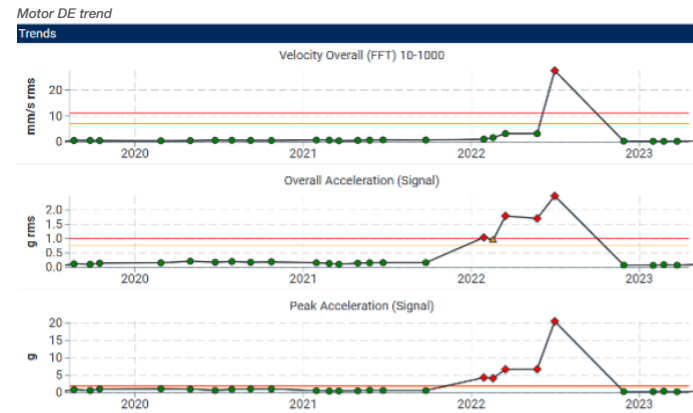
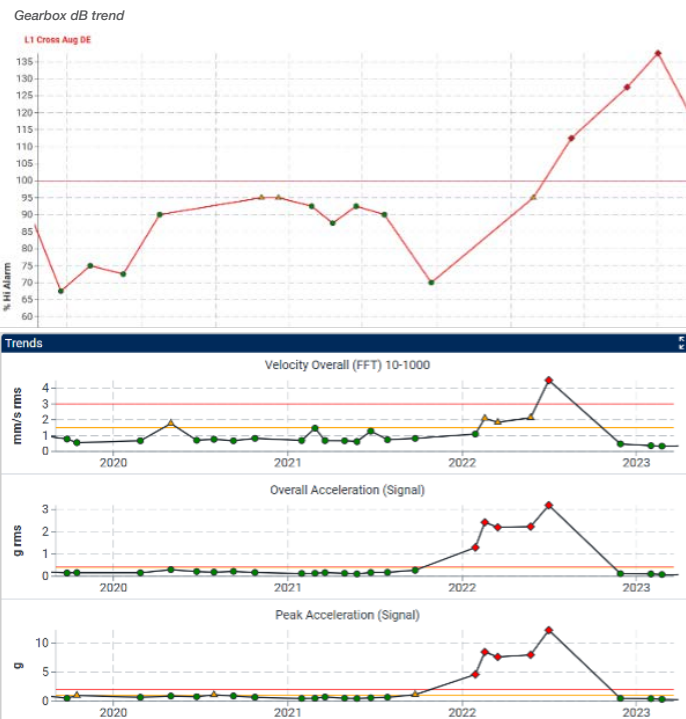
AVT Reliability were tasked with monitoring a number of critical assets onsite. One asset was a critical cooker for the production of coca crumb produced at this facility. If this cooker was to fail, it would have an impact on production and site throughput.

OUR FINDINGS

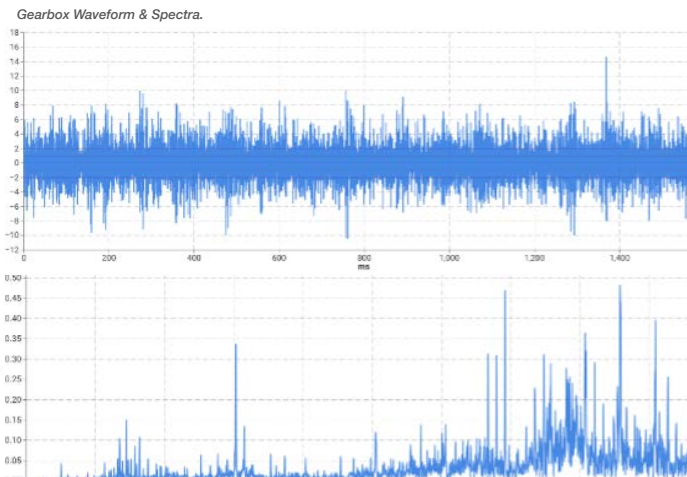
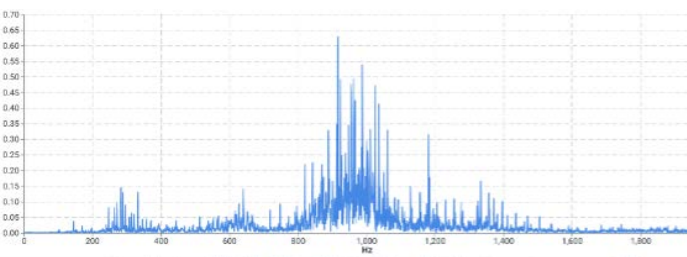
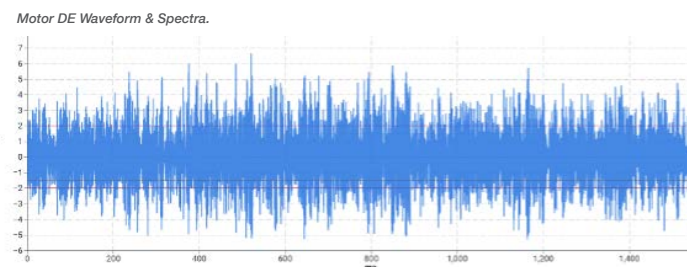
During a routine Condition Monitoring (CM) survey AVT Reliability® Ireland staff identified a change in operating condition and increase in dB levels at the gearbox input using the Ultrasonic kit.

An increase in overall and peak acceleration vibration trends were also observed in the gearbox and motor drive interface. Upon further spectral analysis impacting and gear mesh frequencies were visible in the data.

The trend lines below show the point at which the fault was first identified - with the increase of dB levels, the change in operating condition could be heard.



As seen in the Motor DE and Gearbox spectra and time waveform, raised floor noise and clear peaks and impacting are present in both the FFT and time waveform. In the case of the gearbox, AVT identified this as potential Gear mesh frequency



OUR APPROACH

AVT Reliability have been performing condition monitoring services for several years on this customer site. Ultrasonic inspection using an Ultraprobe 9000 has been implanted to aid with vibration data collection and analysis on this customer site due to the high amount of slow speed machinery.

The monthly condition-based monitoring program has been in place using the Machine Sentry™ platform since June of 2015. At the time the fault was observed, we had collected a steady baseline and knowledge database for this asset.

THE SOLUTION

Onsite staff were notified of this issue and a decision made to repair the gearbox once the production run had finished. When faults are identified, it is still essential to continue the routine monitoring on the asset - faults progress differently over time, some more rapidly than others.

The routine data collection helps us keep track of the fault condition and plan accordingly to prevent failures and plant downtime.

Vibration data collected from the Cooker Gearbox after repairs showed a significant reduction in vibration and dB levels. Using alarm levels in the AVT system set according to ISO 10816 (Vibration Severity Standards) we can see that all readings have changed from “Unacceptable” to “Good” due to the completed repairs.

FOLLOW UP

The follow up vibration data & Ultrasonic readings showed the overhaul was successful in reducing both acceleration levels & overall wear on the asset, reducing production downtime to a minimum.

Below and on the right, we can see the reduced values in the spectra and TWF from the motor and gearbox.



CONTACT

We're here to keep your operations running smoothly.

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