# 24/7 ONLINE CONDITION MONITORING FOR CRITICAL FUEL TRANSFER PUMPS

## THE CHALLENGE

A major UK oil and gas operator responsible for transporting aviation fuel from storage terminals to airports was experiencing repeated failures across its critical mainline and booster pumps. The failures included bearing defects and electrical issues, resulting in costly unplanned maintenance and increased operational risk. Following a significant pump fire, concerns were raised around asset safety and reliability, prompting the client to seek a more proactive approach.

The objective was to move away from reactive maintenance and introduce a continuous monitoring solution capable of identifying developing faults before they became critical.

## THE SOLUTION

AVT Reliability specified and installed a Machine Sentry® Online condition monitoring system to provide continuous visibility of pump and motor condition. The installation includes vibration sensors across the pump and motor, together with a speed sensor, allowing machine behaviour to be monitored continuously under normal operating conditions.

The project is planned to cover 30 critical pumps across the pipeline network. The first phase has now been completed, with two pumps fully instrumented and operating under 24/7 online condition monitoring.

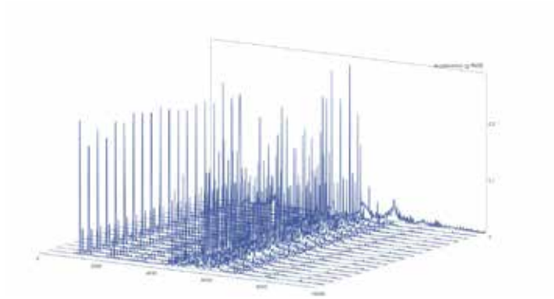
The wired system continuously collects machine condition data and automatically issues email alerts whenever established alarm thresholds are exceeded. This gives maintenance teams early warning of changing asset condition and enables them to investigate developing issues before performance, reliability or safety is compromised.

## DETAILED DATA FOR CONFIDENT DIAGNOSIS

Machine Sentry Online provides engineers with access to detailed diagnostic information. This level of diagnostic capability supports the identification of developing mechanical and electrical faults that may not be visible through periodic inspections alone.

By combining continuous data collection with remote diagnostics and automated alerts, maintenance teams can monitor critical assets more closely, prioritise investigations and make better-informed maintenance decisions.

- Continuous vibration monitoring
- Time waveform analysis
- FFT spectra
- Waterfall plots
- Orbit plots
- Automated alarm notifications by email
- Remote access to machine condition data



## SUPPORTING A SAFER, MORE PROACTIVE MAINTENANCE STRATEGY

As the monitoring programme is expanded across the pipeline network, the system is expected to support:

- Earlier detection of bearing defects and other mechanical faults
- Reduced risk of unexpected pump failures
- Improved operational safety following previous fire incidents
- Reduced unplanned downtime
- More effective maintenance planning
- Greater reliability across critical fuel transfer assets
- Improved visibility of equipment health through continuous remote monitoring

The completed first phase establishes the foundation for a wider online condition monitoring programme, helping the operator move from reactive intervention towards a more proactive and data-led reliability strategy.

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