

COOLING TOWER PUMP MONITORING PREVENTS UNPLANNED DOWNTIME

Early Detection of Pump Bearing Deterioration Supports Planned Asset Upgrade

AVT Reliability® supports the site in achieving a more reliable and predictable operation through condition-based maintenance, using the Machine Sentry® platform to identify developing faults, reduce unplanned downtime, and support informed maintenance decisions.

THE CHALLENGE

The cooling tower pumps play a vital role in maintaining process cooling across the manufacturing facility. The pumps circulate water through the cooling system, supporting efficient heat exchange and ensuring stable operating conditions for production.

Due to increased site demand, all three pumps were operating simultaneously to maintain the required cooling capacity. Failure of a single unit could have reduced system resilience, impacted production targets, and increased the risk of unplanned downtime.

OUR APPROACH

The cooling tower pumps form part of our monthly condition monitoring programme. Since 2018, vibration data has been collected using the MSM2 sensor, allowing engineers to build a detailed operating history and baseline for the assets.

Routine vibration analysis is performed on both the motor and pump assemblies, enabling AVT engineers to identify subtle changes in operating condition and provide early warning of developing faults.

OUR FINDINGS

During a routine condition monitoring survey, we identified abnormal noise from one of the cooling tower pump motors.

Vibration data showed a significant increase in both overall and peak acceleration levels, with a clear upward trend developing over time. Further spectral analysis indicated the presence of a developing bearing defect and associated wear within the motor.

Although the exact bearing details were unavailable, the vibration signatures provided sufficient evidence to confirm a deteriorating condition. The findings were discussed with the site team, and an action note was raised recommending planned intervention during the next available shutdown opportunity.



THE SOLUTION

Due to ongoing production requirements, the site elected to continue operating the asset until a suitable maintenance window became available.

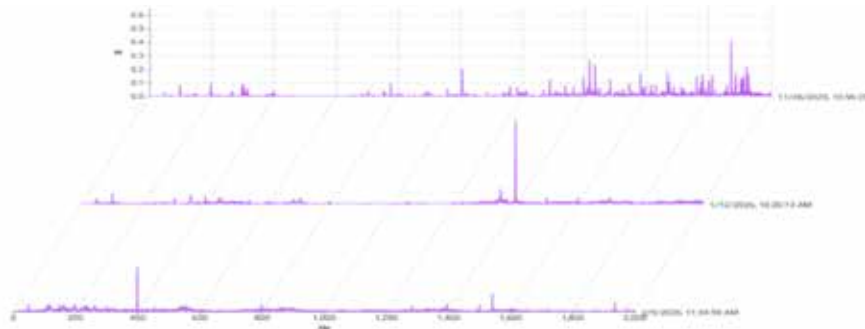
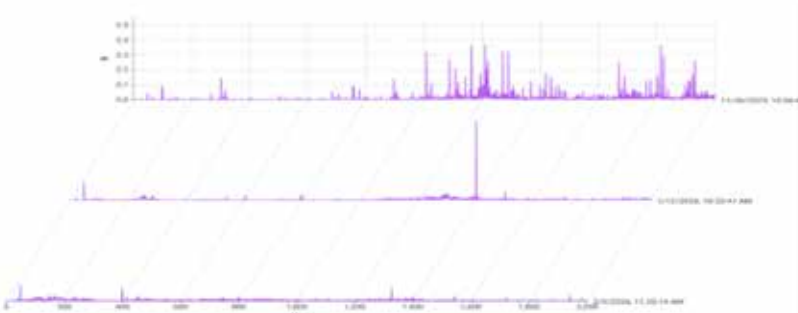
As part of a wider site improvement programme and production capacity upgrade, the customer took the opportunity to replace all three cooling tower motors and pumps rather than only repairing the affected unit. Similar early-stage symptoms had begun to appear across the sister assets, making a broader upgrade both practical and cost-effective.

Following installation of the new equipment, vibration readings reduced significantly and returned to acceptable operating levels.

FOLLOW UP

During the first monitoring visit following the shutdown, AVT confirmed that vibration levels had reduced from “Unacceptable” to “Good” when assessed against ISO 10816 vibration severity guidelines. Although the removed bearings were not available for inspection, the post-installation data clearly validated the original diagnosis and demonstrated that the intervention had successfully addressed the issue.

Without early detection, the bearing fault could have progressed to failure, potentially damaging the motor and pump assembly, disrupting cooling capacity, and impacting production. Instead, the site was able to plan the work, align it with wider improvement projects, and avoid unplanned downtime.



SERVICE MATTERS

AT A GLANCE

Industry: Pharmaceutical Manufacturing

Process: Process Cooling System

Equipment: Cooling Tower Pump and Motor

Products: Machine Sentry® Mobile Sensor

Services: Monthly Condition Monitoring, Analysis & Reporting

Financial Impact: Estimated €10,000–€50,000 cost avoidance

“Condition monitoring gave the site the information needed to make a strategic decision rather than simply react to a failure. The result was a planned upgrade that improved reliability across the entire cooling system.”

CONTACT

If your plant is facing similar issues, reach out to AVT Reliability for expert support in condition monitoring, pipework vibration and lubrication management.

We’re here to keep your operations running smoothly.

AVT Reliability Ltd Head Office
Unit 2, Easter Court
Europa Boulevard
Warrington, Cheshire,
WA5 7ZB

W: avtreliability.com
T: +44 (0)161 486 3737
E: enquiries@avtreliability.com

