

EARLY BEARING FAULT DETECTED ON CHILLED WATER PUMP



Within weeks of implementation, the system proved its value. Early detection avoided product loss and paid for the entire monitoring programme.

- AVT Reliability Engineer

**Need advice?
Contact our experts**

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AVT Reliability® implemented a structured condition monitoring programme to improve reliability and reduce unplanned downtime on production-critical assets. The objective was to establish early fault detection capability through weekly remote vibration analysis.

THE PROBLEM

The asset under review was a chilled water circulation pump supporting a batch production process. As a critical utility system component, any unexpected failure during production would risk product loss, process interruption, and costly downtime.

Rapid detection of emerging faults was essential to protect operational continuity.

OUR APPROACH

Following onboarding in September 2025, AVT's Remote Diagnostic Centre (RDC) began weekly vibration data analysis as part of the newly implemented condition monitoring programme.

During the first detailed review of Pump J7071, a potential bearing defect was identified. To validate the diagnosis, the RDC team adjusted analysis parameters, increasing:

- Fmax from 2000Hz to 4000Hz
- LOR (Lines of Resolution) from 3200 to 6400

These adjustments enhanced spectral resolution and confirmed the presence of bearing fault frequencies and harmonics.

An Action Note was raised on 30 September recommending motor bearing replacement.

OUR FINDINGS

Further monitoring confirmed a developing bearing defect affecting both the drive-end and non-drive-end motor bearings.

The site formally raised a work notification on 16 October, and the motor was replaced on 21 November during a planned intervention window.

Upon overhaul, inspection revealed:

- Significant wear on both motor bearings
- Shaft damage caused by progressive bearing deterioration

The early detection prevented a potentially catastrophic in-service failure.

THE SOLUTION

The motor was removed and replaced before failure occurred during production. Post-replacement monitoring confirmed the asset returned to healthy vibration levels.

The intervention protected a production-critical system and eliminated the risk of batch failure, secondary equipment damage, and emergency repair costs.

FOLLOW UP

The client conducted a cost-benefit analysis which identified a saving of £56,000 as a direct result of early fault detection and planned replacement.

The total annual cost of implementing the condition monitoring programme, including RDC support, was £25,000. The return on investment was therefore achieved within the first two months of operation.

This case demonstrates how rapid implementation of structured condition monitoring can deliver measurable financial return while strengthening asset reliability.

