REMOTE MONITORING IDENTIFIES PREMATURE BEARING FAILURE BEFORE BLOWER BREAKDOWN

Machine Sentry® monitoring detected developing bearing defects on a critical landfill gas blower, helping prevent unplanned downtime and avoiding potential replacement costs of $35,000.

Improving asset reliability and reducing unplanned downtime through continuous condition monitoring of critical landfill gas extraction equipment.

THE CHALLENGE

A large municipal landfill site in the southeastern United States relies on multiple mechanical blowers to extract and process landfill gas (LFG). These blowers play a vital role in maintaining negative pressure across the gas collection system and supporting compliance with environmental regulations.

Following several unexpected blower failures, the site operator required a more proactive approach to asset health monitoring. The objective was to continuously monitor critical blower and motor assets, identify developing faults at an early stage and minimise the risk of operational disruption or environmental non-compliance.

AVT Reliability® was engaged to install Machine Sentry® Fixed (MSF2) sensors and a Gateway to provide remote condition monitoring across the blower system.

OUR APPROACH

Machine Sentry® Fixed triaxial sensors were permanently installed on three 200 HP electric motors and three Lonestar MC12 landfill gas blowers.

The monitoring system was configured to collect daily vibration and temperature data from operating equipment, providing continuous visibility of asset condition without the need for routine site inspections.

Parameters monitored included:

- Overall vibration velocity
- Overall acceleration
- Peak acceleration
- Bearing condition indicators
- Operating temperature

Data was automatically analysed through the Machine Sentry® platform, enabling trends and anomalies to be identified as they developed.

OUR FINDINGS

During a routine review of monitoring data, AVT Reliability® identified abnormal operating conditions on one of the landfill gas blowers.

The asset exhibited elevated vibration levels at both the drive-end (DE) and non-drive-end (NDE) bearings. Analysis also revealed high-frequency vibration activity, including non-synchronous spectral peaks and elevated vibration floor levels associated with bearing deterioration.

At the same time, temperature monitoring identified a significant increase in operating temperature, with the NDE bearing recording a 20% rise over a two-day period.

Comparative analysis against similar blowers operating on site highlighted a clear deviation from expected performance. While a comparable blower had been in service for approximately 12 months, the affected blower had only been operating for two months,

AT A GLANCE

Industry: Waste Management / Landfill Gas

Process: Landfill Gas Extraction and Processing

Equipment: Lonestar MC12 Blowers and 200 HP Electric Motors

Services: Remote Condition Monitoring, Vibration Analysis, Fault Diagnostics

Outcome: Premature bearing defect identified before failure, avoiding potential costs of approximately $35,000

THE SOLUTION

Based on the condition monitoring findings, the blower was inspected before a failure could occur.

The investigation confirmed premature wear within the non-drive-end bearing. Further checks verified that shaft alignment remained within acceptable tolerances, helping eliminate misalignment as a contributing factor.

Following discussions with the equipment manufacturer, a decision was made to replace both bearings under warranty.

FOLLOW UP

By identifying the defect at an early stage, the customer was able to schedule corrective action before the bearing reached a critical failure condition. The proactive intervention avoided unplanned downtime, prevented the risk of catastrophic blower failure and eliminated the potential need for a replacement unit valued at approximately $35,000.

The success of the project reinforced the value of continuous condition monitoring within landfill operations and provided the customer with greater confidence in the reliability of their critical assets.

As a result, the customer requested the deployment of Machine Sentry® monitoring systems at two additional landfill sites.

SERVICE MATTERS

"Displacement monitoring provides confidence that excessive pipework movement will not occur during critical maintenance operations, helping operators make informed decisions while maintaining safe and reliable performance."

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.

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