Rubber Plant Avoids $400K in Lost Production

Vibration analysis catches loose base plate before catastrophic BFW pump failure.

Site: Synthetic Rubber Manufacturing Plant in southern U.S.
Area: --
Asset: Boiler Feed Water Pump
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Analyst: Keith Matherne
kmatherne@azimadli.com
225-368-7520

Following the catastrophic failure of its main boiler feed water pump, the maintenance team at a major U.S. rubber plant installed a spare.

The plant asked Azima DLI to take baseline vibration readings from the spare pump and then perform periodic surveys to ensure proper operation. This was the site's only spare and if it also failed, it would cripple plant production by 50 percent for approximately 48 hours.

The Azima DLI analyst noted that vibration was too high immediately after collecting the first data set.

Suspecting a loose base plate, the analyst performed cross-phase analysis to confirm his diagnosis and also to pinpoint where stiffening was needed.

To re-confirm the diagnosis, the analyst stabilized the base plate by inserting brass wedges in strategic locations around the plate. Another set of data demonstrated that the temporary stabilization technique had been effective in reducing vibration levels.

Since taking the pump out of service for repairs was not an option, the analyst suggested the brass shims remain in place and recommended the operating speed be reduced slightly to further help dampen the vibration. The plant's staff was urged to take regular vibration readings until the next scheduled outage in case the situation deteriorated. The analyst also recommended studs be installed in various locations on the base plate until permanent repairs could be made.

For the long term, the analyst recommended the base plate be permanently stabilized by adding grout under it at the next available outage.

The plant's maintenance team followed all of the analyst's recommendations and the pump ran without further incident until the outage. The permanent repair was made at the outage and the pump has been running smoothly ever since.

In this case, a vibration survey quickly identified a manageable problem on a critical machine before the point of failure. The rubber manufacturer was able to run the pump until an outage could be schedule and had no loss of production.

Had the problem not been detected, the spare boiler feed water pump would have failed catastrophically–and unexpectedly–within a few weeks. It would have taken at least 48 hours for another pump to be delivered to the plant and installed, costing the rubber maker $400K in lost production opportunity and repair and replacement costs.

Avoiding this failure–on just one critical machine–represents avoided cost of almost seven times (7x) the cost of monthly vibration analysis on the entire fleet of machines at this site for an entire year.

About the Azima DLI Analyst

Keith Matherne has been an Azima DLI analyst since 2007. He has nearly 20 years of vibration analysis experience, with special expertise in the synthetic rubber industry. He is a certified Level II Vibration Analyst.

Azima DLI is the leader and premier provider of predictive machine condition monitoring and analysis services that align with customers' high standards for reliability, availability and uptime. Azima DLI's WATCHMAN™ Reliability Services utilize flexible deployment models, proven diagnostic software and unmatched analytical expertise to deliver sustainable, scalable and cost-effective condition-based maintenance programs. The company's bundled solutions enable customers to choose comprehensive, proven programs that ensure asset availability and maximize productivity. Azima DLI is headquartered in Woburn, Massachusetts with offices across the U.S. and international representation in Asia-Pacific, Central America, Europe and South America.

Media Contact:

Danielle Kotzias
Azima DLI
Phone: +1 781-938-0707 x772
Email: dkotzias@AzimaDLI.com