

Power Company Reduces Costs and Improves Plant Reliability with Wireless Vibration Monitoring and Analysis Software

Business Results:

- Reduced labor cost associated with collection of vibration data
- More frequent vibration data for improved monitoring of conditions or rapidly developing new problems
- Reduced risk of incurring costly contract penalties due to plant derating or shutdowns

Application:

Motors, pumps, and fans contribute to three power generating units that produce 1,265MW of electricity.

Customer:

Utility company serving millions of customers through multiple transmission and distribution utilities.

Challenge:

For greatest efficiency, a power generating company needed to monitor machine vibration. Their solution initially included another vendor's low-quality vibration transmitters that required more attention than the motors, pumps, and fans they were assigned to monitor.

With a 25% failure rate in the transmitters, the maintenance team spent approximately 20 hours per week replacing condition monitoring equipment, upgrading firmware, and rebooting the system. Because the system did not provide the necessary data, the vibration analysts could not predict issues and the machinery was at a higher risk of failing.

Solution:

Emerson was invited to design an improved solution that would reliably provide remote condition monitoring data and analysis tools. Included in the Emerson response were AMS Wireless Vibration Monitors, AMS Machine Works, gateways, Field Link Antennas, and PeakVue technology.

The power generation team was familiar with Emerson's quality solutions from their years of using the AMS 2140 Machinery Health Analyzer in a route-based monitoring plan for predictive maintenance. Based on their experience, they were confident that Emerson's solution would avoid the challenges faced with the competitor's remote monitoring, breakdowns and stoppages.



A HIGH-QUALITY SOLUTION HELPS AVOID POTENTIALLY TIME-CONSUMING CORRECTIONS.

The AMS Wireless Vibration Monitor delivers full vibration data over a self-organizing wireless mesh network. It provides rich information about machinery health for both operations and maintenance personnel.

CONDITION MONITORING CASE STUDY | POWER & UTILITIES

To prove the plan, the local Emerson Impact Partner worked with the customer and performed a pilot study that compared the AMS 2140 data, Emerson's wireless vibration monitor data, and the competitor's monitoring system on a machine that was suspected of having an inner race bearing defect. The test did not require line-of-sight with the machine, operated for one month, and, thanks to the special pilot system, collected data with no IT involvement. In addition, PeakVue Plus technology from Emerson enabled straightforward analysis.

Both the route-based AMS 2140 and the AMS Wireless Vibration Monitor found the defect. The previous competitor solution did not.

With the new solution in place, the customer's team can use Emerson's AMS Machine Works software to review the spectrum and waveform data to see if a machine has a defect that would result in unplanned plant downtime or expensive machine repair costs. In-depth analysis is simplified because PeakVue considers more than just the velocity data and can be trended easily using Emerson's tools. The analysis goes further as it suggests specific activities that will correct issues.

Seeing that the remote data delivered by Emerson's solution carries value, the customer hopes gradually to rely less on their route-based program, reduce the labor costs associated with routes, and ensure that consistent high-quality data is collected remotely as frequently as needed.