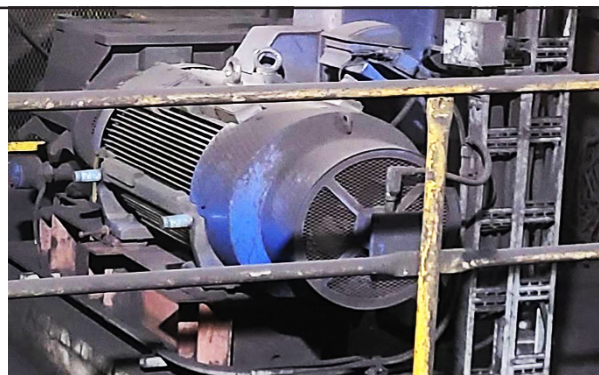


Mining Company Avoids \$2.4M in Production Losses by Using Wireless Vibration Monitoring To Prevent Unscheduled Shutdowns of Critical Conveyors

RESULTS

- Estimated avoidance of \$2.4M in lost revenue
- Improved maintenance efficiency and safety
- Progress toward corporate vision for digital transformation



APPLICATION

As coal is converted from raw to clean, many series of transfer conveyors move the material through the main processing plant and on to shipping.

CUSTOMER

North American mining company.

CHALLENGE

Transfer conveyors move coal from area to area. When one of them slows or stops, many others must do the same — putting safety and profitability at risk. A North American mining company experienced vibration in some of its conveyors that were, for safety sake, not available for standard route condition monitoring by technicians. When vibration damaged equipment and the process stopped, the maintenance team was required to jump immediately into action to remedy the situation.

At the same time as the local maintenance team faced challenges, the company was promoting a corporate goal that included extending sensors in their process equipment combined with data analytics and visualization — where digital transformation played a large role. This conveyor challenge presented an opportunity for the site to move toward the corporate goals.

“We designed a solution that aligns with multiple goals. It solves our vibration challenge while moving us toward our corporate digital transformation vision.”

Reliability Engineer

SOLUTION

Emerson and Spartan Controls, Emerson's local impact partner, created a solution that met the immediate vibration challenges and helped the site move forward on the digital transformation path. In the solution, wireless field sensors on the conveyers send data to AMS Machine Works for PeakVue analysis and consolidation.

PeakVue technology delivers a simple, reliable indication of equipment health by filtering out traditional vibration signals and focusing on impacting — an accurate indicator of the overall health of a rolling element bearing machine.

An OPC UA connection carries data from AMS Machine Works to the cloud where tailored dashboards show information from all of the conveyors. Alerts go out when necessary and direct the team to investigate. Users at the local site and throughout the company can review the alerts and work together towards a solution.

Very early one morning, after the solution was up and running, the team received a temperature alarm indicating a bearing was operating above the threshold of 40°C. They did not need to rush out to address an issue because PeakVue gave them information and time to monitor the situation and make sure the temperature rise was not a transient event.

When they arrived at work the next day, the team reviewed the data and decided to monitor the situation over the next two weeks. After another temperature spike, the bearing was lubricated during a daily inspection — avoiding an emergency conveyor shutdown. The team estimates the downtime would have resulted in a production loss of 6K to 8K tonnes of clean coal — an estimated value of \$2.4M in revenue with current market prices.

The team now can take actions that prevent downtime, component damage, and risk to maintenance safety. In fact, network connectivity, which includes wireless sensors, will help the organization move toward their digital transformation goals and will empower teams throughout the organization to use the data to pursue improvements in efficiency towards a greener and more sustainable overall process. In the future, because the wireless vibration solution can be applied to other pieces of equipment beyond the conveyors, data analysis will help them address root causes throughout the process.



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