

Valve Condition Monitoring Prevents Unplanned Shutdowns

RESULTS

- Prevented multiple boiler shutdowns, saving the facility \$10,000 to \$15,000 (USD) in production
- Saved approximately \$72K per day in unplanned downtime
- Avoided the consequences of not being available, including the need to purchase more power from other suppliers.



APPLICATION

Soot blower valves, boiler feedwater valves, boiler feedpump recirculation valves, and atomizer spray valves

CUSTOMER

City of Ames Electric Co. in Ames, Iowa, USA

CHALLENGE

Boiler feedpump recirculation valves at City of Ames Electric Co.'s power plant were wearing out, leaking, and requiring frequent maintenance. To adequately protect the boiler feedpumps, the valves need to open and close frequently and reliably. If they don't perform well, plant personnel must either limit generating capacity or maintain peak production with a stand-by boiler feedpump, which can be very costly.

Each feedwater heater costs at least \$250,000 USD per year to operate. Valve failures may lead to boiler shutdowns and restart costs of between \$10K and \$15K. The cost to replace the trim in a single, critical feedwater valve is approximately \$20K. Plus, repeated over-firing can damage the boiler over time, leading to even more costly repairs.

Aggravating the problem is the fact that valves and parts needed to meet the challenging boiler feedwater service conditions often require long production lead times and are not usually available "off the shelf." Waiting for parts or repairs may force City of Ames Electric to buy power from another site to meet its customer's needs.

Plant managers understood that improving valve performance would reduce maintenance time and costs, as well as help them maintain peak production. Improving their monitoring system was a critical step to improving valve performance.

"Having a remote monitoring system means we don't have to worry as much about valve failures. With more—and better—information, we can order parts in advance, schedule repairs, and limit unexpected downtime."

Dan Morris
Valve Technician, City of Ames Electric

SOLUTION





Control valve experts from Emerson worked alongside Emerson Impact Partner, Stover Controls, to help City of Ames Electric's plant personnel implement remote monitoring for their critical control valves. The solution leveraged a variety of Fisher™ diagnostic tools, such as AMS and ValveLink™ software. Through regular data collection and analysis, the site's maintenance team can identify problematic valves, diagnose performance issues, and make repairs before a costly failure occurs. Leak detection and vibration monitoring services were also provided to add additional insight into process conditions.

These monitoring upgrades and process improvements have enabled City of Ames Electric to better predict maintenance and plan outages. With more insight into their troubled valves going into a turnaround, they can identify and order replacement parts in advance to minimize downtime. Emerson's Valve Condition Monitoring service and diagnostic capabilities have given the plant's maintenance team more confidence in the reliability of their valves and other assets, as well as more time to focus on other priorities.

Emerson provided the technical assistance and tools to ensure the valves matched the application specifications, particularly during the coal-to-gas conversion, to generate a parts database and tracking processes for a more proactive approach to inventory management, and to conduct the necessary repairs or replacements to meet the turnaround schedule. City of Ames Electric's valves meet their process needs and will operate more reliably until the next scheduled outage.



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www.Emerson.com/ValveConditionMonitoring

