

Routine Diagnostics Detects Damper Malfunction and Actuator Leak

Regular health checks, data-driven decisions, and expert intervention resolves critical operational issues at Recycled pulp mill, ensuring regulatory compliance and operational efficiency.

- Recycled pulp mill discovers the benefits of early detection of issues and proactive maintenance strategies
- Industries facing similar challenges related to emissions control, regulatory compliance, and operational reliability can optimize processes to prevent costly fines and downtime
- Manufacturers can significantly enhance operational efficiency by leveraging expertise in Advanced Diagnostic (AD) tools, root cause analysis, and equipment selection

CHALLENGE

During a routine valve diagnostic visit on-site at the customer's production facility, a Valve Reliability Specialist discovered a Travel Deviation and a Low Drive Signal for a damper on the boiler's Nitrogen Oxides (NOx) recirculation line in the Status Monitor and Alert Tab of their online AMS Device Manager software. AMS Device Manager is used to efficiently manage instrumentation and when utilized in the online configuration it provides real-time instrument condition monitoring.

Dampers play a vital role in optimizing the combustion process in boilers and managing NOx emissions that are regulated by the Environmental Protection Agency (EPA). They ensure that airflow is directed where needed, regulating temperature to prevent overheating, pressure build-up, or other potential hazards that could compromise worker safety and equipment integrity.

The customer was not aware of the issues with the damper and actuator, and the equipment was not listed for maintenance on the work order backlog. Upon further investigation, the NOx trend over the previous two weeks was trending higher — a situation that could result in significant fines from the EPA.

To determine the root cause, our Reliability Technician climbed up a vertical ladder to a remote location of the plant to decouple the damper and position it back to zero. After reassembling the equipment, the technician connected to the damper using Fisher™ FIELDVUE™ ValveLink™ software, ran it through diagnostics, and determined that it wasn't rotating full travel because the block pilot bearings weren't greased.

SOLUTION

Rebuild kits for the obsolete actuator were no longer available, therefore the customer selected a new Bettis RPE actuator and Fisher™ FIELDVUE™ DVC6200 Digital Valve Controller.

A Valve Reliability Specialist installed the new damper assembly, performed auto-calibration, and it is now operating throughout its full travel range and controls precisely. Valve Reliability Specialists continue to perform interactive tests for the customer using Advanced Diagnostics (AD) that move the control valves, poll for data, and graphically display the data to diagnose and troubleshoot issues at the plant.

OUTCOME

By leveraging advanced diagnostic tools and the proven expertise of Valve Reliability Specialists, the customer not only identified the root cause of the problem, but also implemented a solution that restored their system to optimal performance.

Additionally, by detecting and correcting the issues promptly, the Recycled pulp mill company averted potential regulatory compliance issues and associated financial penalties of several thousand dollars or more related to the increased NOx emissions.



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