

Regulator Repair to Emerson Quality Standards Adds \$8 Million USD to a Power Plant's Profit

RESULTS

- Improved reliability by applying Fisher™ product standards of performance when repairing non-Fisher products
- Met a two-day, re-start schedule
- Increased annual production by 28 megawatts (MW) — a value of \$305,000 USD per year, per MW



APPLICATION

Duct burner regulation

CUSTOMER

A 500-MW, natural-gas, combined-cycle power plant in Louisiana, USA

CHALLENGE

A power plant had been having problems with its natural gas duct burners for nearly ten years. Duct burners use supplementary firing to increase the heat energy of a gas turbine's exhaust. Duct burners improve the efficiency and increase the output of downstream, heat-recovery steam generators (HRSG). The reliable performance of duct burners is vital to meeting peak power-generation demands during the summer months.

Burner performance depends on the flow and composition of turbine exhaust gas. The process requires pressure regulators to operate under high flow rates (400 psi), high vapor levels, and high temperatures. Competitor regulators in the system were not functioning well.

Two companies had tried and failed to make lasting repairs to the system. Though the malfunctioning regulators were not Fisher products, plant managers sought help from application engineers at John H. Carter Company and from Emerson repair specialists at the service facility in Monroe, Louisiana. Plant managers asked them to facilitate repairs and make the failing equipment meet Fisher product standards of performance.

“Using experienced Emerson technicians and their quality-based processes not only facilitated regulator repairs but also improved the efficiency of the HRSG system.”

Maintenance Supervisor
Combined-cycle plant

SOLUTION

Emerson personnel studied the settings, ran functional tests, and inspected the gasket surfaces of the problematic duct burner regulators. They documented their findings and formulated a plan for conducting repairs during a planned, two-day shutdown.

Plant managers okayed the plan, and Emerson technicians got to work. They ordered replacement trim parts (springs and diaphragms) from the original equipment manufacturer (OEM); removed, disassembled, and cleaned the regulators; measured all the critical-fit components; and machined trim or re-cut gasket surfaces as needed. They followed a proven and repeatable quality process.

After re-assembling and painting the regulators, Emerson technicians conducted seat leak, hydro, and pressure tests to ensure that the repaired units met Fisher product standards of performance. Emerson personnel calibrated the instruments and checked the bench set per established quality procedures.

Finally, they shipped the refurbished units back to the plant with a detailed report, documenting their “as found” and “as delivered” state. In two days, two Emerson service technicians got the duct burner system back up and running with more heat and reliability. This repair project quickly paid for itself and has dramatically increased the plant’s performance.

RESOURCES



Lifecycle Services Flyer: Certified Repair
<http://www.documentation.emersonprocess.com/groups/public/documents/brochures/d350981x012.pdf>

 <http://www.Facebook.com/FisherValves>

 <http://www.YouTube.com/user/FisherControlValve>

 <http://www.Twitter.com/FisherValves>

 <http://www.Linkedin.com/groups/Fisher-3941826>

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Personnel from within the John H. Carter Company, Fisher™ product services, and Rosemount share resources and meet customer needs from under one roof at the West Monroe office in Louisiana.



One Fisher 310A regulator replaced two non-Fisher pressure-reducing regulators. Managing an inlet pressure above 400 psi—and its drop to 35 psi—the Fisher 310A provides fast, accurate, and reliable flow control in the fuel gas system.