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## DIRTY SERVICE TRIM RETROFIT SOLVES FEEDWATER PUMP RECIRCULATION PLUGGING PROBLEMS FOR PENNSYLVANIA POWER STATIONS

Two large supercritical power stations in Pennsylvania were having problems with the boiler feedwater recirculation (BFWR) valves applied to auxiliary boilers. The two valves (one for each boiler) with concentrically drilled-hole cages were constantly being plugged with particulate due to dirty feedwater. Sometimes the cages could be cleaned, but most of the time a replacement cage was required.

Frustrated, maintenance personnel at the plant contacted Equipment & Controls, their Local Fisher® Business Partner, for a solution. Equipment & Controls' engineers in turn contacted members of the Fisher Severe Service Team in Marshalltown, Iowa. Together, the Fisher team members evaluated this application and its associated valve-trim problems. New valve trim, specifically two-stage Dirty Service Trim (DST), was needed to resolve the plugging problem.

The DST design combines axial and radial flow paths that feature large openings. Thus, DST passes entrained particulate up to 3/4-inch and provides pressure-staging to eliminate potentially damaging cavitation and velocity-induced erosion. A protected seat design separates the shutoff function of the trim from its throttling areas, resulting in excellent wear resistance.

The trim-conversion was completed using the existing valve body and actuator. The valve and its new trim improved flow control of the dirty feedwater while protecting both the valve and its piping from cavitation. Start-ups at the power station were smooth, and operators no longer considered the BFWR valve the "weak link" in their process.

After evaluating this trim conversion for about 18 months, the power station decided to install DST trim in the other BFWR control valve on the second auxiliary boiler.

Word of this success reached the facility's sister plant, which had been experiencing similar problems with its pneumatically actuated valves. That site, too, installed two-stage DST trim in its BFWR control valves for both units.

Now the two stations, their auxiliary boilers, and their feedwater recirculation control valves have been operating without problems during start-up operations.

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Severe Service