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DIRTY SERVICE TRIM PROVIDES ADDITIONAL CAPACITY AND CAVITATION CONTROL FOR NUCLEAR POWER PLANT

While going through a unit uprate, a nuclear power plant in New England had difficulty getting the necessary capacity from its condensate recirculation valves. These valves recirculate a minimum amount of flow through the condensate pumps and back to the condenser hot well. Thus, they help keep the pump from overheating. Because the downstream pressure from these valves is at a vacuum, however, the potential for damaging cavitation and flashing remains.

At first glance, plant operators thought the three eight-inch valves would have to be replaced with larger ones in order to achieve the desired capacity. Instead, Fisher engineers from the Severe Service team proposed a trim retrofit that would not only meet capacity objectives but also protect against cavitation and flashing. The Fisher® solution consisted of three- and four-stage dirty service trim (DST) packages.

The DST solution is a patented multi-stage, anti-cavitation trim used in applications where the fluid may have entrained particulate that could plug the flow passages common in conventional trims. The DST design, on the other hand, incorporates wide open flow passages that can pass particulate up to 3/4-inch in diameter.

Though this application did not involve entrained particulate, the wide open flow passages in the DST trim provided more capacity and a protected seating feature to promote long-lasting, tight shutoff. Because these valves are normally closed, the tight shutoff capability eliminates excessive pumping requirements and the potential for subsequent trim damage.

By retrofitting the trim, rather than replacing the valves, the Fisher team saved this plant an estimated \$150,000 USD. The retrofit also eliminated a fair amount of labor and paperwork that would have been involved in removing old valves and installing new ones.

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Severe Service