To Solve Your Leakage Problems …

Beaver Valley is a 1,000-acre, two-unit (970- and 920-MW) nuclear power plant located near Pittsburgh, PA. The plant had been experiencing operational and leakage problems with the originally installed metal diaphragm valves. The valves were located in a critical application, and the Nuclear Regulatory Commission was requiring that the plant correct the problem.

Several years earlier, the plant had replaced the older diaphragm valves with new ones of the same design, but they continued to have the same seat leakage and operational problems.

The new valves had to be a "packless design." Traditional "packless" valves or metal diaphragm valves have a history of operational problems, and "code" metal diaphragm designs are only offered by one company in the United States. Therefore, in most cases, a bellows seal design is an acceptable alternative to metal diaphragm valves.

The new valves also had to withstand back pressure conditions and very high cycling. These application requirements were main contributors to the problems with the plant's current metal diaphragm valves. There were also installation space constraints, requiring valves with reach-rod attachments.

The ideal solution was a customized Conval 2-inch, 1500#, SW, ASME Section III, Class 1 Clampseal N-stamp bellows seal valve with reach rod. Reasons included: the valve's smaller size and lighter weight; the valve's availability in a Y-pattern configuration, which better fit application space constraints; the custom reach rod attachment, so the valve could be opened or closed from several feet away; the valve's in-line repairability; the proven pressure seal bonnet, which allows easier access to the valve internals; the fact that the bellows can also be replaced very quickly if necessary; the yoke configuration, which provides rigid support for custom applications, such as the reach rod; and the fact that the bellows valve is tested to MS SP-117 and utilizes a six-ply Inconel bellows for longer service life. Thus far, the plant has purchased six custom Conval bellows valves, five are installed and operating in the plant and one is kept in inventory as a spare.

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