

Licensee/Facility:

Notification:

Arizona Public Service Co.
Palo Verde 2
Wintersburg, Arizona

MR Number: 5-94-0019
Date: 03/02/94

Dockets: 50-529
PWR/CE80

Subject: INTERNAL CRACKS IDENTIFIED IN RCS SAMPLE VALVES

Reportable Event Number: N/A

Discussion:

On January 27, 1994, the licensee identified internal cracks in the valve body in two reactor coolant system (RCS) hot leg sample valves in Unit 2. The two solenoid-operated valves (vendor - Valcor) are the inside and outside containment isolation valves. These valves were removed and replaced. The valve body consists of a 4-inch square block of stainless steel with inlet and outlet penetration ports. The valve internals are threaded and seal welded into a 2-inch diameter, 2-inch deep cylindrical bore. The cracks, identified when the valve internals had been removed for inspection, were along the base of the cylindrical bore and along the inlet port. The cracks were not through-wall. The valve with the greater extent of cracking was sent for failure analysis and metallurgical inspection by an offsite laboratory, Southwest Research Institute.

The preliminary analysis indicates that the cracks, which in some

locations were up to 0.4 inches in depth, were not deep enough to impact the valves' pressure retaining capability. The laboratory determined that the cracking had resulted from low cycle thermal fatigue (3000-5000 cycles, 600 degrees F to ambient). The licensee confirmed that the valve service was consistent with this failure analysis determination. These two valves in Unit 2 had the most cycles of the valves in service of the three Palo Verde units.

The licensee plans to inspect the two RCS hot leg sample valves in Unit 3 during the upcoming refueling outage. The licensee reviewed both industry data and discussed the findings with the valve vendor and did not identify any similar instances of cracking.

Regional Action:

Region V plans to discuss this issue with the licensee as they obtain greater detail from the offsite laboratory.

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