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Quad-Cities Generating Station
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December 4, 1973

J. F. O'Leary, Director
Directorate of Licensing
U. S. ATOMIC ENERGY COMMISSION
Washington, D. C. 20545

REFERENCE: Quad-Cities Nuclear Power Station, Unit 2
Docket #50-265, License DPR-30, Appendix A,
Section 6.6.B.2.

Dear Mr. O'Leary:

The purpose of this letter is to report an unusual event concerning the Residual Heat Removal (RHR) Service Water System of Unit 2 at Quad-Cities Nuclear Power Station. On November 8, 1973, an isolation valve on "B" RHR heat exchanger was found partially closed with its stem uncoupled from its disc. This event was discussed with Mr. J. Fishbaugher of the Directorate of Regulatory Operations, Region III.

PROBLEM AND INVESTIGATION

While performing routine surveillance on the RHR service water system it was discovered that MO-2-1001-185B would go only partially closed and stop; however, it could be returned to the open position. This valve is the down stream service water isolation valve for the B RHR system heat exchanger.

Investigations by maintenance personnel subsequently determined that the valve was stuck approximately 1 1/2 inches open and the stem was disconnected from the disc. The design of the stem and disc is such that the notched disc slips over a flared stem. However, since there was play in the valve disc as it moved off its seat, the disc fell off the stem when it was approximately 1 1/2 inches off its seat.

Due to the buildup of deposits on the valve body and disc from river water, it appeared that this situation had existed for some time; however, how long is uncertain.

EVALUATION AND CORRECTIVE ACTION

To prevent any future failures of this kind the stem was attached to the disc by drilling a 1/4 inch hole perpendicular to the disc on either side of the disc notch and bolting a 1/4 inch thick strap on either side of the disc over the flared stem. Nuts were tightened and welded to the bolts.

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A review of previous surveillance tests showed that the RHR service water pumps which feed the "B" heat exchanger performed satisfactorily and met the Technical Specification requirements of greater than 3500 gpm at 198 psig even though flow was restricted by the MO-2-1001-185B valve. Followint the repair, both pumps in the "B" residual heat removal loop were started and the MO-2-1001-185B valve was slowly closed manually until the valve was approximately 1 1/2 inches open. At this position 6000 gpm was flowing through the heat exchanger at a pressure greater than 200 psig which further verified the operability of the system at all times.

Although the valve disc was off its stem in a partially closed position for a long time as evidenced by the markings, no limiting conditions for operation were exceeded since all previous surveillance flow tests have been completed satisfactorily with the most recent test being October 24, 1973.

A thorough review of station records indicated that there are five valves of this type in the station; two in Unit 1 and three in Unit 2. All these valves are used for RHR heat exchanger isolation and were manufactured by the Ohio Injector Co. (OIC) which was subsequently acquired by the Lunkenheimer Valve Co. All of these valves have been checked for disc-stem attachment by attempting to rotate the stem with the valve in an intermediate position. Since these are gate valves rotation of the stem should not be possible; no abnormalities were detected. Furthermore, one of these valves will be completely disassembled for inspection.

Yours very truly,

B. B. Stephenson
Station Superintendent

BBS:RAN/dkp

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cc: Reginal Director
Directorate of Regulatory Operations - Region III