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New York Power Authority

William J. Cahill, Jr.
Chief Nuclear Officer

February 2, 1995
JPN-95-003

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Main Station P1-137
Washington, D.C. 20555

Subject: James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333
Root Cause Analysis for Pipe Failure

References:
1. NYPA letter, R. E. Beedle to NRC, JPN-92-067, "Request for Relief from ASME Section XI," dated December 14, 1992.
2. NRC letter, R. A. Capra to R. E. Beedle, "Relief Request from the American Society of Mechanical Engineers (ASME) Code Requirements for Repair of Reactor Water Cleanup Equalizing Line - James A. FitzPatrick Nuclear Power Plant (TAC No. M85147)," dated December 23, 1992.

Dear Sir:

In References 1 and 2 respectively, the Authority requested, and the NRC granted, relief from the requirements of ASME Section XI allowing the installation of a temporary repair on the ½" bonnet equalization line on Reactor Water Cleanup valve 12RWC-46. A through-wall defect was detected on this line during the performance of a hydrostatic test on the Reactor Water Cleanup System in December, 1992.

The preliminary root cause analysis prepared at that time determined that the pipe failure was most likely caused by thermal fatigue due to differential expansion between the stainless steel equalizing line and the carbon steel valve body. As noted in Reference 2, the NRC granted the relief from ASME Section XI based upon this preliminary root cause evaluation. A more exhaustive root cause analysis was planned for the current refueling outage by removing the equalizing line and performing a thorough metallurgical evaluation of the failure location. The Authority reviewed the present condition of this line and the design of the permanent repair which has now been installed. Based upon the factors discussed below, the Authority determined that the metallurgical analysis described in Reference 1 would not provide valid results and any information gained from additional root cause evaluations would have no practical application.

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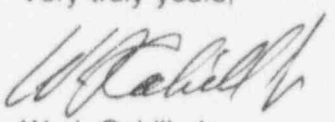
The interim repair installed to immediately stop leakage of reactor coolant consisted of welding filler material directly over the failed line. Subsequently, the "clamshell" repair was installed as described in Reference 1. The amount of repair welding initially performed on the cracked line, as well as the additional heating and cooling of the area that resulted from the clamshell repair, would render a failure analysis inconclusive and possibly misleading because the metallurgical structure of the area and the morphology of the crack has been changed drastically from the initial cracked condition.

The permanent repair consisted of removing the equalizing line completely and welding plugs at the attachment points to valve 12RWC-46. Therefore, future failure of this equalization line is precluded. As noted in Reference 1, the Authority reviewed the 19 other valves with equalizing lines and determined that the same material configuration does not exist on any other valve. Therefore, these valves are not subject to the differential thermal expansion experienced by 12RWC-46. Metallurgical evaluations and additional root cause analysis on 12RWC-46 would have no practical application at FitzPatrick.

For these reasons, the Authority has decided not to conduct the metallurgical evaluation and additional root cause analysis described in Reference 1.

If you have any questions, please contact Ms. C. D. Faison.

Very truly yours,



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