



J. Phillip Bayne
Executive Vice President
Nuclear Generation

March 9, 1984
JPN-84-16

Director of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Mr. Domenic B. Vassallo, Chief
Operating Reactor Branch No. 2
Division of Licensing

Subject: James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333
Recirculation Piping Flaw Indication

Reference: NYPA letter, J. P. Bayne to D. B. Vassallo,
dated February 9, 1984 (JPN-84-10).

Dear Sir:

In the referenced letter, the Authority described our program for performing Induction Heating Stress Improvement (IHSI) at the FitzPatrick plant. During pre-IHSI ultrasonic inspection, a flaw was identified in the heat affected zone of one weld in a recirculation pump suction line. The flaw, based on 50% maximum amplitude, as measured before IHSI, was estimated to be a one inch (1") long, one-eighth inch (1/8") deep, circumferential flaw in the pipe side of the pipe-to-safe end weld. The flaw is located on the inside of the pipe, and was estimated to have a depth of approximately 10% to 15% of the pipe wall which is 1.250 inches thick (nominal). For purposes of evaluation, flaws of 10%, 20% and 30% of wall depth were assumed. Flaw analysis was conducted in accordance with ASME Code, Section XI requirements (IWB-3640, Winter 1983 Addendum) and based on the existing residual stresses. This evaluation concluded that the flaw is acceptable for at least one fuel cycle without repair or other compensatory measures.

Subsequently, IHSI has been applied to this weld, as originally planned. IHSI is expected to result in a residual stress pattern which will effectively arrest further growth of this flaw.

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Post IHSI UT testing, based on 50% of maximum amplitude, estimated the crack length at 1.25". Subsequently, additional measurements based on 20% of maximum amplitude resulted in an estimated crack length of 2.875" and a maximum depth of 17%.

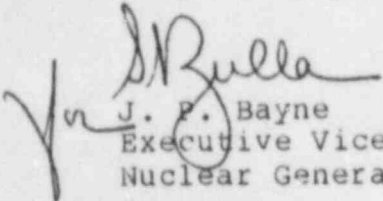
Our consultant has performed a fracture mechanics evaluation based on the 2.875" length and 17% depth using the pre-IHSI residual stresses. This analysis shows that this indication does not reduce the original structural design margin for this piping and would not adversely affect the margin of safety over the next operating cycle. The evaluation also showed that based on the residual stress pattern of this diameter pipe and on crack growth data from both laboratory and field experience, it will not reach a critical size before the end of plant life.

The ultrasonic test data and plots of this indication are being submitted to the NRC in a separate letter.

This weld will be re-examined during the next refueling outage, and any change in indication length will be reported and re-evaluated in terms of impact on piping integrity.

If you have any questions, please contact Mr. J. A. Gray, Jr. of my staff.

Very truly yours,


J. P. Bayne
Executive Vice President
Nuclear Generation

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