Niagara Mohawk

Richard B. Abbott
Vice President
Nuclear Engineering

Phone: 315.349.1812
Fax: 315.349.4417

April 7, 2000
NMP2L 1951

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

RE: Nine Mile Point Unit 2
Docket No. 50-410
NPF-69

Subject: High Pressure Core Spray Nozzle Safe-End Extension Weld (KC-32) Information

Gentlemen:

During telephone discussions held with the NRC Staff, the Staff requested information pertaining to the High Pressure Core Spray nozzle safe-end to safe-end extension weld (KC-32). The discussions dealt with issues surrounding ultrasonic inspections of a weld flaw to determine whether any growth in the flaw had occurred. Attached is the requested information in a question and response format.

Very truly yours,

Richard B. Abbott
Vice President Nuclear Engineering

RBA/TWP/tmk
Attachment

xc: Mr. H. J. Miller, NRC Regional Administrator, Region I
Ms. M. K. Gamerboni, Action Section Chief PD-I, Section 1, NRR
Mr. G. K. Hunegs, NRC Senior Resident Inspector
Mr. P. S. Tam, Senior Project Manager, NRR
Records Management

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ATTACHMENT

1. Question: When was the last inspection performed on the KC-32 weld?

   Response: The last inspection was performed during Refueling Outage (RFO) 6 on May 28, 1998.

2. Question: What methodology was used and what were the results of the inspection (flaw size)?

   Response: The inspection was performed using an automated ultrasonic examination using the "Smart 2000" system. The total length of the flaw was 3.2 inches with a throughwall dimension of 35% (0.30 inches). It should be noted that the length of the flaw corresponds closely to the previous ultrasonic data for RFOs 2, 3, and 4.

3. Question: Discuss any uncertainty or margin involved in the measurement.

   Response: As described in telephone conferences held on March 23, 2000 with the Staff, specific numerical uncertainty values for flaws detected in field locations have not been established. This is consistent with the Electric Power Research Institute's (EPRI's) Performance Demonstration Initiative (PDI) program which qualifies the examiners. The EPRI program uses numerical data only as a method of demonstrating examiner capabilities in correctly grading flaw sizes.

   Numerous scans have been performed on this weld to date (both automated and manual), which have indicated that the flaw depth is no greater than 41% throughwall and is not growing in the length direction. Based on the extent of examinations performed, Niagara Mohawk Power Corporation (NMPC) is confident the indication is no deeper than 41% (.41t) and is not growing in either length or depth. Essentially, the number of examinations performed to date and the consistent results of these examinations have addressed the ultrasonic measurement uncertainty issue.

   NMPC has previously stated that the post-mechanical stress improvement process (MSIP) improves the residual stress distributions in the region of the flaw such that the stresses are compressive on the inner half of the wall thickness. The maximum flaw depth of the KC-32 weld (.41t) is well within the compressive region of the weld as well as within the ASME Code allowable of 60% (.6t). Therefore, there is still adequate margin to the acceptance criteria even assuming the worst case flaw size which has been detected on weld KC-32 (.41t depth and 3.4 inches length).

4. Question: Provide an explanation of how other issues such as lead shielding weight or a support hanger in the vicinity of the nozzle being pinned affected the ability to accurately detect the flaw. Is NMPC aware of MSIP treatment resulting in crack extension at Peach Bottom nuclear station, which then resulted in the need for weld repair?

Response: Items (a) and (b) below address the two parts of the question.

a. Similar amounts of lead shielding have been used during the various examinations. Any changes in stress loading were insignificant and did not affect the ability to accurately detect the flaw. In addition, the difference in piping stress with lead shielding and with no lead shielding also was insignificant in terms of the ability to detect the flaw.

A pipe stress evaluation concluded that the difference between the stresses at the nozzle due to pinning of the constant spring (support hanger) and the stresses due to not pinning the constant spring was insignificant and therefore, had no impact on the ability to accurately detect the flaw.

The overall ability of ultrasonic examinations to detect flaws or cracks, and the techniques used in sizing flaws, are not influenced by stresses induced on the piping by such items as lead shielding and support hangers, either individually or cumulatively. This is supported by consistent, repeatable examination results of the KC-32 weld.

b. Based on a telephone discussion with Peach Bottom nuclear station personnel, no crack growth has been noted that required weld overlays on post-MSIP treated welds.