



Ralph E. Beedie
Executive Vice President
Nuclear Generation

May 17, 1991
JPN-91-022

U.S. Nuclear Regulatory Commission
Mail Station P1-137
Washington, D.C. 20555

ATTENTION: Document Control Desk

SUBJECT: James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333
Intergranular Stress Corrosion Cracking
Inspection Results for the 1991 Maintenance Outage

- References:
1. NRC letter, D. E. LaBarge to J. C. Brons, dated March 7, 1991, which approved the Authority's plan for evaluating weld 28-53.
 2. NYPA letter, J. C. Brons to NRC, dated March 1, 1991 (JPN-91-010), which provided the IGSCC inspection plan proposed for weld 28-53 during the 1991 maintenance outage.

Dear Sir:

This submittal provides the results of the inspection of weld 28-53 as requested by the NRC in Reference 1.

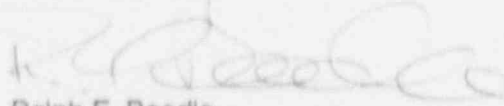
The Authority inspected weld 28-53 during the 1991 maintenance outage. The indication classified as a crack did not exceed the 40% depth or 13" length criteria used in the fracture mechanics evaluation discussed in References 1 and 2.

However, the inspection of a second indication revealed results substantially different from those of the 1990 refueling outage inspection. Following the 1990 inspection, the Authority classified this indication as a reflector. As a result of the 1991 inspection, the Authority reclassified it as a crack. Since the fracture mechanics evaluation did not include this second crack, the Authority installed a standard overlay on the weld rather than perform a new fracture mechanics evaluation. The attachment to this letter describes the inspection and the overlay.

As discussed in Reference 1, the NRC granted relief from the requirements for surface finishing and inspection of the overlay during the maintenance outage. Instead of surface finishing and inspection, the Authority performed a bonding inspection of the overlay. Weld 28-53 will be inspected after surface finishing during the next refueling outage which is scheduled for October 1991.

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

Very truly yours,



Ralph E. Beedle
Executive Vice President
Nuclear Generation

cc: U. S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Regional Administrator
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19400

Brian C. McCabe
Project Directorate I-1
Division of Reactor Projects-I/II
U.S. Nuclear Regulatory Commission
Mail Stop 14B2
Washington, D.C. 20555

ATTACHMENT TO JPN-91-022

IGSCC INSPECTION OF WELD 28-53
1991 MAINTENANCE OUTAGE

NEW YORK POWER AUTHORITY
JAMES A. FITZPATRICK NUCLEAR POWER PLANT
DOCKET NO. 50-333

INDICATIONS

During the 1990 refueling outage, inspectors recorded a 9" long and 31% deep indication (Indication 1) in weld 28-53. The 1990 inspections also revealed a small, axial indication (Indication 2). The Authority classified Indication 2 as a reflector, not an intergranular stress corrosion crack (IGSCC).

During the 1991 maintenance inspection, EBASCO and Authority Level III IGSCC inspectors re-inspected weld 28-53. Indication 1 was sized 12" in length and 28% in through-wall depth. These dimensions are similar to those recorded in 1990. The slight variations are attributable to differences in equipment, technique, recording criteria, and inspectors. The dimensions are within the acceptable limits of the evaluation criteria approved by the NRC in Reference 1.

Indication 2, however, exhibits substantially different inspection results. The axial portion of Indication 2 has the same dimensions as were noted in 1990. However, it has a previously unrecorded 5.5" intermittent circumferential component off the axial indication. The through-wall depth is 13%. This new finding invalidates the fracture mechanics evaluation submitted and approved in References 1 and 2. As a result, the Authority installed an overlay.

WELD OVERLAY

The weld overlay design dimensions are listed in Table 1. The Authority based the weld overlay design on NUREG-0313 Revision 2 requirements for a "standard weld overlay." In the design, the Authority takes no credit for the remaining unflawed original pipe.

The Authority also designed the overlay in accordance with ASME Section XI, Article IWB-3641, 1986 Edition. Table 2 shows the primary stresses used (pressure + deadweight + seismic). For additional conservatism, the Authority used the allowable stress from ANSI-ASME B31.1 (15.90 ksi) rather than the Section XI allowable stress S_m (16.95 ksi).

The Authority takes credit for the first layer of the overlay as allowed by NUREG-0313, Revision 2, paragraphs 2.1.1 and 4.4, because the following are true:

1. The ferrite readings were greater than 7.5 FN upon completion of the first layer.
2. The pipe surface was found acceptable using a dye-penetrant examination before overlay welding.
3. No "blowthroughs" occurred during the first layer of overlay welding.

RELIEF FROM NUREG-0313, REVISION 2 REQUIREMENTS

To enhance inspectability, the Authority will surface finish (field criteria of 250 RMS-Flatness of 1/32" per inch) the weld during the 1991 refueling outage. Inspectors qualified in accordance with the EPRI-BWROG overlay inspection training program will inspect the weld ultrasonically at that time. In addition, the Authority plans to decontaminate the reactor recirculation system during the 1991 refueling outage. This will decrease exposure by four or five person-rem for surface finishing and inspection.

TABLE 1
WELD OVERLAY DESIGN DIMENSIONS

Weld Number	Thickness		Length	
	Design	As-built	Design	As-built
28-53	0.44"	0.58"	4.4"	4.9"(1)

Note:

1. Weld 28-53 is a 28" elbow to valve weld. The overlay design length is 4.4" on each side of the weld. Since the valve taper increases sharply, the repair was blended into that taper. The resulting length is, therefore, less than the design length on the valve side, but the as-built length (4.9") exceeds the design length on the elbow side.

TABLE 2
DESIGN STRESS INPUT

Weld	Pressure (psi)	Dead Weight (psi)	Seismic (psi)
28-53	5424	85	1007

REFERENCES

1. NRC letter, D. A. LaBarge to J. C. Brons, dated March 7, 1991 which approved the plan for evaluating weld 28-53.
2. NYPA letter, J. C. Brons to NRC, dated March 1, 1991 (JPN-91-010), which provided the IGSCC inspection plan proposed for evaluating weld 28-53 during the 1991 maintenance outage.