123 Main Street
White Plains, New York 10601

914 681 6846

NewYorkPower Authority

Ralph E. Beedle
Executive Vice President
Nuclear Generation

July 17, 1992
JPN-92-040

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

SUBJECT: James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333
IGSCC Inspection
1992 Refueling Outage Summary

Dear Sir:

The results of the intergranular stress corrosion cracking (IGSCC) inspections conducted during the FitzPatrick 1992 refueling outage are summarized in Attachment I to this letter. A total of 43 welds were inspected by personnel certified to the Electric Power Research Institute - Boiling Water Reactor Owners Group IGSCC qualification program. No IGSCC was discovered in any of the inspected welds.

The Authority would like to note several positives aspects of the FitzPatrick IGSCC program:

1. The "B" Core Spray piping in the primary containment was replaced with 347 modified stainless steel. This reduced the number of IGSCC susceptible welds (Category D & E) by nine. The "B" Core Spray piping system now contains four Category A welds.

2. An electrochemical potential (ECP) monitoring system was installed in the Reactor Water Recirculation System at a decontamination flange. This provides a more accurate determination of the ECP.

3. Of the 43 welds inspected, 26 were Category A, C and D. There was no IGSCC detected in these welds. No IGSCC was discovered in the safe end to nozzle welds which contain Inconel 182. The majority (>90%) of the welds were inspected after Reactor Water Recirculation system decontamination which greatly reduced radiation exposure to inspection personnel.

The Authority requests a review prior to start-up from the current refueling outage.

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

Very truly yours,

Ralph E. Beedle
Executive Vice President
Nuclear Generation

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

Office of the Resident Inspector
U.S. Nuclear Regulatory Commission
P.O. Box 136
Lycoming, NY 13093

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

ATTACHMENT I TO JPN-92-040

SUMMARY OF INTERGRANULAR STRESS CORROSION CRACKING INSPECTION DURING 1992 REFUELING OUTAGE

New York Power Authority

JAMES A. FITZPATRICK NUCLEAR POWER PLANT
Docket No. 50-333

INTRODUCTION

During this refueling outage the five systems which are included in the IGSCC program at FitzPatrick (Residual Heat Removal, Core Spray, Control Rod Drive, Jet Pump Instrumentation and Reactor Water Recirculation) were inspected as part of our commitment to NRC Generic Letter 88-01 and NRC NUREG-0313, Revision 2 requirements. The weld inspections included Categories A, C, D and E welds as defined in Generic Letter 88-01 and NUREG-0313, Revision 2. The FitzPatrick Reactor Water Recirculation system was decontaminated during this outage which significantly reduced radiation exposure to inspection personnel. All inspection personnel were certified to the EPRI-BWROG IGSCC qualification program. No IGSCC was detected during the inspections.

A NYPA QA Level III and two QA Level II inspectors performed independent surveillance inspections on welds that were inspected by the vendor. The QA personnel were also qualified in accordance with the EPRI-BWROG IGSCC program.

INSPECTION PROGRAM

The following weld distribution was selected in accordance with NUREG-0313, Rev. 2 requirements:

Category A	6 (including 4 pre-service inspection welds on core spray)
Category B	None in JAF Program
Category C	11
Category D	13
Category E	13 (including weld 28-53 discussed below)
TOTAL:	43

A review of historical weld data was performed by a NYPA QA Level III inspector qualified in the three examination disciplines (Overlay, Detection, Sizing) prior to the start of the examinations. This review improved the examination process by identifying any previously recorded reflectors (i.e., geometry, beam redirection, discontinuities).

During this refueling outage, the Authority replaced the "B" Core Spray piping which included nine Category D and E welds. The replacement pipe and safe end are 347 modified stainless steel which is resistant to sensitization and changes the "B" Core Spray piping classification to Category A. Along with a change of category, the "B" Core Spray design reduces the total number of welds in this piping run, including the safe end, to four welds. A pre-service IGSCC examination was performed on these welds to collect baseline data and the inspections included those recommended in GE SIL-455, "Recommendation for Additional ISI of Alloy 182 Nozzle Weldments."

One of the weld overlays inspected (Weld 28-53) required surface finishing and inspection during this outage. This weld overlay was installed during the March 1991 maintenance outage and the NRC granted relief from surface finishing due to the anticipated high person-rem exposure. This weld was surface finished and inspected after decontamination of the Reactor Recirculation system resulting in a significant exposure reduction (ALARA). The weld was within all design requirements after surface finishing.

HYDROGEN WATER CHEMISTRY SYSTEM

A combination of hydrogen injection into the feedwater and low conductivity water in the reactor coolant system helped minimize crack growth during the 1990-1991 fuel cycle. Due to isolation of the reactor water recirculation (RWR) system sample line, ECP and external crack growth measurements in an autoclave could not be obtained.

The following system repairs/improvements made during the current outage will improve the monitoring capability for hydrogen water chemistry:

a) Replacement of the RWR sample line containment isolation valves (02-2AOV-39 and 40) will allow measurement of ECP, crack growth, conductivity, dissolved oxygen and dissolved hydrogen.

b) Installation of an ECP monitoring assembly in the "A" RWR suction decontamination flange. This "in-pipe" ECP will obtain measurements directly in the RWR system thus avoiding effects of sample line length and transit time. This data will be used to verify that measurements from the RWR sample line are representative of ECP in the RWR sample line and provide ECP monitoring at all power levels.

SUMMARY

A total of 43 welds were inspected as part of the IGSCC inspection program during the 1992 refueling outage. All QA and vendor inspection personnel were qualified in accordance with the EPRI-BWROG IGSCC certification program. No IGSCC was discovered in any of the inspected welds. The Authority will continue the IGSCC inspection program during future refueling outages in accordance with NRC Generic Letter 88-01 and NUREG-0313, Revision 2 requirements.