U.S. NUCLEAR REGULATORY COMMISSION
REGION I

REPORT/DOCKET NO. 50-333/94-10

LICENSEE: Power Authority of the State of New York

FACILITY: James A. Fitzpatrick Nuclear Power Plant
Scriba, New York

DATES: March 28 - April 1 and April 4-8, 1994

INSPECTORS: _____ 5-17-94
C. Beardslee, Reactor Engineer Date
Materials Section
Division of Reactor Safety

_____ 5-17-94
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Materials Section
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APPROVED BY: _____ 5-18-94
Michael Modes, Chief Date
Materials Section
Division of Reactor Safety

Areas Inspected: An announced safety inspection was conducted of the inservice inspection (ISI) program and related activities including American Society for Mechanical Engineers (ASME) Code, Section XI relief requests, the radiography program and its implementation, an ISI hydrostatic pressure test, and status of the reactor pressure vessel shell welds augmented inspections. In addition, activities involving the replacement of several safety-related emergency service water valves and expansion joints were reviewed.

Results: Overall, the ISI program was found to be good and satisfactorily implemented. The inspector found that the ISI program was being appropriately controlled, and relief request requirements were being met. The quality of radiographs was good, and radiographs were satisfactorily retrieved. Also, the high pressure coolant injection hydrostatic pressure

test met ASME Code requirements. The inspector felt that the ISI corporate engineering group had very good overall involvement with day-to-day activities at the facility and maintained good rapport with maintenance, operations, engineering, and NDE personnel. There is one unresolved item regarding the augmented inspection of reactor pressure vessel shell welds (URI 50-333/94-10).

## DETAILS

### 1.0 INTRODUCTION/SCOPE

The purpose of the inspection was to review the Inservice Inspection (ISI) program, and its implementation, in order to assess the plant's acceptability for continued safe operation, and to determine whether the ISI program meets United States Nuclear Regulatory Commission (NRC) requirements. In addition, activities involving the replacement of several safety-related emergency service water valves and expansion joints were reviewed.

### 2.0 ISI PROGRAM (IP 73753)

The Code of Federal Regulations (CFR), 10 CFR 50.55a, requires that inservice inspections be performed on systems and components, which are needed for safe operation and shutdown of the nuclear facility to assure that they will operate when called upon. The periodic examination of piping systems is intended to detect degradation and service induced flaws, and to initiate corrective actions before a failure can occur. Specific examination requirements regarding methodology, frequency, and acceptance criteria are contained in American Society of Mechanical Engineers (ASME) Code, Section XI.

The James A. FitzPatrick (FitzPatrick) Nuclear Power Plant is in its second ten-year inspection interval, which ends July 28, 1995. The applicable Edition of Section XI of the ASME Code is the 1980 Edition, through Winter 1981 Addenda. This inspection was conducted during a maintenance outage. The upcoming January 1995 refueling outage is the last refueling outage of the second ten-year ISI interval. All ISI inspections required to be completed during the second ten-year interval will be completed during this outage.

### 2.1 Control of the ISI Program

In the past, FitzPatrick's ISI program contained ISI tables, which listed all the components in the ISI program and were maintained as controlled copies. Any change (i.e. addition or deletion) to the ISI tables was controlled procedurally. The tables are no longer being controlled, because the information from the tables is being transferred into several Engineering Reports (ERs). ERs are controlled by the Configuration Management Group. A new procedure was drafted, which described responsibilities associated with the ISI program and the new ERs. Final review and approval of the procedure was never obtained, therefore, FitzPatrick is currently in transition from one form of control to another. The licensee has committed to complete the review and approval of the draft procedure. Although, at this time, there is no complete controlled version of the ISI program, the inspector determined that Fitzatrick has taken steps to avoid inaccuracies in the ERs. Part of the process of developing these ERs includes reviewing design basis documents to ensure that all applicable components are included in the ISI program. In addition, previous ISI examination data

sheets were reviewed by the licensee to ensure that the newly developed ERs accurately reflect ISI examinations previously completed. The licensee indicated that all the ISI ERs would be completed prior to the upcoming refueling outage.

The inspector concluded that the ISI program was being appropriately controlled.

### 2.2 Reactor Pressure Vessel (RPV) Shell Welds-Augmented Inspection

The 1993 Code of Federal Regulations [10 CFR 50.55(a)(g)(6)(ii)(A)] requires all licensees to augment their ISI plan by implementing the examination requirements for RPV shell welds, as specified in ASME, Section XI, 1989 Edition, Table IWB-2500-1, Category B-A, Item B1.10. The requirements consist of volumetric examination of all B1.10 shell welds during the ISI interval in effect on September 8, 1992. However, the rule permits licensees with fewer than forty months remaining in the ten-year inspection interval, in effect on September 8, 1992, to defer the augmented inspection to the first period of the next interval.

FitzPatrick had fewer than forty months remaining in their second interval on September 8, 1992. The licensee has elected to defer the augmented inspection to the first period of the third interval. At the time of this inspection, the licensee declared that they were considering requesting a fourteen-month extension for the second interval. If the second interval is extended for this length of time, it would negate the basis for the deferral of the RPV shell weld augmented inspection (i.e., there would be greater than forty months remaining in the interval in effect on September 8, 1992). This issue is unresolved at this time (URI 50-333/94-10-01).

The licensee indicated that greater than 51% of the augmented inspections of the RPV shell welds will be conducted from inside the RPV. Additional weld coverage might be obtained by performing limited inspections from outside the RPV. The licensee is developing more detailed inspection plans for future outages.

### 2.3 ASME Section XI Relief Requests R5B, R5C

10 CFR 50.55a states that alternatives to the requirements of ASME Code, Section XI, may be proposed, assuming that they would provide an acceptable level of quality and safety, or if compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. The licensee requested, and was granted relief (see NRC letter 10/27/87), from the requirements of ASME, Section XI, Table IWB-2500-1; Category B-L-2, Item B12.20; and Category B-M-2, Item B12.50. These require specified pump and valve internals to be visually inspected during the ten-year ISI interval. The licensee basis for the request stated that it was policy to examine the interior surfaces of pumps and valves whenever the interior surfaces of the components are made accessible due to routine maintenance. The purpose of the examination is to determine whether unanticipated degradation of the casing is occurring due to erosion, corrosion, or cracking.

The inspector reviewed several work packages to determine the methods utilized to ensure pumps and valves are examined in accordance with ASME Section XI requirements. Maintenance Procedure MDSO-27, Revision 0, "ISI Requirements for Pumps, Valves, Bolting, and Flange Surfaces," was written by the licensee to ensure ISI requirements are included in the maintenance planning and procedure writing process. The procedure includes a list of ISI components and direction for the incorporation of inservice inspection steps into the work packages. The inspector also reviewed the material history for safety relief valve RV-71B, residual heat removal valve AOV-68A, core spray valve AOV-13B, and high pressure coolant injection valve MOV-19, for documented evidence of ISI examinations. The material history files included descriptive work packages, completed visual examination records, and liquid penetrant examination records.

Based on this review, the inspector concluded that ASME Section XI and relief request requirements were being met by the licensee. The inspector also noted that the material history files were readily accessible.

## 3.0 NONDESTRUCTIVE TESTING ACTIVITIES (IP 73753)

### 3.1 Radiography

One method of volumetric examination of pipe welds, permitted by the ASME Code, is radiography. The inspector observed the performance of radiography, reviewed a sample of radiographs for quality, and assessed the licensee's ability to retrieve stored radiographs.

The inspector observed radiography of several welds. These activities were performed using approved procedures; radiation safety precautions were taken, including control of the radiation area. Also, the inspector reviewed a random sample of radiographs taken in the past year to determine whether ASME Code requirements were met. As part of that review, the inspector noted that welds were properly identified on the radiographs, complete sets of radiographs were contained in each package, and full weld coverage was obtained. Also, densities, density variation, and overall film quality were good.

FitzPatrick utilizes a computer program to track all radiography performed. The program was created approximately one year ago, and all radiography since then has been recorded. The inspector chose a sample of radiographs from the computer generated list to verify that radiographs were retrievable from the archives. The archives are where all radiographs required to be stored are maintained. The radiographs were easily retrieved.

The weld numbers printed on radiographs are different than the weld's unique ISI number. The inspector chose three welds at random from the ISI program to determine whether the licensee was able to correlate the ISI weld number to the weld number on the radiograph. The welds were: a field weld from initial plant construction, a field weld from a more recent plant modification, and a shop weld from initial construction (performed by a contractor). Isometrics, construction drawings, and original spool piece drawings were

utilized by the licensee to match ISI weld numbers to radiographic weld numbers The radiographic weld numbers were used to locate the appropriate radiographs. This process, although cumbersome and time consuming, enabled the licensee to retrieve radiographs initially identified by ISI weld number.

Overall, the performance of radiography and the quality of radiographs was good. The retrieval of radiographs was performed satisfactorily.

### 3.2 ISI Ten-Year Hydrostatic Pressure Test - High Pressure Coolant Injection (HPCI) System

To satisfy the ASME Code, Section XI, requirement to perform a hydrostatic pressure test, the licensee performed a 4-hour system pressure test as permitted by ASME Code, Case N-498. The inspector reviewed the completed Operations Surveillance Test Procedure, ST-4X, Revision 2, "HPCI Class 2 Piping Pressure Test (ISI)," and System Drawing ISI-FM-25A; conducted interviews; and performed walkdowns of system piping to determine the validity of the pressure test.

While conducting these activities, the inspector noted the following positive attributes:

- The procedure specified test condition holding time, and was reviewed by the Plant Operating Review Committee;

- Review of the completed test procedure indicated that pressure measuring instrumentation was in calibration. In addition, by utilizing several quality assurance inspectors to perform the visual examination of the large complex piping system, the licensee was able to complete the pressure test within the operational constraints of the HPCI system;

- The inspector verified that sources of detected leakage were identified, evaluated, and entered into the licensee's corrective maintenance tracking system; and

- The inspector's systems walkdown confirmed that the ISI drawing accurately reflected the "as-is" piping configuration, and that all piping within the test boundary was accessible.

The inspector noted two items of interest which were discussed with the licensee. The first item concerns Step 8.9.12 of Procedure ST-4X, which requires a four-hour hold time prior to the quality assurance group performing a VT-2 examination of HPCI Class 2 piping. The hold starting time and the examination commencement time are not documented in the procedure or examination data sheets. ASME Section XI, Section IWA-5213, does not require the hold time to be documented. The absence of documented pressure test time makes it difficult to verify test requirements were met without extensive log book review. The licensee committed to changing the procedure and reviewing other similar procedures for

hold times. The second item concerns Prerequisite 4.9 of Procedure ST-4X, which requires the HPCI system to be in a standby lineup in accordance with licensee Operating Procedure (OP) 15. The inspector noted that December 1992 was the last time a complete "hand-over-hand" OP-15 lineup was performed. The inspector determined, based on interviews of licensee personnel and ISI drawing walkdowns, that the test boundary requirements were met. The inspector concluded that good engineering practice would dictate that a more recent valve lineup may be warranted for a ten-year pressure test of this magnitude. The licensee stated that they would review the issue with this procedure as well as other pressure test procedures.

The inspector concluded that ASME Code, Section XI, requirements were being met by the licensee test procedure.

## 4.0 EMERGENCY SERVICE WATER (ESW) VALVE AND EXPANSION JOINT REPLACEMENT WORK (IP 37828)

The inspector reviewed activities involving the replacement of several safety-related ESW valves and expansion joints to determine if the work was being performed by qualified workers, and in accordance with approved instructions, procedures, and drawings contained in the work package.

The licensee utilizes a routine Work Request (WR) as the controlling document for the work performed by the maintenance department. The inspector reviewed completed WR 94-00218, "Emergency Service Water Loop A Supply to Emergency Diesel Cross-Tie Isolation Valve," observed similar WRs in progress, and noted the following:

- Quality Assurance (QA) reviews and signatures were completed;
- Operations management approvals and reviews were completed;
- Maintenance supervision and technicians were familiar with the work in progress and knowledgeable of station documents; and
- WRs included fastener torque requirements, calibration certifications, and material certifications by QA personnel.

The inspector determined that procedures were being used, work instructions were at the work site, and the mechanics performing the work were knowledgeable and qualified.

## 5.0 CONCLUSIONS

Overall, the ISI program was found to be good and satisfactorily implemented. The inspector found that the ISI program was being appropriately controlled and relief request requirements were being met. The quality of radiographs was good, and radiographs were

satisfactorily retrieved. Also, the high pressure coolant injection hydrostatic pressure test met ASME Code requirements. The inspector felt that the ISI corporate engineering group had very good overall involvement with day-to-day activities at the facility, and maintained good rapport with maintenance, operations, engineering, and NDE personnel. There is one unresolved item regarding the augmented inspection of reactor pressure vessel shell welds.

## 6.0 EXIT MEETING

An informal exit meeting was held on April 1, 1994, and a formal exit meeting was held on April 8, 1994, with members of the licensee's staff noted in Attachment 1. The inspectors discussed the scope and findings of the inspection.

ATTACHMENT 1

PERSONS CONTACTED

**Licensee Personnel**

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| * | Bob Barrett | General Manager, Operations |
| * | Mike Colomb | General Manager, Support Services |
| * | Floyd Edler | Manager, Technical Services |
| | Terry Hermann | Consultant, Technical Programs |
| * | John Hoddy | Senior Licensing Engineer |
| | David Holliday | Licensing |
| * | Jim Kaucher | Director, Nuclear Operations and Maintenance |
| * | Doug Lindsey | General Manager, Maintenance |
| * | Bob Penny | Supervisor, Maintenance Engineering |
| * | Harry Salmon | Resident Manager |
| * | Art Smith | Maintenance Engineering |
| * | George Tasick | Manager, Quality Assurance |
| | Dan Vandermark | Supervisor, Quality Assurance |
| * | Art Zaremba | Manager, Operations Review |

**NRC Personnel**

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| * | William Cook | Senior Resident Inspector |

* Denotes those attending the formal exit meeting on April 8, 1994.