

U.S. NUCLEAR REGULATORY COMMISSION

REGION I

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Report No.: 99-04

Licensee: New York Power Authority

Facility: James A. FitzPatrick Nuclear Power Plant

Location: Post Office Box 41
Scriba, New York 13093

Dates: April 12 to May 29, 1999

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EXECUTIVE SUMMARY

James A. FitzPatrick Nuclear Power Plant
NRC Inspection Report 50-333/99-04
April 12 - May 29, 1999

OPERATIONS

The inspectors considered the preparation, performance, and operation of the plant in support of the reactor recirculation pump motor generator maintenance to be an example of a well-planned and executed evolution.

MAINTENANCE

NYPA identified that a tagout had not been properly cleared during the refueling outage, resulting in the reactor core isolation cooling (RCIC) system being inoperable from December 1998 until April 3, 1999. **(NCV 50-333/99-04-01)** The identification and immediate resolution of this issue was an example of a good questioning attitude by a senior licensed operator. However, the NRC noted that licensing and operations personnel did not correctly assess the operability of the RCIC in a post event operability determination and considered this a performance lapse.

Selected portions of FitzPatrick's post-maintenance and post-work testing process were reviewed and found to adequately ensure that equipment is properly tested prior to its return to service. Past lapses identified by NYPA in the conduct of post-maintenance and post-work testing predominately involved administrative deficiencies, inadequate testing requirements for equipment for which specific regulatory or procedural performance standards did not exist and the failure of Operations to promptly identify an anomalous condition during breaker testing.

ENGINEERING

During the performance of surveillance testing, technicians noted that the as-found setpoints for the suppression chamber to reactor building vacuum breakers were outside of the allowable tolerance. NYPA determined the cause to be an incorrect assumption in the calculation for the setpoint adjustment. The failure to properly calibrate the pressure switches resulted in the associated isolation valves being inoperable, a violation of the FitzPatrick TS, Section 3.7.A.4.a. **(NCV 50-333/99-04-02)**

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ATTACHMENTS

- Attachment 1 - Partial List of Persons Contacted
- Inspection Procedures Used
- Items Opened, Closed, and Discussed
- List of Acronyms Used

REPORT DETAILS

Summary of Plant Status

The unit began the inspection period at 100% power. On May 22, 1999, FitzPatrick conducted a planned power reduction to 65% for cleaning of the condenser water boxes, they returned the plant to 100% the same day. On May 26, a planned reduction to 35% was performed to enter single-loop operation and replace the tachometer for the "A" reactor recirculation pump motor generator; the plant returned to 100% on the same day. The plant remained at 100% for the rest of the inspection period.

I. OPERATIONS

O1 Conduct of Operations

O1.1 General Comments (71707)

Using NRC Inspection Procedure 71707, the resident inspectors conducted frequent reviews of ongoing plant operations. The reviews included tours of accessible and normally inaccessible areas of both units, verification of engineered safety features (ESF) system operability, verification of adequate control room and shift staffing, verification that the units were operated in conformance with Technical Specifications (TSs) and Updated Final Safety Analysis Report (UFSAR), and verification that logs and records accurately identified equipment status or deficiencies. In general, the conduct of operations was professional and safety-conscious; specific events and noteworthy observations are detailed in the sections below.

O1.2 Single Loop Operation for Planned Maintenance

a. Inspection Scope (71707, 62707)

The New York Power Authority (NYPA) planned and completed maintenance on the "A" reactor recirculation pump (RRP) motor generator (MG). This required going single-loop and returning to two-loop operation. The inspectors observed the training of the operations crew and the actual evolution.

b. Observations and Findings

Following erratic speed indications on the "A" RRP-MG, NYPA identified that the brushes for the tachometer for the "A" RRP-MG were wearing out faster than expected. To replace the tachometer, the MG set needed to be removed from service, which required the plant to be placed in single-loop operation. On May 26, 1999, the operations and maintenance departments were able to secure the "A" MG set, replace the tachometer, and restore the plant to the normal two-loop configuration.

The inspectors considered the training conducted in the simulator for the operations crew to be pro-active, in that single-loop operations are an unusual activity. The command and control of the operations crew management during the actual evolution was good, with appropriate communications. Senior FitzPatrick management was present during

the training and the actual transition. The maintenance was also performed well, and the RRP-MG set was ready to be returned to service within two hours. The entire activity was completed in eight hours.

c. Conclusion

The inspectors considered the preparation, performance, and operation of the plant in support of the reactor recirculation pump motor generator maintenance to be an example of a well-planned and executed evolution.

O8 Miscellaneous Operations Issues

O8.1 (Closed) Inspector Follow Item 50-333/97-06-01: Refueling Floor Smoke Detectors Out-Of-Service Since 1993

a. Inspection Scope (92901)

In 1997, during a review of the equipment status log, the inspectors noted that the refueling floor smoke detectors had been out-of-service since 1993. Currently, the inspectors reviewed the FitzPatrick Nuclear Safety Evaluation (NSE), the UFSAR and TSs, and the fire protection program documents.

b. Observations and Findings

During a review of the FitzPatrick equipment status log in 1997, the inspectors noted that the fire protection smoke detectors on the refueling floor had been out of service since 1993. At that time, the inspectors questioned the longstanding equipment deficiency issue and the licensing basis associated with these detectors. During this inspection period, the inspectors reviewed NSE JAF-SE-97-023, "Elimination of Fire Detection Capability on the Refueling Floor," which stated that the detectors performed no safety function and were an after-the-fact enhancement to the original fire protection program. In addition, the NSE concluded that the removal of the smoke detectors did not affect reactor safety. As such, FitzPatrick plans to revise the UFSAR to remove the reference to the refueling floor smoke detector.

However, the UFSAR, Section 9.8.3.3, states that smoke detection is provided on all elevations of the reactor building. As such, the licensee's failure to maintain the smoke detectors operable on the refuel floor is a violation of 10CFR50, Appendix B, Criterion III, Design Control. This violation of NRC requirements is of minor significance and is not subject to formal enforcement action.

c. Conclusion

The failure of FitzPatrick to maintain the refueling floor smoke detectors operable since 1993 is a minor violation of 10CFR50, Design Control.

O8.2 (Closed) Unresolved Item 50-333/98-02-04: Poor Attendance at Licensed Operator Requalification Training (92901)

In 1998, the NRC noted during a review of the licensed operator requalification training (LORT) program that some operators did not attend all of the required classes. In addition, the makeup training was not accomplished in a timely manner. At that time, this was classified as an unresolved item pending additional review by the NRC headquarters staff. Concurrent with the NRC's efforts, NYPA issued Deviation and Event Report (DER) 98-902 to review the issue and initiate corrective actions.

During this inspection period, the inspectors reviewed the DER response, the revised training procedure, and discussed the actions taken by NYPA with the NRC specialist inspector who identified the issue. FitzPatrick revised the associated training procedure (TP-5.05, "Licensed Operator Requalification Training Program") to require that missed classes be made-up within 14 weeks. Also, a letter was issued to each licensed reactor operator and senior reactor operator that attendance at training should be one of their highest priorities. The NRC considers the formalization of FitzPatrick management expectations to be acceptable to prevent recurrence; in addition, there was no violation of NRC requirements. This item is closed.

II. MAINTENANCE

M1 **Conduct of Maintenance**

M1.1 General Comments (61726, 62707)

Using NRC Inspection Procedures 61726 and 62707, the resident inspectors periodically observed various maintenance activities and surveillance tests. As part of the observations, the inspectors evaluated the activities with respect to the requirements of the Maintenance Rule, as detailed in 10CFR50.65. In general, maintenance and surveillance activities were conducted professionally, with the work requests (WRs), problem identification documents, and necessary procedures in use at the work site, and with the appropriate focus on safety. Specific activities and noteworthy observations are detailed in the inspection report. The inspectors reviewed procedures and observed all or portions of the following maintenance/surveillance activities:

- ST-2HA Low Pressure Coolant Injection (LPCI) Initiation Logic System "A" Functional Test While in Run Mode
- SP-1.04 Standby Liquid Control Sampling and Analysis
- ST-1H Primary Containment Isolation Valve Inoperable Test
- ST-40D Daily Surveillance and Instrument Check
- ST-5D APRM Calibration
- ST-5E Core Performance Daily Surveillance
- ISP-89 Suppression Chamber/Reactor Building Vacuum Breaker Isolation Valve Differential Pressure Switch Instrument Functional Test
- ST-24E RCIC Logic System Functional and Simulated Automatic Actuation Test

- ST-24J RCIC Flow Rate and Inservice Test (IST)
- PTR 98-451 VOTES As-Found / Operator PM, Sub-01 Sensor Check, Sub-02 VOTES As-Left
- ST-26K Recirculation Loop Start-Up Differential Temperature Check
- ST-23C Jet Pump Operability Test for Two-Loop Operation (EPIC Available)
- ST-23D Jet Pump Operability Test for Single-Loop Operation
- WO 99-2510-00 Replacement of the "A" RRP Motor Generator Tachometer

M1.2 Failure to Properly Restore the Reactor Core Isolation Cooling (RCIC) System During the Refueling Outage

a. Inspection Scope (62707)

In April 1999, NYPA identified that two electrical leads were disconnected for the RCIC system. The lifted leads would have prevented the automatic closure of the condensate storage tank (CST) suction valve to the RCIC pump during the automatic swap-over to the torus. Investigation revealed that the leads should have been re-connected during the system restoration from the refueling outage. The inspectors reviewed the DER and corrective actions, the Operability Determination, the TSs and UFSAR, and NRC Generic Letter (GL) 91-18.

System Description: The RCIC system is designed to automatically provide makeup water to the reactor vessel following isolation of the vessel from the main condenser or a total loss of offsite electrical power. The system uses a steam-turbine-driven pump, with the steam supply from the reactor vessel. The pump normally takes a suction from the CST, but will automatically swap-over to the torus on a low level in the CST. The CST suction valve is designed to automatically close after the torus suction valves are fully open. For events other than pipe breaks, the RCIC system has sufficient makeup capacity to prevent the reactor vessel water level from uncovering the core without the use of emergency core cooling system (ECCS) pumps. Per TS Section 3.5.E, the RCIC system is required to be operable whenever there is fuel in the reactor vessel and the reactor is not in a cold shutdown condition.

b. Observations and Findings

On April 3, 1999, during preparation for a licensed operator requalification examination, a senior reactor operator (SRO) noticed that two leads inside one of the relay room instrumentation panels were not connected and still had protective tagging request (PTR) tags attached. The Shift Manager (SM) declared the RCIC system inoperable and initiated action to have the leads re-connected; after which, the RCIC system was returned to service. The SM wrote DER 99-527 to document the issue and determine the root cause. Other immediate corrective actions included: (1) a walk-down of all control room and relay room panels for any other lifted leads, and (2) a review of all PTRs having lifted leads that were cleared during the outage. No discrepancies were identified.

NYPA determined that the event occurred on October 25, 1998, when the PTR was improperly cleared during the refueling outage. The corrective actions to prevent recurrence focused on the process for clearing PTRs, as described in FitzPatrick administrative procedure AP-12.01, "Equipment and Personnel Protective Tagging." This event was the result of an inadequate administrative procedure; in that, AP-12.01 did not require that personnel ensure all supplemental PTR sheets were also reviewed and cleared prior to closing the PTR. The NRC agreed with the NYPA conclusion that the safety significance of the CST suction valve not being able to close was minimal because of manual operator actions that would be prompted by the annunciator for CST low level.

The inspectors reviewed the DER, the administrative procedure, the UFSAR, and the TSs, and considered the root cause analysis and corrective actions to be acceptable. Also, the identification and pursuit of this issue was an example of a good questioning attitude by the SRO.

During the review of the event, NYPA concluded that the RCIC system had always been operable and was therefore not reportable to the NRC, per 10CFR73. However, the inspectors identified that the NYPA Operability Determination was in error and was based on the use of operator manual actions in lieu of an automatic design feature described in the UFSAR. The inspectors discussed the issue with FitzPatrick management. They agreed that the Operability Determination was wrong and they declared that the RCIC system had been inoperable from December 18, 1998 (when it was first required to be operable after the refueling outage), until April 3, 1999. They informed the inspectors that the issue would be reported to the NRC in accordance with 10CFR73. The inspectors noted that licensing and operations did not recognize the inoperability of RCIC and considered this a performance lapse.

Notwithstanding, the failure to properly restore the system during the refueling outage resulted in the RCIC system being unable to perform its safety function as described in the UFSAR, Section 4.7. Specifically, the CST suction valve to the RCIC pump would not have automatically closed during the swap-over to the torus. As such, the RCIC system was inoperable from December 18, 1998 until April 3, 1999. This is a violation of the FitzPatrick TS, Section 3.5.E. This NRC-identified Severity Level IV violation is being treated as a Non-Cited Violation (NCV), consistent with Appendix C of the NRC Enforcement Policy. This violation is in the licensee's corrective action program as DER 99-086. **(NCV 50-333/99-04-01)**

c. Conclusion

NYPA identified that a tagout had not been properly cleared during the refueling outage, resulting in the reactor core isolation cooling (RCIC) system being inoperable from December 1998 until April 3, 1999. **(NCV 50-333/99-04-01)** The identification and immediate resolution of this issue was an example of a good questioning attitude by a senior licensed operator. However, the NRC noted that licensing and operations did not recognize the inoperability of RCIC in a post event operability determination and considered this a performance lapse.

M3 Maintenance Procedures and Documentation**M3.1 Review of Post-Maintenance/Post-Work Testing Procedures****a. Inspection Scope (71707)**

The inspectors reviewed NYPA Administrative Procedure AP-5.07, Revision 11, "Maintenance Testing and Post-Work Testing," to evaluate the adequacy of testing following maintenance activities as well as testing conducted to demonstrate the operability of a system or component (i.e., post-work testing). This review was conducted in response to an event in February 1999 when the "D" emergency diesel generator (EDG) output breaker, which was placed in service in January 1999, was found to have auxiliary contacts that were incorrectly wired. The miswired auxiliary contacts did not affect the operation of the breaker, but rather resulted in an erroneous control room alarm. This event was the subject of a non-cited violation as noted in NRC Inspection Report 50-333/99-01

b. Observations and Findings

The inspectors reviewed NYPA's corrective actions for the February 1999 EDG breaker problem. NYPA concluded that the breaker was incorrectly wired by the breaker manufacturer when procured and that the breaker miswiring was not detected by electrical maintenance during receipt acceptance testing nor by Operations during the performance of the post-work testing conducted during breaker installation. No deficiencies were noted in the actual post-work test conducted as the test identified that the breaker was miswired via actuation of an unexpected alarm, but actuation of the alarm was not identified by the operators during the test. Corrective actions included counseling of operators and revisions to electrical maintenance procedures governing the receipt testing of breakers; no changes to AP-5.07 were considered necessary.

The inspectors reviewed AP 5-07 as well as a printout of all DERs over the previous year related to inadequate post-maintenance and post-work testing requirements and discussed their observations with the Work Planning Manager. While opportunities for improving the post-work process were identified in the DERs reviewed, virtually all of the problems identified with this process centered on administrative lapses or deficiencies in leak rate testing unrelated to 10 CFR 50 Appendix J leak rate testing requirements. A review was also conducted of several work requests which prescribed post-work testing requirements, most particularly recent work requests related to the drywell continuous air monitors. The inspectors noted in several cases that while the post-work testing listed in the work request (WR) appeared limited, the WR often referred the test director to other documents which provided the detail necessary to the properly perform a through post-maintenance or post-work test of the system or component.

c. Conclusions

Selected portions of FitzPatrick's post-maintenance and post-work testing process were reviewed and found to adequately ensure that equipment is properly tested prior to its

return to service. Past lapses identified by NYPA in the conduct of post-maintenance and post-work testing predominately involved administrative deficiencies, inadequate testing requirements for equipment for which specific regulatory or procedural performance standards did not exist and the failure of Operations to promptly identify an anomalous condition during breaker testing.

III. ENGINEERING

E1 Conduct of Engineering

E1.1 General Comments (37551)

Using NRC Inspection Procedure 37551, the inspectors frequently reviewed design and system engineering activities and the support by the engineering organizations to plant activities. Specialist inspectors in this area may have used other procedures during their reviews of engineering activities; these inspection procedures are listed, as applicable, for the respective sections of the inspection report.

E1.2 Review of the FitzPatrick Y2K Program Contingencies

The NRC conducted an abbreviated review of the FitzPatrick Year 2000 (Y2K) activities and documentation using Temporary Instruction (TI) 2515/141, "Review of Year 2000 Readiness of Computer Systems at Nuclear Power Plants." The review addressed aspects of Y2K management planning, documentation, implementation planning, initial assessment, detailed assessment, remediation activities, Y2K testing and validation, notification activities, and contingency planning. The reviewers used NEI/NUSMG 97-07, "Nuclear Utility Year 2000 Readiness," and NEI/NUSMG 98-07, "Nuclear Utility Year 2000 Readiness Contingency Planning," as the primary references for this review.

The results of this review will be combined with the results of other reviews in a summary report to be issued by July 31, 1999.

E8 Miscellaneous Engineering Issues

E8.1 (Closed) Licensee Event Reports 50-333/99-02 & 50-333/99-02-01: Suppression Chamber to Reactor Building Vacuum Breaker Isolation Valve Differential Pressure Switches Out of Tolerance

a. Inspection Scope (90712, 92700)

During surveillance testing, FitzPatrick instrumentation and control (I&C) technicians noted that the as-found setpoints for the suppression chamber to reactor building vacuum breakers were outside of the allowable tolerance. The inspectors reviewed the surveillance test report, the DER, the TSs, and the licensee event report (LER) and its supplement.

b. Observations and Findings

On January 13, 1999, during the performance of I&C surveillance procedure ISP-89, technicians noted that the as-found setpoints for the suppression chamber to reactor building vacuum breakers were outside of the allowable tolerance. Specifically, the differential pressure switch trip feature for the vacuum breaker isolation valves exceeded the TS allowable value of 0.5 psid (pounds per square inch differential).

NYPA determined the cause to be a wrong assumption in the calculation for the setpoint adjustment. Specifically, FitzPatrick assumed that the instrument drift was less than that stated in the vendor manual. Corrective actions included immediate calibration of the pressure switches and establishment of an increased frequency for the surveillance test. Additionally, FitzPatrick was reviewing the process for determining instrument uncertainty analysis.

The inspectors reviewed the DER, the LER and its Supplement, and the TSs, and considered the root cause analysis and corrective actions to be acceptable. However, FitzPatrick TS, Section 3.7.A.4.a, requires two operable pressure suppression chamber reactor building vacuum breakers. Contrary to the above, improper assumptions used to calculate calibration requirements of the pressure suppression chamber to reactor building vacuum breaker isolation valve pressure switches caused the vacuum breakers to be inoperable. This Severity Level IV violation is being treated as a Non-Cited Violation (NCV), consistent with Appendix C of the NRC Enforcement Policy. This violation is in the licensee's corrective action program as DER 99-086. **(NCV 50-333/99-04-02)** Also, LERs 99-02 and 99-02-01 are closed.

c. Conclusion

During the performance of surveillance testing, technicians noted that the as-found setpoints for the suppression chamber to reactor building vacuum breakers were outside of the allowable tolerance. NYPA determined the cause to be an incorrect assumption in the calculation for the setpoint adjustment. The failure to properly calibrate the pressure switches resulted in the associated isolation valves being inoperable, a violation of the FitzPatrick TS, Section 3.7.A.4.a. **(NCV 50-333/99-04-02)**

IV. PLANT SUPPORT

Using NRC Inspection Procedure 71750, the resident inspectors routinely monitored the performance of activities related to the areas of radiological controls, chemistry, emergency preparedness, security, and fire protection. Minor deficiencies were discussed with the appropriate management. There were no significant observations during this inspection period.

V. MANAGEMENT MEETINGS

X1 Exit Meeting Summary

At periodic intervals, and at the conclusion of the inspection period, meetings were held with senior station management to discuss the scope and findings of this inspection. The final exit meeting occurred on June 4, 1999. During this meeting, the resident inspector findings were presented. NYPA did not dispute any of the inspectors findings or conclusions. Based on the NRC Region I review of this report, and discussions with NYPA representatives, it was determined that this report does not contain safeguards or proprietary information.

ATTACHMENT

PARTIAL LIST OF PERSONS CONTACTED

N. Avrakotos	Emergency Planning Coordinator
P. Brozenich	Operations Manager
M. Colomb	Site Executive Officer
R. Converse	General Manager, Maintenance
D. Lindsey	Plant Manager
R. Locy	Training Manager
A. McKeen	Radiological & Environmental Department Manager
W. O'Malley	General Manager, Operations
D. Ruddy	Director, Design Engineering
G. Tasick	Licensing Manager
T. Teifke	Security Manager
A. Zaremba	General Manager, Support Services

INSPECTION PROCEDURES USED

IP 37551	On-Site Engineering
IP 61726	Surveillance Observations
IP 62707	Maintenance Observations
IP 71707	Plant Operations
IP 71750	Plant Support
IP 90712	In-Office Review of Written Reports of Non-Routine Events at Power Reactor Facilities
IP 92700	Onsite Follow-up of Written Reports of Non-Routine Events at Power Reactor Facilities
IP 92901	Follow-up - Operations

ITEMS OPENED, CLOSED, AND UPDATED

OPENED

- NCV 50-333/99-04-01 Failure to Clear All PTR Tags Resulted in RCIC Being Inoperable for Three Months
- NCV 50-333/99-04-02 As-Found Setpoint Not Within TS Allowable Value for Vacuum Breaker Isolation Valve Differential Pressure Switches

CLOSED

- NCV 50-333/99-04-01 Failure to Clear All PTR Tags Resulted in RCIC Being Inoperable for Three Months
- NCV 50-444/99-04-02 As-Found Setpoint Not Within TS Allowable Value for Vacuum Breaker Isolation Valve Differential Pressure Switches
- IFI 50-333/97-06-01 Refueling Floor Smoke Detectors Out-Of-Service Since 1993
- URI 50-333/98-02-04 Poor Attendance at Licensed Operator Requalification Training
- LER 50-333/99-02-00 Suppression Chamber to Reactor Building Vacuum Breaker Isolation Valve Differential Pressure Switches Out of Tolerance
- LER 50-333/99-02-01 Suppression Chamber to Reactor Building Vacuum Breaker Isolation Valve Differential Pressure Switches Out of Tolerance

UPDATED

none

LIST OF ACRONYMS USED

APRM	Average Power Range Monitor
CFR	Code of Federal Regulations
CST	Condensate Storage Tank
DER	Deficiency and Event Report
ECCS	Emergency Core Cooling System
GL	Generic Letter
IFI	Inspector Follow Item
I&C	Instrumentation and Control
LER	Licensee Event Report
LORT	Licensed Operator Requalification Training
MG	Motor Generator
NCV	Non Cited Violation
NRC	Nuclear Regulatory Commission
NSE	Nuclear Safety Evaluation
NYPA	New York Power Authority
PTR	Protective Tagging Request
RCIC	Reactor Core Isolation Cooling
RRP	Reactor Recirculation Pump
SM	Shift Manager
TS	Technical Specifications
URI	Unresolved Item
UFSAR	Updated Final Safety Analysis Report
WR	Work Request