U. S. NUCLEAR REGULATORY COMMISSION
REGION I

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LICENSEE: New York Power Authority
P. O. Box 41
Lycoming, New York 13093

FACILITY: James A. FitzPatrick Nuclear Power Plant

LOCATION: Scriba, New York

INSPECTION DATES: August 9-13, 1993 and November 15-19, 1993

INSPECTED BY: _____ 1-24-94
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APPROVED BY: _____ 1/31/94
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Areas Inspected: Review of surveillance test deficiencies and corrective actions, including the status of the logic system functional test (LSFT) review program. Reactor protection system wiring installation deficiencies were also examined.

Results: NYPA has identified several surveillance test deficiencies and as a result has assigned a site surveillance coordinator and developed a procedure review process. Review teams were assigned by NYPA to review system logic functional tests. The teams have completed reviews of the following system tests: anticipated transient without scram (ATWS), containment cooling (CC), automatic depressurization system (ADS), and low pressure cooling injection (LPCI). The reviews were detailed and effective in identifying problem areas. Identified discrepancies were resolved with procedural changes to add additional testing to ensure adequate overlap. The revised tests were performed and in all cases the systems tested satisfactorily.

A review of the NYPA corrective action program identified that a large number of actions had overdue responses, resulting in a large percentage being referred to upper management or escalated to the vice president level for action.

Three previously identified unresolved items associated with surveillance testing were closed.

Wiring discrepancies in the reactor protection system (RPS) were reviewed and found to have been adequately resolved.

DETAILS

1.0 SURVEILLANCE TEST DEFICIENCIES

1.1 Background

On June 5, 1992, NYPA determined that a portion of the primary containment isolation logic for two residual heat removal (RHR) system valves was not being tested as required by plant technical specifications. The cause of the problem was a procedure deficiency that had existed since plant licensing. NYPA corrected the surveillance test for these valves and committed to review all surveillance procedures to verify their adequacy. This review was scheduled to be complete by December 31, 1993. Additional problems were identified as the result of various activities and are summarized in Attachment 1. This attachment also includes a summary of how the deficiencies were identified and the corrective actions taken for each problem.

1.2 NYPA Activities/Corrective Actions

Subsequent to the identification of the RHR valve testing deficiency, additional problems were identified and corrective actions were taken based on the specific system or component involved with the deficiency. In all cases these actions included correction of the test procedure and the performance of the required testing. Additional corrective actions included: 1) adding the Surveillance Program Upgrade to the Results Improvement Program, 2) review of all average power range monitor (APRM) and intermediate range monitor (IRM) tests, and 3) a review of a sample of tests that utilized a similar switch to that found not to have been adequately tested in the high pressure coolant injection (HPCI) system logic.

When the supplemental testing did not identify any inoperable equipment, and the additional procedure reviews did not identify additional deficient test procedures, NYPA did not elevate the priority given to completing a review of all surveillance tests.

In May 1993, additional test deficiencies were identified with HPCI logic testing and more comprehensive corrective actions were initiated. At this time, a site surveillance coordinator was assigned to provide additional oversight and coordination of site-wide surveillance activities. Procedure TSS0-18, "Surveillance Test (LSFT) Adequacy Review Procedure," was developed and approved to establish a multidisciplinary team review of surveillance tests to ensure that the system logic testing was adequate. Reviews of the logic testing for low pressure coolant injection (LPCI), anticipated transient without scram (ATWS) recirculation pump trip, automatic depressurization system (ADS) and primary containment isolation system (PCIS) were then initiated using this procedure.

The four member review teams completed the surveillance test program reviews of these four systems as well as the high pressure coolant injection (HPCI) and average power range monitor (APRM) systems. Interviews by the inspector with review team personnel indicated that team members were knowledgeable and experienced in their area of responsibility. The inspectors review of documentation for two completed systems indicated the reviews were

detailed and effective in identifying problems. The results of the reviews were documented on deviation/event reports (DERs) to ensure that test discrepancies were reviewed to determine if they impacted system operability. Commitment tracking items were opened to track those recommended changes that do not require an immediate procedure change.

1.3 Quality Assurance Audit of the Surveillance Test Program

The inspector noted that the results of a quality assurance department audit of the surveillance testing program, Audit No. 787, dated October 2, 1992, identified similar surveillance test program problems. One finding was that the individual departments were not consistent in their implementation of the requirements of Administrative Procedure (AP) 4.1, "Surveillance Test Programs."

Actions recommended by the Audit 787 include:

- appointment of plant-wide surveillance coordinators
- revision of AP-4.1 to more accurately define surveillance programs
- revision of departmental standing orders to ensure compliance with AP-4.1
- updating action commitment tracking (ACT) to reflect the current status of surveillance program upgrade
- performance of an adequacy review of technical specification surveillance requirements

The inspector found that the recommended actions of Audit No. 787 were being implemented. In addition, the licensee established a weekly "round table" meeting, under the direction of the surveillance test coordinator, to discuss technical issues, progress and improvements to the surveillance test programs. The inspectors attended one "round table" discussion. During the meeting, department heads came in at various times to discuss their concerns or comment on the discussion. The inspector also noted that all surveillance test failures were reviewed at the "round table" meetings to ensure that the proper corrective actions were taken as a result of the failure.

1.4 Conclusion

The surveillance test deficiencies identified by NYPA, as reported to the NRC in LERs 92-32, 92-50, 93-07, 93-09, 93-14 and 93-17 constitute potential violations of NRC requirements in that plant technical specification testing requirements to demonstrate system operability were not met. The NRC reviewed these events and the event described in LER 93-07, concerning the analog transmitter trip system (ATTS) response time testing, that resulted in an escalated enforcement action, and concluded that:

- the corrective actions taken in response to the ATTS properly focused on the modification process weaknesses and the adequacy of response time testing and would not have reasonably been expected to identify logic system testing inadequacies

- the systems that were identified to have had inadequate testing were found to have been operable when additional testing was performed, thus the safety significance associated with the test deficiencies was minimal

- all of the deficiencies were identified by NYPA personnel and were properly reported to the NRC

- a NYPA quality assurance audit had identified programmatic problems within the surveillance program and corrective actions were taken as a result of that audit

- deficiencies that could impact system operability were promptly corrected.

Based on this information, the NRC determined that the criteria specified in Section VII.B.2 of the Enforcement Policy was satisfied and no notice of violation would be issued. The fact that deficiences are being identified by personnel in various departments with differing responsibilities indicates the presence of a questioning approach to daily activities with a focus on improving the quality of procedures. The exercise of discretion was intended to encourage you to continue aggressive actions to identify and correct deficiencies.

2.0 STATUS OF PREVIOUSLY IDENTIFIED OPEN ITEMS

(Closed) Unresolved Item 50-333/93-12-01 NRC review of LSFT deficiencies identified by NYPA and reported in LER 93-014.

The inspectors reviewed LER 93-014, Revision 00, dated June 25, 1993, that discussed deficiencies associated with the high pressure coolant injection (HPCI) system logic test and identified potential weaknesses in the surveillance test program. The surveillance procedure did not test the entire logic circuit from sensor, through and including the actuated component, either through omission of parallel paths in the logic circuitry, or due to missed relay contact points resulting from insufficient overlap between different tests.

The inspectors noted that temporary procedural changes were initiated by the licensee and approved for each identified weakness and that testing was performed with satisfactory results. In addition, NYPA issued TSS0-18, "Surveillance Test (LSFT) Adequacy Review Procedure," dated July 24, 1993. This procedure provides direction for the technical adequacy review of selected plant surveillance tests to verify they meet the intent of the LSFT requirements of the plant technical specifications. NYPA plans to complete this review by September 1993. This item is closed.

(Closed) Unresolved Item 50-333/93-14-01 Average power range monitor (APRM) downscale trip testing deficiency root cause analysis and NRC review of LSFT upgrade.

The in . .tor reviewed LER 93-07, dated April 21, 1993, noting that NYPA's review of the APRM surveillance tests indicated that the APRM flow-referenced upscale thermal power trip function was not verified to result in an APRM scram signal to the reactor protection system (RPS) logic because the testing was done with the APRM instrument channel bypassed. The inspector reviewed corrective actions taken by the licensee that included revision of the surveillance test procedures to functionally test the APRM flow-referenced thermal trip unit, including initiation of the RPS scram signal. Tests conducted in accordance with the revised procedure were satisfactorily completed. Other neutron monitoring surveillance requirements and related tests were reviewed by the licensee to determine if other similar deficiencies existed.

On July 29, 1993, NYPA determined that the scram function that is initiated on an APRM downscale condition coincident with an IRM upscale/inoperative condition, while in the Run mode, was not being tested. NYPA's assessment of this event determined that the testing deficiency had been identified during the review of surveillance tests performed as committed in LER 93-07; however, it was not considered to be a deficiency with respect to compliance with plant technical specifications. The misinterpretation of the technical specification requirements occurred because the TS require this scram function to be operable when in the Run mode, however, the IRMs are not required to be operable in the Run mode and are normally withdrawn. The surveillance tests were revised and performed with satisfactory results.

Since the review of the APRM tests was performed prior to the issuance of TSSO-18, Surveillance Test (LSFT) Adequacy Review Procedure, NYPA plans to reperform the review of these procedures using the approach described in TSSO-18.

This item is closed.

(Closed) Unresolved Item 50-333/93-22-02 Emergency Diesel Generator Logic Testing

During the logic system test review for the emergency diesel generator system, NYPA identified that the test methodology for the emergency bus feeder circuit breaker was not adequate. The system logic that initiates a breaker trip during a bus undervoltage condition is in parallel with another trip signal associated with an upstream breaker. During the testing both signals are present simultaneously and prevents the verification of the undervoltage trip logic operability.

NYPA revised the surveillance test to permit the verification of the undervoltage trip logic and performed the system test with satisfactory results. This item is closed.

3.0 DEFICIENCY REPORTS

In addition to the review of the QA audit discussed in Section 1.3, the inspector reviewed the use of deviation/event reports (DERs) to document adverse trends and the corrective action monitoring program.

As of April 1, 1993, DERs replaced several other forms formerly in use to document and resolve deficiencies, i.e., occurrence reports (ORs), emergency work requests (WRs), and adverse quality condition reports (AQCRs).

The QA department developes and distributes a listing of open action items on a weekly basis. The list contains responses due for all standard and significant AQCRs and DERs. In reviewing this document, dated August 3, 1993, the inspector made the following observations:

- Under significant AQCRs, there were 28 items listed, 18 of which had overdue responses requiring reporting to the immediate supervisor and two were escalated to the vice president.

- Under standard AQCRs, there were 98 items, of which 51 were overdue by more than 30 days and therefore reported to the responsible immediate supervisors. Eleven were elevated and reported to the general manager level and 13 were escalated to the vice president.

- For DERs, there were 31 items listed of which 24 were overdue by more than 30 days and reported to immediate supervisors/management, 7 required reporting to the general manager, and 1 was referred to the vice president. An example of the type of items being elevated to the vice president level is whether an in-service inspection (ISI) individual should be included in the review chain.

The inspector concluded that QA had sufficient involvement to monitor the implementation of corrective actions. However, based on the above, it appears additional management review is needed to determine the cause and significance of the number of overdue responses (over 30 days).

4.0 REACTOR PROTECTION SYSTEM (RPS) WIRING

The SCRAM pilot valve solenoid power is arranged such that there are four power circuits. Each power circuit controls approximately 25% of the control rods (Groups 1, 2, 3, 4). During a scram, these circuits are interrupted by the opening of scram contactors to initiate insertion of the control rods. The RPS interconnection drawing specifies that power wiring

between scram contactors be run in metallic conduit and the scram contactors are also mounted inside of metal enclosures. The reason for this design is to eliminate the possibility of short circuits (hot shorts) from wiring of two groups that could prevent the insertion of a group of control rods when a reactor scram is required.

Also, scram pilot valve power status lights require isolation resistors, mounted within the protection of the scram contactor enclosures, to prevent a hot short from keeping scram pilot valves energized when a scram was desired.

NYPA identified the following:

1) The covers for two scram contactors were missing;

2) Isolation resistors and associated wiring for the SCRAM pilot valve solenoid group status lights on one control panel were not physically protected;

3) Portions of the wiring for the group 3 and 4 solenoids were run through an opening between the automatic and manual scram sections of the panel, while the wiring for groups 1 and 2 was run in conduit as specified by the drawings.

NYPA corrected these deficiencies prior to startup from the maintenance outage.

5.0 EXIT MEETING

At the conclusion of each inspection on August 13, 1993, and November 19, 1993, the inspectors met with licensee representatives denoted in Attachment 3. The inspectors summarized the scope and inspection findings at that time. The licensee acknowledged the inspection findings.

ATTACHMENT 1

1991

No LERs associated with inadequate surveillance tests.

1992

LER 92-07 01/23/92	Analog Transmitter Trip System (ATTS) Relay - Inadequate Response Time Testing Identified during a procedure review performed after a relay was found to be sticking. Corrective actions - Response time testing revised and other systems evaluated with respect to response time testing. Part of a Level III violation associated with the design and testing of the ATTS Relays.
LER 92-32 06/05/92	Isolation logic for two RHR isolation valves not tested for auto isolation during shutdown cooling operations. Identified when surveillance test was reviewed for use to perform post maintenance testing. Corrective actions - 1) Surveillance test corrected and the valves tested satisfactorily. 2) Commitment made to review surveillance procedures to verify they adequately implement surveillance requirements. Due date of 12/31/93.
LER 92-50 11/11/92	Inadequate testing of EDG Logic. Identified during a procedure review prompted by NRC Information Notice 91-13. Corrective actions - 1) Temporary procedures written and performed to ensure adequate overlap between instrumentation and logic test.

2) Permanent procedures developed to replace the temporary procedures.

3) Surveillance program upgrade added to the Results Improvement Program as of December 1, 1992.

LER 93-07
03/22/93

APRM thermal power trip not adequately tested. It was not tested through to the RPS system to verify the actual scram.

Identified during a procedure review.

Corrective actions - 1) Surveillance tests were revised and performed satisfactorily.

2) Other APRM and IRM surveillance procedures were reviewed.

LER 93-09
04/20/93

Inadequate HPCI logic testing. The logic for one MOV was tested to actuate on a high drywell signal but not low vessel level due to the use of a GE test switch.

Identified during a post trip review due to HPCI problems during the transient.

Corrective actions - 1) Identified and reviewed other tests that use the GE test switch and reviewed whether switch tests all logic paths in a sample of 25 percent of the tests. No additional problems identified.

2) Performed a detailed review of the HPCI logic.

LER 93-14
05/29/93

Inadequate HPCI logic testing. Parallel logic paths not tested. Manual isolation push button not tested.

Identified as a result of the review performed in response to LER 93-09.

Corrective actions - 1) Procedure revised and performed satisfactorily.

2) Surveillance Test Program Improvement Plan was incorporated into the Results Improvement Program.

3) Surveillance Test (LSFT) Adequacy Review Procedure, TSSO-18, issued. Established multidisciplinary team review.

4) Schedule for review of selected systems implemented. ECD September 1993.

5) Item 4 above will perform the review of the testing utilizing the GE test switch as specified in LER 93-09.

LER 93-17
07/29/93

APRM Upscale/IRM Upscale Scram not adequately tested due to misinterpretation of Tech Specs.

Identified by licensed staff instructor.

Corrective actions - 1) Initiated a plant shutdown until the surveillance test was performed.

2) Review of HPCI, APRM and EDG systems to be reperformed using TSSO-18 by 12/31/93.

ATTACHMENT 2

Documents Reviewed by the Inspector for this Report:

Licensee Memoranda

JORG 93-158, dated August 4, 1993. Review of surveillance test adequacy discrepancies.

JOPS 93-231, dated July 30, 1993. Containment cooling logic functional surveillance testing review.

JOPS 93-236, dated August 3, 1993, ATWS RPT/ARI logic functional surveillance testing review.

JOPS-218, dated July 20, 1993. LPCI logic functional surveillance testing review comments.

JTS 93-0406, dated July 2, 1993. LSFT Adequacy Review of RHR-LPCI Logic.

Surveillance Test Program

AP-4.1, Revision 8, dated November 4, 1992

AP-19.01, Revision 0 (Draft)

Adverse Quality Condition Report (AQCR)

AQCR No. 91-089, dated September 9, 1991.

AQCR No. 92-310, dated September 30, 1992.

Deviation/Event Reports (DERs)

DER 93-0610, dated August 6, 1993. ATWS RPS logic functional surveillance test review discrepancies.

DER 93-0584, dated July 30, 1993. APRM downscale trip function not being adequately tested.

DER 93-0373, dated April 26, 1993. Not all required logic testing had been completed on HPCI logic circuits.

DER 93-0317, dated March 29, 1993. B APRM breaker tripped while changing out lamp.

DER 93-260, dated March 1, 1993. Second half-scram received while in cold shutdown. E IRM trip.

DER 93-0468. No testing for MOV 2 in drywell high pressure logic during HPCI auto actuation.

Surveillance Test (LSFT) Adequacy Review Procedure TSS0-18, Revision 1, dated July 7, 1993.

ATTACHMENT 3

Persons Contacted

New York Power Authority

○	R. Barrett, General Manager, Operations
○	W. Bergens, Public Affairs
*	V. Childs, Licensing
* ○	M. Columb, General Manager, Support Services
*	W. Comstock, Quality Assurance
○	F. Edler, Technical Services Manager
* ○	T. Herrmann, Technical Program Consultant
* ○	J. Hoddy, Licensing Engineer
	J. Kaucher, Manager, Technical Services
*	H. Keith, I&C Sr. Engineer
* ○	D. Lindsay, General Manager, Maintenance
*	D. Locy, Manager, Operations
*	C. Morean, QA Specialist
○	D. Ruddy, Site Engineering Manager
○	H. Salmon, Resident Manager
*	G. Tasick, QA Manager
*	D. Wallace, Assistant Technical Service Manager
○	A. Zaremba, Operations Review Manager

U. S. Nuclear Regulatory Commission

* ○	W. Cook, Sr. Resident Inspector
○	L. Kay, Reactor Engineer

* Denotes attendance at the August 13, 1993 exit meeting.
○ Denotes attendance at the November 19, 1993 exit meeting.