U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 87-26

Docket No. 50-333

License No. DPR-59

Licensee: Power Authority of the State of New York
P.O. Box 41
Lycoming, New York 13093

Facility: J.A. FitzPatrick Nuclear Power Plant

Location: Scriba, New York

Dates: December 1, 1987 - January 11, 1988

Inspectors: A.J. Luptak, Senior Resident Inspector
C.S. Marschall, Resident Inspector

Approved by: Jon R. Johnson 2/3/88
J.R. Johnson, Chief, Reactor Projects Section 2C, DRP — Date

Inspection Summary:

Areas Inspected:

Routine and reactive inspection during day and backshift hours of Licensee Event Report review, operational safety verification, surveillance observations, maintenance observations, followup of a plant trip, IE Bulletin followup, review of missed surveillance tests, followup of an Engineered Safety Feature actuation, and review of periodic and special reports. This involved a total of 134 inspection hours which included 5 hours of backshift on December 15, 1987 and 6 hours of weekend inspection coverage on December 13 and 22, 1987.

Results:
Two violations were identified by the licensee during this inspection period. Notices of Violations were not issued based upon the NRC review confirming that the violations met the requirements of 10 CFR Part 2, Appendix C, V.A for self-identification and correction. The violations involved the failure to perform Technical Specification required surveillances on the Standby Gas Treatment System and monitoring drywell leakage (sections 9 and 10). The discovery of improper assembly of two Control Rod Drive Mechanisms supplied by the vendor is discussed in section 7.b. An Engineered Safety Feature actuation (Reactor Water Cleanup isolation) occurred due to an inadequate bolt torquing procedure discussed in section 11.

DETAILS

1. Summary of Plant Activities

The inspection period began with the plant operating at full power.

On December 9, 1987, the reactor tripped from full power due to a false low reactor vessel level indication caused by surveillance testing. The plant was restarted on December 10 and returned to full power operation on December 14. The plant remained at full power until January 9, 1988, when a normal plant shutdown was conducted to begin a scheduled two-week maintenance outage. Major work activities scheduled during this outage include replacement of control rod drive mechanisms, inspection of the torus coating, electrical equipment preventive maintenance, recirculation scoop tube modifications, and reducing the backlog of corrective maintenance items.

This inspection period ended with the plant in cold shutdown and the outage maintenance in progress.

2. Previous Inspection Findings

(Closed) INSPECTOR FOLLOWUP ITEM (82-08-09): Repair Offgas System and Containment Atmosphere Analyzer. Modification F1-83-11 for the Offgas System removed many of the sources of system leakage and included several measures to reduce moisture loading on the system driers. Since the modification was installed, Offgas System reliability has improved greatly. The B Containment Atmosphere Analyzer has also performed reliably as a result of the installation of heat tracing and other system improvements. This item is closed.

(Closed) VIOLATION (86-01-01): Failure to perform surveillances. The following documents were reviewed for compliance with the licensee's commitment to long term corrective action in reply to the Notice of Violation:

- AP 4.1, Procedure for Department Surveillance Tests, Revision 5, dated May 16, 1986.
- MDSO-8, Maintenance Department Surveillance Test Program, Revision 0, dated June 11. 1986.
- RES-SO-6, Radiological and Environment Services Department Standing Order Number 6 - Surveillance Schedule and Review, Revision 3, dated July 29, 1987.
- ICSO-13, Instrument Surveillance Test Program, Revision 0, dated July 2, 1986.
- ICSO-14, Instrument Surveillance Test Audit, Revision 2, dated July 7, 1987.
- ODSO-25, Surveillance Test Program, Revision 2, dated December 15, 1986.

-- F-ST-99B, Functional Surveillance Test Audit, Revision 0, dated May 6, 1986.

In addition, implementation of these procedures was reviewed with responsible department personnel to ensure the corrective action is adequate to prevent recurrence. This item is closed.

(Closed) VIOLATION (86-13-03): Failure to comply with procedures. In response to this violation, the licensee committed to conduct training to emphasize the importance of attention to procedural detail to members of all operating departments, and to revise RTP-11. Training records, RTP-11, New Fuel Radiological Survey Procedure, Revision 2, dated February 28, 1987, and RPOP-3, Picking Up, Receiving and Opening Radioactive Packages, Revision 1, dated November 1, 1984 were reviewed for implementation of the licensee's commitment, and to ensure adequate corrective action to prevent recurrence. This item is closed.

3. Licensee Event Report (LER) Review

The inspector reviewed LERs to verify that the details of the events were clearly reported. The inspector determined that each report was adequate to assess the event, the cause appeared accurate and was supported by details, corrective actions appeared appropriate to correct the cause, and generic applicability to other plants was not in question.

During this inspection period, the following LERs were reviewed:

LER 87-18, reported a reactor trip due to high neutron flux caused by the erratic operation of the B Reactor Water Recirculation Pump speed controller. Followup of this event was discussed in Inspection Report 50-33/87-22.

LER 87-19, reported missed surveillance testing of the Standby Gas Treatment System due to a Technical Specification (TS) misinterpretation (see section 9).

LER 87-20, reported a reactor trip due to a false low reactor vessel water level signal due to personnel error during surveillance testing (see section 8).

LER 87-22, reported a missed surveillance test of computing drywell leakage due to operator oversight (see section 10).

No deficiencies were identified.

4. Emergency Notification System Reports (ENS)

The inspector reviewed the following events which were reported to the NRC via the Emergency Notification System as required by 10 CFR 50.72. The review included a determination that the reporting requirements were met, that appropriate corrective actions had been taken, and that the event had been evaluated for possible generic implications.

The following reports were reviewed:

Event Date	Subject
December 9, 1987	Reactor trip due to a low reactor vessel signal caused by surveillance testing (see section 8).
December 13, 1987	An Engineered Safety Feature actuation (Reactor Water Cleanup System isolation) occurred when a gasket failed on the B RWCU pump seal cooler (see section 11).

No deficiencies were identified.

5. Operational Safety Verification

a. Control Room Observations

Daily the inspector verified selected plant parameters and equipment availability to ensure compliance with Technical Specifications limiting conditions for operation. Selected lit annunciators were discussed with control room operators to verify that the reasons for them were understood and corrective action, if required, was being taken. The inspector observed shift turnovers biweekly to ensure proper control room and shift manning. The inspector directly observed the operations listed below to ensure adherence to approved procedures:

-- Routine power operations.

-- Issuance of Radiation Work Permits and Work Request/Event/Deficiency forms.

During this inspection period, the licensee changed the control room labeling based on Control Room Design Review requirements. The changes included new label plates for all equipment which standardized the labeling and nomenclature, improved mimicing of systems, demarkation of systems, and new annunciator windows which incorporate standard nomenclature and format. These changes have made the control room more standardized and gives a more professional appearance.

No violations were identified.

b. Shift Logs and Operating Records

Selected shift logs and operating records were reviewed to obtain information on plant problems and operations, detect changes and trends in performance, detect possible conflicts with Technical Specifications or regulatory requirements, determine that records are

being maintained and reviewed as required, and assess the effectiveness of the communications provided by the logs.

No violations were identified.

c. Plant Tours

During the inspection period, the inspector made tours of control rooms and accessible plant areas to monitor station activities and to make an independent assessment of equipment status, radiological conditions, safety and adherence to regulatory requirements.

No violations were identified.

d. Tagout Verification

The inspector verified that the following safety-related protective tagout records (PTR's) were proper by observing the positions of breakers, switches and/or valves:

-- PTR 872303 on Reactor Building Ventilation System.

-- PTR 872354 on Hydraulic Control Unit 22-39.

-- PTR 880057 on A Residual Heat Removal System.

No violations were identified.

e. Emergency System Operability

The inspector verified operability of the following systems by ensuring that each accessible valve in the primary flow path was in the correct position, by confirming that power supplies and breakers were properly aligned for components that must activate upon an initiation signal, and by visual inspection of the major components which might prevent fulfillment of their functional requirements:

-- Standby Liquid Control System.

-- Emergency Diesel Generator Systems.

-- A Battery Ventilation System.

No violations were identified.

6. Surveillance Observations

The inspector observed portions of the surveillance procedures listed below to verify that the test instrumentation was properly calibrated, approved procedures were used, the work was performed by qualified

personnel, limiting conditions for operations were met, and the system was correctly restored following the testing.

-- F-ST-20K, Control Rod Exercise/Venting, Rev. 3, dated August 17, 1984, performed December 9, 1987.

-- F-ST-13A, Main Stack Radiation Mon or Functional Test, Rev. 1, dated June 11, 1986, performed December 16, 1987.

-- F-ST-9B, Emergency Diesel Generator Full Load Test and Emergency Service Water Operability Test, Rev. 23, dated September 9, 1987, performed December 29, 1987.

The inspector also witnessed all aspects of the following surveillance test to verify that the surveillance procedure conformed to specification requirements and had been properly approved, limiting conditions for operation for removing equipment from service were met, testing was performed by qualified personnel, test results met technical specification requirements, the surveillance test documentation was reviewed, and equipment was properly restored to service following the test:

-- F-ST-4B, High Pressure Coolant Injection Flow Rate/ Pump Operability/ Valve Operability Tests, Rev. 31, dated September 23, 1987, performed January 6, 1988.

No violations were identified.

7. Maintenance Observations

a. The inspector observed portions of various safety-related maintenance activities to determine that redundant components were operable, that these activities did not violate the limiting conditions for operation, that required administrative approvals and tagouts were obtained prior to initiating the work, that approved procedures were used or the activity was within the "skills of the trade," that appropriate radiological controls were properly implemented, that ignition/fire prevention controls were properly implemented, and that equipment was properly tested prior to returning it to service.

b. During this inspection period, the following activities were observed:

-- WR 72/55648, repair the B Battery Ventilation Air Handling Unit.

-- WR 03/5461, leak test Control Rod Drive Mechanisms.

-- WR 10/45477, hydrostatic test of the A Residual Heat Removal System.

During observation of leak rate testing of new Control Rod Drive Mechanisms (CRD), the inspector was informed and witnessed the failure of 2 of the 25 CRDs to meet the leak rate specifications. The failure occurred in the leak path between the inlet and outlet ports on the CRDs. Mechanical seals in the drive piston are used to seal the flow path between these two ports and assist in operating the drive. Leakage is required to be less than 0.2 gallons per minute and was found to be approximately 4 gallons per minute in both cases. Upon disassembly, the licensee found these seals had been installed backwards and therefore were allowing water to pass by them in the wrong direction. If installed correctly, the seals would stop flow for inward rod motion and allow flow to pass for outward rod motion. Although the drive mechanisms are tested at the manufacturer, they must be disassembled and dried prior to reassembly and shipping.

The vendor has concluded that this condition was not safety significant. The rod would still have inserted on a scram. The normal rod insertion times would have been slow and a faster withdrawl time would occur. The vendor is forwarding their report to the licensee for additional review.

Further review of this event will be conducted by the Vendors Program Branch.

No violations were identified.

8. Followup of a Plant Trip

At 9:13 a.m. on December 9, 1987, the reactor tripped from full power due to a low reactor vessel level signal. The low level signal occurred due to a personnel error during surveillance testing of reactor vessel level instrumentation. Actual vessel level was normal at the time of the trip.

The inspector arrived in the control room witnin minutes of the scram and observed the operator response to the event. The inspector also reviewed the process computer alarm printout, the post trip log, various chart recorders and the completed data sheets for procedure No. PSO 53, "Post Trip Evaluation". Based on these observations and reviews, the inspector determined that the operator actions were proper and in accordance with approved procedures, and that the plant responded as designed.

The low reactor water level trip occurred during surveillance testing of the instrumentation (02-3-LIS-101D) which trips the High Pressure Coolant Injection Turbine due to high reactor water level. This instrumentation shares a common header with the level instrumentation (LT-101C & LT-101D) which supplies the trips for the Reactor Protection System. Based upon the performance of the surveillance test relative to the trip, the Instrument and Control (I&C) General Supervisor's immediate review of the event and followup testing to repeat the conditions using the same

personnel, the licensee concluded one or both of the isolation valves for LIS-101D were not tightly closed. As a result, when a test valve was opened on LIS-101D, a hydraulic transient occurred in the common piping which resulted in the false low level signals of LT-101C and LT-101D which supply different divisions of the Reactor Protection System.

The technician performing the surveillance test was an apprentice under the supervision of another technician. The apprentice technician is experienced in valve manipulations including instruments of this type but had not previously operated the valves on this particular instrument. The apprentice was being closely monitored during the evolution including a procedure walkthrough and observation of the experienced technician during testing on LIS-101B. In addition, it was noted that these valves are original plant equipment and do require a slightly larger amount of torque to fully close.

Immediately following the trip, an I&C supervisor investigated the actions concerning testing of the level instrument in progress. No valve manipulations had been conducted following the trip. Following discussion with the technicians during testing, the supervisor concluded there had been proper procedural compliance. However, upon checking the instrument isolation valves, the supervisor was able to move the valves slightly (approximately 1/16 of a turn), indicating the valves were not fully closed. Additional testing demonstrated level spikes on LT-101C and D when the isolation valves for LIS-101D were not tightly closed.

The licensee's corrective actions include counselling of the technician involved, counselling of all technicians which supervise apprentice technicians, additional guidance for monitoring of apprentice technicians, and replacement of the instrument valves during the January 1988 maintenance outage.

No violations were identified.

9. Missed Surveillance of the Standby Gas Treatment System

During a review of procedures involving testing of the Standby Gas Treatment System, the licensee identified a required Technical Specification (TS) surveillance test which has not been previously performed. TS 4.7.B.1.b requires "at least once during each scheduled Secondary Containment leak rate test, whenever a filter is changed, whenever work is performed that could effect the filter system efficiency, and at intervals not to exceed six months between refueling outages, it shall be demonstrated that: (1) the removal efficiency of the particulate filters is not less than 99 percent based on a DOP test per ANSI N100-1-1972 paragraph 4.1 (2) the removal efficiency of the charcoal filters is not less than 99 percent based on a Freon test."

The efficiency tests discussed above have been performed at six month intervals, following filter changes, and following work which could effect the filter system efficiency. However, the test has never been performed during a Secondary Containment leak rate test. This was due to a licensee interpretation that testing at a six month interval satisfied this requirement. Efficiency tests performed at the six month interval have been satisfactory. The licensee did not identify any basis for the surveillance requirement.

The failure to perform efficiency testing on the Standby Gas Treatment System filter during the leak rate test is a violation of TS 4.7.B.1.b. As provided for by 10 CFR Part 2, Appendix C, V.A, a Notice of Violation is not being issued for this event in that: it was properly identified by the licensee; it was reported; it was of no safety significance; corrective action will be taken; and this was not a violation that could have been corrected by the licensee's corrective action for a previous violation. (87-26-01)

However, the plant has operated for over twelve years misinterpreting this TS and this has never been detected during operations reviews or Quality Assurance Audits. The licensee has taken action to perform the required test until such time as a TS amendment is processed.

10. Missed Surveillance of Drywell Leakage

On December 10, 1987, at 8:00 p.m., the licensed control room operator determined that the 4:00 p.m. computation and recording of drywell leakage rates had not been conducted. Technical Specification 4.6.D requires that "Reactor Coolant leakage rate inside the primary containment shall be monitored and recorded once every 4 hours utilizing the Primary Containment Sump Monitoring System (equipment drain sump monitoring and floor drain sump monitoring)."

The specification is met by the operator pumping down both drywell sumps and recording readings from pump flow integrators. The leakage rate is then calculated using the integrator reading obtained and integrator reading taken 4 hours previously. Completing this action is solely dependent upon the control room operator remembering to take the readings.

Upon assuming the duties of control room operator at approximately 3:00 p.m., the licensed operator noted the drywell leakage was very low based upon the rate of rise recorders in the control room which monitor to the drywell sumps. The operator became involved in preparations for a reactor startup which began at 5:06 p.m. During his performance of duties preparing for the startup, the operator overlooked formally computing the drywell leakage at 4:00 p.m. as required.

At 8:00 p.m. while taking readings for the drywell leakage, the operator recognized the missed reading and informed the Shift Supervisor. Calculation of drywell leakage over the eight hour period determined the unidentified leakage to be 0.1 gallons per minute and the identified leakage to be 1.28 gallons per minute. Technical Specifications require the unidentified leakage to be less than 5 gallons per minute and identified leakage to be less than 25 gallons per minute.

In addition to the manual calculation of drywell leakage rates, 2 drywell leakage recorders are installed in the control room. Each of these recorders monitor and display the unidentified and the identified drywell sump levels and rate of rise. Templates installed on these recorders correlate the rate of rise to a leakage rate. Also, timing circuits monitor valve cycling and pump running times and annunciate if these conditions indicate an abnormal leakage.

The licensee corrective actions include counselling of shift operators concerning surveillance tests; installation of a computer alarm to remind the operators to take the data every four hours; a proposal to amend Technical Specifications to include the control room recorders as part of the monitoring system; a modification to provide for remote pumping of the identified leakage sump to eliminate the need.

The failure to perform monitoring and recording of reactor coolant leakage rates inside the drywell every four hours is a violation of TS 4.6.D. As provided for by 10 CFR, Part 2, Appendix C, V.A, a Notice of Violation is not being issued for this event in that; it was properly identified by the licensee; it was reported; it was of minor safety significance; corrective actions have or will be taken; and this was not a violation that could have been corrected for a previous violation. (87-26-02)

11. Engineered Safety Feature Actuation

On December 13, 1987, a Reactor Water Cleanup (RWCU) System isolation occurred due to high RWCU pump room temperatures. The isolation signal is part of the Primary Containment and Reactor Vessel Isolation Control System and therefore an Engineered Safety Feature.

The high temperature was the result of a leak due to a failed gasket of the B RWCU pump seal cooler flange. The 1/2 inch pipe flange is located at the discharge of the pump to the seal cooler which supplies flow to a mechanical seal. The failure was the result of an inadequate bolt torquing procedure which failed to consider secondary effects such as thermal expansion, flange alignment, and normal vibration. The leak occurred shortly after the pump had been replaced.

The high temperature condition in the pump room initiated an alarm in the Control Room about 2 minutes before the isolation. Operators were in the process of investigating the high temperature and taking action to manually isolate the system when the actuation occurred. All systems functioned as designed during the occurrence.

The inspector will review the Licensee Event Report and further licensee corrective actions in a future inspection. No violations were identified.

12. I&E Bulletin 87-02 - Fastener Testing To Determine Conformance With Applicable Material Specifications

The inspector reviewed the licensee's methodology and process used in selection of the sample of ten safety related fasteners and ten nonsafety related fasteners and the nuts used with these fasteners. The licensee utilized a computer printout listing all fasteners in stock from which the selection was drawn. The licensee selected bolts which were procured to meet the characteristics which were of particular interest to the NRC identified in the Bulletin. The fasteners selected were roughly in portion to the in-plant use based upon the properties of interest.

The inspector accompanied the licensee individual during the actual selection of material from the warehouse and storeroom. During the selection process, the inspector noted several fasteners which either had no markings or had manufacturer markings which were of particular interest to the NRC. The licensee included these fasteners in the sample selection. The inspector verified each fastener was individually tagged and bagged with the appropriate purchase order number and certification number to assure material traceability.

Further review of the actions required by the bulletin will be conducted in a future inspection (50-333/BU-87-02).

No deficiencies were noted.

13. Annual Emergency Preparedness Exercise

On December 15, 1987, an unannounced, off-normal hours, annual emergency preparedness exercise was conducted. This exercise included participation by state and local agencies and was also observed by Federal Environmental Management Agency (FEMA). The licensee's activities were observed by a team from Region I and the senior resident inspector. No significant deficiencies were observed by the NRC during the exercise. It was concluded that the New York Power Authority demonstrated their ability to protect the health and safety of the public in the event of an emergency. Details of the observations made during the exercise will be discussed in Inspection Report 50-333/87-24.

14. Training Program Accreditation

On December 10, 1987, the National Academy for Nuclear Training completed the accreditation of all the training programs at the FitzPatrick facility. These ten programs include training for licensed and non-licensed operators, maintenance and Instrument and Control personnel, radiological and engineering personnel.

15. Assurance of Quality

This section is included to provide assessment of management oversight and effectiveness in ensuring activities are conducted in a manner which assures quality.

As noted in section 9, the licensee has operated for over twelve years without performing a Technical Specification surveillance requirement due to misinterpretation. Although the inspector agrees there appears to be little or no technical justification for the requirement, and the failure to recognize the requirement and take actions to correct it indicates a lack of thoroughness in reviewing Technical Specifications, this appears to be an isolated case.

Actions taken by Instrument and Control Department personnel to quickly identify and confirm the cause of a plant trip were considered to be prudent.

16. Review of Periodic and Special Reports

Upon receipt, the inspector reviewed periodic and special reports. The review included the following: inclusion of information required by the NRC; test results and/or supporting information consistent with design predictions and performance specifications; planned corrective action for resolution of problems, and reportability and validity of report information. The following periodic reports were reviewed:

-- November 1987 Operating Status Report, dated December 4, 1987.

-- December 1987 Operating Status Report, dated January 8, 1987.

No unacceptable conditions were noted.

17. Exit Interview

At periodic intervals during the course of this inspection, meetings were held with senior facility management to discuss inspection scope and findings. In addition, at the end of the period, the inspector met with licensee representatives and summarized the scope and findings of the inspection as they are described in this report.

Based on the NRC Region I review of this report and discussions held with NYPA representatives during the exit meeting, it was determined that this report does not contain information subject to 10 CFR 2.790 restrictions.