

U.S. NUCLEAR REGULATORY COMMISSION
Region I

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Report No. 84-22
Docket No. 50-333
License No. DPR-59 Priority -- Category C
Licensee: Power Authority of the State of New York
P. O. Box 41
Lycoming, New York 13093
Facility Name: J. A. FitzPatrick Nuclear Power Plant
Inspection At: Scriba, New York
Inspection Conducted: November 5 - December 31, 1984
Inspector: *L. T. Doerflin* 11/23/85
L. T. Doerflin, Senior Resident Inspector date
Approved By: *W. Lazarus* 11/23/85
W. Lazarus, Acting Chief, Reactor Projects date
Section 2C

Inspection Summary: Inspection on November 5 - December 31, 1984 (Report No. 50-333/84-22)

Areas Inspected: Routine and reactive inspection during day and backshift hours by one resident inspector (86 hours) of licensee action on previous inspection findings, allegation followup, licensee event report review, operational safety verification, surveillance observations, maintenance observations, followup on a plant trip, engineered safety feature system walkdown, preparation for re-fueling, cold weather preparations, and review of periodic and special reports.

Results: No violations were identified in the areas inspected.

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DETAILS

1. Persons Contacted

- R. Baker, Technical Services Superintendent
- R. Burns, Vice President, Nuclear Support-BWR
- V. Childs, Senior Licensing Engineer
- * R. Converse, Superintendent of Power
- M. Curling, Training Superintendent
- * W. Fernandez, Operations Superintendent
- * H. Glovier, Resident Manager
- * H. Keith, Instrument and Control Superintendent
- D. Lindsey, Assistant Operations Superintendent
- * R. Liseno, Maintenance Superintendent
- E. Mulcahey, Radiological & Environmental Services Superintendent
- R. Patch, Quality Assurance Superintendent
- T. Teifke, Security & Safety Superintendent

The inspector also interviewed other licensee personnel during this inspection including shift supervisors, administrative, operations, health physics, security, instrument and control, maintenance and contractor personnel.

*Denotes those present at the exit interview.

2. Licensee Action on Previous Inspection Findings

(Closed) Unresolved Item (333/81-15-05): The inspector noted that, to prevent inadvertent operation, the licensee locked open the isolation valves in the pressure sensing line for the electric fire pump. The inspector also noted that during the weekly performance of surveillance test F-ST-76B, "Electric Fire Pump Operational Check," the electric fire pump is started on low discharge header pressure which verifies that the pressure sensing line isolation valves are open. The inspector had no further questions regarding this item.

(Closed) Inspector Followup Item (333/84-01-02): The licensee determined that the "B" Emergency Service Water (ESW) pump breaker tripped due to insulation breakdown and short circuit between two turns of the overcurrent trip device coil on one phase. This caused the breaker to trip on a lower than normal starting current. The problem was intermittent due to the thermal contraction and expansion of the copper bus bars, attached to the overcurrent trip device coil, which made or broke the short circuit. The licensee replaced the defective overcurrent trip device and has since started the "B" ESW pump several times without any problems. The inspector observed portions of the licensee's troubleshooting efforts including: in place and bench testing of the "B" ESW pump breaker; overhaul of the "B" ESW pump; and increased surveillance testing on the "B" ESW pump. The inspector had no further questions regarding this item.

3. Allegation Followup

(RI-84-A-169) The NRC received an allegation from an individual who indicated that during original construction of the plant he buried twenty inches of slag in a weld on a seismic support. The inspector interviewed the welder to determine the location of the support and the description of the weld. During this interview the inspector verified that no other supports were affected. The inspector informed the licensee of the allegation and accompanied licensee personnel on an inspection to identify the support. Based on the information given, it was determined that the alleged slag was in the southwest corner of the pad-to-pipe weld of support number PFSK-2414, a Category I seismic support on the Residual Heat Removal Service Water return line.

Following a visual inspection of the support, the licensee initiated Deficiency and Corrective Action Report No. 84-147 to document the insufficient weld material in two areas (each approximately 13 inches long) as well as the overall poor quality of the pad-to-pipe weld. In addition, electrode stubs were noted sticking out of the trunnion-to-pad weld. The licensee excavated 3 - two and one half inch areas along the southwest corner of the pad-to-pipe weld in order to identify and chase any slag, however, none was found. The licensee repaired these excavations as well as those areas with insufficient weld material. The electrode stubs were removed and that area was repaired on the trunnion-to-pad weld. Following these repairs, both welds successfully passed a dye penetrant examination. In addition to the above actions, the licensee also had the architect engineer analyze the support in the as found condition as well as without the southwest corner of the trunnion-to-pad weld. In both cases the support was found acceptable.

The inspector noted that, as a result of previously identified problems, the licensee has implemented a program to inspect all Category I pipe supports and to correct any deficiencies, such as those noted with support no. PFSK-2414, between the pipe support drawings (used during pipe support analysis) and the as-built condition. With respect to the specific allegation on support no. PFSK-2414, the inspector determined that the licensee's action was adequate and had no further questions regarding this item. The inspector considers this allegation closed.

4. Licensee Event Report (LER) Review

The inspector reviewed LER's to verify that the details of the events were clearly reported. The inspector determined that reporting requirements had been met, the report was adequate to assess the event, the cause appeared accurate and was supported by details, corrective actions appeared appropriate to correct the cause, the form was complete and generic applicability to other plants was not in question.

LER's 84-21, 84-22, and 84-23* were reviewed.

*LER selected for onsite followup.

LER 84-23 reported that the reactor tripped on low reactor vessel water level as the result of a loss of feedwater flow during a plant startup. Details of this event are discussed in paragraph 8. of this inspection report.

5. Operational Safety Verification

a. Control Room Observations

Daily, the inspector verified selected plant parameters and equipment availability to ensure compliance with limiting conditions for operation prescribed by plant Technical Specifications. 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:

- Plant startup on November 6, 1984.
- Plant shutdown on November 29, 1984.
- Routine power operation.
- Issuance of RWP's and Work Request/Event/Deficiency forms.

During surveillance testing on December 13, 1984, the licensee determined that the "B" Core Spray Pump Minimum Flow Valve (valve 14-MOV-5B) would not go completely shut. The Core Spray Pump Minimum Flow Valves are included in Technical Specification (TS) Table 3.7-1 as primary containment isolation valves. This event is similar to one on February 27, 1984 (documented in inspection report No. 50-333/84-02) when it was discovered that the "A" Core Spray Pump Minimum Flow Valve would not shut completely. The inspector noted that, after verifying valve 14-MOV-5B would not shut completely, the licensee immediately declared the valve and the "B" Core Spray System inoperable. The licensee also shut the "B" Core Spray Pump Minimum Flow manual isolation valve (14-CSP-18B) which is upstream of valve 14-MOV-5B, to allow continued reactor operation with an inoperable containment isolation valve in accordance with TS 3.7.D.2. The inspector also noted that the licensee displayed conservatism by performing a plant shutdown on December 14, 1984 to repair valve 14-MOV-5B rather than breaching primary containment and entering the twenty four hour Limiting Condition for Operation of TS 3.7.A.8.2. The licensee determined the problem with the valve was that one of the threaded seats had backed out. The licensee replaced the valve

seats and tack welded them in place (with vendor concurrence) to prevent recurrence. Following the repairs, the licensee restarted the facility on December 15, 1984.

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 observations and conducted tours of the plant. During the plant tours, the inspector conducted a visual inspection of selected piping between containment and the isolation valves for leakage or leakage paths. This included verification that manual valves were shut, capped and locked when required and that motor operated valves were not mechanically blocked. The inspector also checked fire protection, housekeeping/cleanliness, radiation protection, and physical security conditions to ensure compliance with plant procedures and 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 841558 on the "B" Low Pressure Coolant Injection System battery.
- PTR 841613 on the "B" Emergency Service Water System and the "B" and "D" Emergency Diesel Generators.
- PTR 841614 on the "A" Core Spray 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 for leakage and other conditions which might prevent fulfillment of their functional requirements.

- Standby Liquid Control System
- Emergency Diesel Generator Fuel Oil and Air Start Systems
- Core Spray System
- Reactor Core Isolation Cooling System

No violations were identified.

f. Operation of the Post Accident Sampling System

Amendment No. 81 to the facility operating license, dated June 28, 1984, revised Technical Specification (TS) 3.7.A.9. to allow isolation of the primary containment atmosphere monitoring system, for up to three hours in a twenty four hour period, during those periods when the post accident sampling system is being tested for operability or used for personnel training. Amendment No. 83, dated August 28, 1984, also revised TS 3.7.A.9. to add the use of the term "operable" as it applies to safety systems in power reactors. However, these amendments were prepared and reviewed concurrently by separate individuals so that Amendment No. 83 revised TS 3.7.A.9. as it existed prior to Amendment No. 81. As a result Amendment No. 83 inadvertently deleted the previous change to TS 3.7.A.9. which permitted using the post accident sampling system for operability testing on personnel training. The inspector discussed these amendments with the NRR project manager who agreed that this deletion was clearly an administrative error. The project manager stated that the requirements of Amendment No. 81 still applied and that the error with TS 3.7.A.9. would be corrected in a future amendment to the Technical Specifications. The inspector informed the licensee of this position.

6. Surveillance Observations

- a. 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 operation were met, and the system was correctly restored following the testing:

- F-ISP-72, Source Range Monitor Instrument Trip Function Calibration, Revision 6, dated April 21, 1981, performed November 28, 1984.
 - F-ST-2C, RHR MOV Valve Operability Test, Revision 13, dated November 7, 1984, performed December 13, 1984.
 - F-ST-3A, Core Spray/Flow Rate/Valve Operability Test, Revision 15, dated June 20, 1984, performed December 14, 1984.
 - F-ST-8D, ESW Pump Flow Rate Test, Revision 10, dated November 4, 1982, performed December 18, 1984.
 - F-ST-9D, EDG Inoperative Test/Loss of 115KV Reserve Power/Loss of Station Battery, Revision 7, dated May 2, 1984, performed December 18 and 19, 1984.
- b. The inspector also witnessed all aspects of the following surveillance test to verify that the surveillance procedure conformed to Technical 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, HPCI Flow Rate/HPCI Pump Operability/HPCI Valve Operability Tests, Revision 18, dated November 7, 1984, performed November 29, 1984.

No violations were identified.

7. Maintenance Observations

- a. The inspector observed portions of various safety-related maintenance activities to verify that redundant components were operable, that activities did not violate the limiting conditions for operation, required administrative approvals and tagouts were obtained prior to initiating the work, appropriate approved procedures were used when required, appropriate radiological controls were properly implemented, ignition/fire prevention controls were properly implemented, and equipment was properly tested prior to returning it to service.
- b. During this inspection period, the following activities were observed:

- WR 02/28651 on the troubleshooting of the reactor water low level alarm module (06-AU-125).
- WR 71/22836 on the replacement of the "B" Low Pressure Coolant Injection System Battery.
- WR 46/34344 on the troubleshooting of the "B" Emergency Service Water Pump breaker.
- WR 14/34348 on the troubleshooting of the "A" Core Spray out-board injection valve (14-MOV-11A) breaker.

The licensee replaced the "B" Low Pressure Coolant Injection (LPCI) System Battery because, during a field inspection by Exide Corporation, it was noted that several cells had cracked terminal seals and copper contamination of the negative plates. The cracked seals are attributed to acid corrosion of the lead posts. This corrosion can cause additional stress on the plastic components of the cell cover and may expose the copper insert inside the battery post. Chemical interaction between the electrolyte and the copper insert causes the copper to go into solution and results in copper contamination of the negative battery plates. This contamination indicates that the current carrying capacity of the battery post is degrading. Similar problems had been identified with batteries at Vermont Yankee Nuclear Power Station for which the Vermont Yankee Nuclear Power Corporation reported the defect in accordance with 10 CFR Part 21 on June 29, 1984.

Since cracked terminal seals and copper contamination of the negative plates were also found on the "A" LPCI Battery, the licensee ordered two 186 cell (type EC19) batteries and planned on replacing both LPCI batteries between the October 1984 maintenance outage and the February 1985 refueling outage. The new cells have a modified post seal to prevent the problems discussed above. Until the batteries could be replaced, the licensee performed surveillance test F-ST-2F, "LPCI and LPCI MOV Power Supply Simulated Automatic Actuation Test and LPCI Battery Service Test," on August 7, 1984 and October 24, 1984, during maintenance outages, to verify operability and current carrying capacity of the LPCI batteries.

On December 7, 1984, during the installation of the new "B" LPCI Battery, a terminal plate of an inter-rack jumper slipped from a worker's hand and struck an intercell connector in the adjacent row. This resulted in a short circuit across eighty six battery cells. The primary cause of this incident was a lack of adequate safety precautions. The licensee removed the 86 cells which were involved in the short circuit as well as eleven other cells which exhibited some evidence of damage from the incident and replaced them with new cells purchased for the "A" LPCI Battery. The vendor will determine if any

of these cells can be reused. The licensee plans on reordering additional cells in order to replace the "A" LPCI Battery. To prevent recurrence of this event, the licensee revised the battery replacement procedure to require pre-work safety briefings and to specify the sequence of battery assembly and disassembly to minimize the potential for such a short circuit.

8. Followup on a Plant Trip

At 5:46 p.m. on November 4, 1984, the reactor scrambled from approximately 30% power on low reactor vessel water level. The cause of the low reactor water level was a loss of feedwater flow. A plant startup was in progress with only two condensate pumps, two condensate booster pumps, and one feed pump in service at the time of the event. Following the scram, the High Pressure Coolant Injection System automatically initiated and restored reactor water level when level dropped to the double low level setpoint. The Reactor Core Isolation Cooling (RCIC) System failed to start and it was later determined that the cause was a shorted armature in the motor on the RCIC turbine steam inlet valve. All other systems functioned properly during the event and there was no radioactive release associated with this trip.

As the result of a thorough investigation into the loss of feedwater flow, the licensee determined that it was probably caused by a malfunctioning condensate bypass flow control valve. This is an automatic flow control valve in the condensate discharge header which provides the driving head for cooling water flow to the air ejector condenser and the steam packing exhauster. The licensee believes that, following an adjustment on the controller for the condensate bypass valve, the controller malfunctioned and closed the valve which resulted in a large pressure drop across the bypass path and tripped the operating feed pump on low suction pressure. The licensee replaced the defective controller for the condensate bypass flow control valve and repaired the RCIC turbine steam inlet valve prior to commencing a reactor startup at 4:30 p.m. on November 5, 1984. During the startup the licensee performed additional testing on various feed and condensate components and monitored, using chart recorders, various parameters in the condensate and feedwater systems to verify proper operation of these systems. No abnormalities were noted with the performance of the feed and condensate systems during this testing.

The inspector interviewed operators involved with the reactor trip and reviewed the process computer alarm printout, the post trip log, various chart recorders, and the completed data sheets for procedure No. ODSO 23, "Post Trip Evaluation," and determined that, with the exception of the Reactor Core Isolation Cooling System, the plant responded as designed and that the licensee's review of the trip was adequate.

9. Engineered Safety Feature (ESF) System Walkdown

The inspector verified the operability of the following ESF system by performing a complete walkdown of accessible portions of the system to confirm that system lineup procedures match plant drawings and the as-built configuration, to identify equipment conditions that might degrade performance, to determine that instrumentation is calibrated and functioning, and to verify that valves are properly positioned and locked as appropriate.

-- High Pressure Coolant Injection System

No violations were identified.

10. Preparation for Refueling

The inspector reviewed procedures RAP 7.1.1, "Receiving and Handling of Unirradiated Fuel," Revision 4, dated October 24, 1984 and RAP 7.1.2, "Inspecting and Channeling of Unirradiated Fuel," Revision 6, dated December 5, 1984 to verify that the licensee had technically adequate and approved procedures covering the receipt, inspection and storage of new fuel. In addition, the inspector observed the inspection and storage of six new fuel bundles to verify that it was performed in accordance with these procedures. No deficiencies with the new fuel were found during the fuel inspection by the licensee.

No violations were identified.

11. Cold Weather Preparations

The inspector reviewed maintenance procedure No. 71.5, "Outdoor Heat Tracing," Revision 0, dated October 4, 1984, and verified that the licensee established a procedure for performing the annual checkout of heat tracing circuits, committed to in response to IE Bulletin 79-24, to prevent freeze up of process, instrument, and sampling lines during extremely cold weather. The inspector determined the procedure was adequate, noting that it required: a visual inspection of the heat trace installation and pipe insulation; verification of thermostat setpoints; and verification that the heat trace circuits are energized and operating properly. In addition, the inspector observed portions of the inspection and testing of heat trace circuits, performed on November 7, 1984, under preventive maintenance work request No. 223, and verified that it was performed in accordance with the procedure.

No violations were identified.

12. 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 period report was reviewed:

- October 1984 Operating Status Report, dated November 8, 1984.
- November 1984 Operating Status Report, dated December 7, 1984.

13. Exit Interview

At periodic intervals during the course of this inspection, meetings were held with senior facility management to discuss inspection scope and findings. On January 4, 1985, the inspector met with licensee representatives (denoted in paragraph 1) 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 licensee representatives during the exit meeting, it was determined that this report does not contain information subject to 10 CFR 2.790 restrictions.