

U.S. NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT

Region I

Report No. 50-333/81-01

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: James A. FitzPatrick Nuclear Power Plant

Inspection at: Scriba, New York

Inspection conducted: January 26-30, 1981

Inspectors: L. H. Bettenhausen 3/4/81  
L. H. Bettenhausen, Ph.D., Reactor Inspector date signed

D. L. Caphton \_\_\_\_\_  
D. L. Caphton, Chief Nuclear Support Section #1 date signed

Approved by: D. L. Caphton \_\_\_\_\_  
D. L. Caphton, Chief, Nuclear Support Section #1, RO&NS Branch 3/30/81  
date signed

Inspection Summary:

Inspection on January 26-30, 1981 (Report No. 50-333/81-01)

Areas Inspected: Routine, unannounced inspection by region-based inspector and supervisor of licensee action on previous inspection findings; post refueling startup testing, review of startup test report, review of inadvertent rod insertion, licensed operator requalification training and general employee training. The inspection involved 28 hours by the inspector and 14 hours by a supervisor on-site.

Results: Of the six areas inspected, no items of noncompliance were found in four areas. Two items of noncompliance were found in one area (Failure to complete all requalification training and failure to audit requalification training, paragraph 5.b.(2)) and one item of noncompliance in another area (Failure to document considerations for a change in rod withdrawal sequence, paragraph 7.).

## DETAILS

### 1. Persons Contacted

- R. Baker, Superintendent of Power
- \*V. Childs, Assistant to Resident Manager
- \*R. Converse, Operations Superintendent
- \*M. Cosgrove, Site QA Engineer
- \*B. Deist, PASNY Manager, Nuclear Operations
- M. Curling, Training Specialist
- \*W. Fernandez, Technical Services Superintendent
- \*D. Holliday, Modifications Engineer
- \*C. Orogvany, Reactor Analyst Supervisor
- \*R. Pasternak, Resident Manager
- F. Short, NUMANCO Training Specialist
- \*D. Tall, Training Coordinator
- \*D. Thomison, PASNY Training Manager

### USNRC

- \*J. Doerflein, Resident Inspector
- \*J. Linville, Senior Resident Inspector
- \*G. Napuda, Reactor Inspector

The inspector also interviewed control operators, shift supervisors, engineers, craftsmen, technicians and administrative personnel in the course of this inspection.

\*denotes presence at exit interview conducted January 30, 1981.

### 2. Licensee Actions on Previous Inspection Items

(Closed) Unresolved Item (50-333/77-04-04). Indoctrination and Training Procedure 12, Training for Emergency Directors, Emergency Teams and Offsite Agencies, Revision 0, approved November 13, 1978 specifies retraining frequency in Table 1.

(Closed) Unresolved Item (50-333/79-16-01). Indoctrination and Training Procedure 5, Revision 4, approved September 20, 1980 references documentation forms in current use.

(Closed) Noncompliance (50-333/79-16-02). Review of Special Procedures by all operators. This inspection found a recurrent noncompliance in the review of Special Procedures (see paragraph 5.b.(2)). The previous noncompliance is administratively closed and corrective action will be followed with the present noncompliance (50-333/81-01-01).

(Closed) Unresolved Item (50-333/79-16-03). This item identified deficiencies in individual performance in the licensed operator requalification program. The specific deficiencies appear to have been corrected, but similar deficiencies were identified in this inspection (paragraph 5.b.(2)). This item is administratively closed.

(Closed) Unresolved Item (50-333/79-16-04). Revisions to General Employee Training Procedure, ITP 3 and completion of 1979 annual training requirements. Revision 2 to ITP 3 deletes the out-of-date New Employee Training Checklist. A spot-check of employee training records showed that 1979 retraining was scheduled and conducted prior to January 1, 1980. The inspector also reviewed Nonconformance Audit #240, Surveillance Report 641, the licensee's Quality Assurance surveillance follow up audit findings similar to the inspector's findings. The surveillance report closed out the deficiencies, but did not review the related training records since they were in the process of being moved.

### 3. Post Refueling Startup Testing

a. The post refueling startup testing program is controlled by Procedure 7.1.17, Refuel Startup Program, Revision 3, dated August 1, 1980. The inspector reviewed this procedure and the completed data for the test period. This program provides an outline for the conduct of the following tests and references the appropriate procedures:

- Control Rod Drive (CRD) Friction Testing
- Shutdown Margin Determination
- Control Rod Sequence
- LPRM and APRM Calibration
- CRD Coupling Integrity
- Core Thermal Power
- Core Performance
- CRD Scram Times
- Process Computer

b. The inspector reviewed the following tests and checks to verify that the testing was conducted in accordance with technically adequate procedures.

#### (1) Shutdown Margin Demonstration

Reactivity shutdown margin is demonstrated by following Reactor Analyst Procedure 7.3.9, Revision 3, dated August 13, 1980, to demonstrate compliance with Technical Specification 4.3.A.1. The check was done using the fully withdrawn strongest rod 26-27 (analytically determined and identified in GE 22A6878, the Cycle Management Report) and rod 22-31 withdrawn to notch 10, a position analytically determined to be worth 0.80% delta-k. The reactor

remained subcritical when this test was performed on August 9, 1980 at the beginning of Cycle 4.

(2) Control Rod Scram Times

The inspector reviewed data and calculations recorded in Reactor Analyst Procedure 7.3.10, Control Rod Scram Time Evaluation, Revision 3, dated August 13, 1980. Scram time testing was performed August 16 and 17, 1980 with reactor pressure greater than 950 psi. All tests met Technical Specifications.

(3) Nuclear Instrument Overlap

Data was recorded on August 13, 1980, to show greater than one decade overlap of the Startup Range Monitors and the Intermediate Range Monitors and also the overlap between the Intermediate Range Monitors and the Average Power Range Monitors.

(4) Core Power Distribution and Symmetry Checks

Symmetry is checked through performance of Reactor Analyst Procedure 7.5, Revision 1, dated November 27, 1978. This procedure calls for comparisons of computed bundle powers for each quadrant of the core to insure that bundle powers are within a 10% acceptance criterion on symmetric bundles. The inspector reviewed the data and randomly checked process computer outputs for nominal 25%, 50%, 75% and 100% Rated Thermal Power. The computer calculations were also randomly checked for compliance with core power distribution limits.

(5) Core Thermal Power Evaluation

The licensee performs a core thermal power evaluation in accordance with Procedure 7.3.3, Core Thermal Power Evaluation. This procedure provides for the calculation of core thermal power by using the process computer or by a manual calculation method using a long form or short form heat balance. The inspector reviewed the licensee's completed core thermal power evaluations for August 15, 1980, and the manual calculations.

(6) Average Power Range Monitor (APRM) Calibration

The licensee calibrates the APRMs in accordance with procedure 7.3.1, APRM Calibration, Revision A dated September 12, 1980. The inspector reviewed procedure 7.3.1 and the completed data for the period of the startup. This calibration is performed in conjunction with the core thermal heat balance evaluation.

No items of noncompliance were identified.

#### 4. Review of Cycle 4 Startup Test Report

The Startup Test Report was transmitted to the NRC Regional Director on November 7, 1980. The inspector reviewed the report, the Reload 3 Nuclear Design and Cycle Management Report, 22A6878, dated December 18, 1979, and a letter transmittal, GE NEX:80-15, dated July 22, 1980, "Fitzpatrick Beginning of Cycle 4 Data". The test results reported are consistent with design predictions and Technical Specification requirements.

The inspector had no further questions.

#### 5. Licensed Operator Requalification Training

##### a. Program Review

Reference: Indoctrination and Training Procedure 5, Licensed Operator Requalification, Revision 4, dated August 7, 1980.

The inspector reviewed the licensee's program with regard to the requirements of 10 CFR 55, Appendix A and the Accepted Operator Requalification Program. The accepted program was submitted as Exhibit B of amendment 22 to the Facility License. The referenced procedure implements this program and the revised criteria of the March 28, 1980 letter to all power reactor licensees from H. Denton.

The inspector determined from a review of this procedure that the program as currently established provides for the following:

- an established, planned, continuing lecture schedule which includes instruction in heat transfer and fluid flow;
- documentation of personnel attendance;
- required reactivity control manipulations through simulator training;
- discussions/reviews of changes in facility design, procedures, and facility license; and
- review of abnormal/emergency procedures.

##### b. Record Review

###### (1) Records

The inspector selected and reviewed the records of nine licensed operators to verify that each contained the following documentation:

- completed written yearly examinations;
- completed oral examinations;
- completed reading assignments and simulator and in-plant operating experience;
- completed additional training in areas where deficiencies were exhibited.

(2) Findings

- One annual written examination administered early in 1980 to a licensed operator-inspector remained ungraded (i.e., unevaluated) as of January 27, 1981. Subsequent to the requalification examination, the individual took and passed the NRC Senior Reactor Operator's license examination. The failure to grade this requalification examination as required by regulation and training procedure is considered an example of an item of noncompliance (50-333/81-01-01).
- In 1979, there were no records, recollections or other information showing that the required annual oral evaluations were administered to three licensed operators. This is a second example of an item of noncompliance (50-333/81-01-01).

The 1980 oral evaluations were not administered to thirteen licensed operators and senior operators at the time of this inspection. The evaluation summary sheets were incomplete for several of the oral examinations that were administered. This situation was recognized in a training review of the FitzPatrick Plant conducted by PASNY New York Office Staff December 1-5, 1980. The situation was presented to licensee management at the exit interview on January 30, 1981. Licensee management representatives committed to complete the oral evaluations by April 15, 1981. This is an item for inspector follow-up (50-333/81-01-01).

- Review of abnormal and emergency or Special Procedures is conducted by a variety of methods: actual implementation when required, simulated discussions during oral evaluations, practice at a simulator facility, classroom lecture and discussion and required reading assignments. The Training Coordinator uses the required reading assignment sheets to document annual review of Special Procedures.

In 1979, seven licensed operators and senior operators failed to complete the required reading of Special Procedures. This is a third example of an item of noncompliance (50-333/81-01-01).

For 1980, approximately half of the required reading assignment sheets had not been returned to the Training Coordinator at the time of this inspection. This situation was discussed with licensee management at the exit interview. A commitment to complete the 1980 required reading by April 15, 1981 was made by licensee management representatives. This is an item for inspector follow-up (50-333/81-01-01).

In addition, response to a previous item of noncompliance (see paragraph 2 above) stated "...a program for documentation and audit of the review of these procedures will be implemented to insure compliance" (referring to Special Procedure). The PASNY Training Review mentioned above recommended, on December 1-5, 1980, "Records should be maintained up to date at all times. Even if the official records have not yet been received, a matrix of personnel versus requirements should be maintained and always kept up to date." During this inspection, no management control system, audit or matrix of personnel versus requirements was observed which would have readily shown the noncompliances and other areas of weakness in the Licensed Operator Requalification Program.

This is an item of noncompliance (50-333/81-01-03).

The inspector reviewed the 1980 requalification training schedule and selected lesson plans. It was noted that nine six-week cycles were set down as follows:

- 80-1        Review and Annual Examination
- 80-2        Refueling/Raexaminations/Fire Protection
- 80-3        Control Room Management; Decision Making
- 80-4        Suspended for Outage
- 80-5        Suspended for Outage
- 80-6        Suspended for Outage
- 80-7  
and  
80-8        Thermodynamics, Heat Transfer, Fluid Flow and  
             Simulator Training
- 80-9        Communication and Human Relations

Lesson plans and post-training evaluations, including quizzes, were reviewed for cycles 80-3, 80-7, 80-8 and 80-9. The inspector also reviewed re-examinations for two licensed operators in sections where grades on the annual examination required retraining.

The inspector reviewed the proposed schedule for 1981 and the development of the specific lecture topics which was underway at the time of this inspection. Administration of the annual examination was also in progress.

c. Personnel Interview

The inspector interviewed two licensed operators, two licensed senior operators who were shift supervisors and a licensed staff member. The interviews verified the accuracy of the records reviewed.

The inspector had no further questions.

6. General Employee Training

a. Program Definition

The inspector reviewed the licensee's Indoctrination and Training Procedure 3, Revision 2, prepared November 19, 1980, with respect to the program definition requirements of: 10 CFR 50, Appendix B, Criterion II; 10 CFR 19.12; 10 CFR 73.50; and for: new and existing employees; temporary employees; technicians; and, craft personnel. This establishes training which covers: administrative controls and procedures; radiological health and safety; controlled access and security; industrial safety; emergency plans and procedures and quality assurance indoctrination. Formal training is also provided for female employees on the contents of Appendix A to Regulatory Guide 8.13.

b. Program Participation

The inspector randomly reviewed the licensee's records to assure that the required training had been given. In addition, the inspector conducted interviews with certain of those individuals whose records were reviewed. The interviews verified that: the scope of the training was similar to that contained in the licensee's records; the training as conducted was meaningful to those attending; and that the areas presented were covered accurately and sufficiently from the participants' point of view. Records were reviewed for and selective interviews conducted with employees as listed below:



- two relatively new employees;
- three employees with more than one year of service;
- two temporary employees; and
- two females.

The inspector attended training for individuals with unescorted access to the plant Protected Area.

c. Findings

The PASNY New York Office Training Review conducted December 1-5, 1980 identified deficiencies in fire brigade training ranging from scheduling of fire training school for new employees to failure to run quarterly fire drills for all shifts. The corrective action to this audit will be subject to NRC inspection.

Emergency plan training for individuals in the emergency organization was conducted in the period November 22-December 22, 1980 under the terms of Immediate Action Letter 80-48, paragraph 2.c. While specific training sessions for some individuals had not been accomplished because of scheduling and the holiday period, the inspector briefly reviewed progress with the Training Coordinator and concluded that the training was approximately 85% complete. Completion of emergency organization training for all individuals assigned to the emergency organization will be a subject for future NRC inspection.

The annual update training for station staff in the Emergency Plan and Procedures for 1980 was deferred for the emergency organization training and procedure development mentioned above. Licensee representatives stated that this training would be given to the station staff in 1981 upon completion of the procedure development phase.

No items of noncompliance were identified.

7. Inadvertent Rod Insertion on January 26-27, 1981

The inspector reviewed a situation involving an inadvertent rod insertion during a plant startup on January 26-27, 1981. The review encompassed a review of the operators' log entries and discussions with the Assistant to the Resident Manager, the Operations Supervisor and the Reactor Analyst Supervisor. At 2215 on January 26, 1981, control rod 10-23 was inadvertently inserted from position 10 while performing a rod drive vent.

The reactor was in startup mode at approximately 10% rated thermal power with the Rod Sequence Control System (RSCS) and the Rod Worth Minimizer

(RWM) enforcing a prescribed rod withdrawal sequence. The operator immediately notified the Operations Supervisor and the Reactor Analyst Supervisor (RAS); the RAS arrived in the control room approximately 15 minutes later and reviewed the situation with the shift supervisor and control room operators. The relieving shift supervisor joined the discussions and at 2330, a course of action was agreed upon by the RAS and Shift Supervisor and noted in the operator's log. Rod 10-23 would be left inserted to position 00 and electrically disarmed, the remaining rods in its RSCS group #16 would be left at position 10, manual enforcement of the rod withdrawal sequence, as modified, would be verified by a second licensed operator, the RAS, and the startup continued with the sequence modified to advance to RSCS Group #17 and subsequent groups until 20% power was attained and RSCS Group 16 could be positioned in accordance with the original sequence after Rod 10-23 was rearmed. This was done and the normal power ascension resumed approximately 0430, January 27, 1981.

The inspector reviewed the situation with the RAS in the course of this inspection. Considerations such as relative positions of face and diagonally adjacent rods and their reactivity effects, bounding value calculations for rod drop accidents from the final safety analysis report, effects of the lack of radial symmetry on reactivity and the low power flux distribution were discussed. The RAS had considered these factors in the decision to modify the control rod withdrawal sequence. In addition, following the situation, the reactor vendor was contacted and data was being supplied to result in vendor analysis of the action taken. However, Technical Specification 3.3.B.3.d requires that the control rod withdrawal sequence shall be established such that the drop of any in sequence control rod would not result in a peak fuel enthalpy greater than 280 calories per gram. At no time during or following the January 26-27 situation through the completion of this inspection on January 30, 1981 did the RAS document these considerations and conclusions showing that the control rod withdrawal sequence as revised on January 26-27, 1981 met the Technical Specification. This is an item of noncompliance (50-333/81-01-02).

#### 8. Exit Interview

A meeting was held with licensee management representatives (identified in paragraph 1) on January 30, 1981. The purpose, scope and findings of this inspection were presented and discussed.