U. S. NUCLEAR REGULATORY COMMISSION
Region I

Report No. 50-333/83-14

Docket No. 50-333

License No. DPR-59 Priority _____ Category C

Licensee: Power Authority of the State of New York

123 Main Street

White Plains, New York

Facility Name: James A. FitzPatrick Nuclear Power Plant

Inspection At: Lycoming, New York

Inspection Conducted: June 6-10, 1983

Inspectors: _____ 1/8/83
J. R. White, Senior Radiation Specialist date signed

_____ 1/8/83
M. H. McBride, Radiation Specialist date signed

_____
H. Bicehouse, Radiation Specialist date signed

Approved By: _____ 1/8/83
M. M. Shanbaky, Chief, Facilities Radiation Protection Section date signed

Inspection Summary: Inspection on June 6-10, 1983 (Report No. 50-333/83-14)

Areas Inspected: Special announced inspection of the licensee's implementation of programs relating to radiation protection and radioactive waste management including: organization, training, exposure control, ALARA program effectiveness, in-plant surveillance, radioactive waste management and control, and quality assurance. The inspection involved 120 hours onsite by three regionally based inspectors.

Results: Of the areas inspected, one violation was identified (failure to perform surveys of radioactive concentrations in air as was reasonable under the circumstances, Paragraph 8.1).

DETAILS

1.0 Persons Contacted

During the course of this inspection, the following personnel were contacted or interviewed:

*Mr. J. P. Bayne, Executive Vice-President - Nuclear Generation
*Mr. C. McNiell, Jr., Resident Manager
*Mr. R. Converse, Superintendent of Power
*Mr. M. Curling, Training Superintendent
*Mr. E. Mulcahey, Radiological and Environmental Services Superintendent
*Mr. R. Liseno, Operations Superintendent
Mr. R. Keith, Instrument and Control Manager
*Mr. J. Carroll, Supervisor of Quality Assurance and Quality Control
*Mr. A. McKeen, Assistant Radiological and Environmental Superintendent
*Mr. C. Gannon, Health Physics General Supervisor
Mr. K. Szelaga, Radiation Protection Supervisor
*Mr. D. Dooley, Radiological Engineer
Mr. M. McMahon, Dosimetry Supervisor
Mr. T. Bergene, ALARA Supervisor
*Mr. B. Gorman, Chemistry General Supervisor
Mr. W. Hamblin, Chemistry Supervisor
Mr. D. Zimmerman, Senior Technician
Mr. S. Dull, Senior Technician
Ms. K. Sova, Dosimetry Clerk
Mr. J. McCarty, Respiratory Protection Supervisor

*Attended the exit interview on June 10, 1983

Other licensee or contractor personnel were also contacted or interviewed during this inspection.

2.0 Purpose

The purpose of this inspection was to review the licensee's radiation protection and radioactive waste management program with respect to the following elements:

- Status of Previously Identified Items
- Radiation Protection Organization
- Training
- External Exposure Control
- Internal Exposure Control
- Surveillance
- Radioactive Waste Control
- ALARA Program

3.0 Status of Previously Identified Items

(Closed) Unresolved Item (83-08-01) Review licensee evaluation of 70-rem badge exposure incident. The licensee has established that the badge in question, a thermoluminescent dosimeter (TLD), was lost in the vicinity of the residual heat removal - fuel pool cross connect line on the 272 foot level of the Reactor Building during the period February 1-10, 1983. The radiation level was measured at 197 mR/hr on the floor, near the shielded line. Assuming the TLD was lost near the shielded line, on the date of badge issue, February 1, the badge would have received approximately 50 rem of radiation dose by the time it was found on February 10. Considering the uncertainty in the badge irradiation geometry and in the radiation field strength associated with the shielded line, this TLD dose estimate is consistent with the actual TLD exposure of 70 rems. In addition, the licensee conducted a time-motion study, using data from the security key-card system, and estimated that the guard to whom the TLD was issued actually received 30 mrem of exposure during the 4.25 hours he spent in the plant during the badge loss period. The TLD in question was subsequently exposed to a known radiation field and responded normally. This item is considered closed.

(Closed) Inspector Followup Item (83-08-02) Review implementation of the Personnel Dosimetry Program commitments. The licensee commitments concerning administrative control of TLD issue and use and followup on anomalous TLD exposure measurements and lost badges, contained in licensee letters dated April 20, 1983 and June 1, 1983, were reviewed and found largely complete. The licensee stated that a tracking system for lost badge reports and a specific time frame for completing lost badge reports will be incorporated into the procedure, "Plant Dosimetry Procedures", by July 15, 1983. When this procedure change is complete, the licensee commitments on the Personnel Dosimetry Program will be fulfilled.

(Closed) Violation (83-08-03) Failure to maintain adequate respiratory protection procedures concerning hood use. The licensee has modified Procedure RPOP-6, "Respiratory Protection Procedure", to include a specified range of air manifold pressure settings, guidance on selection of air hoses used to connect hoods to air supplies, and use of protection factors which are consistent with the requirements of 10 CFR 20, Appendix A. This procedure was reviewed and found acceptable.

(Open) Inspector Followup Item (80-20-11 and 80-20-31) Establish a quantitative respiratory equipment fit testing, and training program and procedures (Significant Health Physics Appraisal Finding D.2). At the time of the inspection, the licensee had acquired the required testing equipment and was preparing to conduct quantitative personnel fit tests. The licensee stated that quantitative testing equipment for repaired respirators and reused filter cartridges has been ordered, but not yet received. This item will remain open, pending full implementation of the fit test program.

(Closed) Inspector Followup Item (80-20-26) Review all radioactive waste storage areas, including temporary storage areas which have not been previously reviewed to ensure a documented 10 CFR 50.59 evaluation is on File (Significant Health Physics Appraisal Finding F.3). The licensee identified three low-level radioactive waste storage areas which required 10 CFR 50.59 evaluations. The evaluations were completed and reviewed by the Plant Operating Review Committee on May 4 and 11, 1983.

4.0 Radiation Protection Organization

The licensee's radiation protection organization was reviewed against criteria contained in:

Regulatory Guide 1.8, "Personnel Selection and Training"

NUREG-0800, "Standard Review Plan" - Chapter 13.1.1, "Management and Technical Support Organization"

Technical Specification 6.2, "Plant Staff Organization"

Technical Specification 6.3, "Plant Staff Qualifications"

The licensee's performance relative to these criteria was determined from interviews with the Radiological and Environmental Superintendent, the Health Physics General Supervisor, the Radiation Protection Supervisor, and by review of Radiological and Environment Services (RES) Department Standing Order No. 3, "Organization of the RES Department".

Currently, the normal operating organization is not completely staffed relative to authorized personnel resources. While all supervisory positions are filled, some technician positions still remain vacant as follows:

Authorized Resources	Current Resources
17 "C" Technicians	12 "C" Technicians
6 Senior Technicians	4 Senior Technicians

The Radiological and Environmental Services Superintendent indicated that efforts are being made to complete the organization by December 1983. Currently, contractor personnel are filling these vacancies and no reduction in effectiveness was noted.

In order to support the current outage, 45 contractor technicians were acquired to augment the normal operating staff. Four temporary New York Power Authority personnel were acquired to provide clerical support for the external dosimetry program.

Qualification and training of contractor personnel was verified to be in accord with RES Department Standing Order No. 4 which specifies performance factors relative to previous work and academic experience, site procedure, and practical demonstration of abilities. In this program, the contractors were subject to 12 hours of procedural review, 4 hours of practical factors demonstration, an oral interview by management representatives, and a 2-hour written examination used to evaluate knowledge and performance effectiveness.

Within the scope of this review, no violations were identified.

5.0 Personnel Selection, Qualification, and Training

Personnel selection, qualification, and training were reviewed against the criteria contained in:

-- 10 CFR 19.12, "Instructions to Workers"

-- 10 CFR 20.103, "Exposure of Individuals to Concentrations of Radioactive Materials in Air in Restricted Areas"

-- Technical Specification 6.3, "Plant Staff Qualifications"

-- ANSI 18.1-1971, "Selection and Training of Nuclear Power Plant Personnel"

-- Regulatory Guide 8.13, "Instruction Concerning Prenatal Radiation Exposure"

-- Regulatory Guide 8.27, "Radiation Protection Training for Personnel at Light Water Cooled Nuclear Power Plants"

-- Procedure No. ITP-3, "General Employee Training"

-- Procedure No. ITP-7, "Training for Radiological and Environmental Services (RES) Technicians"

-- Procedure No. ITP-14, "Respiratory Protection Training"

The licensee's performance relative to these criteria was determined from discussions with the Training Superintendent, RES Supervisors, RES technicians, review of RES technician training records and review of radiation worker training records.

Within the scope of this review, the following item was identified:

At the time of the inspection, the licensee was allowing some individuals to work in radiologically controlled areas of the plant, as "visitors" prior to completing the formal radiation worker training course. These

visitors were supposed to be escorted at all times in the radiologically controlled area by an individual who has completed the radiation worker training course. However, this policy was not formalized and the licensee had no apparent method of controlling visitor training and work, other than security-related entrance procedures. At the exit interview, the licensee stated that a formal visitor policy would be implemented by July 15, 1983. (83-14-01)

6.0 External Exposure Control

The External Exposure Control Program was reviewed against the criteria contained in:

-- 10 CFR 20.101, "Radiation Dose Standards for Individuals in Restricted Areas"

-- 10 CFR 20.202, "Personnel Monitoring"

-- 10 CFR 20.401, "Record and Surveys, Radiation Monitoring, and Disposal"

-- Procedure entitled, "Radiation Protection Procedures"

-- Procedure entitled, "Plant Dosimetry Procedures"

The licensee's performance relative to these criteria was determined from discussions with RES Department Supervisors and from a review of Unusual Radiological Incident Reports, radiation survey records, personnel dosimetry files, lost and anomolous dosimeter reports, comparisons of thermoluminescent dosimeters (TLD) and self-reading dosimeter results, and licensee audits of worker dosimeter use and storage practices.

Within the scope of this review, no violations were identified.

7.0 Internal Exposure Control

The licensee Internal Dosimetry Program was reviewed against the following criteria:

-- 10 CFR 20.103, "Exposure of Individuals to Concentrations of Radioactive Materials in Air in Restricted Areas"

-- RPOP-10, "Internal Dosimetry"

-- CRI-6, "Whole Body Counter - Operation and Calibration"

-- Radiological and Environmental Services Department Standing Order No. 5, "MPC Hour Data Collection"

-- RPOP-6,"Respiratory Protection Procedure"

The licensee's performance relative to these criteria was determined by interviewing RES Department Supervisors, reviewing 1983 air sampling logs, MPC-hour logs, personnel dosimetry files, Unusual Radiological Incident Reports, and 1983 whole body count check and calibration data.

Within the scope of this review, no violations were identified.

8.0 In-Plant Radiation Protection Surveillance and Event Reporting

8.1 The in-plant radiation protection surveillance program was reviewed against criteria contained in:

10 CFR 20.103, "Exposure of Individuals to Concentrations of Radioactive Materials in Air in Restricted Areas"

10 CFR 20.201, "Surveys"

10 CFR 20.203, "Caution Signs, Labels, Signals, and Controls"

10 CFR 20.206, "Instruction of Personnel"

10 CFR 20.401, "Records of Surveys, Radiation Monitoring, and Disposal"

Technical Specification 6.11(a), "High Radiation Area"

RPOP-1, "Refueling Floor Shutdown Surveys"

RPOP-2, "Personnel Decontamination"

RPOP-5, "Plant Radiation/Contamination Surveillance Program"

RPOP-9, "Radiological Survey Techniques"

RPOP-11, "Posting and Control of Areas Containing Radiological Hazards"

The licensee's performance relative to these criteria was determined by examining selected records (e.g., Radiation Work Permits, Air Sample Results, Radiation/Contamination Surveys, Unusual Radiological Incident Reports and Personnel Monitoring Records), interviews of Radiation Protection Supervisors and RES Technicians, and direct observation of plant conditions (e.g., HRA status) and work in progress.

Generally, the licensee's performance was in accord with the specifications and requirements of the identified criteria. However, within the scope of this review, the following violation was identified:

10 CFR 20.201 states, "Each licensee shall make or cause to be made such surveys as (1) may be necessary for the licensee to comply with the regulations in this part, and (2) are reasonable under the circumstances to evaluate the extent of radiation hazards that may be present. 10 CFR 20.103 requires licensees to use suitable measurements of concentrations of radioactive materials in air for detecting and evaluating airborne radioactivity in restricted areas.

Contrary to these requirements the following was determined:

1. Airborne radioactivity surveys were not made to support work performed in accordance with RWP 1163, "Repair Damaged Insulation... (Rx 227' E Crescent HPCI Room)" on May 4, 1983. The failure to survey may have contributed to two individuals being subject to such airborne radioactive concentrations as to cause an uptake of radioactive material in excess of the values specified in 10 CFR 20 Appendix B, Table 1, Column 1.

2. Airborne radioactivity surveys were not made to support work performed in accordance with any of the following RWPs:

RWP No./Data	Title
1281/May 13, 1983	Repair Flange Leak (Radwaste 252 Laundry Drain Tank Room)
1283/May 13, 1983	Change Control Rod Drive (CRD) Suction and Discharge Filters (Rx 272 CRD Cage ...)
1806S/June 8, 1983	Lapping 31-MSK17 Valve Set (Turbine Building 292')
1815/June 8, 1983	Flapping on Inner Bonnet and Wedge of Valve Stem (Radwaste 292')

3. Airborne radioactivity surveys were not suitable measurements relative to the extent of work performed in accordance with the following RWPs:

RWP No./Date	Title	Deficiency
1169-S/May 5, 1983	Replace RWCU Pump 'B'	Work was performed between 1205 and 1910, but only 1 air sample was collected (i.e., between 1210 and 1215).

RWP No./Date	Title	Deficiency
1187/May 6, 1983	Replace Seal on Clean Up Pump	Work was performed between 0900 and 1330, but only 1 air sample was collected (i.e., between 0925 and 0930).
1209-S/May 9, 1983	Replace 'A' RWCU Pump	Work was performed between 0815 and 1505, but only 1 air sample was collected (i.e., between 0856 and 0901).
1248-S/May 11, 1983	Replace leak on Flange (Radwaste 252')	Work was performed between 1145 and 1200 but air sample was collected between 1205 and 1210).
1719-S/June 7, 1983	Remove Insulation (Drywell 300')	Work was performed between 1005 and 1615 but only 1 air sample was collected (i.e., between 1040 and 1045).

In these cases, the potential for the generation of airborne radioactivity existed due to the nature of the work and the presence of loose surface contamination. While none of these cases resulted in personnel exposure in excess of any regulatory requirements, it was fortuitous and not by design.

In response to this finding, the licensee initiated the following actions:

- Nine additional low-volume air samplers are on order. Such equipment will allow continuous coverage of various tasks.
- "Hold points" will be incorporated in work procedures to assure RES technicians perform air samples during work activities.
- RES Technicians will be directed to seek complete information from persons requesting RWPs to determine the need and extent of air sampling.
- Increased management oversight of the air sampling program will be instituted by the Radiological Environmental Services Superintendent.

Failure to perform surveys as are reasonable under the circumstances to evaluate the extent of radiological hazards present constitutes a violation of 10 CFR 20.201. (83-14-02)

8.2 The licensee's Unusual Radiological Incident Reports (URIR) for the period February through May, 1983 were reviewed against the criteria contained in Procedure RPOP-7, "Radiological Incident Investigation". The reports appeared to adequately identify unusual plant radiological conditions, but the accompanying evaluations were sometimes limited. For example, URIR Report 83-035, dated May 11, 1983 identified a worker with a large amount of radioactive contamination (180,000 cpm) on one shoe. The URIR concludes that the person may have picked up the contamination on a contaminated step-off pad. However, the URIR also contains a subsequent survey of the pad, showing removable activity levels of only 2300 dpm/100cm^2. The licensee indicated that a second individual accompanying the contaminated worker in the plant was not contacted during the followup to the incident.

Also, at the time of the inspection, RES department personnel were unable to supply details on 12 recent URIR's that were being routed to plant department leads for review. While an RES URIR tracking system did contain general information on the severity and types of URIR's, RES personnel could not, for example, state how many of these events involved personnel contamination. This would make identification of recurrent problems and trending analysis, particulary during busy outages, difficult. At the exit interview, the licensee stated that the URIR program was relatively new and would be reviewed in light of these findings. (83-14-03)

9.0 Radwaste Control

Radioactive effluent monitoring and control systems were reviewed against the criteria contained in:

Technical Specification 3.2, "Protective Instrumentation", Section D - Radiation Monitoring Systems

Environmental Technical Specification 2.3, "Radioactive Discharge"

The licensee's performance relative to these criteria was determined from interviews with the Chemistry General Supervisor, the Chemistry Supervisor and review of the licensee's conformance relative to the following procedures:

PSP-4, "Wastewater Sampling and Analysis"

PSP-5, "Radioactive Airborne Sampling, Analysis, and Equipment Calibration"

PSP-9, "Miscellaneous Plant System Sampling and Analysis"

F-OP-49, "Liquid Radioactive Waste System"

PSP-13, "Liquid Process Radiation Monitor Operation and Calibration"

PSP-15, "Main Control Room Vent Monitor Operability Check"

PSP-14, "Main Steam Line SJAE Radiation Monitor Calibration"

F-ISP-19, "Off-Gas Radiation Monitor"

F-ISP-26, "Radwaste Building Exhaust Monitor Instrument Calibration"

F-ISP-25, "Turbine Building Exhaust Monitor Instrument Calibration"

F-ISP-18, "Reactor Building Exhaust Monitor Instrument Calibration"

F-ISP-17, "Refueling Area Exhaust Monitor Instrument Calibration"

Within this review, liquid batch releases and continuous gaseous releases between January 1 and June 6, 1983 were examined and found to conform to the requirements of Environmental Technical Specification 2.3.

Additionally, the following monitoring systems were examined relative to performance of calibration, functional tests, logic system tests, and verification of operable isolation or annunciation capability for the period between January 1, 1982 and June 6, 1983:

- Refuel Area Exhaust Monitor
- Main Control Room Ventilation Monitor
- Liquid Radioactive Waste Discharge Monitor
- Reactor Building Exhaust Monitor
- Turbine Building Exhaust Monitor
- Radwaste Building Monitor
- SJAE Off-Gas Monitor
- Mechanical Vacuum Pump Monitor

All tests and calibrations were found to be in conformance with Technical Specification 3.2.

During the performance of this review, it was found that the RHR Service Water Radiation Monitor (which is not addressed by the facilities Technical Specification) has been out-of-service since December, 1977. Since Service Water System is also monitored by the Normal Service Water Radiation Monitoring System, system integrity and surveillance appeared not to be compromised during this period. However, the licensee had not performed any safety evaluations or made any change to the Final Safety Analysis Report (FSAR) to represent the current status of the system.

In response, the Resident Manager committed to performing such safety evaluation and amending the FSAR as necessary to depict actual system status by July 1, 1983. (83-14-01)

10.0 ALARA Program

The licensee's effort in establishing and maintaining an ALARA Program was reviewed against criteria contained in:

Regulatory Guide 8.8, "Information Relevant to Ensuring that Occupational Radiation Exposures of Nuclear Power Stations will be as Low as is Reasonably Achievable".

Regulatory Guide 8.10, "Operating Philosophy for Maintaining Occupational Radiation Exposures as Low as is Reasonably Achievable".

The licensee's performance relative to these criteria was determined by interviews with the Radiological Engineer, the Health Physics General Supervisor and the ALARA Supervisor. Additionally, the following procedures were reviewed:

REP-1, "ALARA Review"
REP-2, "ALARA Reports"
REP-4, "Selection and Use of Temporary Shielding"

The licensee's, "1981-1982 Refueling Outage ALARA Report" and the 1983 Man-Rem Estimate (Memorandum RES 83-0022, dated January 27, 1983) were also examined.

The license appears to be making aggressive efforts to reduce personnel exposure, particularly in the area of establishing engineering controls to reduce airborne radioactivity in work areas. The result is eliminating the use of respiratory protective equipment for certain jobs and areas for which it would normally be required, i.e. drywell.

Additionally, efforts are being made to develop computer-based personnel dose tracking systems that have the capability to provide near real-time exposure information relative to Radiation Work Permits, systems and components, and plant areas. It is expected that such systems should be completed and operational by December 1983.

It was noted that an effective ALARA policy statement has not yet been established but is expected to be incorporated in the licensee's Radiation Protection Plan now under development.

Within the scope of this review, no violations were identified.

11.0 Audits

Licensee audits of the Radiation Protection program over the past two years were reviewed. Currently, the plant Quality Assurance Department (QA) conducts scheduled audits and surveillances of selected radiation protection activities. In addition, a corporate auditing group conducted an in-depth appraisal of a variety of radiation protection procedures, earlier this year.

However, the audits of the Radiation Protection Program appeared incomplete in the following areas:

-- The routine audit program excludes the Radiation Protection Operating Procedures (RPOP). These procedures control a wide range of radiation protection activities, including: respiratory protection, personnel decontamination, plant radiation/contamination surveillance, and posting and control of areas containing radiological hazards. While the corporate appraisal reviewed most of these procedures, the appraisal did not cover procedure implementation.

-- Procedures the licensee uses, but which the licensee considers "under development", are not audited. Examples of these procedures are RTP 40, "Maintenance of MSA Respirators" and RTP 41, "Maintenance of Scott Respirators". These two procedures were used over the past year to partially fulfill the procedural requirements of 10 CFR 20.103, but were not until recently considered finalized and incorporated into the licensee's official procedures.

At the exit meeting, the licensee stated that the audit program would be reviewed and a response submitted in reply to this report. (83-14-03)

12. Exit Interview

The inspectors met with the licensee's representatives denoted in Paragraph 1 at the conclusion of the inspection on June 10, 1983. The scope and findings as identified in this report were discussed.