U. S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-333/92-04

Docket No. 50-333

License No. DPR-59

Licensee: New York Power Authority
123 Main Street
White Plains, New York 10601

Facility Name: James A. FitzPatrick Nuclear Power Plant

Inspection At: Scriba, New York

Inspection Conducted: January 21 - 24, 1992

Inspector: S. Sherbini 2/4/92
S. Sherbini, Senior Radiation Specialist — date
Facilities Radiation Protection Section

Approved by: W. Pasciak 2-5-92
W. Pasciak, Chief, Facilities Radiation Protection Section — date

Inspection Summary: Inspection on January 21-24, 1992 (Report No. 50-333/92-04)

Areas Inspected: A routine radiological controls inspection. Areas inspected included tours of the facility and observation of outage-related activities; review of qualifications and training of contractor health physics technicians; and review of outage preparations and ALARA efforts.

Results: Tours of the facility indicated that the radiologically controlled areas were well maintained and posted and work activities were generally well organized, with some exceptions. Contractor technician resumes indicated that they were well qualified, with some showing extensive experience in the industry. Outage planning was found to be delayed, with inadequate lead time allowed for preparation of ALARA reviews. Within the scope of this inspection, no violations were identified.

DETAILS

1.0 Personnel Contacted

1.1 Licensee Personnel

T. Bergene, ALARA Supervisor
R. Brown, Technical Training Specialist
* C. J. Gannon, Manager, RES
* D. Lindsey, General Manager, Maintenance
* R. Liseno, General Manager, Operations
J. McCarty, Radiation Protection Supervisor
* M. McMahon, General Supervisor, Radiological Engineering
* J. Prokop, Acting Manager, QA
W. Rohr, Chief Journeyman, Reactor Building/RP Office
* J. Solini, General Supervisor, Health Physics
* C. Sutherland, Assistant Manager, RES

1.2 NRC Personnel

* W. Cook, Senior Resident Inspector
R. Plasse, Resident Inspector

* Denotes attendance at the exit meeting on January 24, 1992.

2.0 Tours of the Facility

Several tours of the radiologically controlled areas (RCA) were conducted during this inspection. The RCA was found to be generally well maintained, with good housekeeping and clear and appropriate radiological postings. Radiation fields in some areas were independently checked by the inspector and the postings in these areas were found to be appropriate for the existing conditions. Access points to contamination areas were well marked and provided with the necessary receptacles for contaminated trash and used protective clothing and other equipment. Only minor and isolated cases of poor housekeeping were observed in the RCA, mostly in the form of some protective clothing and adhesive tape on the floor at the exit points from posted contamination areas. Protective clothing (PC) supply areas

were distributed in several convenient locations within the RCA, and they were found to be well stocked with clean PCs and well marked with types and sizes. In addition to the above observations, several areas for improvement were also noted during the tours.

- Yellow catch containers were used to collect water from various plumbing leaks both in clean and contaminated systems. Since yellow is normally the color used in connection with radiological activities, this use may lead to uncertainty regarding the contamination status of a particular container. Containers connected to contaminated systems were labeled as contaminated, but the labels were frequently hard to read and in some cases were not firmly attached. The licensee stated that they were evaluating the use of a different color, such as green, for containers on clean systems.

- Some personnel working in contaminated areas were observed wearing white PCs at the same time that other workers in the same area were wearing yellow PCs. White PCs were also observed in use in clean areas. Yellow is the color normally used to indicate the possible presence of contamination. The licensee stated that they now rent their PCs from a vendor and that these rented PCs are all yellow. However, they still own a supply of white PCs and they were using them till they are worn out. After that transition period, all PCs will be yellow.

- The inspector noted that health physics (HP) technicians in the RCA frequently had no sign to identify them as HPs so that workers may consult them in case of any radiological questions. The industry practice is normally to use a unique color of hard hat or a large and clearly visible label to identify HPs in the plant. The licensee stated that they were evaluating this matter and were about to make a decision regarding the most appropriate marking to use.

- The inspector noted yellow trash bags, used for contaminated trash, distributed throughout the clean areas of the RCA. The licensee stated that these bags are used for disposing of materials used to clean the floors in the clean (non-contaminated) areas of the RCA. The licensee stated that the bags are located in the clean areas for convenience; their past experience indicated that relying on

the contaminated trash bags at the step off pads, which may be some distance away from the areas being cleaned, led to many of these materials being found in trash bags for uncontaminated trash.

- The inspector noted that continuous air monitors located at various locations within the RCA did not have stickers indicating that the required daily source and alarm checks had been performed. Upon questioning, an HP in the RCA demonstrated that the daily checks were in fact being performed but that the record for these checks was on the strip chart in the instrument. It was necessary to pull out the chart drive and unwind the chart recording to verify the daily check. The daily check is indicated on the chart by a spike on the chart indicating alarm actuation, as well as the signature of the technician who conducted the test. The licensee stated that the markings on the chart are supplemented by a list of the daily checks that had been performed. The licensee stated that this list is completed daily and is used to ensure that all the instruments are checked on schedule.

- The inspector noted that some technicians were using cotton glove liners for contamination control purposes. In one case, the person was receiving items being removed from a contamination area in preparation for checking them for contamination before releasing them. In another case, an individual was observed installing masslin at the edge of a contamination area using cotton liners for protection. The licensee stated that they do not approve of this practice and will emphasize this matter during training and other meetings with the staff.

- During observation of ongoing work, the inspector noted inconsistencies in some aspects of donning PCs. Specifically, taping of hoods to the coveralls was found to be variable: some workers taped their hoods to their PCs while others did not, even for workers on the same job. Similar variations were observed for placement of dosimetry, including self-reading dosimeters (SRD) and thermoluminescent dosimeters (TLD). Some workers placed all their dosimetry inside their coveralls, some placed the TLD inside and the SRD outside, and some placed both SRD and TLD outside the PCs. Similar variations were observed with alarming dosimeters, which are required for entry into high

radiation areas. The licensee stated that they did not have a written policy or procedure regarding these matters and that it was up to the HP covering the job to make these decision. The licensee stated that they will consider measures to improve performance in this area.

- During tours of the reactor building, the inspector observed a work station set up to perform testing on motor operated valves. The station was manned at different times by a staff of from one to three persons. However, the station was located close to a shielded line that produced a field at the work station of 3-4 mR/hr. The general area field was about 1 mR/hr. The licensee stated that they believed the work station had to be located at that point because of proximity to the valves being tested, but they were not sure. They stated that they would investigate and take action, such as relocating the work station, if appropriate.

Resolution of the above items will be reviewed during a future inspection.

3.0 Qualifications of Contractor HP Technicians

The qualifications of contractor HP technicians were reviewed during this inspection. The licensee stated that they had hired approximately 100 contractor technicians for the outage, about 60 of whom were senior technicians. A senior HP technician is, according to site procedures, a technician meeting the minimum qualifications requirements specified in ANSI N18.1-1971. Review of the applicant's resumes and selection of candidates is done by the HP General Supervisor. According to Procedure ITP-7C, "Training and Qualification of Contractor Radiological Technicians", experience is credited at a maximum rate of 50 hours per week, 2000 hours per year. A maximum of 2000 hours is accepted for experience at research and test reactors and medical facilities, and no credit is given for experience in decontamination work. Half of the experience gained in military programs is credited, with no limit to the amount credited. The procedure also requires that a sample of at least 10% of the resumes be audited for accuracy.

Hired technicians go through the routine general employee training and then are given additional training on HP items such as survey techniques, contamination control, use of survey instruments, access control, dosimetry, and similar topics. Written examinations are given, as well as an oral board administered by two members of the management staff.

A review of about 30 randomly selected resumes of hired contractor HP technicians showed that practically all those reviewed had adequate experience in the nuclear power industry, most with over 200 weeks of experience, and many with 300 to 1000 weeks of commercial power experience. The exceptions were technicians whose experience was mostly military; the commercial power experience was in some of these cases quite low, being in one case about seven weeks. There were only a few such cases, however, and even then, their military experience was usually extensive. It appeared, therefore, that the contractor HP technicians hired for the outage were well qualified by previous experience to provide adequate HP support.

The examinations given to the technicians to test their theoretical and applied HP knowledge were found to provide a good mix of theoretical and applied questions. During review of the examinations the inspector noted two items that did not appear to have sufficient technical justification:

- The material indicated that the quality factor used for thermal neutrons is three. When questioned, the licensee stated that this was a misprint in the lesson material that was reflected in the examination questions, and that the correct value is two. The inspector questioned the source of the value of 2 for the quality factor. The licensee stated that they believed that this was based on values provided in 10 CFR Part 20. However, 10 CFR Part 20 specifies that the quality factor for neutrons is 10. The revised 10 CFR Part 20, however, does list a quality factor of 2 for thermal neutrons, but this value is for monoenergetic neutrons, and not for the thermal neutron spectrum commonly assumed to exist at nuclear power plants. The licensee stated that they will review this issue. The licensee also stated that this matter is of no practical consequence on site since neutron quality factors are not used explicitly in site measurements because neutron doses are measured using track etch neutron dosimeters.

- The questions also indicated that correction factors are applied to beta measurements only for contact readings, but not for any other measurements, such as general area surveys. The inspector questioned the technical basis for this practice. The licensee stated that they will search for technical documents to support this practice. The licensee also stated that this matter is also of little significance on site since virtually all beta surveys are made as contact readings whenever a source of beta radiation is involved.

The above items will be reviewed during future inspections.

4.0 Refueling Outage and ALARA

The outage started on January 11, 1992. The major radiologically significant work activities planned for the outage included refueling, control rod drive changeout, fuel sipping, reactor water cleanup system and recirculation piping chemical decontamination, as well as a large number of corrective and preventive maintenance activities, modifications, and inspections.

In an effort to enhance ALARA performance during the outage, the licensee appointed departmental ALARA planners to the planning department of each of the major departments on site, which include maintenance, operations, I&C and contract services. These personnel are mainly health physics technicians with wide industry experience. Two persons are assigned to each department, one for the day and one for the night shift. Although they work full time in their respective departments, the ALARA planners report to the ALARA supervisor in the RES (Radiological and Environmental Services) department. The major functions of the ALARA planners, as described in the licensee's documents, are:

- Assist their assigned departments in preparing work packages and ensure that ALARA measures, as well as sound radiological practices, are incorporated into the packages at an early stage of development.

- Review departmental work practices and ensure that they include ALARA considerations.

- Coordinate with radiological controls the scheduling of

jobs and related briefings.

- Look for better ways to perform tasks to reduce exposure.

- Evaluate employee ALARA suggestions.

The licensee stated that this system appears to be working well, and that some important improvements in work practices have already occurred. As an example, one of the planners proposed that the reactor vessel be drained down only to the vessel flange during reactor disassembly rather than the normal practice of draining down to much lower levels. The planner had encountered this practice during his work at another facility. This modification was estimated to have cut down the radiation exposure during this phase of reactor disassembly by nearly a factor of two.

The ALARA group is also involved in several initiatives designed to provide long term exposure reductions. These plans include installation of a new radio communication system and a large number of television cameras in various high radiation areas throughout the plant. These measures are designed to allow personnel to perform their routine surveillance activities in these areas without exposure to the radiation fields in the areas.

Much of the outage work had not started at the time of this inspection, which occurred starting about ten days after the formal start of the outage. There were relatively few ongoing work activities in the reactor building and the drywell. The exposure goals for the outage had also not been formally adopted; the unofficial dose projection was 405 man-rem, or 475 man-rem if contingencies are factored into the projection (contingencies allow for unplanned but expected equipment breakdowns and similar difficulties that have been observed historically). The licensee stated that job packages from the various planning groups were not completed in a timely manner. The ALARA group normally receives completed job packages to perform ALARA reviews, and the licensee stated that these job packages did not arrive with sufficient lead time to allow completion of the reviews and setting of exposure goals before the start of the outage. The inspector noted that, in addition to the delays in job packages, the licensee's site organization

does not provide for a formal input from the ALARA group at the initial phases of outage planning, especially at the stage at which outage job scope is established. The licensee stated that, although such a formal mechanism does not exist, there are several informal and indirect mechanisms by which the ALARA group does provide the needed input. The licensee also stated that they will review their experience during this outage and implement changes to avoid any observed shortcomings. This item will be reviewed during future inspections.

5.0 Exit Meeting

The inspector met with licensee representatives at the end of the inspection on January 24, 1992. The inspector reviewed the purpose and scope of the inspection and discussed the inspection findings.