U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No.:	50-286/95-06
Docket No.:	50-286
License No.:	DPR-64
Licensee:	New York Power Authority Post Office Box 215 Buchanan, New York 10511
Facility Name:	Indian Point 3 Nuclear Power Plant
Inspection At:	Buchanan, New York
Inspection Period:	June 6 - 9, 1995

Inspector: _____ 8/3/95
J. Nick, Radiation Specialist — Date

Approved by: RL Nimitz for 8/3/95
R. Bores, Chief — Date
Facilities Radiation Protection Section,
Facilities Radiological Safety and Safeguards Branch

Areas Inspected: Implementation of the radiation protection program during extended plant shutdown activities. Program elements reviewed included corrective action, self-assessments audits and appraisals; changes in procedures, organization, staffing, facilities or equipment; surveys and monitoring; and radioactive materials and contamination controls. Previously identified items were reviewed to determine the status and progress toward completion.

Results: The radiation protection program was generally very effective in radioactive contamination, surveys and monitoring. The radiation protection group was staffed by qualified individuals with documented training and qualifications. Areas toured in the facility were well maintained and exhibited good housekeeping. The radiation protection staff provided good program assessment, with continuing improvements to the radiological controls program, particularly for high radiation areas. Within the scope of this inspection, no safety concerns or violations of regulatory requirements were identified.

DETAILS

1.0 INDIVIDUALS CONTACTED

1.1 PRINCIPAL LICENSEE EMPLOYEES

*D. Bell, Senior Radiation Protection Engineer, White Plains Office
*J. Comiotes, General Manager - Support Services
*L. Dauer, Radiological Engineer
*J. DeRoy, General Manager - Maintenance
*R. DeSchamps, Health Physics General Supervisor
N. Eggemeyer, Operations Manager
*L. Hill, Resident Manager
*N. Heuberger, Maintenance Manager
*G. Kane, Consultant
*J. Kauchen, Director, Design Engineering
M. Kerns, Chemistry General Supervisor
*R. Lavera, Radiological and Environmental Services (RES) Supervisor
J. LePere, Waste Management Supervisor
*N. Lizzo, Waste Management General Supervisor
*D. Mayer, Radiological Engineering Supervisor
*J. Odendahl, Instrumentation & Controls Manager
*P. Peloquin, Quality Assurance Manager
*J. Perotta, Operational Review Group Manager
K. Peters, Licensing Manager
D. Quinn, RES Department Manager
*D. Spoerry, General Manager - Training
*J. Zack, General Manager - Operations

1.2 NRC EMPLOYEES

*T. Frye, Resident Inspector
*J. D'Antonio, Operations Engineer

*Denotes those present during the exit meeting on June 9, 1995.

The inspector also interviewed other licensee and contractor personnel.

2.0 FACILITY TOURS

The inspector toured many areas of the facility, including the Primary Auxiliary Building (PAB), the fuel storage building, the vapor containment, and the radioactive material storage (RAMS) building. Some limited work was in progress, and the radiological conditions generally were well controlled, with low dose rates and low contamination levels maintained throughout the work areas. Good housekeeping and proper radiological controls were noted in most areas. Some minor inconsistencies were found in radiological area barriers and contaminated area boundaries. These inconsistencies were brought to the attention of the radiological controls supervision and improvements were noted during later tours. The inspector noted that the level of information available to workers through signs,

labelling of radioactive material, and radiological postings was excellent. All areas observed were posted, barricaded, and locked as required by NRC regulations and licensee commitments. In addition, the inspector independently verified posted radiological information through dose rate measurements. All measurements were consistent with the licensee's reported survey data and radiological postings.

3.0 CHANGES TO THE PROGRAM

The Radiological and Environmental Services (RES) group provided health physics services and support to the Indian Point Unit 3 plant. The normal health physics (HP) organization consisted of 24 technicians and 3 supervisors and was augmented with fourteen temporary contractor radiation protection technicians and three licensee chemistry technicians. All supervisory and management personnel had returned to the RES group from previous temporary assignments.

Long term vacancies in the radiation protection and radwaste training groups had been identified in previous NRC Region I Inspection Reports (50-286/93-05, 50-286/93-11, and 50-286/94-16). The inspector noted that a vacancy in the radiation protection training group had been filled by an individual who previously was assigned as a radiation protection technician. The radwaste training position was still staffed by a long-term contractor employee (see Section 7.2 of this report).

There were no other changes to the RES staff since the last inspection. The HP organization was adequately staffed to meet the workload and no deficiencies were noted.

4.0 CORRECTIVE ACTION, SELF-ASSESSMENTS, AUDITS AND APPRAISALS

The licensee performed various audits and self-assessments of the radiation protection program to identify and correct areas of weakness. The staff maintained a corrective action program to identify, track, and trend radiological incidents and events, as described below.

The licensee had performed one quality assurance audit of the radiation protection program since the last program inspection. The audit was performed during 1994 and was signed and dated by the auditors on January 30, 1995. This audit included an assessment of the general employee training program, compliance with Technical Specifications, and effectiveness of procedures and practices. Areas of the radiation protection program that were audited included the Radiation Protection Manual and implementing procedures, the ALARA program, radiological area access control, internal and external exposure control, the respiratory protection program, and training. The auditors identified an overall effective program with no major deficiencies, but noted areas that required improvement. The areas for improvement included the health physics technician training program, documentation of poor radiation worker practices, and consistency between the Radiation Protection Manual and the

implementing procedures. The program strengths identified by the auditors included the ALARA program, proper use of respirators, and the staff of the Radiation Protection Department. The auditors noted that corrective action tracking items were initiated by the radiation protection staff for all areas identified as requiring improvement.

The licensee's radiation protection staff had performed many self-assessments of the radiation protection program during 1995. The inspector reviewed various assessment reports including internal dosimetry, area monitoring, respiratory protection, radiological events, and HP supervisory activities. Most assessments documented satisfactory work conditions and compliance with licensee procedures. Some minor deficiencies were identified and, for the deficiencies that were reviewed by the inspector, the licensee had implemented timely and technically appropriate corrective actions. The self-assessments were of good quality and provided another method to improve the program. To ensure that all areas of the radiation protection program were reviewed on a timely basis, the licensee had developed a matrix of assessment categories with minimum frequencies for assessment. In addition, the staff performed an annual review of the assessment program. The inspector commented that this annual program review, required by 10 CFR 20.1101(c), could be improved by including a summary of the program's strenths and weaknesses. The licensee representatives agreed to review this matter and take action as deemed appropriate.

The staff also tracked and trended radiological incidents and events through a radiological event reporting (RER) system. The system documented events, provided an assessment of root causes, and recommended actions to prevent recurrence. Action items resulting from the recommendations were tracked until the actions were completed. In the past, the radiological event reports were not always reported through the plant-wide deviation event reporting (DER) system. The staff had been evaluating the appropriate event level for inclusion into the DER system, and various types of events had been reported even though they were not required by procedure. The benefits of the DER system included a wider distribution and further discussion of events among departments.

Additionally, the licensee provided oversight of the radiation protection program through the Radiation Safety Committee (RSC). The RSC included radiation protection personnel from the White Plains office, the Radiation Protection Manager (RPM) from Indian Point Unit 3, the RPM from Indian Point Unit 2, and radiation protection personnel from the James A. FitzPatrick plant. Meetings were held several times per year and agenda items included a review of recent inspections/audits, recent developments, radiation protection issues, and radiological performance. The inspector noted that this committee was a good initiative that allowed a broader perspective on radiation protection issues and recent developments.

Overall, the inspector concluded that the licensee was continuing to identify and correct weaknesses in the radiation protection program. The areas of weakness were not substantial, and the overall quality of the radiation protection program continued to improve. The inspector did not

identify any safety concerns or violations of NRC regulatory requirements in this area.

5.0 SURVEYS AND MONITORING

5.1 SURVEY/MONITORING EQUIPMENT

During tours of the radiologically controlled areas, the inspector observed radiation survey and monitoring equipment in the work place. The licensee maintained an adequate supply and maintenance of radiation survey and monitoring instruments. All instruments in the field and ready for use that were reviewed by the inspector were labeled with a current calibration date and appropriate performance checks. Frisking equipment at the RCA exits had a daily performance check. The licensee maintained a file containing calibration data for portable radiation survey instruments. The files were current and contained the required information for instruments randomly selected by the inspector.

5.2 USE OF EQUIPMENT

The licensee maintained automated personnel contamination monitors at the exits from the radiologically controlled area (RCA) for detection of potential external contamination on workers' skin and clothing. The automated friskers had multiple detectors that allowed a whole body frisk through two counts for each person. Workers were observed using the monitors and following appropriate instructions for alarms due to detected contamination. The monitors were maintained in good working order, including daily source checks to ensure adequate monitor and alarm operation.

The licensee allowed personnel to frisk personal items such as notebooks, flashlights, and keys as they left the RCA. All other items (tools or equipment) leaving the RCA required a frisk for potential contamination by a radiation protection technician before the removal was authorized.

5.3 SKIN EXPOSURES

The inspector reviewed the personnel contamination event reports for 1995. The inspector verified that the contamination reports were used to assess exposure from skin contamination. The licensee's staff had reported various personnel clothing and skin contamination events, but the highest skin dose assignment during the calendar year to an individual was 80 millirem as of June 9, 1995. The inspector concluded that the licensee had an adequate process for documentating and tracking personnel contaminations and subsequent dose assignments.

5.4 INFORMATION TO WORKERS

General area radiological survey data was displayed on the walls at the entrance to the RCA. Workers who were entering the RCA to work in a specific area could review the most current survey data for their work

area. The inspector reviewed the survey information displayed at the entrance. All survey data was legible and clear, with the most current data displayed for most areas. Specific area radiological survey data and information on plant conditions were also given to workers during pre-job briefings and informal discussions with the radiation protection staff prior to performing work in the RCA. The inspector concluded that the licensee provided timely dissemination of radiological survey data and plant radiological information to workers.

5.5 PROGRAM RECORDS

The inspector reviewed the radiological survey records to determine the adequacy of the documentation. Current records were stored and maintained at the main RCA entrance and were easily retrieved for review. The records were clear and legible, contained an appropriate level of detail, and were completed by the licensee's radiation protection technicians. The records also had a documented, timely review by the radiation protection supervisors. The inspector concluded that the licensee maintained good records of radiological surveys and monitoring results that were appropriately reviewed by radiation protection supervision.

5.6 SUMMARY

The licensee provided appropriate radiation surveys and monitoring. Survey and monitoring equipment was maintained and used appropriately. Current radiological information was provided to workers and program records were well maintained. No safety concerns or violations of regulatory requirements were identified.

6.0 RADIOACTIVE MATERIALS AND CONTAMINATION CONTROLS

The inspector reviewed the licensee's program for radioactive materials and contamination controls through discussions with individuals, review of documentation, and facility tours.

The inspector observed very good contamination controls and clean-up of radiological spills during tours of the facility. Several areas that had been contaminated during previous work periods recently had been cleaned, including the reactor cavity and the area around the reactor vessel head. Also noted were effective reductions in the volume of contaminated trash. The licensee had made good attempts to minimize introduction of unnecessary materials into the RCA through education of workers and administrative controls. The licensee also maintained a "Green is Clean" program to segregate potentially non-contaminated trash from the RCA. This trash was kept in separate bins and was monitored for radioactive contamination using sensitive detection equipment. This program helped the licensee to significantly lower the volume of contaminated trash that was processed and stored for eventual disposal.

As noted in section 4.0 of this report, the licensee's staff performed very good surveys and generally good monitoring for release of materials from

the radiologically controlled area through a variety of techniques, including automated tool monitors, requiring a radiation protection technician for release of all but personal items, and training.

In summary, the licensee provided very good controls for radioactive materials and contamination with program improvements evident. No violations of regulatory requirements or major deficiencies were identified.

7.0 PREVIOUSLY IDENTIFIED ITEMS

The inspector reviewed a number of items that were referenced in earlier inspection reports for completion or progress. Overall, the licensee had made good progress in these areas and was continuing work toward completion.

7.1 CONTROLS FOR HIGH RADIATION AREAS

VIO 50-286/94-16-01 - Closed

The inspector previously had identified (NRC Region I Inspection Report No. 50-286/94-16) a violation of controls for personnel access to high radiation areas, as required by 10 CFR 20.1601 and the licensee's Technical Specifications. The inspector had reviewed the licensee's Procedure No. RE-ACC-5-1, Revision 10, titled "Radiologically Controlled Area Access Control," to determine the controls for High Radiation Areas (HRAs). The procedure allowed personnel to enter a large room that was posted as a "Locked High Radiation Area" under the authority of a routine radiation work permit (RWP). The procedure stated that the personnel shall not enter an actual area where the dose rates exceed 1000 millirem per hour. The procedure further stated that radiation protection personnel shall provide positive control over all entries into the areas where the actual dose rates exceed 1000 millirem per hour.

The licensee had several places in the facility that were large areas containing radiation areas (dose rates greater than 5 millirem per hour, but less than or equal to 100 millirem per hour), high radiation areas (dose rates greater than 100 millirem per hour, but less than or equal to 1000 millirem per hour), and locked high radiation areas (dose rates greater than 1000 millirem per hour). These places were controlled through one locked door leading to all of these areas. The licensee's radiation protection technicians would unlock the door and allow workers to perform work beyond the locked door without continuous radiation protection oversight. The technicians would instruct the workers to stay away from the areas with dose rates exceeding 1000 millirem per hour. The workers were required to wear a TLD and SRD, but not required to have a dose rate meter or wear an alarming dosimeter.

Each individual area with dose rates exceeding 1000 millirem per hour was posted with signs stating, "Caution, Locked High Radiation Area" and had a

rope barricade. The inspector expressed concern that the positive controls required by the locked door were no longer effective when the workers were allowed to enter the area, yet no additional controls were used to prevent unauthorized access to the areas with actual dose rates greater than 1000 millirem per hour. The licensee had used this method of access control for the waste hold-up tank area, the fuel storage building truck bay, and the PAB filter cell. The highest dose rates in these areas was 1500 millirem (at a distance of 12 inches from the source) at the time of the previous inspection.

In the licensee's response to the above Notice of Violation, dated November 10, 1994, the licensee agreed with the violation and stated proposed corrective actions and actions previously taken to prevent a recurrence. These previously implemented actions included installation of substantial barriers around areas with dose rates greater than 1000 millirem per hour, revision of radiation work permits to require electronic dosimeters or constant HP technician coverage in these areas, and training on the use of electronic dosimeters. Additional proposed corrective actions included identification of additional areas for installation of barriers, revision of the radiation protection manual, and revision of the locked HRA key control program.

The inspector reviewed these corrective actions and verified the physical barriers had been implemented in the areas mentioned above. The revisions had been made to the radiation protection manual and the locked HRA key control program procedure. Additional areas were identified for installation of barriers. No further corrective actions are required at this time, and this violation is closed.

7.2 HEALTH PHYSICS TRAINING POSITIONS

As noted in an earlier NRC Inspection Report (50-286/93-05), the training department had lost a principal radioactive waste training instructor in early 1993. The licensee had another vacant position in health physics training as noted in NRC Inspection Report 50-286/93-11. After these inspections, the licensee had obtained one long-term contract personnel to supply training services at the site. At the time of this inspection, one of the two positions had been permanently filled. The licensee had promoted a radiation protection technician to fill the position in the radiation protection training area. The inspector did not review the qualifications of the technician for this position. The problems with staffing in the training group has been a recurring concern, although the training commitments were being performed. The licensee's training program will be reviewed in future inspections.

7.3 INTERNAL DOSE ASSIGNMENT TRACKING

The inspector noted some discrepancy in the records for exposure to airborne radioactivity assigned to individuals, measured in Maximum Permissible Concentration-hours (MPC-hours), during a previous inspection (reference NRC Inspection Report No. 50-286/93-15). The licensee assigned and tracked MPC-hours obtained through air samples from airborne activity

areas where individuals were working through the use of a MPC-hour tracking log. The log was used to control access to airborne radioactivity areas and to total MPC-hours for determination of further action. If the individual had a substantial exposure to airborne radioactivity or was contaminated on the face or neck, the licensee performed bioassay analysis (whole body count or fecal/urine specimen) to measure and determine the radioactive material intake by the individual. The licensee calculated the radiation exposure and assigned MPC-hours based on the bioassay. Guidance for the tracking of the MPC-hours assigned from bioassay was not clearly stated in the licensee's procedure. In one case, an individual was conservatively assigned 10 MPC-hours in May 1992 based on bioassay data, but the MPC-hours were not recorded on the MPC-hour tracking log for the individual. The licensee staff agreed that the guidance for MPC-hour assignment from bioassay was not clear. The staff drafted a correction to the procedure that clarified this process.

Although the licensee now tracks airborne radioactivity exposure in Derived Air Concentration-hours (DAC-hours), the concern could still be valid. As noted above, the licensee had revised the procedure to address this concern. But, there had been no internal dose assignments since the procedure was changed. Therefore, the inspector will further review this item during future inspections to ensure that the corrective actions were effective.

8.0 EXIT MEETING

A meeting was held with licensee representatives at the end of the inspection period on June 9, 1995. The purpose and scope of the inspection were reviewed and the findings of the inspection were discussed. The licensee acknowledged the inspection findings.