

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-213/89-22

Docket No. 50-213

License No. DPR-61 Priority - Category C

Licensee: Connecticut Yankee Atomic Power Company
P.O. Box 270
Hartford, Connecticut 06141

Facility Name: Haddam Neck Power Station

Inspection At: Haddam Neck, Connecticut

Inspection Conducted: November 13-17, 1989

Inspectors: T. Dragoun 12/7/89
T. Dragoun, Senior Radiation Specialist date

Approved by: W. Pasciak 12/12/89
W. Pasciak, Chief, Facilities Radiation date
Protection Section

Inspection Summary: Inspection on November 13-17, 1989 (Inspection Report No. 50-213/89-22)

Areas Inspected: Routine inspection of the radiological controls program including training and qualifications of the HP staff, auditing, internal exposure control, and the new TLD personnel dosimetry.

Results: An apparent violation of Technical Specification (TS) 6.4.1 Training was identified. The licensee did not provide a formal retraining program for the health physics staff. Details are provided in Section 3.2.

DETAILS

1.0 Persons Contacted

1.1 Licensee Personnel

- *E. DeBarba, Station Services Superintendent
- *H. Clow, Health Physics Supervisor
- *W. Nevelos, Rad. Protection Supervisor - Operations
- *M. Sweeney, Rad. Protection Supervisor - Services
- *W. Gates, Assistant Rad. Protection Supervisor - Operations
- *E. Fried, Staff Engineer
- R. Rogers, Manager of Radiological Assessment
- P. Pritchard, Senior HP Instructor
- C. Libby, Supervisor - Assessment Services
- L. Silvia, Health Physicist
- G. Baskette, Corporate HP
- A. Vomastek, Assistant Rad. Protection Supervisor - Services

12. NRC Personnel

T. Shedlosky, Senior Resident Inspector

*Attended the Exit Interview on November 17, 1989

2.0 Purpose

The purpose of this routine radiation safety inspection was to review the following program elements:

- HP Department Training and Qualifications
- Auditing and Self-Assessment
- Internal Exposure Control
- Dosimetry

3.0 Training and Qualification

The training and qualifications of the Health Physics (HP) department staff was reviewed relative to requirements in the Technical Specifications and ANSI N18.1-1971 "Selection and Training of Nuclear Power Plant Personnel".

There has been no change in the organizational structure or supervisory personnel since this area was last inspected in 1986 and 1987. The inspector also reviewed the program that provides retraining and ongoing training for HP technicians and the supervisory staff.

3.1 HP Operations Technician Retraining

Technicians are retrained at the Millstone Training Center located about one hour from the site. Use of a remote site is advantageous. Training topics are selected based on input from site supervision with final review by the Training Program Control Committee. Topics for the two sessions planned for 1990 appear to be appropriate.

Documentation of the program is very good and represents a programmatic strength. The technician retraining program is described in volume 3 of the Nuclear Training Manual. The licensee is currently seeking industry accreditation for this and other training programs offered at the Millstone Training Center.

The inspector noted that retraining of technicians was conducted less frequently than the industry standard of six to eight weeks per year. In addition, the same facilities and hardware are used to train technicians from the Millstone Station as well as the Haddam Neck Station Technicians. Yet each station has a unique radiation safety program and uses different hardware such as counting room equipment. This lack of standardization among the radiation safety programs detracts from the effectiveness of the common training programs and facilities.

3.2 HP Staff Retraining

There is no formal retraining or replacement training program for the HP staff other than HP Operations Technicians. Licensee management stated that their interpretation of Technical Specification 6.4 is that only the Operations Department personnel and the licensed reactor operators in particular require formal retraining. This position is based in part on the retraining program elements listed in ANSI N18.1-1971 Section 5.5.1.

The inspector stated that Section 5.5 of the ANSI Standard applies to the "Operating organization" which is defined in Section 3.2. The "operating organization" encompasses most onsite personnel. The HP staff is specifically described as being a part of the operating organization in Section 3.2.3 of the Standard.

The lack of a formal retraining and replacement training program for the HP staff constitutes an apparent violation of the requirements of Technical Specification 6.4 (89-22-01). The need for such a

program is particularly acute at the Haddam Neck station since personnel turnover is very low. Most of the HP staff have been in their current position for five years or more. During interviews, most stated that they have attended recent professional society meetings or a specialized training course. This indicates that the staff may be maintaining technical expertise through self-initiative in the absence of a formal program. This matter will be reviewed in a future inspection.

4.0 Auditing and Self-Assessment

During Inspection 89-17 the inspector expressed concern that the licensee's corporate HP group was no longer conducting assessments of the site HP program. The current status of the assessment efforts was determined from discussions with the Manager of Radiological Assessment (corporate), Supervisor-Assessment Services (QA) and the Health Physics Supervisor.

The licensee disagreed with the conclusion in Inspection Report 89-17 which stated that corporate HP assessments have ended. The licensee stated that the suspension was only temporary due to staffing problems. The inspector recommended that the licensee document a position to NRC regional management to clarify the status of the program. The inspector noted during this inspection that the site QA organization does not perform HP specific audits. However, the QA program reviews Technical Specification compliance spread over a 5-year cycle. The HP related items are expected to be audited in 1991.

Self-assessments conducted by site HP personnel are continuing. Experienced contractors are also used for input regarding program improvements. However, site personnel do not visit other stations to observe other programs to gain a broader perspective. Station management stated that such visits will be considered.

The inspector concluded that the licensee audits and assessments of the HP programs are satisfactory with some improvement needed. This item will be reviewed in a future inspection.

5.0 Internal Exposure Control

The performance of the internal exposure control program was reviewed with respect to criteria contained in:

- 10 CFR 20.103 Exposure of individuals to concentrations of radioactive materials in air in restricted areas.
- Regulatory Guide 8.15 "Acceptable Programs for Respiratory Protection"

- NUREG-0041 "Manual of Respiratory Protection Against Airborne Radioactive Materials"
- ANSI Z88.2 "Practices for Respiratory Protection"
- ANSI N343 "Internal Dosimetry for Mixed Fission and Activation Products"

Performance was determined from a review of facilities and equipment, procedures, selected records and interviews with personnel.

5.1 Medical Evaluation of Respirator Users

Workers are medically evaluated by registered nurses at the site infirmary prior to respirator use. Standard medical practices are used under the direction of the company physician. All results are reviewed and signed by the physician. Evaluations performed at other facilities are not accepted. The approval for respirator use is documented on a form that the worker retains during processing and is also logged in the computer. Evaluations are repeated annually. The inspector concluded that the medical evaluations are effectively conducted and the recordkeeping is satisfactory.

5.2 Fit Testing

Fit testing was previously done using corn oil vapor in a sealed booth. This equipment is still available for backup. Current testing is done with a "Portacount" commercial device which uses ambient dust in the air as a challenge atmosphere. Either method is acceptable under current regulations. The test is computer controlled with the results automatically printed on the same form containing the medical evaluation. Human error interpreting the test results is thereby eliminated.

Tests are conducted by permanently assigned HP technicians. Since this is not a rotating assignment, the technicians can become proficient. All test results are reviewed by a supervisor and the records are sent to the Dosimetry Office for retention. The fit testing program was determined to be satisfactory.

5.3 Whole Body Counting (WBC)

The licensee has two types of whole body counters: a single detector Masse chair and a moving detector bed. Sodium iodide detectors are used with the output processed through a Canberra Series 40 multichannel analyzer. Daily operational checks are performed and control charts are plotted by the computer.

Each quarter the licensee receives "blind" sources from a contractor. These are loaded into standard phantoms and run through both whole body counters. The results are sent to the contractor

who determines if the accuracy is acceptable under current NRC guidance. This constitutes an excellent quality control check.

Each year a set of radioisotopes is purchased covering the gamma spectrum recommended in the ANSI standards. These are used in phantoms to adjust the efficiency and channel calibration of the WBC equipment. Although the equipment is an older vintage, the inspector concluded that the WBC program is well controlled.

5.4 Control of Respirators

The inspector toured the respirator issuance area and the respirator cleaning/repair facility accompanied by the Assistant Radiation Protection Supervisor. Selected records were reviewed. Issuance is controlled by HP technicians. The room and the respirator storage cabinets are locked while unattended. A computer printout of all authorized respirator users is checked by the technician prior to issuance of the respirator to a worker. These controls prevent unauthorized use of respirators.

Respirators are cleaned, disinfected and repaired on site. Control of repair parts appears good. Filters are discarded after each use. Each mask is tested on a dummy head prior to reissuance. Records are well kept. The inspector concluded that this program is satisfactory.

5.5 Internal Exposure Records

The inspector reviewed selected exposure records for compliance with the reporting requirements of 10 CFR 19 and 10 CFR 20. All internal exposures had been formally reviewed by the Health Physicist prior to recording. Documentation appeared to be excellent. The inspector noted many cases of tritium exposure but was unable to evaluate the situation due to time constraints. This matter will be reviewed in a future inspection.

6.0 New Dosimetry System

The licensee advised that on January 1, 1990, the personnel dosimetry system will be replaced. The inspector reviewed the new Harshaw system, toured the facilities and interviewed selected personnel.

The new TLD badge is the latest technology and will consist of a four lithium fluoride chips in a standard holder. One chip will be enhanced with lithium-7 for neutron detection. Standard algorithms will be used to computer process the results.

The amount of badges on hand and the reader throughput capability appear adequate to support the needs of the site. The licensee stated that

badges will be processed quarterly rather than monthly as is done currently. The inspector stated that this is acceptable since exposure limits are set on calendar quarters. However, the approach is less conservative than more frequent processing.

The NVLAP accreditation was reviewed. The licensee is seeking full accreditation in all eight categories of exposure monitoring. The documentation provided by the licensee indicates that all NVLAP testing is complete and satisfactory. Formal notification of accreditation is expected in a few weeks. The inspector had no further questions.

7.0 Exit Interview

The inspector met with the licensee personnel denoted in Section 1.1 at the conclusion of this inspection on November 17, 1989. The scope and findings of the inspection were presented at that time.