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

Region I

Report No. 50-245/79-11
50-336/79-14

Docket No. 50-245
50-336

License No. DPR-21 Priority: -- Category: C
DPR-65

Licensee: Northeast Nuclear Energy Company
P. O. Box 270
Hartford, Connecticut 06101

Facility Name: Millstone Nuclear Power Station, Units 1 and 2

Inspection at: Waterford, Connecticut

Inspection conducted: April 30 - May 4, 1979

Inspectors: L. H. Thonus, Radiation Specialist — 8/8/79 date signed

Approved by: H. W. Crocker, Chief, Radiation Support Section, FF&MS Branch — 8/8/79 date signed

Inspection Summary:

Inspection on April 30 - May 4, 1979 (Report Nos. 50-245/79-11 and 50-336/79-14)
Areas Inspected: Routine, unannounced inspection by a regional based inspector of the radiation protection program during refueling including: procedures, training, exposure control, planning and preparation, posting and control, surveys, and radioactive material control. Upon arrival at approximately 7:00 p.m., April 30, 1979, a tour of the facility was conducted to observe radiation safety practices at locations where work was in progress. The inspection involved 36 inspector-hours on site by one regional based NRC inspector.
Results: Of the seven areas inspected, no items of noncompliance were found in six areas; one item of noncompliance was found in one area (Infraction - Failure to perform surveys, Paragraph 7).

DETAILS

1. Persons Contacted

M. Brennan, Health Physics Foreman, Unit 1
*A. Cheatham, Health Physics Supervisor
L. Crosse, Shift Supervisor, Unit 1
R. Herbert, Superintendent, Unit 1
*J. Laine, Health Physicist
R. Lent, Health Physics Supervisor, Unit 1
*E. Mroczka, Station Services Supervisor
*J. Opeka, Station Superintendent
E. Schricten, Acting Health Physics Foreman, Unit 1
L. Vanderhorst, Health Physics Supervisor, Unit 2

The inspector also interviewed several other licensee and contractor employees including health physics technicians, operations maintenance, and security personnel.

*Denotes those present at the exit interview.

2. Procedures

Unit 1 and 2 Technical Specification (TS) 6.8.1 requires that the applicable procedures in Appendix "A" of Regulator Guide 1.33, November 1972, be established, implemented and maintained. TS 6.8.2 requires that the above procedures be reviewed by the Plant Operations Review Committee (PORC) or Site Operations Review Committee (SORC) as applicable. Unit 1 and 2 TS 6.11 requires that radiation protection procedures be prepared consistent with the requirements of 10 CFR Part 20 and shall be approved, maintained and adhered to for all operations involving personnel radiation exposure.

The following procedures were reviewed against the requirements of TS 6.8 and 6.11:

-- HPP 2920 "Containment Entry" Rev. 2, January 11, 1979
-- HPP 903/2903 "Radiation Work Permits" Rev. 7, March 15, 1979
-- HPP 901/2901A "Radiation Exposure Cards" Rev. 1, March 6, 1979
-- HPP 901/2901 "Dosimetry and Exposure Control" Rev. 4, March 7, 1979
-- 79-1-18 "Stuck Control Rod Removal," April 25, 1979.

No items of noncompliance were identified.

3. Training

The licensee utilizes a series of videotapes augmented by lectures to meet the training requirements of 10 CFR 19.12. At the end of the training session a written examination is given. Individuals are required to pass the examination before they are allowed unescorted access to radiologically controlled areas.

The inspector observed a portion of the tape and lecture series. The inspector also reviewed examinations and training records of 11 station and contractor personnel who were allowed unescorted access to station radiologically controlled areas.

The licensee's training program for contractor radiation protection technicians includes training on selected plant radiation protection procedures and an examination on the material covered. Training records and examinations of 35 contractor radiation protection technicians were reviewed.

No items of noncompliance were identified.

4. Exposure Control

10 CFR 20.101(a) limits personnel exposure to 1.25 rems per calendar quarter unless the requirements of 10 CFR 20.101(b) and 10 CFR 20.102 are met. These requirements include obtaining the individuals' exposure history on form NRC-4 or equivalent and calculating permissible accumulated doses (PAD) for the individuals.

NRC-4 forms and PAD calculations were reviewed for eight individuals who had exceeded or were authorized to exceed 1.25 rems per calendar quarter.

10 CFR 20.401 requires that personnel monitoring records for all individuals for whom monitoring is required be kept on form NRC-5 or equivalent. The NRC-5 forms containing exposure records of six individuals were reviewed.

The licensee's bioassay program includes the use of a whole body counter. The counter has a fixed bed with a large traversing NaI (T1) crystal which provides input to a multi-channel analyzer. The results of the whole body scans of five workers were reviewed.

No items of noncompliance were identified.

5. Planning and Preparation

Increased Staffing

The inspector examined the qualifications of 35 contractor technicians against the criteria given in ANSI N18.1-1971 for technicians in responsible positions. One of the 35 technicians did not have the required minimum experience of 2 years. The inspector observed the individual at his work station and reviewed his duties and determined that his position of control point watchstander did not entail a level of responsibility that would require him to meet the ANSI N18.1-1971 standards.

Instruments and Equipment

The licensee's stock of anticontamination clothing at various change areas visited by the inspector appeared adequate. The inspector noted a shortage of hand held radiation monitoring equipment. Several times the inspector noted people waiting for instruments before a job could commence and occasions where a decision had to be made over who had priority on the next available instrument.

The inspector examined several high radiation areas and personnel working therein to verify that the Technical Specification 6.13 and 10 CFR 20.201 requirements regarding instruments and surveys were met.

A licensee representative stated that additional instrumentation had been ordered but that delivery from the vendor had experienced delays. This area will be further reviewed at a subsequent inspection. (245/79-11-01)

No items of noncompliance were identified.

6. Posting and Control

Several contaminated areas, radiation areas, high radiation areas, and radioactive material storage areas were examined against the posting requirements of 10 CFR 20.203 and licensee procedures. These areas included the refueling floor of the reactor building, turbine operating floor, and drywell.

The inspector observed the drywell and refuel floor control points for access control, adherence to Radiation Work Permit (RWP) conditions, contamination control and exit procedures. The inspector noted that the control point watchstanders check protective clothing and maintained exposure control over persons entering.

At the drywell, an area with high contamination potential, separate stepoff pads were used for entry and exit. Work being performed under RWP's #792046, 792091, 792089, 792041, 792045 was observed.

No items of noncompliance were identified.

7. Surveys

10 CFR 20.201(b) requires that each licensee shall make or cause to be made such surveys as may be necessary for him to comply with the regulations in this part. 10 CFR 20.201(a) states that a "survey means an evaluation of the radiation hazards incident to the production, use, release, disposal, or presence of radioactive materials or other sources of radiation under a specific set of conditions. When appropriate, such evaluation includes a physical survey of the location of materials and equipment, and measurements of levels of radiation or concentrations of radioactive material present." 10 CFR 20.101(a) limits exposure to the whole body; head and trunk, active blood-forming organs; lens of the eye; or gonads to 1.25 rems per calendar quarter.

On Wednesday, May 2, 1979 on the refueling floor the inspector found a beta radiation field caused by the drywell head bolts. The beta dose rate was 100 mrem/hr at 3 inches from the bolts, as measured by the inspector using an end window ion chamber and subsequent licensee measurements using a side window G-M. There was no requirement for eye protection in this area nor were there access restrictions to prevent persons from entering the beta field. The workers' dosimetry devices are routinely placed in a plastic pouch under protective clothing. While this protects them from contamination, it also shields them from beta radiation. Thus the dosimetry devices would not measure any beta exposures to the lens of a worker's eye. The inspector determined that neither physical measurements of the radiation nor an evaluation of potential exposures had been made by the licensee.

The inspector noted that while no individuals were working in the area of the bolts, there existed a potential for an unmonitored beta exposure to the lens of the eye. The licensee immediately posted the beta field and restricted access to the area.

There was only one survey instrument available on the refueling floor which was capable of measuring beta radiation. Though the capability was there, the probability of discovering the field was diminished by the paucity of instruments (See para. 5) The inspector noted that the failure to perform surveys constituted noncompliance with 10 CFR 20.201. (245/79-11-02)

8. Radioactive and Contaminated Material Control

The inspector observed the licensee's control and labeling of radioactive material. Contaminated items and trash generated from the outage were placed in plastic bags or wrapped, then labeled. Personnel collecting trash from contaminated drums were equipped with survey instruments which allowed them to evaluate the accumulation of millicurie quantities and associated exposure rates. Movement of items with exposure rates greater than 100 mrem/hr requires a health physics escort per plant procedures. The inspector observed that the procedural escort requirements and survey instrument requirements were being adhered to.

No items of noncompliance were identified.

9. Exit Interview

The inspector met with licensee management representatives (denoted in Paragraph 1) at the conclusion of the inspection on May 4, 1979. The inspector summarized the purpose and scope of the inspection findings.