

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

Region I

Report No. 50-245/79-07; 50-336/79-07

Docket No. 50-245; 50-336

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

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

Facility Name: Millstone Units 1 and 2

Inspection At: Waterford, Connecticut

Inspection Conducted: March 19-23, 1979

Inspector: *G. P. Yuhas*
G. P. Yuhas, Radiation Specialist

5/8/79
date signed

Approved By: *H. W. Crocker*
H. W. Crocker, Acting Chief
Radiation Support Section, Fuel Facility
and Materials Safety Branch

5/8/79
date signed

Inspection Summary:

Inspection on March 19-23, 1979 (Report Nos. 50-245/79-07 and 50-336/79-07)
Areas Inspected: Routine, unannounced inspection by a regional based inspector of the radiation protection program at Unit 2 during refueling outage conditions including: Procedures; planning and preparations; training; exposure control; posting and area control; and surveys. In addition, solid radwaste management and followup on previous inspection findings were reviewed at both units. Upon arrival at 6:00 p.m., March 19, 1979, areas where work was being conducted were examined to review implementation of radiation safety practices and procedures. This inspection involved 35 inspector-hours on site by one NRC regional based inspector.
Results: Of the eight areas inspected, no items of noncompliance were identified.

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DETAILS

1. Persons Contacted

- *J. F. Opeka, Station Superintendent
- *E. J. Mroczka, Station Services Superintendent
- *A. G. Cheatham, Health Physics Supervisor
 - R. Brisco, General Services Supervisor
 - R. Lent, Radiation Protection Supervisor, Unit 1
- *L. Van Der Horst, Radiation Protection Supervisor, Unit 2
 - J. Moffat, Safety Administrator (NUSCO)
 - R. Ayala, Safety Committee Chairman
 - P. Przekop, Engineering Supervisor, Unit 1

*Denotes those present during the exit interview conducted on March 23, 1979.

The inspector also talked with and interviewed several other licensee employees and contractors including members of the health physics, engineering and maintenance staff.

2. Licensee Action on Previous Inspection Findings

(Closed) Noncompliance (50-336/77-30-02, 50-336/76-26-01): Failure to control high radiation areas at Unit 2. The licensee was issued Amendment No. 45 to Operating License No. DPR-65 on December 8, 1978. This amendment modified the Technical Specifications to provide alternative methods to assure control of high radiation areas. The licensee incorporated these methods and requirements into procedure HPP 902/2902, "Radiological Areas." During tours of the facility, all high radiation areas were posted and controlled in accordance with these requirements.

(Closed) Noncompliance (50-245/77-22-01): Failure to perform surveys of airborne radioactive material in the Radwaste area. Procedure HPP 915/2915, "Health Physics Surveys" has been revised to specifically require appropriate measurements of airborne radioactive materials. A record review indicated that all required air surveys had been performed in the Radwaste area for the period February 26 through March 21, 1979.

(Closed) Noncompliance (50-245/78-19-01): Failure to perform a survey of beta radiation. The inspector reviewed the evaluation of beta dose performed by the licensee and verified the appropriate entries have been made on each individual's Form NRC-5.

478
257

(Closed) Noncompliance (50-245/78-39-02, 05): Failure to perform suitable measurements of the concentration of radioactive material in air. Ten additional air samples have been procured by the licensee. Several job locations were observed, in each case, air samples collected appeared representative of the workers breathing zone.

(Closed) Noncompliance (50-245/78-39-03): Failure to maintain a survey record. Procedure HPP 931/2931, "Monitoring for Personnel Contamination" was revised January 26, 1979, to include a personnel contamination survey form that is reviewed and signed by a member of health physics supervision.

(Closed) Noncompliance (50-245/78-39-07): Failure to post a radiation area. The entrance to the Unit 1 Turbine Building had been properly posted. Procedure HPP 902/2902 "Radiological Areas" was revised January 26, 1979, to more clearly define posting requirements.

(Closed) Previously Identified Item (50-245/78-39-04): Review licensee's evaluation of extremity dose for two individuals. The inspector reviewed licensee's evaluation of the individual's extremity dose and verified that the results of the evaluation have been incorporated in their exposure records.

(Closed) Previously Identified Item (50-245/78-36-01, 50-336/78-33-02): Review health physics procedures. The below listed procedures have been revised on the dates noted.

<u>Procedure No.</u>	<u>Section</u>	<u>Date of Revision</u>
HPP 902/2902	5.2.6	January 26, 1979
HPP 903/2903	5.9.2	March 15, 1979
HPP 906/2906	5.1.1.1.4	January 26, 1979
HPP 906/2906	5.2.1.2.4	January 26, 1979
HPP 906/2906	5.3.1.2	January 26, 1979
HPP 907/2907	Exposure Comparison	January 26, 1979

(Closed) Previously Identified Item (50-245/78-36-02, 50-336/78-33-03): Review control of keys to high radiation areas. Procedure ACP-7.04 was revised February 26, 1979, to improve high radiation area key control. The Health Physics Department has been delegated control of these keys.

49 258
478

(Open) Previously Identified Item (50-336/78-33-01): Review evaluation and survey associated with fuel transfer tube. At the time of inspection, the licensee had not yet transferred any irradiated fuel through the transfer tube. This matter will be reviewed in a subsequent inspection.

3. Procedures

The following procedures were reviewed to determine if recent changes have been made in accordance with ACP-QA-3.02, "Station Procedures and Forms"; Technical Specification 6.8, "Procedures"; and are consistent with the requirements of 10 CFR 20.

<u>Procedure No.</u>	<u>Revision</u>	<u>Title</u>
HPP 901/2901	4	Dosimetry and Exposure Control
HPP 901/2901A	1	Radiation Exposure Cards
HPP 902/2902	7	Radiological Areas
HPP 903/2903	7	RWP
HPP 905/2905	5	Control and Accountability of Radioactive Material
HPP 906/2906	3	Radiation Incidents
HPP 907/2907	3	Personnel Exposure Evaluations and Investigations
HPP 910/2910	1	Respiratory Protection
HPP 915/2915	11	Health Physics Surveys
HPP 930/2936	3	Implementation of ALARA
HPP 941/2941	2	Performance Audits for Personnel Monitoring Equipment

No item of noncompliance was identified in this area.

4. Planning and Preparation

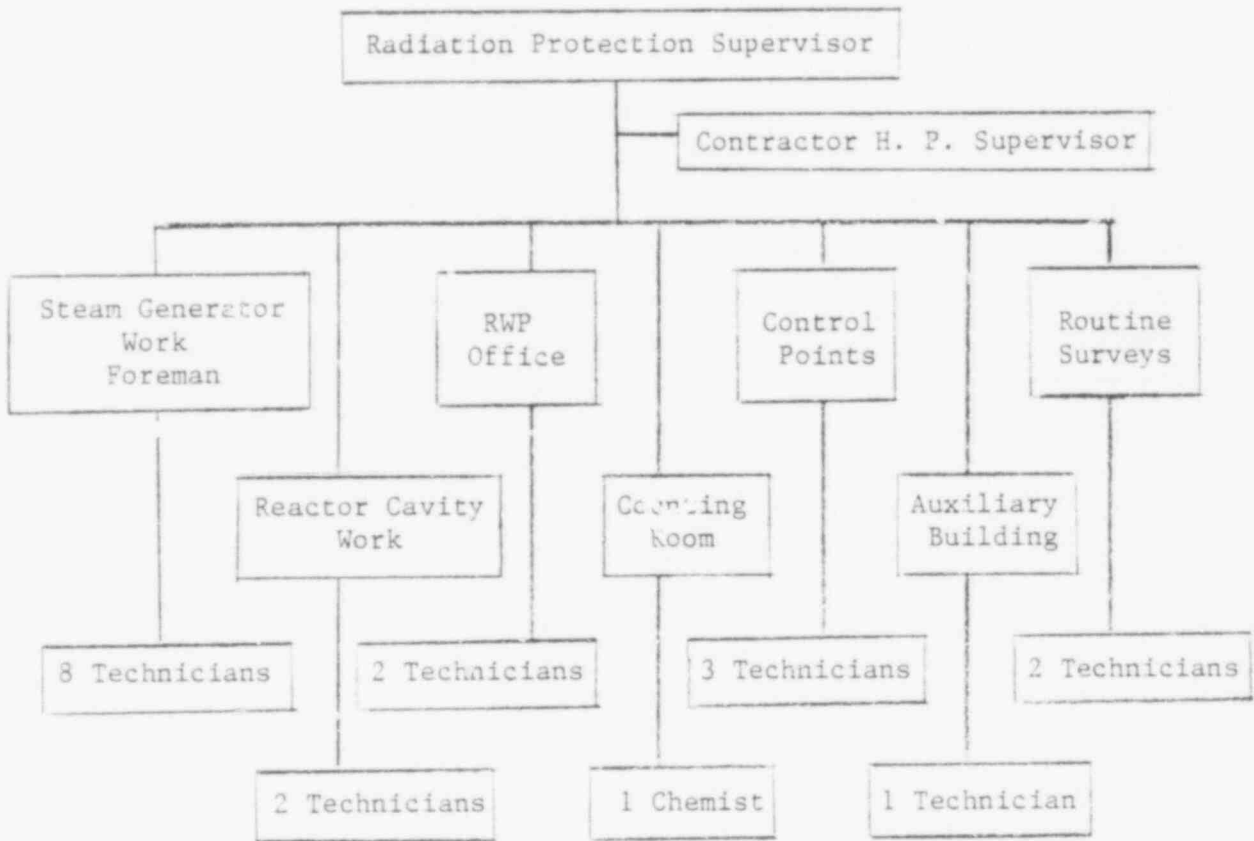
The licensee's planning and preparation for this outage has provided an adequate supply of equipment and personnel to insure the radiation protection program is fully implemented.

The station health physics staff has been augmented with 33 contractor supplied health physics technicians. Ten of these individuals' qualifications were reviewed to determine compliance with the requirements specified in Unit 2 Technical Specification 6.3. This review consisted of detailed evaluation of information provided on the contractor supplied resumes and interviews with two individuals.

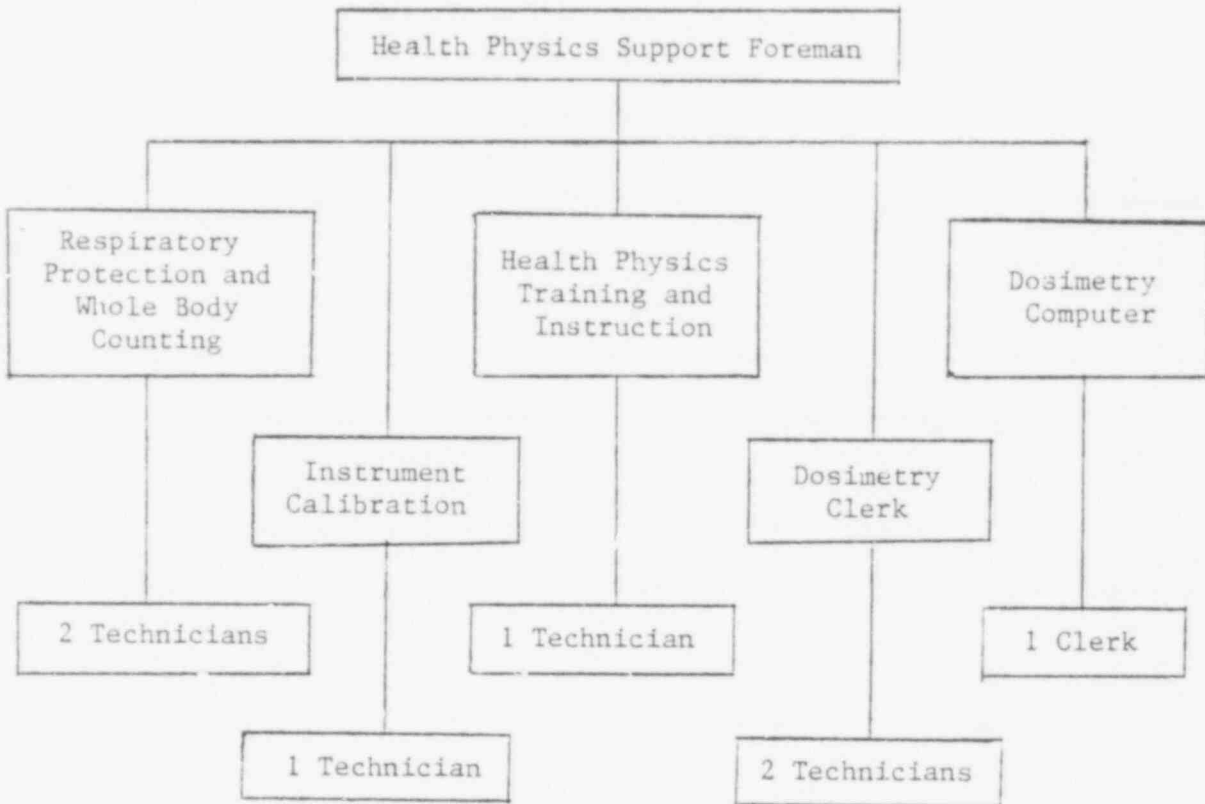
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478

The licensee has organized the Unit 2 health physics staff into two twelve hour shifts. Each shift is organized and manned as noted below:

Unit 2 Health Physics Operations



Unit 2 Health Physics Support



Frequent independent audits of the radiation protection program are being performed by representatives of Northeast Utility Service Company.

Tours of Unit 2 indicate an adequate supply of calibrated instrumentation, and equipment has been made available for use.

To maintain the supply of protective clothing, the licensee has contracted a portable dry-cleaning system. This system is operated by the contractor's representative under this facility's license. The operator received training by the licensee and will operate the system in accordance with the licensee's radiation protection procedures. At the time of inspection, this system had not been put into use.

No item of noncompliance was identified in this area.

478
261

5. Training

The names of ten individuals were selected from those that had participated in the steam generator maintenance performed during this outage. Records were reviewed to verify that these individuals had received the training specified in 10 CFR 19.12, "Instruction to workers." The licensee provided this instruction in two ways. First, each individual completed the "General Employee Training" then all received specialized job specific training using the steam generator mock-up. Each individual had also received training in the use of respiratory protective devices.

The 33 temporary health physics technicians reported to the facility two weeks prior to this outage for training and familiarization. During this period, each individual completed the "General Employee Training," a review of selected facility procedures, and familiarization with the licensee's equipment and instrumentation. The records indicate that each technician successfully passed a written examination prepared by the Health Physics Supervisor prior to assuming his responsibilities.

The training records of two female radiation workers were reviewed to verify that they had been provided information concerning prenatal radiation exposure.

No item of noncompliance was identified in this area.

6. Exposure Control

- a. The inspector reviewed the exposure records of 15 individuals selected at random from the licensee's exposure control records.

These records reviewed against the following requirements:

<u>Area</u>	<u>Requirement</u>
Dosimetry	10 CFR 20.202, HPP 901/2901
External Exposure	10 CFR 20.101, HPP 901/2901A
Internal Exposure	10 CFR 20.103, HPP 907/2907, HPP 908/2908
Exposure Records	10 CFR 20.401, HPP 901/2901

Survey records indicate airborne concentrations of radioactive xenon in the Containment Building during the period March 10-13, 1979, of up to 4×10^{-3} uCi/cc. From a review of Containment entries during this period, the inspector verified for six

478
262

individuals, that the licensee had calculated their dose due to this noble gas. The largest single exposure in this group was 904 mrad.

- b. On March 12, 1979, an individual working under Radiation Work Permit (RWO) 790404, "Reactor Pool" passed out when his air supply was stopped. Due to high levels of surface contamination in the work area this RWP required the use of an "Air Supplied Hood." The hood used by the licensee is not recognized by the NRC as an approved device for which protection factors may be applied. The licensee does not apply protection factors for the use of this hood.

When notified of this incident, the licensee stopped all use of the hoods until an evaluation could be made. The evaluation concluded the air had been cut off when the 18-inch thin wall PVC tubing pig tail became twisted. The corrective action to prevent a recurrence of this problem was to reduce the length of the pig tail to less than six inches.

On March 21, 1979, the inspector toured the containment and noted that of 15 air supply hoods available for use, the thin wall PVC pig tail ranged in length from about two to eight inches. A six inch length of this tubing, when twisted 90°, severely restricted the air flow.

The inspector met with licensee representatives on March 22, 1979, to discuss the use of these hoods. The licensee issued a letter MP-1859 on March 23, 1979, to clarify restriction on the production and use of these hoods.

No item of noncompliance was identified in this area.

7. Posting and Area Control

- a. Several tours through the controlled areas were made to verify compliance with the following requirements:

<u>Area</u>	<u>Requirement</u>
Posting	10 CFR 20.203, HPP 902/2902
Labeling	10 CFR 20.203, HPP 905/2905
Area Control	Technical Specification 6.13, HPP 902/2902, ACP 7.04

All areas inspected were adequately posted and properly controlled.

478
263

- b. Several RWPs in progress were reviewed by the inspector. Particular attention was given to RWP 790613, "-22' Steam Generator No. 1, Eddy Current Testing." The requirements of procedure HPP 2920A, "Radiological Control Procedure for Steam Generator Work" were also reviewed.

No item of noncompliance was identified in this area.

9. Surveys

Independent measurements were made and licensee survey records reviewed to determine compliance with the below listed requirements:

<u>Area</u>	<u>Requirement</u>
General	10 CFR 20.201, 10 CFR 20.401
Dosimetry	10 CFR 20.202, HPP 941/2941
External Radiation	HPP 915/2915
Internal Radioactive Material	10 CFR 20.103, HPP 908/2908E

No item of noncompliance was identified in this area.

10. Solid Radioactive Waste

a. Procedures

The following procedures were reviewed to determine if they have been developed consistent with the requirements of 10 CFR 20 and 10 CFR 71.

ACP-QA-6.04, "Radioactive Material Shipping Requirements," Revision 8.

HPP 928/2928A1 through A8, "Shipment and Receipt of Radioactive Materials"

78-1-03 "CNS 4-45 Cask Handling"

78-1-42 "Loading of ATCOR AL33-90 Cask"

78-1-43 "Loading of Chem-Nuclear Systems, CNS 21-300, and 14-195H Casks"

MP-27210 "Loading of the LL-50-100 Cask"

The inspector discussed the need to refine procedure HPP 928/2928B regarding receipt of radioactive materials with licensee representatives.

478
264

In reviewing implementation of the above procedures for several shipments, the inspector noted that no specific methodology for heat load calculation has been incorporated into these procedures. A licensee representative stated that standard methodology will be written into procedures for each cask prior to their next use.

This matter will be reviewed in a subsequent inspection (50-245/79-07-01).

11. Exit Interview

The inspector met with licensee representatives (denoted in Paragraph 1) at the conclusion of the inspection on March 23, 1979. The inspector summarized the scope and findings of the inspection as presented in this report.

478
265