

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

Region I

Report No. 50-271/78-20

Docket No. 50-271

License No. DPR-28 Priority -- Category C

Licensee: Vermont Yankee Nuclear Power Corporation
20 Turnpike Road
Westborough, Massachusetts 01581

Facility Name: Vermont Yankee Nuclear Power Station

Inspection at: Vernon, Vermont

Inspection conducted: September 18-22, 1978

Inspectors: *L. H. Thonus* 10/24/78
L. H. Thonus, Radiation Specialist date signed

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[Signature] date signed

Approved by: *[Signature]* 11-7-78
P. J. Knapp, Chief, Radiation Support Section, date signed
FF&MS Branch

Inspection Summary:

Inspection on September 18-22, 1978 (Report No. 50-271/78-20)

Areas Inspected: Routine, unannounced inspection of radiation protection during refueling by a regional based inspector including licensee action on IE Bulletins, procedures, advance planning and preparation, training, exposure control, facility tours, and surveys. Upon arrival during day shift, a tour was conducted of the radiation control area to observe radiation safety practices at jobs in progress. The inspection involved 34 inspector-hours onsite by one NRC regional based inspector.

Results: Of the seven areas inspected, one item of noncompliance was found in one area (Infraction - failure to control high radiation areas - paragraph 7).

DETAILS

1. Persons Contacted

Mr. W. Anson, Training Coordinator
*Mr. R. W. Burke, Engineering Support Supervisor
*Mr. W. F. Conway, Plant Superintendent
*Mr. D. C. Girroir, Engineering Assistant
*Mr. B. N. Leach, Health Physicist
Mr. T. McCarthy, Health Physics Assistant
*Mr. W. P. Murphy, Assistant Plant Superintendent
Mr. P. Pulaski, Health Physics Assistant
Mr. D. S. Tolin, Health Physics Assistant
*Mr. G. D. Weyman, Chemistry and Health Physics Supervisor

The inspector also interviewed ten other persons including health physics technicians, clerks, maintenance personnel and members of the security force.

* denotes those present at exit interview.

2. Licensee Actions on IE Bulletin

The inspector reviewed the licensee's respiratory protection program and examined equipment in use.

78-07: The inspector found that the licensee does not use air-line supplied air respirators in the demand mode or air hood type respirators. A licensee representative stated that if such equipment were to be used in the future, protection factors used would not be greater than those recommended in the bulletin.

3. Procedures

The following procedures were reviewed against the criteria given in ANSI N18.7-1972, Regulatory Guide 1.33 (1972) and procedure A.P. 0001 "Plant Procedures":

- A.P. 0505 "Respiratory Protection," Revision 4, May 8, 1978
- A.P. 0506 "Personnel Monitoring," Revision 2, February 8, 1978
- A.P. 0507 "Primary Containment Entry," Revision 2, July 13, 1978
- D.P. 0533 "Body Burden Counting," July 26, 1978
- D.P. 0640 "Chemistry and Health Physics Department Scheduling,"
Revision 9, July 26, 1978

- A.P. 1000 "Refueling," Revision 4, September 15, 1978
- A.P. 1001 "Refueling Floor, Refueling Floor Cavities and Reactor Vessel Access Control," Revision 6, June 6, 1978
- O.P. 1110 "Fuel Support Removal and Installation," Revision 7, May 8, 1978
- O.P. 1111 "Control Rod Removal and Installation," Revision 7, May 8, 1978
- O.P. 1620 "Fuel Sipping," Revision 4, September 15, 1978
- A.P. 4500 "Radioactive Source Accountability Inventory and Leak Testing," Revision 4, July 13, 1978
- D.P. 4532 "Personnel Contamination Survey," Revision 5, January 17, 1978
- D.P. 4540 "Calibration of H.P. Portable and Laboratory Radiation Detection Instruments," Revision 5, July 26, 1978

No items of noncompliance were identified.

4. Advance Planning and Preparation

The licensee augmented his health physics staffing with approximately 24 contractor health physics technicians. The qualifications of the technicians were reviewed against their assigned duties and the criteria given in ANSI N18.1-1971. No inadequacies were found in the licensee's increased supply of protective clothing and temporary shielding. The licensee was utilizing an on-site laundry contractor for cleaning of protective clothing.

No items of noncompliance were identified.

5. Training

The licensee's radiation protection training program was examined against the criteria of 10 CFR 19.12, ANSI N18.1-1971, and A.P. 0720 "Employee Processing," Training records of 10 individuals, principally contractors, were examined. The inspector found that while all personnel received initial training in radiation protection there was no specific retraining program and time interval for contractors who spent several years at the plant. The five individuals who fell into this category were given annual retraining prior to the end of the inspection.

Contractors who left the facility and returned for refueling outages were retrained each time they returned. The inspector found that training and retraining requirements had been established for other categories of personnel and were being adhered to.

No items of noncompliance were identified.

6. Exposure Control

All personnel entering the Radiation Control Area (RCA) are routinely issued a thermoluminescent dosimeter (TLD) and self-reading pocket dosimeter (SRD). These devices are assigned to individuals. Additional dosimetric equipment may be required in certain areas such as the drywell or by job specific radiation work permits (RWP).

The inspector examined NRC-4 forms of eight individuals who had received or were authorized to receive exposures in excess of 1250 mrem/quarter. The VYAPF 0501.01 forms for these individuals were examined for adherence to the requirements of procedure AP 0501.

Contractors and plant personnel routinely receive whole body counts prior to working in the RCA. The inspector examined the results of whole body counting of two individuals who had exhibited contamination on nasal smears. The results indicated less than 5% of Maximum Permissible Body Burden.

The licensee's respiratory protection program was reviewed. The licensee's program included a requirement for medical certification and individual man-fit testing in a NaCl test booth. Individuals are allowed to use only those respirators in which they passed the man-fit testing.

No items of noncompliance were identified.

7. Facility Tours

Several tours of the Radiation Control Area (RCA) and one of the entire facility were conducted. Control, posting and labeling of contaminated areas, radioactive materials, and radioactive materials storage areas were examined. Radiation work permits (RWPs) were reviewed against licensee surveys and independent measurements made by the inspector to determine whether they afforded an adequate level of protection to workers. Workers were observed for adherence to procedures and RWPs.

Technical Specification (TS) 6.5.B.1 requires that in lieu of the "control device" or alarm signal required by paragraph 20.203(c)(2) of 10 CFR 20, each high radiation area in which the intensity of radiation is 1000 mrem/hr or less be barricaded and conspicuously posted as a high radiation area and entrance thereto be controlled by requiring issuance of Radiation Work Permit.

On September 20, 1978 the entrance to a walkway on top of a wall separating the reactor water cleanup (RWCU) pump rooms was posted as a radiation area. This walkway provided access to three high radiation areas. The first access was via a plank leading to piping on the top of the east RWCU room with dose rates as high as 200 mrem/hr at one foot from the pipes. The second access was a storage area directly at the rear of the walk in which general radiation levels near the railing adjoining the RWCU pump room were as high as 150 mrem/hr. The third access was via a wooden ladder into the west RWCU pump room in which dose rates accessible to a major portion of the whole body were as high as 900 mrem/hr. The chain used to barricade this area was a steel chain with nothing indicating that it was the barricade to a high radiation area. The inspector identified the above as noncompliance with TS 6.5.B.1. (271/78-20-01)

Also, on September 20, 1978, an entrance from the 252 ft. elevation of the reactor building to a high radiation area on the catwalk on top of the torus was not barricaded. The high radiation area contained dose rates accessible to a major portion of the whole body of 200 mrem/hr. While touring the catwalk a second access via a ladder from the 213 ft. elevation of the reactor building was found to be unposted and unbarricaded. The inspector noted that the failure to barricade the two entrances and post one was a second example of noncompliance with TS 6.5.B.1.

The licensee barricaded the above areas, corrected the area posting by the RWCU pump rooms, and posted the access to the torus catwalk.

8. Surveys

The inspector reviewed licensee radiation contamination and airborne surveys against the criteria in 10 CFR 20.103, 10 CFR 20.201, licensee procedure D.P. 4530 "Dose Rate Radiation Surveys," procedure D.P. 4531 "Radioactive Contamination Surveys," and procedure D.P. 4533 "Airborne Radioactivity Concentration Determination." Contamination and Radiation Surveys were examined for the period August 12 through September 20, 1978. Independent measurements were made to verify selected recent licensee surveys. Airborne activity surveys were examined for the period September 15 through September 21, 1978. Gamma isotopic analyses of the licensee's particulate and charcoal filters were reviewed and the licensee's method of calculating the fraction of 10 CFR 20 Appendix B concentrations were examined.

No items of noncompliance were identified.

9. Exit Interview

The inspector met with licensee management representatives (denoted in paragraph 1) on September 22, 1978. The inspector summarized the purpose and scope of the inspection and the findings.

A licensee management representative stated that annual radiation protection retraining would be implemented for all personnel and documented by December 1, 1978.