

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

Region I

Report No. 50-29/78-19

Docket No. 50-29

License No. DPR-3 Priority -- Category C

Licensee: Yankee Atomic Electric Company

20 Turnpike Road

Westborough, Massachusetts 01581

Facility Name: Yankee Nuclear Power Station (Yankee-Rowe)

Inspection at: Rowe, Massachusetts

Inspection conducted: November 6-8, 1978

Inspectors: Karl E. Plumlee
Karl E. Plumlee, Radiation Specialist

12/20/78
date signed

Percy E. Clemons
Percy E. Clemons, Radiation Specialist

12/20/78
date signed

date signed

Approved by: Hilbert W. Crocker
Hilbert W. Crocker, Acting Chief, Radiation
Support Section, FF&MS Branch

12/20/78
date signed

Inspection Summary:

Inspection on November 6-8, 1978 (Report No. 50-29/78-19)

Areas Inspected: Routine, unannounced inspection by regional based inspectors of radiation protection during refueling, including procedures, training, exposure control, posting and control of radiation areas and high radiation areas, and labeling and control of radioactive materials. Upon arrival, areas where work was being conducted were examined to review radiation safety control procedures and practices. This inspection involved 53 inspector-hours on site by two NRC regional based inspectors.

Results: Of the five areas inspected, no items of noncompliance were identified in two areas. Five items of noncompliance were identified in three areas (Infraction - failure to prepare two Form NRC-4's, paragraph 3.a; Deficiency - failure to maintain correct Form NRC-5 information, paragraph 3.b; Infraction - failure to adhere to procedures, paragraph 3.c; Infraction - failure to post two radiation areas, paragraph 4; and Deficiency - failure to retain a record of training, paragraph 5).

DETAILS

1. Persons Contacted

a. Yankee-Rowe Employees

- *R. Aron, Technical Assistant
- H. Autio, Plant Superintendent
- G. Babineau, Health Physics Assistant Supervisor
- W. Billings, Chemistry and Health Physics Supervisor
- J. Gottardi, Health Physics Technician
- *L. Laffond, Assistant Training Coordinator
- *N. St. Laurent, Assistant Plant Superintendent
- *J. Staub, Technical Assistant to the Plant Superintendent
- *J. Trejo, Plant Health Physicist

b. Nuclear Support Services (NSSS) Employees

- B. Horrell, Acting Health Physics Assistant Supervisor
- A. Nice, Health Physics Technician

* denotes those present at the exit interview at 3:00 p.m.,
on November 8, 1978.

2. Licensee Action on Bulletins

Bulletin 78-07: Air-line respirators and supplied air hoods.
Review of the licensee's reply, dated July 31, 1978, and observation
of respirator use did not identify any problems. (Paragraph 6)

Bulletin 78-08: Radiation level from fuel element transfer tubes.
Review of the licensee's reply, dated July 24, 1978, and observation
of fuel transfer tube operation did not identify any problems.
The licensee's records of shield review will be examined on a
subsequent inspection (29/78-19-06).

3. Exposure Control

a. Form NRC-4 Information

Part of the inspection effort was to determine compliance with requirements of 10 CFR 20.101(a), "Exposure of individuals to radiation in restricted areas," which limits the whole body dose to any individual in restricted areas to 1 1/4 rem in any calendar quarter except as provided by 10 CFR 20.101(b). 10 CFR 20.101(b) allows a whole body dose up to 3 rem per calendar quarter provided certain specified conditions are met. One of these conditions is that the licensee has determined the individual's accumulated occupational dose to the whole body on Form NRC-4 or on a clear and legible record containing all of the information required on that form.

The inspector selected 12 names of temporary personnel who had been assigned limits on dose to the whole body greater than 1 1/4 rem during the fourth calendar quarter of 1978, as shown by the TRAP computer information system updates for November 4, 6, and 7, 1978. The inspector reviewed their Form NRC-4 information.

The inspector identified one individual who was assigned a 2 rem limit of which he had received 1.687 rem by November 6, 1978, and parts 11 and 13 of his Form NRC-4 had not been completed (i.e., "Accumulated Occupational Dose" and "Calculations - Permissible Dose Whole Body").

The inspector identified another individual who was assigned a 2 rem limit of which he had received 1.084 rem by November 7, 1978, and 0.34 rem was omitted in the licensee's determination of part 11 of his Form NRC-4, which carried over into parts 13.b, "Total Exposure to Date," and 13.c, "Unused Part of Permissible Accumulated Dose." Although this individual had not exceeded 1 1/4 rem, the licensee had given permission to do so.

The inspector identified these as examples of noncompliance with the above requirements (29/78-19-01).

The inspector noted that information in the above files indicated that both individuals could have been properly assigned the 2 rem limit had the licensee adhered to the provisions of 10 CFR 20.102, "Determination of Accumulated Dose."

b. Form NRC-5 Information

10 CFR 20.401 "Records of surveys, radiation monitoring, and disposal" requires in section (a) that each licensee maintain records showing the radiation exposures of all individuals for whom personnel monitoring is required under 10 CFR 20.202, on Form NRC-5 in accordance with the instructions contained on that form or on a clear and legible record containing all of the information required by Form NRC-5. YAEC retains the Form NRC-5 information in the TRAP computer record system, documented in a letter dated January 23, 1978, and approved by NRC in a letter dated February 18, 1978.

The inspector reviewed the TRAP records of the above 12 individuals to determine that correct Form NRC-5 information is retained in the computer information system.

The inspector identified a clerical omission of 1.22 rem in the input of dose during 1978 prior to the fourth calendar quarter, to one individual. The error carried over in each TRAP update up to November 6, 1978, the individual having left the site on November 4. He had received a 1.529 rem dose to the whole body during the fourth calendar quarter of 1978 while working in restricted areas on site.

The inspector noted that 10 CFR 20.401(a) requires the licensee to maintain a Form NRC-5 for this individual but the information required to be entered in Form NRC-5 was incorrect as shown by examination of the year to date column of the information printed by the TRAP system. Specifically, the information required in items 6, 8 through 16, and 18 of Form NRC-5 was incorrect.

The inspector identified this as noncompliance with the above requirements (29/78-19-Q7).

The inspector noted that the personnel file for the above individual appeared to contain all the required Form NRC-4 information on his dose prior to his reporting on site on October 21, 1978, and the error in transferring information was clerical and not an indication of a TRAP information system malfunction. A similar item of noncompliance was identified on Inspection No. 29/78-03.

c. Radiation Work Permits (RWPs)

Technical Specification Section 6.11, "Radiation Protection Program," requires that procedures for personnel radiation protection shall be prepared consistent with the requirements of 10 CFR 20 and shall be approved, maintained, and adhered to for all operations involving personnel radiation exposures.

Procedure #OP8415 developed pursuant to Technical Specification 6.11 states, "Personnel will not deviate from Instructions on the Work Permit without authorization from Health Physics or Duty Shift Supervisor."

Part of the inspection effort was to observe the compliance with procedures and RWPs.

The inspector observed that one individual was working bare-handed on a cut off end of a pipe under RWP No. 935 on November 6, 1978, but the RWP required gloves.

The inspector identified this as noncompliance with the above requirement (29/78-19-02).

A licensee representative smeared the pipe and the smear was measured at 200,000 dpm.

The licensee representative temporarily removed this individual from the job and required the individual to decontaminate his hands. The inspector observed a subsequent check of the individual using a frisker which showed that his hands had been decontaminated and that he had no detectable contamination on his clothing or his face, body, or extremities.

No other items of noncompliance involving failures to observe procedures were identified.

4. Posting and Control

10 CFR 20.203, "Caution signs, labels, signals, and controls," required in (b) that each radiation area be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words, "Caution, Radiation Area." 10 CFR 20.202 section (a)(2) defines a "Radiation Area" as any area, accessible to personnel, in

which there exists radiation, originating in whole or in part within licensed material, at such levels that a major portion of the body could receive in any one hour a dose in excess of 5 millirem.

Part of the inspection effort was to review compliance with posting and control requirements.

The inspector observed on November 6, 1978, that two areas near some 4 ft x 8 ft containers of radwaste located outdoors were unattended and not posted as radiation areas although the radiation levels were measured at up to 25 mrem/hr at 12 inches from the containers. One group of these containers was below the containment, near the elevator, and the other was near the trash compactor.

The inspector identified these as examples of noncompliance with the above requirements (29/78-19-03). The inspector noted that a similar item of noncompliance was identified on Inspection No. 77-06.

The licensee representative promptly posted these areas.

5. Record Retention

Technical Specification 6.10.2, "Record Retention," requires, in part, that the records of training and qualification for current members of the plant staff shall be retained for the duration of the Facility Operating License.

Procedure No. APF 9000 requires the training of new or temporary personnel to be recorded on form APF-9000.1 prior to performing any of the duties listed on the form. These listed items include health physics procedures, surveys, radiation work permits, and instrument operation.

The inspector reviewed the resumes and the training records of the 27 contractor personnel who were performing radiation protection responsibilities during the outage, to determine the compliance with qualification requirements specified in ANSI N18.1-1971, "Selection and Training of Nuclear Power Plant Personnel," and with requirements of 10 CFR 19.12 and the licensee's procedures.

The inspector noted that one individual had worked on site from October 21 to November 4, 1978, and appeared to have attended the training required for unescorted work in radiation areas but there was no form APF 9000.1 for this individual and there was no other record of this training.

He had received a 1.529 rem dose to the whole body (paragraph 3.b) and training was required before performing work in the areas where the dose was incurred.

Based on interviews with the Training Coordinator and with other individuals who stated that the above individual had attended the same training sessions that they attended, the inspector identified the lack of the record as noncompliance with the above record retention requirement (29/78-19-04).

The licensee representative corrected the record by the completion of the inspection.

6. Radiation Protection Procedures and Practices

a. Outage Jobs

The inspector reviewed the plans and procedures being used during the refueling, including the preplanning of major jobs, mockups, training, shielding, and decontamination to reduce the radiation exposures to personnel.

No items of noncompliance were identified.

b. Resiratory Protection

Review of the licensee's compliance with the requirements of 10 CFR 20.103 "Exposure of individuals to concentrations of radioactive materials in restricted areas" and with the stipulations of Regulatory Guide 8.15 "Acceptable programs for respiratory protection" showed that the licensee's Respiratory Protection Manual had preceded the Guide and had not been updated to conform to the Guide. The licensee representative informed the inspector by telephone on December 14, 1978, that the Manual will be updated and reissued with the Plant Superintendent's written approval including a written policy statement on respirator usage conforming to the guidance in section C.1 of Regulatory Guide 8.15.

The completion of this action will be reviewed on a subsequent routine inspection. (29,78-19-5)

The inspector observed that each respirator user had been provided audiovisual training and respirator fitting that fully complied with the above Guide prior to being permitted in areas where respirators were used.

The review of the respiratory protection program included observing the personnel training and the testing of the respirator fit using airborne DOP in a test booth as well as observation of the use of respirators on the job.

No items of noncompliance were identified.

c. In-Vivo Determinations

Observation of the in-vivo determinations being performed on each person who was to be allowed in containment or had completed his tour on site did not identify any items of noncompliance.

7. Radioactive and Contaminated Material Control

Part of the inspection effort was to observe the control of radioactive and contaminated equipment such as tools, protective clothing, and waste. The inspector also reviewed selected shipping and receiving records.

The licensee has installed a compactor to reduce the volume of low level radioactive waste. The base of the compactor required reinforcing during the inspection because it had bowed. The waste is compacted into 4 ft x 8 ft x 4 ft deep plywood boxes. The licensee representative stated that compaction reduced the cost of waste disposal.

The plywood container is confined while waste is compacted into the container. None of the container corners appeared to be affected by this operation and there was no obvious bulging or damage to any part of the containers. After the top was secured, the container was banded prior to shipping.

No items of noncompliance were identified.

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8. Surveys and Air Sampling

Part of the inspection effort was to review the licensee's compliance with requirements of 10 CFR 20.201 "Surveys" and 10 CFR 20.103 "Exposures of individuals to concentrations of radioactive materials in air in restricted areas."

The inspector reviewed the records of recent surveys and air samples, and the current radiation work permits (RWP's) several of which required the use of respirators and also breathing zone air sampling.

The inspector toured the facility, observed the work being performed under the RWP's, and performed confirmatory surveys to evaluate the licensee's surveys, posted information and controls.

No items of noncompliance with the requirements of 10 CFR 20.201 and 10 CFR 20.103 were identified.

9. Exit Interview

The inspector met with the licensee representatives denoted in paragraph 1 at the conclusion of the inspection on November 8, 1978.

The inspector reviewed the scope and findings of the inspection.

The requirement for an official policy statement on respiratory protection was reviewed. (Followup on this item is documented in paragraph 6.b)

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