

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 85-23

Docket No. 50-29

License No. DPR-3 Priority -

Category C

Licensee: Yankee Atomic Electric Company
1671 Worcester Road
Framingham, Massachusetts 01701

Facility Name: Yankee Nuclear Power Station

Inspection At: Rowe, Massachusetts

Inspection Conducted: October 28 to November 1, 1985

Inspectors: *Thomas Dragoun*
Thomas Dragoun, Radiation Specialist

11/27/85
date

A. McFadden
John McFadden, Radiation Specialist

11/27/85
date

Approved by: *M. Shambaky*
Mohamed Shambaky, Chief
PWR Radiation Protection Section

11/27/85
date

Inspection Summary:

Inspection on October 28 to November 1, 1985 (Report No. 50-29/85-23)

Areas Inspected: Routine, unannounced inspection of the licensee's radiation protection program including: ALARA implementation during the outage; control of work; frisking; posting and control of high radiation exclusion areas; control of radioactive material; and the evaluation of a worker uptake. This inspection involved 74 inspector-hours onsite by two region-based inspectors.

Results: No items of noncompliance were identified.

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DETAILS

1.0 Persons Contacted

During the course of this routine inspection, the following personnel were contacted or interviewed:

1.1 Licensee Personnel

N. N. St. Laurent, Plant Superintendent
T. K. Henderson, Technical Director
B. L. Drawbridge, Assistant Plant Superintendent
G. M. Babineau, Radiation Protection Manager
R. Mellor, Chemistry Manager

1.2 NRC Personnel

H. Eichenholz, Senior Resident Inspector

All personnel listed above attended the exit interview on November 1, 1985.

2.0 Purpose

The purpose of this routine outage inspection was to review the licensee's radiation protection program with respect to the following elements:

- ALARA Implementation
- Radiation Work Permits
- Frisking
- Control of High Radiation Exclusion Areas
- Control of Radioactive Material
- Evaluation of Worker Uptake of Radioactive Material

3.0 ALARA Implementation

The licensee's implementation of an ALARA program for the refueling outage was reviewed against criteria contained in:

- 10 CFR 20.1 Purpose
- Regulatory Guides 8.8 and 8.10
- Procedure No. OP-8020, "Alara Review Procedure," Revision 1
- Draft Procedure No. OP-8020A, "Implementation and Documentation of ALARA Job Reviews"

The licensee's performance relative to these criteria was determined from discussions with the Radiation Protection Manager and ALARA coordinator, ALARA reviews, and observation of work in progress.

Within the scope of this review, no violations were identified. Licensee strengths and weaknesses were noted as follows:

The licensee has drafted but has not fully implemented an improved ALARA procedure. The corporate HP group demonstrated good preplanning by publishing ALARA reviews of all significant Engineering Design Change Requests scheduled to be done this outage. Reactor fuel integrity will be checked with ultrasonics rather than sipping which should result in dose savings.

The ALARA Coordinator position has been vacant for several months and was filled by a temporary subcontractor at the beginning of the outage. There has been no formal corporate or station policy regarding an ALARA program. Although an annual goal for personnel exposure exists, there have been no exposure goals established for the outage. There is no system to track exposure associated with a specific work package. Implementation of these ALARA program elements is unresolved and will be reviewed in a future inspection (85-23-01).

4.0 Radiation Work Permits

The licensee's program to control outage work and protect workers using a radiation work permit system was reviewed against criteria contained in:

- Technical Specification 6.8, Procedures
- Regulatory Guide 1.33 (November 1972), Appendix A, Section G.5, "Personnel Monitoring and Special Work Permit"
- 10 CFR 19.12, Instruction to workers
- 10 CFR 20, Standards for Protection Against Radiation
- Procedure OP-8415, Radiation Work Permits

The licensee's performance relative to these criteria was determined by a review of the issuance process for radiation work permits, interviews with workers, observation of work in progress, and interviews with HP technicians in the work area.

Within the scope of this review, no violations were identified. Licensee strengths and weaknesses were noted as follows:

The licensee has issued a "Radiological Work Practices Policy Statement" to site personnel. This document emphasizes the need to follow RWP requirements as well as other work practices. Also included is a four-step disciplinary action policy that provides for worker termination for failure to comply with radiation protection requirements. The inspector noted that this policy indicated a strong and clear management support of the RP requirements.

The inspector noted that the current RWP procedure does not provide guidance for issuance of extremity monitoring. A review of completed

The licensee's performance relative to these criteria was determined by:

- Tours of the reactor containment, auxiliary building, and protected area
- Observation of surface contamination surveys and decontamination activities
- Discussions with RP personnel
- Review of RWP's and survey records

During tours of the reactor containment and protected areas, radioactive components removed during the outage appeared to be adequately labeled and stored in adequately controlled areas. The control and removal of radioactive waste was also adequately addressed by the licensee.

Removable surface contamination surveys were being performed once per shift in six plant areas including the VC charging floor. Recent survey maps were observed on the radiological status board in the vicinity of the main control point.

Observation and discussion with RP personnel indicated that step-off pads (SOPs) were used as single units and were to be treated as being contaminated. But licensee procedure OP-8100, titled Establishing and Posting of Control Areas, did not reflect this actual practice. In addition to defining a contamination-controlled area, this procedure states that access controls, similar to those shown in figures in the procedure, are to be used. For moderately contaminated areas, one figure indicated that two contiguous SOPs (outer one clean/inner one contaminated) are to be placed at the access point. For highly contaminated areas, another figure indicated that a clean SOP is to be placed at an outer access point and that two contiguous SOPs (outer one potentially contaminated/inner one contaminated) are to be placed at an inner access point. RP personnel stated that radiation worker training included instruction and demonstration of access control using contaminated SOPs and that this practice was not causing any confusion. Differences between written procedures and actual plant practice is a problem which was identified in previous inspections. The licensee has made a commitment to the NRC to review all RP procedures and to have procedures reflect practice. Continued allocation of significant resources to this review process were evident during this inspection.

Within the scope of this review, no violations were identified.

9.0 Evaluation of Worker Uptake of Radioactive Material

The licensee's methods of evaluating an uptake of airborne radioactive material by two workers on October 22, 1985, was reviewed against criteria contained in:

- 10 CFR 20.103, Exposure of Individuals to Concentrations of Radioactive Materials in Air in Restricted Areas.
- Regulatory Guide 8.9, Acceptable Concepts, Models, Equations, and Assumptions for a Bioassay Program.
- Regulatory Guide 8.26, Applications of Bioassay for Fission and Activation Products.
- IE Notice 82-18, Assessment of Intakes of Radioactive Material by workers.

The licensee's performance relative to these criteria was determined by discussions with the health physicist conducting the evaluation and a review of bioassay data.

The licensee's data indicates that two workers experienced uptakes of 42.8 MPC-hours and 26 MPC-hours of airborne radioactive dust. The elimination of these uptakes was evaluated using urine and fecal analysis and whole body counting. The analytical methods were determined to be adequate and no worker overexposure had occurred.

10.0 Exit Interview

The inspector met with licensee personnel denoted in Section 1.1 at the conclusion of the inspection on November 1, 1985. The scope and findings of the inspection were discussed at that time.