

U.S. NUCLEAR REGULATORY COMMISSION  
REGION I

Report No. 86-03

Docket No. 50-271

License No. DPR-28 Priority \_\_\_\_\_ Category C

Licensee: Vermont Yankee Nuclear Power Corp.

RD 5, Box 169

Ferry Road

Brattleboro, Vermont 05301

Facility Name: Vermont Yankee

Inspection At: Vernon, Vermont

Inspection Conducted: February 3-6, 1986

Inspectors: Jean A. Cioffi 3/3/86  
Jean A. Cioffi, Radiation Specialist, FRPS date

Henry J. Bicehouse 3/3/86  
Henry J. Bicehouse, Radiation Specialist, ERPS date

Approved by: M. Shanbaky 3/3/86  
Mohammed M. Shanbaky, Chief, FRPS date

Inspection Summary:  
Inspection conducted on February 3-6, 1986 (Inspection Report No. 50-271/86-03)

Areas Inspected: Routine, unannounced inspection of radiological controls during the current piping replacement outage. The scope of the inspection covered the N-2 safe-end work with respect to the following elements: implementation of the radiation protection program, external exposure controls, internal exposure controls, and ALARA. The inspection involved 74 inspector hours on-site by two region-based inspectors.

Results: No violations or deviations were identified during this review.

## DETAILS

### 1. Personnel Contacted

- S. Clark, Numanco Alara Supervisor
- \*R. Leach, Chemistry and Health Physics Supervisor, VY
- \*R. Morrissette, Plant Health Physicist
- \*J. Pelletier, Plant Manager, VY
- \*D. Reid, Operations Superintendent, VY
- J. Schleser, Numanco Alara Supervisor
- D. Tolin, Whole Body & Respiratory Systems Engineer, VY
- C. Wend, Health Physics Manager, Morrison-Knudsen Co.

Other licensee and contractor personnel were contacted or interviewed during the course of this inspection.

\*Attended the exit interview on February 6, 1986

### 2.0 Purpose

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

- Implementation of the Radiation Protection Program
- External Exposure Control
- Internal Exposure Control
- ALARA

### 3.0 Implementation of the Radiation Protection Program

The licensee's program for controlling radioactive materials and contamination, providing surveillance and monitoring and establishing and maintaining administrative radiological work controls was reviewed relative to criteria and commitments in:

- 10 CFR 19.11, 19.12, 20.201, 20.203 and 20.401;
- Technical Specifications 6.5, "Operating Procedures";
- AP 0502, "Radiation Work Permits," Revision 15 (September 13, 1985); and
- FVY 85-52 and its attachment.

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

- interviews and discussions with C&HP Assistants and Technicians and selected radiation workers;

- review of selected RWPs governing the N2 safe-end work activities, supporting surveys and other records; and
- direct observation and measurements during plant tours.

Within the scope of this review, no violations or deviations were noted.

The inspector noted that the licensee's Health Physics staff were controlling work activities supporting the installation of the N2 safe-ends. There was continuous Health Physics coverage for all the observed drywell activities, and positive control over drywell entries and exits. Radiation workers were properly briefed prior to entering the drywell. The inspector also observed good ALARA practices such as strict controls to minimize unnecessary waiting in radiation areas prior to commencement of work.

#### 4.0 External Exposure Control

The licensee's outage external exposure control program was reviewed against criteria and commitments provided in:

- 10 CFR 20.101, 20.102, 20.104, 20.105, 20.201, 20.202, 20.203 and 20.401;
- Technical Specification 6.5, "Operating Procedures";
- AP 0501, "Radiation Protection Standards," Revision 9 (September 20, 1985);
- AP 0502, "Radiation Work Permits," Revision 15 (September 13, 1985);
- AP 0503, "Establishing and Posting Controlled Areas," Revision 8 (June 21, 1984);
- AP 0506, "Personnel Monitoring," Revision 9 (August 12, 1985);
- AP 0529, "Health Physics Incident Reports," Revision 0 (August 12, 1985);
- Licensee's letter (FVY 85-52), "Vermont Yankee Radiation Exposure Control Program For The Recirculation Pipe Replacement Project," (May 31, 1985) and its attachment.

The licensee's performance relative to the criteria and commitments was determined by:

- interviews and discussions with licensee and contractor health physics personnel;
- observations and measurements during tours of the drywell, and reactor building;

- review of RWPs and supporting surveys for the N2 piping replacements;
- review of logs, health physics incident reports and other records; and
- examination of exposure reports and other records related to twenty radiation workers.

Within the scope of this review, no violations or deviations were noted. The licensee appeared to be implementing a generally effective external exposure control program in the areas reviewed.

#### 5.0 Internal Exposure Control

The licensee's program for control of airborne radioactive contamination, internal exposure to radioactive materials and respiratory protection during the outage was reviewed relative to criteria and commitments provided in:

- 10 CFR 20.103 and 20.401;
- Technical Specifications 6.5, "Operating Procedures;" and
- FVY 85-52 and its attachment.

#### 5.1 Airborne Exposure Control

The licensee's air sampling and engineering controls for airborne radioactive contamination were reviewed relative to the criteria and commitments above and:

- AP 0501, "Radiation Protection Standards," Revision 9 (September 9, 1985);
- Department Procedure (DP) 4531, "Radioactive Contamination Surveys," Revision 9 (May 31, 1985); and
- OP 4533, "Airborne Radioactive Concentration Determination," Revision 8 (May 8, 1984).

The licensee's performance relative to the criteria and commitments was determined by:

- observation of air sampling during plant tours;
- review of air sample analyses and other records; and
- discussions with health physics personnel.

Within the scope of this review, no violations or deviations were observed. The licensee appeared to be implementing an air sampling program in accordance with established procedures.

## 5.2 Internal Exposure Assessment

The licensee's implementation of *in vivo* bioassay assessment of possible internal exposures to workers was reviewed relative to the criteria referenced in Section 5.0 of this report and:

- AP 0529, "Health Physics Incident Reports," Revision 0 (August 12, 1985)

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

- discussions with the Whole Body & Respiratory Systems Engineer and other health physics personnel;
- review of bioassay, contamination survey and other records and reports for selected radiation workers; and
- examination of MPC-hour determinations and exposure tracking procedures.

Within the scope of this review, no violations or deviations were noted.

## 6.0 ALARA Program

The licensee's "As Low As Is Reasonably Achievable" (ALARA) Program for the outage was reviewed during Inspection No. 50-271/85-28, and updated in Inspection No. 50-271/85-39. During this inspection, revised exposure estimates for piping replacement and other outage activities were reviewed and discussed with cognizant licensee and contractor health physics personnel.

Within the scope of this review, the inspector noted that:

- estimated exposures for pipe replacement work have remained steady since the initial increase from approximately 1375 man-rem to approximately 1800 man-rem. The licensee stated that the initial increase in exposure estimates was due to the relatively low decontamination factor achieved during the decontamination of the Recirculation Residual Heat Removal System piping; and
- as of February 4, 1986, all outage related work totalled 1350.5 man-rem, with 1101 man-rem specifically originating from the piping replacements.

## 7.0 Exit Interview

The inspector met with the licensee's representatives (denoted in Paragraph 1) at the conclusion of the inspection on February 6, 1985. The inspector summarized the purpose and scope of the inspection and findings as described in this report.