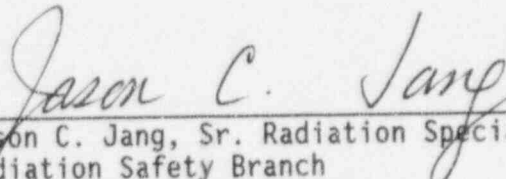


U. S. NUCLEAR REGULATORY COMMISSION
REGION I

DOCKET/REPORT NO: 50-271/95-24
LICENSEE: Vermont Yankee Nuclear Power Corporation
Brattleboro, Vermont 05301
FACILITY: Vermont Yankee Nuclear Power Station and Yankee Atomic
Environmental Laboratory
LOCATIONS AT: Vernon, Vermont, and Framingham, Massachusetts
DATES: October 30-November 3, 1995


INSPECTOR:



Jason C. Jang, Sr. Radiation Specialist
Radiation Safety Branch
Division of Reactor Safety

11-24-95
Date

APPROVED BY:



John R. White, Chief
Radiation Safety Branch
Division of Reactor Safety

11/28/95
Date

Areas Inspected: Announced safety inspection of the radioactive liquid and gaseous effluent control programs including: management controls, audits, air cleaning systems, calibration of effluent/process radiation-monitoring systems, and implementation of the Off-Site Dose Calculation Manual (ODCM) and the above programs.

Results: Within the areas inspected, the licensee implemented effective radioactive liquid and gaseous effluent control programs. The Chemistry Department staff maintained and enhanced excellent knowledge in these programs. No safety concerns or violations of NRC requirements were identified.

DETAILS

1.0 INDIVIDUALS CONTACTED

1.1 Licensee Personnel

D. Farquharson, Chemistry Assistant
R. Gerdus, Chemistry Engineer
J. Laughney, QA Auditor
*E. Lindamood, Technical Services Superintendent
*S. McAvoy, Chemistry Assistant
*G. Maret, Operations Superintendent
*S. Skibniowsky, Chemistry Manager
*D. Volant, Chemistry Assistant-Environmental
M. Watson, I&C Supervisor
D. Weyman, Operations Support, Corporate Office

1.2 Yankee Atomic Environmental Laboratory, Framingham, Massachusetts

M. Kralian, Analytical Service Group Manager
D. McCurdy, Director of Laboratory Development
E. Moreno, Sample Processing Supervisor

1.3 NRC

*W. Cook, Senior Resident Inspector
P. Harris, Resident Inspector

1.4 United Kingdom

*D. Pryke, Ministry of Agriculture, Fisheries, and Food,
Radiological Protection Unit

*Denotes those present at the exit interview on October 19, 1995. The inspector also contacted and interviewed other licensee employees.

2.0 PURPOSE

The purpose of this inspection was to review the licensee's ability to control and quantify effluent radioactive liquids, gases, and particulates during normal and emergency operations.

3.0 MANAGEMENT CONTROLS

3.1 Program Changes

The inspector reviewed the organization and administration of the radioactive liquid and gaseous effluent control programs and discussed with the licensee changes made since the last inspection, conducted in November 1994. There were no significant changes in the licensee's radioactive liquid and gaseous effluent control programs since the previous inspection. The Chemistry Department has the responsibility to conduct the radioactive liquid and gaseous effluent control programs and to implement the Off-Site Dose Calculation Manual (ODCM). The Operations, Radiation Protection, and

Instrumentation and Controls (I&C) Departments also have responsibilities for supporting the effluent control programs, such as with radwaste discharges, air cleaning systems, and radiation-monitoring system calibrations (radiological and/or electronical calibrations), respectively. Corporate personnel have the responsibility to submit the semiannual effluent and the annual projected dose assessment reports.

3.2 Review of Semiannual Effluent and Projected Dose Assessment Reports

The inspector reviewed the semiannual radioactive effluent release reports for 1994 and the 1994 projected dose assessment report. These semiannual reports provided total released radioactivity for liquid and gaseous effluents. These reports also contained any changes to the ODCM and meteorological data. There were no obvious anomalous measurements, omissions, or trends.

The 1994 projected dose assessment report contained maximum individual and population doses resulting from routine radioactive airborne and liquid effluents. Doses were well below the regulatory limits. The inspector determined that the licensee met the technical specification (TS) reporting requirements.

During the review of the semiannual effluent reports, the inspector noted that the total amount of noble gas releases were listed as "less-than" values (e.g, less than 100 Ci/quarter). The inspector also noted that these values were based on the sum of the lower limits of detection (LLDs) from individual sample measurements. The LLD is established "a priori" based on the measurement technique (such as the measurement system, counting geometry, sample size, and counting time) to be routinely used. The LLD is variable in relation to changes in the above parameters. Therefore, the sum of the LLDs does not represent any meaningful value and may represent an over-estimation of noble gases actually released from the plant. The inspector noted that the industry generally reports actual released values. The licensee stated that the reporting of the sum of LLD methods will be reviewed and consideration given to adopting current industry practices. The inspector stated that the licensee's decision regarding data reporting will be reviewed during a subsequent inspection.

4.0 QUALITY ASSURANCE (QA) AUDIT

The inspector reviewed the 1995 QA audit report (Audit No. VY-95-02) conducted by the quality assurance group (QAG) for the radioactive liquid and gaseous effluent surveillance programs and implementation of the ODCM. No deficiencies were identified. The inspector noted that the audit was conducted by members of the QAG, with assistance from other technical personnel. The QAG staff used a tracking system to follow the corrective actions. The inspector noted that the scope and technical depth of the audit were excellent to assess the effluent control programs. The inspector had no further questions in this area.

5.0 RADIOACTIVE LIQUID AND GASEOUS EFFLUENT CONTROL PROGRAMS

The inspector toured the plant and reviewed the following licensee procedures and radioactive liquid and gaseous discharge permits to determine the implementation of the TS and the Off-Site Dose Calculation Manual (ODCM) requirements:

- Procedure OP 2610, Liquid Waste Disposal,
- Procedure OP 2611, Gaseous Radwaste,
- Procedure OP 2612, Burning of Radioactively-Contaminated Waste Oil, and
- Procedure OP 4609, Periodic Evaluation of Off-Site Radiological Doses.

During discussions with the licensee regarding the radioactive liquid effluent control practices at the site, the inspector noted that the licensee processed and recycled the liquid radwaste. There were no radioactive liquid releases during 1994 and 1995 as a result of this program; and, therefore, no radioactive liquid release permits were issued. The inspector noted that the responsible individual from the Chemistry Department continued to work with the Operations Department and contractors during the refueling outage to monitor chemical intrusion to the RCA. The licensee operates the radioactive liquid radwaste systems efficiently and recycles all water, i.e., with no direct discharges to the river. The licensee's goal is to minimize or eliminate routine radioactive liquid releases from the site during normal operation.

During this inspection, the inspector noted that the new main stack noble gas detectors were installed and readout (output) instrumentations were upgraded, from 6-decade-log meters to digital readout meters. It is expected that the use of digital meters for calibrations and routine readings will enhance the accuracy of the monitoring results. Through review of gaseous effluent permits, the associated procedures, and discussions with the licensee regarding radioactive gaseous effluent control program, the inspector determined that the licensee implemented the program effectively.

The Chemistry Department has the responsibility to conduct the effluent control programs, as aforementioned in Section 3.1 of this inspection report. During discussions with the members of Chemistry Department, the inspector noted that the responsible individuals had excellent knowledge in the areas of: (1) radioactive liquid and gaseous effluent controls, (2) quantifying the total amount of gaseous effluent release using the radiation-monitoring systems, and (3) protection of the public health and safety and the environment.

Based on the above reviews, the inspector determined that the licensee had conducted excellent radioactive liquid and gaseous effluent control programs. The inspector also noted that the licensee's management supported the effluent control programs, and the Chemistry staff continually reviewed its effluent control programs vigorously with a view toward improvement.

7.0 CALIBRATION OF EFFLUENT/PROCESS RADIATION-MONITORING SYSTEMS (RMS)

The inspector reviewed the most recent calibration results for the following effluent/process monitors:

- Liquid Radwaste Discharge Monitor
- Service Water Discharge Monitor
- Main Stack Noble Gas Monitor (Normal and High Range)
- Augmented Offgas (AOG) Building Noble Gas Monitor

The I&C Department had the responsibility to perform electronic calibrations for the above RMS. The Chemistry and Radiation Protection Departments had the responsibility to perform radiological calibrations. All reviewed calibrations were performed at the required frequencies, and results were within the licensee's acceptance criteria.

During the previous inspection conducted in November 1994, the inspector was informed that the RMS upgrade project for the main stack and AOG-monitoring systems, including replacement of the 6-decade logarithmic scale with digital readouts in the control room, would be completed during 1995 refuel outage. This upgrade project was completed during the 1995 refuel outage. The licensee performed the primary and the secondary calibrations for these RMS. The inspector reviewed the calibration results, which were within the licensee's acceptance criteria. The inspector noted that the licensee used a statistical method (i.e., linear regression method) to determine the linearity.

Based on the above reviews, the inspector determined that the licensee had an effective calibration program for the effluent/process monitors.

8.0 AIR-CLEANING SYSTEMS

The inspector reviewed the licensee's most recent surveillance results as part of the examination of the implementation of the technical specification requirements for the standby gas treatment system.

- Visual Inspections
- In-Place HEPA Leak Tests
- In-Place Charcoal Leak Tests
- System Air Flow Tests
- Delta Pressure Tests
- Laboratory Tests for the Iodine Collection Efficiencies

All reviewed test results were found to be within the licensee's acceptance criteria. The inspector also noted that the responsible individual had a good knowledge of the operational requirements for the air cleaning systems. Based on the above reviews, the inspector determined that the licensee implemented the requirements for the above system effectively.

9.0 YANKEE ATOMIC ENVIRONMENTAL LABORATORY (YAEL)

A part of this inspection, the inspector visited the licensee's effluent analytical contractor laboratory (YAEL). The inspector: (1) toured the YAEL facilities and observed laboratory activities including sample processing, (2) held discussion with the YAEL technical staff, and (3) reviewed selected procedures and quality assurance/control programs.

The inspector noted that the responsible individuals had excellent knowledge in the areas of:

- (1) origin of the radioactive liquid and gaseous effluent samples,
- (2) analytical technique,
- (3) importance of quality assurance/control, and
- (4) protection of the public health and safety and the environment.

Based on the above reviews, the inspector determined that the YAEL conducted excellent effluent samples analyses and quality assurance/control programs. The inspector had no further questions.

10.0 EXIT INTERVIEW

The inspector met with the licensee representatives denoted in Section 1.1 of this inspection report at the conclusion of the inspection on November 2, 1995, at the Vermont Yankee site. The inspector summarized the purpose, scope, and findings of the inspection. The licensee acknowledged the inspection findings.