

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-271/89-06

Docket No. 50-271

License No. DRP-28 Priority - Category C

Licensee: Vermont Yankee Nuclear Power Corporation
RD 5, Box 1f9
Ferry Road
Brattleboro, Vermont 05301

Facility Name: Vermont Yankee Nuclear Power Station

Inspection At: Vernon, Vermont

Inspection Conducted: April 3 - April 7, 1989

Inspectors: *S. Shevlin* 4/13/89
for R. Loesch, Radiation Specialist date

Approved by: *M. Shanbaky* 4/26/89
M.M. Shanbaky, Chief, Facilities Radiation date
Protection Section

Inspection Summary: Inspection conducted on April 3-7, 1989
(Inspection Report No. 50-271/89-06)

Areas Inspected: Routine inspection of the Low Level Radwaste Storage Facility
and Radiation Protection Supervisor qualifications.

Results: No violations identified.

DETAILS

1.0 Persons Contacted

1.1 Licensee Personnel

* J. Pelletier	Plant Manager
* R. Wanczyk	Operations Superintendent
* R. Pagodin	Technical Services Superintendent
* B. Grippardi	Quality Assurance Supervisor
* B. Leach	Radiation Protection Supervisor
* P. Manley	Radwaste Assistant

1.2 Other Personnel

* M. Strum	Lead Radiological Engineer, Yankee Atomic
E. Tarnuzzer	Senior Environmental Engineer, Yankee Atomic
B. Sherman	Department of Public Service, State of Vermont

* denotes those individuals attending the exit meeting on April 7, 1989.

2.0 Purpose of Inspection

This inspection was a routine, announced inspection to review the following areas:

- Low Level Radwaste Storage Facility; and
- Qualifications.

3.0 Status of Previous Inspection Findings

(Closed) Unresolved Item 85-22-11: NRC Review of the LLRW Facility.

See Section 4.0 of this inspection report.

4.0 Low Level Radwaste Storage Facility

The inspector reviewed the following aspects of the licensee's Low Level Radwaste Facility:

- technical basis and scope of 10 CFR 50.59 safety evaluation; and
- adequacy of radiological procedural controls.

The review was with respect to criteria contained in:

- 10 CFR 20, "Standards for Protection Against Radiation";
- Generic Letter 81-38, "Storage of Low-Level Radioactive Wastes at Power Reactor Sites", Nov. 10, 1981;
- IE Circular 80-18, "10 CFR 50.59 Safety Evaluations for Changes to Radioactive Waste Treatment Systems", August 22, 1980;
- Regulatory Guide 1.143, "Design Guidance for Radioactive Waste Management Systems, Structures, and Components Installed in Light-Water-Cooled Nuclear Power Plants"; and
- NUREG-0800, "Standard Review Plan", Appendix 11.4-A, Design Guidance for Temporary Onsite Storage of Low-Level Radioactive Waste, July 1981.

The evaluation of the licensee's performance in this area was based on:

- Review of the following documentation:
 - "Safety Evaluation for Increased Temporary Storage of Low Level Radioactive Waste at Vermont Yankee Nuclear Power Station", Revision 3, dated February, 1989;
 - Memo, M.J. Marian to D.A. Reid, OPVY 130/89, dated February 24, 1989;
 - Calculation VYC-353, Rev. 1, "Low Level Waste Storage Facility 50.59 Safety Evaluation, February 1989;
 - Calculation VYC-792, "Dose Rate Relationships for Onsite LLW Storage Pad Facility", February 1989;
 - Calculation VYC-794, "Spontaneous Ignition Calculation for LLW Onsite Storage Modules", February 1989;
 - Calculation VYC-802, "Thermal Analysis for Low Level Radwaste Storage Casks", February 1989;
 - Users manual, HICGAS, "A Computer Code to Estimate Hydrogen Gas Concentration In Radwaste Shipping Containers", Version 2.2, dated March 15, 1985; and
 - Draft licensee procedure OP 2505, "Radwaste Transfer Cask, LSA Box, Handling for On Site Storage."
- tours of the facility; and
- discussions with licensee personnel.

Within the scope of this inspection, no violations were identified. The inspector reviewed the scope and technical basis of the 50.59 safety evaluation relating to floods, tornados, seismic events, fire, hydrogen gas generation, container drop accident and site radiological dose projections. In addition, the operating procedure was evaluated against the assumptions and recommendations made to assure that the facility will not operate outside of the bounding conditions of the safety evaluation.

Overall, the safety review performed by Yankee Atomic for Vermont Yankee appeared thorough and with sound technical basis. However, the following weaknesses were not in the implementation of either Yankee Atomic's recommendations as documented in the Safety Evaluation Report (SER) or in the licensee's site operating procedure:

- Plant procedure OP 2525 was still in draft form and had not yet been formally approved.
- Both Generic Letter 81-38 and the SER had recommended periodic security patrols of the storage area. As of this inspection, Radiation Protection (RP) had not formally coordinated with security to incorporate the LLRW facility into their surveillance program. When brought to the licensee's attention, the RP department initiated the necessary coordinating effort.
- Calculations relating to the stability of stacked containers subjected to a design base tornado (300 mph winds) lead to a recommendation that to avoid a potential tipping problem, a minimum of two containers be maintained on ground level when stacking is required. The inspector noted that the proposed site layout plan and procedure OP 2505 did not guarantee that this condition would always be maintained. In discussions with engineers from Yankee Atomic, it was noted that the size and weights of the containers were based upon initial container specifications. Modifications have since been made to the containers that have increased both their base footprint and weight. Additional calculations performed during the inspection utilizing the updated parameters indicate that the tipping potential no longer exists. Yankee Atomic stated that they will inform the licensee of this change in the SER. This, in effect, allows the licensee more flexibility in container placement to minimize offsite exposures.
- No acceptance criteria was specified for surveillances that would be performed on the reactor water resin containers for hydrogen gas buildup. The licensee stated that the appropriate guidance would be incorporated into an existing procedure for explosive gas sampling.
- The On Site Storage Containers (OSSC's) are designed with sampling tubes at one end for determination of liquid buildup. The inspector questioned the effectiveness of this sampling method if the OSSC was not placed in a level position (i.e. the tube was at the high end of a container). The licensee stated that when assembling the containers on uneven ground, the sampling tube will be positioned as appropriate to allow the detection of any accumulated liquids.

- Although procedure OP 2505 allowed for tracking of activities (Ci's), volumes (cu.ft.) and offsite dose rates (mrem/yr) at the site boundary for each addition to the storage site, it did not allow for tracking of either the site totals for volume, activity limits or the site administrative limit of 1 mrem/yr at the site boundary were not exceeded. The licensee stated that a computer program would be developed that would track these totals and inform them when they were approaching the limits so that the appropriate actions could be taken.
- The inspector reviewed the Offsite Dose Calculation Manual (ODCM) dose factors determined by Yankee Atomic for estimating mrem/yr at the site boundary based upon both direct and skyshine exposures from the containers. It was noted that to stay within the established guidelines for site boundary exposures, strong management oversight and tight administrative controls will be necessary on the placement of containers to maximize self shielding and minimize dose.

Resolution of these weaknesses and control of site boundary doses upon LLRW facility activation will be evaluated in a future inspection (50-271/89-06-01).

5.0 Qualifications

The inspector reviewed the qualifications of the recently appointed Radiation Protection Supervisor with respect to Technical Specification 6.1, "Organization", and ANSI N18.1-1971, "Selection and training of nuclear power plant personnel."

Within the scope of this review, no violations were identified. The inspector determined that Radiation Protection Supervisor's combination of formal education, technical training and past experience meets the requirements of ANSI N18.1-1971 as referenced in T.S. 6.1.

6.0 Exit Meeting

The inspector met with licensee representatives (denoted in Section 1 of this report) on April 7, 1989. The inspector summarized the purpose, scope and findings of the inspection. No written material was provided to the licensee.