

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-029/90-15

Docket No. 50-029

License No. UPR-3

Licensee: Yankee Atomic Electric Company
580 Main Street
Bolton, Massachusetts 01740

Facility Name: Yankee Nuclear Power Station

Inspection At: Rowe, Massachusetts

Inspection Conducted: August 27-30, 1990

Inspectors: Alexander Bares for 9/6/90
J. Furia, Radiation Specialist, Effluents date
Radiation Protection Section (ERPS), Facilities
Radiological Safety and Safeguards Branch (FRSSB),
Division of Radiation Safety and Safeguards (DRSS)

Approved by: Alexander Bares for 9/6/90
R. Bares, Chief, ERPS, FRSSB, DRSS date

Inspection Summary: Inspection on August 27-30, 1990 (Inspection Report No. 50-029/90-15)

Areas Inspected: Routine unannounced inspection of the transportation and solid radioactive waste programs including: management controls; audits; quality assurance; and implementation of the above programs.

Results: Within the areas inspected, no violations or deviations were noted.

DETAILS

1. Personnel Contacted

1.1 Lice see Personnel

- * G. Babineau, Radiation Protection Manager
- * L. Bozek, Quality Assurance Supervisor
- * T. Henderson, Assistant Plant Superintendent
- D. O'Donnell, Training Coordinator
- * M. Vandale, Radiation Protection Engineer, Radwaste

1.2 NRC Personnel

- * T. Koshy, Senior Resident Inspector
- * M. Markley, Resident Inspector

* Denotes those present at the exit interview on August 30, 1990.

2. Purpose

The purpose of this routine inspection was to review the licensee's program for the preparation, packaging and transportation of radioactive materials.

3. Transportation and Radwaste

The licensee's program for the packaging and transportation of radioactive materials, including solid radwaste, was conducted by the Radwaste Group within the Radiation Protection Department. Radwaste was processed, packaged and shipping documentation prepared by the Radwaste Group, which was also responsible for the development of plant waste stream specific scaling factors.

3.1 Radwaste

The licensee produced waste streams of solid radwaste, spent resins, evaporator bottoms and Dry Active Waste (DAW). Resins were typically dewatered in High Integrity Containers (HICs) utilizing a dewatering system supplied by Chem Nuclear Systems, Inc. DAW was segregated into compactable and noncompactable wastes, with the former compacted on site, and the latter either packaged for disposal, or shipped for possible decontamination. Evaporator bottoms were solidified in 55-gallon drums utilizing Portland cement.

The licensee was examining various vendor systems for the possible replacement of the existing waste evaporator, and indicated they are considering the use of a demineralizer system, which would significantly reduce the volume of radwaste generated.

The licensee submitted plant samples for analysis of isotopic content to the Yankee Atomic Environmental Laboratory approximately every 18 months (once per fuel cycle). Results of these analysis were then entered into the RADMAN computer data base for development of waste stream specific scaling factors.

As part of this inspection, direct observation of shipment 90-053 was made. This shipment of twelve boxes of compacted DAW to the Barnwell, South Carolina, disposal site was made in a highly professional manner by the licensee's radwaste staff under the direct observation of a Quality Assurance Engineer.

3.2 Transportation

Shipment of radioactive materials was the responsibility of the Radwaste Group. The Radwaste Group prepared all shipping manifests, procured the necessary disposal containers and shipping casks, and in coordination with the other parts of the Radiation Protection Department, conducted all required surveys and wipe tests.

As part of this inspection, the following 53 radioactive material shipment records were reviewed.

<u>Shipment</u>	<u>Activity (Ci)</u>	<u>Volume (cu ft)</u>	<u>Type</u>
90-01	3.24E-03	2.7	Samples
90-02	1.54E-03	168.0	Laundry
90-03	2.49E-04	7.5	Samples
90-04	2.80E-07	<1.0	Samples
90-05	1.42E-03	168.0	Laundry
90-06	3.99E-04	2.2	Samples
90-07	9.70E-05	4.0	Samples
90-08	3.50E-04	4.5	Samples
90-09	1.77E-03	168.0	Laundry
90-10	1.50E-07	<1.0	Samples
90-11	9.48E+01	120.3	Resin
90-12	6.62E+01	120.3	Resin
90-13	2.30E-03	168.0	Laundry
90-14	2.86E-08	<1.0	Samples
90-15	1.14E-05	<1.0	Samples
90-16	2.60E-03	252.0	Laundry
90-17	8.00E-05	<1.0	Samples
90-18	1.94E-03	126.0	Laundry
90-19	4.20E-04	130.0	Samples
90-20	5.61E-03	420.0	Samples
90-21	2.13E-03	168.0	Samples
90-21A	2.72E-04	2.0	Samples
90-22	9.69E-03	294.0	Laundry

<u>Shipment</u>	<u>Activity (Ci)</u>	<u>Volume (cu ft)</u>	<u>Type</u>
90-23	9.80E-07	<1.0	Samples
90-24	2.89E-03	168.0	Laundry
90-25	5.79E-03	294.0	Laundry
90-26	6.43E-03	294.0	Laundry
90-27	1.40E-06	3.3	Samples
90-28	9.44E-03	294.0	Laundry
90-29	1.89E-03	168.0	Laundry
90-30	2.13E-03	168.0	Laundry
90-31	6.07E-03	336.0	Laundry
90-32	4.14E-03	252.0	Laundry
90-33	2.42E-03	126.0	Laundry
90-34	3.72E-03	210.0	Laundry
90-35	2.37E-03	210.0	Laundry
90-36	3.33E-02	300.0	Tools
90-37	6.78E-03	294.0	Laundry
90-38	2.37E-03	210.0	Laundry
90-39	4.07E-03	294.0	Laundry
90-40	4.50E-06	<1.0	Samples
90-41	8.27E-03	294.0	Laundry
90-42	2.60E-03	210.0	Laundry
90-43	7.92E-03	252.0	Laundry
90-44	3.43E-03	294.0	Laundry
90-45	1.78E-02	172.0	Tools
90-46	2.96E-03	294.0	Laundry
90-47	4.74E-01	1111.0	DAW
90-48	8.27E-04	126.0	Laundry
90-49	1.89E-03	168.0	Laundry
90-50	2.25E-02	312.0	Tools
90-51	1.77E-03	168.0	Laundry
90-52	2.50E-03	2880.0	Trailer

All shipments were determined to meet the requirements of 10 CFR and 49 CFR.

3.3 Interim Radwaste Storage

The licensee had constructed an interim radwaste storage facility attached to the back of the radwaste building. This facility was designed for the storage of up to five years of plant generated solid radwaste, mostly compacted DAW and solidified evaporator bottoms. At the time of this inspection, the licensee was reviewing the possibility of replacing the existing waste evaporator with a demineralizer system (see section 3.1) and was in the process of starting up a new DAW compactor. Both of these projects have the potential of reducing the volume of solid radwaste generated, thus potentially extending the life of the interim radwaste facility.

3.4 Quality Assurance

The licensee's program for the assurance of quality involved audits of principle vendors and plant operations, periodic surveillances of radwaste evolutions, and direct observation of all radwaste shipments by Quality Assurance (QA) Engineers.

Audit Y-89-09, dated October 25, 1989, was the most recent audit of the radwaste program, and was conducted by an auditor from the licensee's Quality Support Division (QSD) and a technical specialist drawn from the licensee's Environmental Group. The scope and technical depth of this audit was determined to be excellent. All findings were promptly resolved, and none of the findings involved a significant safety issue.

The licensee periodically conducts random surveillances of significant radwaste evolutions and documents these in a Quality Assurance Surveillance Report (QASR). During 1990, the licensee has conducted one surveillance, during the processing and loading of spent resin, which occurs approximately once every 18 months. There were no findings as a result of this surveillance.

Quality Control Inspection Reports (QCIR) were issued by the licensee quarterly, to document inspections of radwaste shipments. Three QCIRs have been issued in 1990, and were reviewed by the inspector. The scope and depth of these inspections were determined to be excellent.

3.5 Training

The licensee conducts training and annual retraining of plant staff involved in the processing, packaging and shipment of radwaste in accordance with plant training procedure AP-0527, Rev 0, "Radwaste/Decon Technician/Worker Training". Annual retraining was often given in the form of attendance at the Chem-Nuclear Systems, Inc. Radwaste Packaging course. Attendees included radwaste, chemistry and quality assurance personnel. This training program continues to be a notable strength of the licensee's radwaste program.

4. Exit Interview

The inspector met with the licensee representatives denoted in Section 1 at the conclusion of the inspection on August 30, 1990. The inspector summarized the purpose, scope and findings of the inspection.