

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-271/91-23

Docket No. 50-271

License No. DPR-28

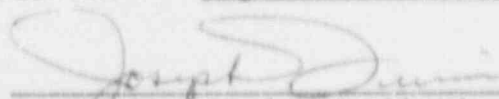
Licensee: Vermont Yankee Nuclear Power Corporation
Brattleboro, Vermont 05301

Facility Name: Vermont Yankee Nuclear Power Station

Inspection At: Vernon, Vermont

Inspection Conducted: September 3-6, 1991

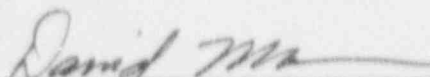
Inspectors:



9/11/91

J. Furia, Senior Radiation Specialist
Facilities Radiological Protection Section
(FRPS), Facilities Radiological Safety and
Safeguards Branch (FRSSB), Division of
Radiation safety and Safeguards (DRSS)

date

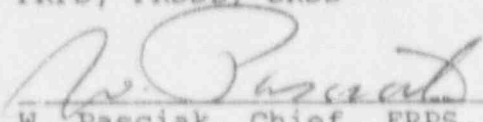


9/11/91

D. Mann, Radiation Specialist
FRPS, FRSSB, DRSS

date

Approved by:



9-13-91

W. Pasciak, Chief, FRPS, FRSSB, DRSS

date

Inspection Summary: Inspection on September 3-6, 1991 (Inspection
Report No. 50-271/91-23)

Areas Inspected: Routine unannounced inspection of the radwaste
and transportation programs including: management organization,
waste handling systems, records, Quality Assurance, training, and
implementation of the above programs.

Results: Within the areas inspected, one violation and one
deviation were noted (Sections 3.2 and 3.5).

DETAILS

1. Personnel Contacted

1.1 Licensee Personnel

*D. Dyer, Quality Services Engineer
*M. Fuller, Radwaste Assistant
R. Gripparui, Quality Assurance Supervisor
*S. Jefferson, Assistant to the Plant Manager
*E. Lindamood, Radiation Protection Supervisor
*J. Meyer, Operations Support
R. Morrisette, Radiation Protection Training Coordinator
*R. Pagodin, Technical Services Superintendent
*D. Reid, Plant Manager
*R. Wanczyk, Operations Superintendent

1.2 NRC Personnel

H. Eichenholz, Senior Resident Inspector
T. Hiltz, Resident Inspector

* Denotes those present at the exit interview on September 6, 1991.

2. Purpose

The purpose of this routine inspection was to review the licensee's programs for radwaste processing, transportation, and assurance of quality in these areas.

3. Transportation and Radwaste

The licensee's program for the packaging and transportation of radioactive materials, including solid radwaste, was conducted by the Radiation Protection Department's Radwaste Group. Plant liquids were processed by the Operations Department, with the subsequently generated bead resins and powdered resins sent to phase separators. From the phase separators, spent resins were then dried utilizing one of two centrifuges, with the dried resins gravity fed into a liner in the radwaste truck bay. The licensee was in the process of installing a Chem Nuclear Systems, Inc., RDS-1000 resin dewatering system to replace the centrifuges. The Radwaste Group within the Radiation Protection Department was responsible for the collection of the spent resins in the HICs, and the subsequent characterization of the waste streams. Dry Active Wastes (DAW) were collected by the Radwaste Group, with materials being compacted on site.

3.1 Radwaste Processing

The licensee produces waste streams of solid radwaste, spent primary resins, spent powder resins and Dry Active Waste (DAW). During a previous inspection (50-271/90-08), two problems were identified with the centrifugation process. The first problem was the creation of airborne contamination and the second was the

significant exposure to plant personnel. The elimination of the centrifuge and incorporation of the RDS-1000 system eliminate both of these problems during the dewatering stage of processing. The addition of the RDS-1000 and the elimination of the centrifuge is considered to be a significant improvement to the licensee's radwaste program.

The licensee annually submitted plant samples for analysis of isotopic content. Samples were sent to the Yankee Atomic Electric Company's (YAEC) Environmental Laboratory for total isotopic analysis, with the results utilized by the licensee to derive plant waste stream specific scaling factors. This program meets the criteria set forth in 10 CFR 61.56 for representative sampling of plant waste streams.

3.2 Transportation

Shipment of radioactive materials is the responsibility of the Radwaste Group of the Radiation Protection Department. The Radwaste Group prepared all shipping manifests through the utilization of a licensee developed computer code.

As part of this inspection, the following shipping records were reviewed by the inspector.

<u>Shipment #</u>	<u>Activity (Ci)</u>	<u>Volume (ft³)</u>	<u>Type</u>
91-001	2.58E+01	170.8	Powder Resin
91-012	2.32E+01	170.8	Powder Resin
91-013	2.19E+00	170.8	Powder Resin
91-014	3.36E+01	170.8	Filter/Resin
91-015	8.29E+00	170.8	Powder Resin
91-016	1.09E+01	170.8	Powder Resin
91-017	1.07E+01	740.8	DAW
91-018	2.85E+00	740.8	DAW
91-019	1.04E+00	740.8	DAW
91-020	2.52E+00	740.8	DAW
91-046	3.18E+02	120.3	Powder Resin
91-070	4.43E+00	648.2	DAW
91-071	1.89E-06	00.04	Source
91-072	2.06E-01	144.0	Equipment
91-073	1.17E-02	649.0	Laundry
91-074	3.23E+01	170.8	Powder Resin
91-075	3.15E+01	170.8	Powder Resin
91-078	6.90E-03	406.0	Laundry
91-079	3.00E-01	000.2	Equipment
91-080	1.90E+00	648.2	DAW

Shipping records, in general, were determined to be complete and to meet the applicable requirements of 10 CFR Parts 61 and 71, and 49 CFR Parts 170-177.

On June 25, 1991, the licensee shipped contaminated equipment as Radioactive Material, to Wyle Laboratories in Huntsville, Alabama, and failed to include Iron-55 (Fe-55) as an isotope on the manifest, or to account for its activity on the manifest. Fe-55 represents approximately 50% of the activity present for this type of shipment based upon the licensee's current scaling factors. In addition, the calculations utilized to determine isotopic activity for the gamma emitting isotopes present in this shipment were based upon plant data that was at least three years out of date, and no longer accurately reflected current plant conditions. This shipment's manifest had been prepared by a radiation protection technician, and peer reviewed by the plant health physicist prior to shipment. This is an apparent violation of 10 CFR 71.5 which requires that licensee's shipping radioactive material must follow the requirements set forth in 49 CFR. 49 CFR 172.203 requires that manifests for radioactive material shipments accurately reflect the isotopes and activity present in the shipment (50-271/91-23-01).

In addition, it was noted that two shipments had to have a corrected manifest sent to the burial site two weeks after shipment when manifesting errors were discovered by the Radwaste Assistant. These shipment manifests had been prepared by a contract technician, and were peer reviewed by the plant health physicist, prior to shipment.

3.3 Interim Radwaste Storage

The licensee began storing waste in its interim radwaste storage facility in May 1989. The licensee underwent an extensive shipping program in March 1991 upon notification of restored access to the low-level waste disposal sites. During March and April, the licensee shipped for burial the waste that had been stored in their interim radwaste storage facility. At the time of this inspection, the interim radwaste storage facility was empty. The licensee is currently shipping radwaste for burial on an as generated basis.

3.4 Quality Assurance/Quality Control

The licensee's program for the assurance of quality in the radwaste program included periodic surveillances, Process Control Program audits, and principle vendor audits. The licensee contracted the Yankee Atomic Electric Company (YAEC) to perform these surveillance and audit functions.

Surveillances were conducted by the Quality Surveillance Group based upon a proposed schedule submitted by the licensee. Three radioactive material transportation surveillances had been performed this year, reviewing a total of four radioactive material shipments. This represents less than 5% of the radioactive material shipments made by the licensee in 1991. Upon review of these surveillances the inspectors noted that the scope was limited to the shipping activities only, and did not examine the waste

processing program. There were no additional surveillances in this area scheduled for 1991.

The inspectors reviewed audit report VY-91-09, which was the annual audit of the plants Process Control Program. The audit identified two deficiencies that the licensee corrected. In addition, the auditors made four observations/recommendations. One of the observations was regarding an inadequacy of the radwaste training program.

Vendor audits were conducted by YAEC. The audit for the continued utilization of Chem Nuclear Systems, Inc. (CNSI), was conducted using the NUPIC audit of CNSI conducted by Wolf Creek in 1989.

The licensee had established a peer review system for radwaste in lieu of utilizing an independent Quality Control organization. As was previously noted in section 3.2, this program was unsuccessful in detecting errors in three shipping manifests, two of which were subsequently discovered by the licensee's radwaste assistant. Also, the licensee has not yet provided training to the current plant health physicist who was tasked with performing these reviews.

3.5 Training

Initial and continuing training of the radiation protection staff in the area of radwaste processing and packaging is contained in Training Program AHP-10-001, "Radwaste Program". All radiation protection technicians were given initial radwaste training, generally within the first six months at the plant. Continuing training consisted of a series of tasks to be reviewed every two or three years, which were to be covered in one or more of the six continuing training modules for radwaste and transportation. The complete set of continuing training modules was last presented in June, 1988. Since that time, two of the modules were presented during the spring and summer of 1991, but the remaining four modules, which were necessary to complete the training tasks, were not scheduled to be presented in 1991.

NRC IE Bulletin 79-19 requires in part that licensee's provide initial training and periodic retraining in the DOT and NRC regulatory requirements, the waste burial license requirements, and in the licensee's instructions and operation procedures for all personnel involved in the transfer, packaging and transport of radioactive material. The licensee committed by letter dated September 26, 1979, to provide training and periodic retraining covering NRC and DOT requirements, and applicable plant procedure requirements for all employees involved in the transfer, packaging and transport of radioactive material. The licensee's Training Department Directive - 3, requires in part that a Training Curriculum Committee (TCC) should convene to affirm the Training

Department's selection/deselection of tasks for training, determination of training settings, and selection of tasks for entry-level requirements, initial and/or continuing training. The results of the TCC meeting shall be used to update the appropriate task-to-training material cross-reference matrix. The licensee's Radiation Protection Technician Task Tracking Sheet #509, for shipping and receiving radioactive materials requires biennial training in the selection of appropriate containers and packages, and triennial training in surveying a shipment, surveying transport vehicles, and supervising the loading of radioactive materials. The inspectors determined that the licensee deviated from their commitment to provide training and periodic retraining covering NRC and DOT requirements for radwaste workers as specified in NRC IE Bulletin 79-19 (50-271/91-23-02).

Discussions with the licensee's principle instructor in this area indicated that this person had formerly served as the plant health physicist, but that he had not received radwaste and transportation training for four years. Training of a new instructor in this area appeared to be critical in order to ensure proper training of the plant staff.

4. Exit Interview

The inspectors met with the licensee representatives denoted in Section 1 at the conclusion of the inspection on September 6, 1991. The inspectors summarized the purpose, scope and findings of the inspection.