MAY 25 1994

Docket No. 50-29
License No. DPR-03

Ms. Barbara McGovern
P.O. Box 60312
Florence, MA 01060-0312

Dear Ms. McGovern:

This letter is in response to your request on April 19, 1994, after a meeting of the Franklin County Commissioners for information regarding the low-level, radioactive waste shipments containing steam generators from the Yankee Rowe plant on December 6 and 7, 1993. You had orally requested information concerning the radioactivity levels, the radioactive contamination levels, and the isotopes contained in those shipments. These shipments were summarized in NRC Inspection Report No. 50-29/93-09.

As indicated in NRC Inspection Report No. 50-29/93-09, enclosed with this letter, the Yankee Atomic Electric Company (YAEC) sent one shipment of low-level radioactive waste (steam generators) by rail to the low-level radioactive waste facility near Barnwell, South Carolina on December 8, 1993. The steam generators were transported from the Yankee Rowe plant to the rail line on December 7 and 8, 1993.

The steam generator transported to the rail line on December 7, 1993 contained approximately 397 Curies of radioactive material. The licensee's (YAEC's) survey data, incorporated into the shipping documents, indicated all contamination measurements were less than 1000 disintegrations per minute per 100 square centimeters for beta and gamma emitting isotopes and less than 50 disintegrations per minute per 100 square centimeters for alpha emitting isotopes. The maximum radiation dose rates were 55 millirem per hour at the surface of the vehicle and 5 millirem per hour at a distance of two meters from the surface of the vehicle.

The steam generator transported to the rail line on December 8, 1993 contained approximately 322 Curies of radioactive material. The licensee's survey data, incorporated into the shipping documents, indicated all contamination measurements were less than 1000 disintegrations per minute per 100 square centimeters for beta and gamma emitting isotopes and less than 50 disintegrations per minute per 100 square centimeters for alpha emitting isotopes. The maximum radiation dose rates were 40 millirem per hour at the surface of the vehicle and 6.5 millirem per hour at a distance of two meters from the surface of the vehicle.

Both shipments contained the same radioactive materials including the following isotopes: cobalt-60, iron-55, manganese-54, nickel-63, plutonium-241, and cesium-137.

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The maximum allowable contamination limits permitted by the U.S. Nuclear Regulatory Commission (NRC) and U.S. Department of Transportation (DOT) are 2200 disintegrations per minute per 100 square centimeters for beta and gamma emitting isotopes and 220 disintegrations per minute per 100 square centimeters for alpha emitting isotopes. The maximum allowable radiation dose rates permitted by NRC and DOT regulations are 200 millirem per hour at the surface of the vehicle and 10 millirem per hour at a distance of two meters from the surface of the vehicle. All of the above limits were met in the transport of each of the steam generators in the shipment discussed above.

I hope that this response satisfactorily answers your request. If you require any further information regarding the activities at the Yankee Rowe plant, please contact Dr. Robert Bores (610-337-5213) or Mr. Joseph Nick (610-337-5056) of my staff.

Sincerely,

Original Signed By:
Charles W. Hehl

James H. Joyner, Chief
Facilities Radiological Safety
and Safeguards Branch
Division of Radiation Safety
and Safeguards

Enclosure: NRC Inspection Report No. 50-29/93-09

bcc w/encl):
Region I Docket Room (w/concurrences)

bcc w/o encl):
R. Bores, DRSS
J. Nick, DRSS
K. Abraham, PAO

RI:DRSS	RI:DRSS	RI:DRSS	RI:DRSS	RI:PA
Nick	Bores	Joyner	Hel	Abraham
5/24/94	5/19/94	5/19/94	5/ /94	5/24/94

IE 06

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

FEB 10 1994

Docket No. 50-29

Mr. Jay K. Thayer
Vice President and Manager of Operations
Yankee Atomic Electric Company
580 Main Street
Bolton, Massachusetts 01740-1398

Dear Mr. Thayer:

SUBJECT: NRC INSPECTION NO. 50-29/93-09

This letter refers to a safety inspection of the radiation protection program at your facility that was conducted by Mr. J. Nick on December 7-8, 1993 and a radioactive waste shipment that originated from your facility on January 6, 1994 and arrived at the Barnwell Disposal Site at Barnwell, South Carolina on January 7, 1994. Upon arrival, the shipment was determined by the receiving State of South Carolina licensee to be in excess of the external non-fixed radioactive contamination limits specified in NRC regulations. Mr. Nick evaluated information provided by your staff relative to this shipment. This portion of the inspection was conducted in the NRC Region I office during the period from January 19, 1994 through January 27, 1994. The results of the inspection are summarized in the enclosed inspection report and were discussed with you and your staff on January 27, 1994.

Areas reviewed during this inspection were important to health and safety and are discussed in the enclosed inspection report. These areas included review of: transportation of radioactive materials, preparation of radioactive materials for shipment, quality assurance, and transportation procedures for the component removal project.

Your transportation program was generally effective in preparing and shipping radioactive materials for the component removal project. Your planning and quality assurance activities for shipping radioactive materials was very good. Your organization was staffed with competent and knowledgeable personnel.

Within the scope of this inspection, one apparent violation of NRC regulations was identified regarding a radioactive material shipment that was determined to have arrived at its destination with non-fixed radioactive contamination levels in excess of NRC requirements, and is described in the enclosed inspection report. However, pending further review of this matter by the NRC, the apparent violation is considered an unresolved item. No specific action is required of you at this time. We will inform you when this matter is resolved.

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No.	50-29/93-09
Docket No.	50-29
License No.	DPR-03 Category C
Licensee:	Yankee Atomic Electric Company 580 Main Street Bolton, Massachusetts 01740-1398
Facility Name:	Yankee Nuclear Power Station
Inspection At:	Rowe, Massachusetts
Inspection Period:	December 7, 1993 through January 27, 1994

Inspector: _____ 2/4/94
J. Nick, Radiation Specialist — Date
Facilities Radiation Protection Section

Approved by: _____ 2/7/94
for R. Bores, Chief — Date
Facilities Radiation Protection Section

Areas Inspected: Transportation of radioactive materials, preparation of radioactive materials for shipment, quality assurance, and transportation procedures for the component removal project.

Results: The licensee maintained an effective transportation program with areas of weakness noted. Within the scope of this inspection, one apparent violation was identified involving excess removable radioactive contamination levels on a shipping cask sent to Chem-Nuclear Systems Incorporated (CNSI) near Barnwell, South Carolina (see Section 3.0).

DETAILS

1.0 Individuals Contacted

1.1 Yankee Atomic Electric Company

*G. Babineau, Radiation Protection and Chemistry Manager
W. Cox, ALARA Specialist
M. Desilets, Radiation Protection Engineer
T. Henderson, Assistant Plant Superintendent
S. Litchfield, Health and Safety Supervisor
*R. Mellor, Yankee Project Manager
G. Maret, Site Manager - Component Removal Project
*N. St. Laurent, Plant Superintendent
*J. Thayer, Vice President and Manager of Operations
*M. Vandale, Radiation Protection Engineer

1.2 NRC Personnel

H. Eichenholz, Senior Resident Inspector (Vermont Yankee Plant)
P. Harris, Resident Inspector (Vermont Yankee Plant)

*Denotes those individuals participating in the exit briefing via telephone

2.0 Purpose

The purpose of this inspection was to review the transportation of radioactive materials, preparation of radioactive materials for shipment, quality assurance, and radwaste and transportation procedures for the component removal project. The inspection also included an in-office review of the circumstances associated with the transfer, from the Yankee Atomic Electric Company's Yankee Nuclear Power Station to the Barnwell (S.C.) Disposal Site operated by Chem-Nuclear Systems Incorporated (CNSI), of a cask of radioactive waste that arrived at the Barnwell site with external non-fixed radioactive contamination in excess of the limits specified in 10 CFR 71.

3.0 Contaminated Cask Incident

On January 6, 1994, Yankee Atomic Electric Company (YAEC) shipped by highway as an exclusive use shipment a CNSI 3-55 cask containing approximately 6470 Curies of licensed material. The cask external surfaces, upon receipt at the Barnwell Disposal Site in Barnwell, South Carolina on January 7, 1994, were determined to have non-fixed contamination levels in excess of 1,500 dpm/cm^2. The efficiency of the Barnwell Disposal Site contamination

A representative from the State of South Carolina indicated to the NRC Region I inspector that he had reviewed the decontamination and survey actions of both licensees (the state-licensed Barnwell Disposal Facility and the NRC-licensed Yankee facility) involved in the shipment. He determined that the CNSI 3-55 shipping cask had been properly decontaminated and surveyed prior to both portions of the shipment and that the cask surface pores had apparently become loaded with contamination, which had migrated out during transport. The State of South Carolina decided, under the circumstances, not to take any enforcement action against CNSI and was not recommending any Barnwell Disposal Facility burial restrictions against YAEC.

3.4 Summary

As the regulatory agency of jurisdiction for the YAEC shipment, the NRC has determined that an apparent violation of NRC requirements occurred as the result of the licensee's shipping activities. On January 27, 1994, the Radiation Protection Manager (RPM) and other representatives from the Yankee Nuclear Power Station were informed of this apparent violation of NRC requirements in a telephone conversation with Mr. J. Nick of the Region I Office. The representatives acknowledged the finding.

3.5 Corrective Actions

The licensee sent representatives to the CNSI burial site near Barnwell, South Carolina to verify radioactivity measurements. The licensee verified the excess levels of contamination found by the personnel at the burial site. The licensee also discussed the event with representatives of CNSI, as the cask owners. CNSI submitted a detailed plan to YAEC to help minimize the potential for recurrence of this problem in the future. YAEC initiated actions to minimize radioactivity levels in the reactor cavity water. Another item being considered by the licensee included the use of temporary coatings during underwater use. This would potentially minimize the levels of contamination to which the cask surface would be exposed.

4.0 Radioactive Material Shipments

The licensee had performed 15 low-level radioactive waste shipments during the period of this inspection. Below is a summary of the shipments along with the contents, destination, and total radioactivity.

steam generators. A dedicated rail shipment containing two steam generators was sent on December 8, 1993. The train cars included two engines, an idler car, and the two steam generators. The inspector verified that a health physics technician was accompanying the rail shipment and the required placards were attached to the rail cars.

5.0 Quality Assurance

The inspector reviewed a surveillance report generated by the licensee's quality assurance (QA) group regarding the actions taken for cask contamination levels in excess of regulatory limits (Yankee Rowe Plant Report No. 94-01). The QA engineer reviewed the circumstances as outlined in Section 3.0 of this report, and attended meetings between YAEC and CNSI personnel.

The engineer concluded that QA involvement was appropriate, the plant staff implemented conservative actions when the cask arrived at the Yankee site, and that plant actions to minimize external contamination levels during transit of the cask to South Carolina were appropriate. The engineer also concluded that the licensee implemented required corrective action mechanisms (i.e., event reports and information reports). The engineer stated that the licensee's isotopic analysis revealed the surface contamination present on the cask when it arrived in South Carolina was only slightly attributable to contaminated water in the YAEC reactor cavity. The YAEC QA group intended to perform a surveillance of the corrective action plan developed by CNSI.

The QA engineer also reviewed the licensee's procedures for compliance to regulatory requirements. The results of the review were satisfactory, but the engineer made two recommendations to enhance plant procedures. The first recommendation was to revise the procedure for cask shipments to require an isotopic analysis of the external contamination upon receiving and sending a radioactive material shipment. The second recommendation was to require a contamination survey on the day of a radioactive material shipment. The inspector will review these procedure changes in a future inspection.

Overall, the inspector found that the level of quality assurance oversight was very good for the recent contaminated cask incident and for other radioactive material shipments.