



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

July 2, 2007

Mr. Wayne A. Norton  
President and Chief Executive Officer  
Yankee Atomic Electric Company  
49 Yankee Road  
Rowe, Massachusetts 01367

SUBJECT: COMBINED INSPECTION 0500029/2006001 AND 0500029/2007001,  
YANKEE ATOMIC ELECTRIC COMPANY, ROWE, MASSACHUSETTS

Dear Mr. Norton:

On June 5, 2007, the United States Nuclear Regulatory Commission completed an announced inspection at your Yankee Rowe facility. The enclosed report (Enclosure 1) documents the inspection results which were discussed with Mr. Bourassa and other members of your staff on June 5, 2007.

The inspection examined decommissioning activities conducted under your License Termination Plan (LTP) as they related to safety, and compliance with the Commission's rules and regulations. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

The report also includes two survey reports (Enclosures 2 and 3) conducted by the Oak Ridge Institute for Science and Education (ORISE).

Based on the results of this inspection, no violations were identified. No reply to this letter is required.

In accordance with Section 2.390 of the NRC's "Rules and Practices," Part 2, Title 10, Code of Federal Regulations, a copy of this letter and its enclosure will be placed in the NRC Public Document Room (PDR) and will be accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

Your cooperation with us is appreciated.

Sincerely,

*/RA/*

Raymond Lorson, Chief  
Decommissioning Branch  
Division of Nuclear Materials Safety

Docket No. 05000029; ISFSI Docket No. 07200031  
License No. DPR-03

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**ACCESSION NO. ML071860234**

- Enclosures:
1. NRC Region I Inspection Report No. 05000029/2006001 and 05000029/2007001
  2. In-Process Inspection Survey Results for Selected Inside and Outside Open Land Area Survey Units at the Yankee Nuclear Power Station, Rowe, Massachusetts [Docket No. 50-29; RFTA No. 05-008], dated August 17, 2006 [ADAMS Accession Number ML071230672]
  3. Radiological Survey Results for the Industrial Area and Selected Outside Open Land Area Survey Units at the Yankee Nuclear Power Station, Rowe, Massachusetts [Docket No. 50-29; RFTA No. 05-008] dated January 10, 2007 [ADAMS Accession Number ML071230643]

w/Attachment: Supplemental Information

cc w/encls:

T. Smith, Executive Director of Business Operations  
J. Bourassa, Director Site Closure & Project Support  
R. Mitchell, ISFSI Manager  
J. Connell, ISFSI RPM & QA  
G. van Noordennen, Regulatory Affairs Manager  
A. Carson, Licensing Manager  
C. Pizzella, Treasurer  
J. Fay, General Council  
R. Capstick, Public & Government Affairs  
R. Walker, Department of Public Health, Commonwealth of Massachusetts  
Citizens Awareness Network  
Commonwealth of Massachusetts, SLO Designee  
State of Vermont, SLO Designee

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U.S. NUCLEAR REGULATORY COMMISSION  
REGION I

INSPECTION REPORT

Inspection Nos. 05000029/2006001 and 0500029/2007001

Docket No. 05000029

License No. DPR-03

Licensee: Yankee Atomic Electric Company (YAEC)

Facility: Yankee Rowe Plant (Yankee Rowe)

Location: 49 Yankee Road  
Rowe, Massachusetts 01367

Inspection Dates: June 20-22, 2006  
August 21-25, 2006  
September 25-27, 2006  
October 24-26, 2006  
February 20, 2007  
June 5, 2007

Inspectors: David Everhart, Health Physicist, Division of Reactor Safety  
  
Laurie A. Kauffman, Health Physicist, Decommissioning Branch  
  
Mark Roberts, Senior Health Physicist, Decommissioning Branch

Approved By: Raymond Lorson, Chief  
Decommissioning Branch  
Division of Nuclear Materials Safety

## EXECUTIVE SUMMARY

Yankee Atomic Electric Company  
NRC Combined Inspection Report Nos. 05000029/2006001 and 05000029/2007001

The report covered a twelve-month period of inspection by three Region I health physics inspectors. The inspectors examined decommissioning activities conducted under your License Termination Plan (LTP) as they related to safety, and compliance with the Commission's rules and regulations. The report includes evaluations of your decommissioning activities related to: organization; management oversight; the audit and surveillance program; the corrective action program; the independent spent fuel storage installation (ISFSI); the decommissioning performance and final status survey programs; the radiation protection program; and, the radioactive waste transportation program. The report also includes two Oak Ridge Institute for Science and Education (ORISE) Reports regarding confirmatory inspections conducted in June and October 2006. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

### Facilities Management and Control

- The YAEC staff maintained an adequate audit and surveillance program, and corrective action program. (Section 1.1)
- The YAEC security personnel maintained an adequate program for surveillance and monitoring of the ISFSI and stored spent fuel. (Section 1.2)

### Decommissioning Performance and Status Review

- The YAEC staff conducted decommissioning activities in accordance with the approved License Termination Plan (LTP) requirements and adequately implemented sampling and survey procedures and protocols to support the final status survey program. (Section 2.0)

### Plant Support

- The YAEC radiation protection staff implemented an effective program to control and limit occupational radiation exposures. The YAEC staff effectively implemented the radioactive waste transportation program. The YAEC staff implemented and maintained the Radiological Environmental Monitoring Program (REMP) in accordance with the Offsite Dose Calculation Manual (ODCM) requirements. (Sections 3.1, 3.2, and 3.3)

## **REPORT DETAILS**

### **Summary of Facility Status**

The Yankee Nuclear Power Station (YNPS) is owned by Yankee Atomic Electric Company (YEAC). The YEAC began operations in 1960, and in February 1992 permanently ceased operations and commenced decommissioning activities. In June 2002, YEAC commenced operation of the Independent spent fuel storage installation (ISFSI), and in June 2003 all fuel was transferred to the ISFSI pad. In March 2007, YEAC submitted a letter of intent concerning the phased release of land from the Part 50 license. As of June 2007, YEAC completed all decommissioning activities per the License Termination Plan (LTP).

### **1.0 Facilities Management and Control**

#### **1.1 Audit, Surveillance, and Corrective Action Program**

##### **a. Inspection Scope (IP 40801)**

The inspectors reviewed audit report (YR-06-A06-01) of the Final Status Survey (FSS) Program and License Termination Plan. The inspectors evaluated YAEC's surveillance report of the free release program and several condition reports (CRs) to assess YAEC's ability to identify, resolve, and prevent the recurrence of conditions that could degrade the safety or quality of decommissioning activities. The inspectors reviewed the CRs for issues related to the following: the FSS program, the safeguards program, the radiation protection program, and the transportation of radioactive waste program.

##### **b. Observations and Findings**

No findings of significance were identified.

The audit and surveillance activities performed by YAEC staff were sufficiently detailed and thorough to identify areas of declining performance. The staff maintained an effective program for reporting potential safety issues by generating CRs when deficiencies were noted, and by entering the CRs into the corrective action program for resolution. The inspectors determined that the reviewed CR issues did not impact safety and were properly dispositioned.

##### **c. Conclusions**

The YAEC staff maintained an adequate audit and surveillance program, and corrective action program.

## **1.2 Independent Spent Fuel Storage Installation**

### a. Inspection Scope (IP 60855)

The inspectors reviewed procedures, maintenance and surveillance records, and interviewed selected independent spent fuel storage installation (ISFSI) operations personnel. The inspectors toured the ISFSI, observed shift rounds, and discussed ISFSI operations, security and safeguards issues with the ISFSI Manager and ISFSI Shift Manager.

### b. Observation and Findings

No findings of significance were identified.

The inspectors noted that the vertical concrete casks were in good material condition, the ventilation openings were unobstructed, and the perimeter fence was intact and properly posted. The inspectors verified that the control room systems were operable. The inspectors noted that the ISFSI Shift Supervisor (ISS) implemented routine maintenance and surveillance activities in accordance with the associated procedures.

### c. Conclusions

The YAEC personnel maintained an adequate program for surveillance and monitoring of the ISFSI and stored spent fuel.

## **2.0 Status of Decommissioning Performance and Inspection of Final Status Surveys**

### a. Inspection Scope (IPs 71801 and 83801)

The inspectors evaluated the status of decommissioning activities and the FSS program to verify that the licensee was conducting decommissioning activities in accordance with the License Termination Plan (LTP). The inspectors conducted site tours and discussed the FSS activity schedule. The inspectors and the NRC's contractor, Oak Ridge Institute of Science and Education (ORISE), performed independent inspections in June and October 2006.

### b. Observations and Findings

No findings of significance were identified.

The inspectors reviewed selected YAEC Survey Unit (SU) survey plans and soil sampling procedures. The inspectors noted that the survey plans contained adequate guidance to conduct the surface scans and to ensure reproducible representative soil samples consistent with industry practice. The inspectors noted that YAEC's FSS Program was essentially complete. The FSS reports have been submitted to the NRC for final review.

On June 21-22, 2006, ORISE performed an in-process survey of selected inside open land areas (NOL-04-01 and NOL-05-01) and outside open land areas (OOL-09-01, OOL-09-02, OOL-07-02, and OOL07-03). These surveys included gamma surface scans and soil sampling within these SUs. On October 24, 2006, ORISE performed



radiological surveys for the industrial area and selected OOL area survey units (OOL-03-02, OOL-05-05, OOL-05-06, OOL-05-09, OOL-05-10, and OOL-08-07). The surveys included gamma surface scans in the industrial area and the selected SUs. The soil samples from both ORISE surveys, were analyzed by the NRC's contract laboratory, ORISE. The gamma spectroscopy results for the soil samples were below the derived concentration guideline levels specified in the LTP. The details of the ORISE analyses are contained in the enclosed ORISE Reports.

c. Conclusions

The YAEC staff conducted decommissioning activities in accordance with the LTP requirements and adequately implemented sampling and survey procedures and protocols to support the FSS program.

**3.0 Plant Support**

**3.1 Radiation Protection**

a. Inspection Scope (IP 83750)

The inspectors reviewed the licensee's radiation protection program in order to determine the licensee's capability to monitor and control radiation exposure to employees and to determine the adequacy of the Radiation Protection (RP) program.

b. Observations and Findings

The inspectors noted that the RP staff had implemented the free release program, which included conducting surveys of tools and equipment prior to release from the site. The inspectors selected and reviewed survey records and verified that no detectable activity above background was identified on any tools and equipment prior to release from the site.

c. Conclusions

The YAEC RP staff implemented an effective program to control and limit occupational radiation exposure.

### **3.2 Radiological Environmental Monitoring Program (REMP) and Radioactive Effluent Control Program (RECP)**

#### **a. Inspection Scope (IP 84750)**

The inspectors evaluated the Annual Radioactive Effluent Release Report and the Annual Environmental Monitoring Operating Report, and the analytical results, to verify that the REMP and RECP were implemented as required by the Quality Assurance Plan (QAP) and the Offsite Dose Calculation Manual (ODCM). The review included changes to the ODCM, which included significant reductions in the REMP and the elimination of the RECP. The inspectors evaluated the direct external dose from fixed sources of radioactive materials by comparing the 2006 environmental thermoluminescent dosimeter (TLD) data for the offsite indicator, control, and outer ring locations. The inspectors compared these data with the on-site ISFSI TLD results and verified that there was no measurable station-related direct radiation dose at or beyond the site boundary. The inspectors verified that the total dose to the maximum off-site individual for 2006 was below the EPA dose limit (25 mrem/year) criteria in 40 CFR 190.

#### **b. Observations and Findings**

No findings of significance were identified.

The inspectors noted that following the completion of the ISFSI in June 2003, the spent fuel pool (SFP) water inventory was processed by filtration and demineralization systems, and was released to the environment as a controlled liquid waste discharge in accordance with the ODCM. The SFP water was the final major source of station process water requiring processing as part of site decommissioning. The inspectors noted that YAEC made no gaseous or liquid effluent releases from June 2003 to June 2007. The inspectors noted that YAEC eliminated the RECP based on the completion of decommissioning activities.

The inspectors noted that YAEC reduced the REMP in October 2006. The program was reduced to measure only direct dose through implementation of the environmental TLD program.

#### **c. Conclusions**

The YAEC staff implemented and maintained the Radiological Environmental Monitoring Program (REMP) in accordance with the Offsite Dose Calculation Manual (ODCM) requirements.

### **3.3 Transportation of Radioactive Waste**

#### a. Inspection Scope (IP 86750)

The scope of this inspection area was to evaluate YAEC's program for transportation of radioactive waste and to determine whether the YEAC staff properly processed, packaged, stored, and shipped radioactive materials. The inspectors reviewed the radioactive waste shipments, which included dry active waste and low-level radioactive demolition debris. The inspectors observed the YEAC staff conduct surveys and prepare shipments for transport.

#### b. Observations and Findings

No findings of significance were identified.

The selected radioactive waste shipment records included completed copies of characterization reports, waste manifest shipping papers, emergency response information, survey record forms, and related documentation (i.e. shipment inspection plans and truck inspection records). The YAEC staff met the applicable radiation and transportation requirements for the shipments reviewed.

#### c. Conclusions

The YAEC staff effectively implemented the radioactive waste transportation program.

### **4.0 Exit Meeting Summary**

On June 5, 2007, a summary of the inspection findings for the entire inspection period was presented to the Mr. J. Bourassa and members of your staff. The inspectors confirmed that proprietary and safeguards information were not included in this inspection report.

Attachment: Supplemental Information

SUPPLEMENTAL INFORMATION

**PARTIAL LIST OF PERSONS CONTACTED**

Licensee

G. Babineau, YAEC Radiation Protection Manager  
R. Benner, YAEC Director of Decommissioning  
J. Bourassa, YAEC Director of Site Closure and Project Support  
J. Connell, YAEC ISFSI RPM & QA  
M. Erickson, YAEC FSS Project Manager  
J. Lenois, Connecticut Yankee ISFSI Manager  
R. Mitchell, YAEC ISFSI Manager  
G. van Noordennen, YAEC Regulatory Affairs Manager  
F. Williams, YAEC ISFSI Operations Manager

**INSPECTION PROCEDURES USED**

40801 Self-Assessment, Auditing, and Corrective Action  
60855 Operation of Independent Spent Fuel Storage Installation  
71801 Decommissioning Performance and Status Reviews  
83750 Occupational Radiation Exposure  
83801 Inspection of Final Status Surveys  
86750 Solid Radioactive Waste Management and Transportation of Radioactive Materials

**ITEMS OPEN, CLOSED, AND DISCUSSED**

<u>Opened</u>	None
<u>Closed</u>	None
<u>Discussed</u>	None

**LIST OF ACRONYMS USED**

CR	Condition Reports
FSS	Final Status Survey
ISFSI	Independent Spent Fuel Storage Installation
ISS	Shift Supervisor
LTP	License Termination Plan
NOL	inside open land areas
OOL	outside open land areas
ORISE	Oak Ridge Institute for Science and Education
RP	Radiation Protection
SU	Survey Unit
YAEC	Yankee Atomic Electric Company