



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

June 13, 2006

Docket No. 05000029
ISFSI Docket No. 07200031

License No. DPR-03

Mr. Wayne Norton
President
Yankee Atomic Electric Company
49 Yankee Road
Rowe, Massachusetts 01367

SUBJECT: NRC INSPECTION 05000029/2005002, YANKEE ATOMIC ELECTRIC
COMPANY, ROWE, MASSACHUSETTS

Dear Mr. Norton:

The NRC has completed an inspection at your Rowe, Massachusetts facility, which covered an inspection period that began on August 1, 2005, and concluded on May 15, 2006. The findings of the inspection were discussed with you and members of your staff upon the conclusion of our on site inspections on September 14, November 9, December 8 and 15, 2005, February 28 and April 26, 2006, and during the telephone conversation on May 15, 2006. The enclosed report presents the results of that inspection.

Your independent spent fuel storage facility, quality assurance and self-assessment, decommissioning performance status review, occupational exposure controls, final surveys, and radioactive waste management and transportation programs were inspected during this inspection period. The inspection consisted of selective examinations of procedures and representative records, interviews with personnel, observations made by the inspectors, and independent direct radiation measurements made by the inspector. With respect to these areas of inspection, we note that you maintained an effective program for decommissioning of the site.

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/NRC/ADAMS/index.html>. No reply to this letter is required.

Sincerely,

/RA/

Marie Miller, Chief
Decommissioning Branch
Division of Nuclear Materials Safety

Enclosure:

1. NRC Region I Inspection Report No. 50-029/2005-002

Wayne Norton

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cc w/encl:

R. Benner, Decommissioning Director

J. Connell ISFSI Program Manager

J. Lynch, YAEC Regulatory Affairs Manager

J. Bourassa, Director, Site Closure & Project Support

A. Carson, Licensing Manager

R. Walker, Department of Public Health, Commonwealth of Massachusetts

K. Smith, Yankee Rowe Community Advisory Board

Citizens Awareness Network

Commonwealth of Massachusetts, SLO Designee

State of Vermont, SLO Designee

U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No. 05000029

License No. DPR-03

Report No. 05000029/2005-002

Licensee: Yankee Atomic Electric Company (YAEC)
580 Main Street
Bolton, Massachusetts 01740-1398

Facility Name: Yankee Nuclear Power Station

Location: Rowe, Massachusetts

Dates: August 1, 2005 to May 15, 2006

Inspectors: J. Kottan, Sr. Health Physicist, Decommissioning Branch (DB), Division of
Nuclear Materials Safety (DNMS)
D. Everhart, Health Physicist, DB, DNMS

Approved by: M. Miller, Chief, Decommissioning Branch, Region I

Enclosure

EXECUTIVE SUMMARY

Yankee Atomic Electric Company
NRC Inspection Report No. 05000029/2005002

Inspections were conducted to determine whether the decommissioning activities carried out at the Yankee Rowe facility were conducted safely and in accordance with NRC requirements. Areas reviewed included the: independent spent fuel storage installation (ISFSI); quality assurance and self-assessment program, decommissioning performance and status review; occupational exposure controls; final surveys; and radioactive waste management and transportation program.

Facilities Management and Control

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

The licensee maintained an effective program to self-identify, prevent, and resolve concerns and problems that would degrade safety or the quality of decommissioning.

Decommissioning Performance and Status Review

The licensee maintained an adequate program for demolition and dismantlement of site buildings and structures.

The licensee implemented an effective program to control and limit occupational radiation exposures.

The licensee has implemented an adequate final status survey program to demonstrate that the site will meet acceptable radiological levels for unrestricted use in accordance with its License Termination Plan.

Radioactive Waste Management

The licensee maintained an effective radioactive material shipping program in compliance with regulatory requirements.

REPORT DETAILS

Summary of Facility Activities

Decommissioning activities at the Yankee Rowe Nuclear Power Station continued under the License Termination Plan approval granted through a letter from the NRC to Mr. James Kay (July 28, 2005).

1.0 Facilities Management and Control

1.1 Independent Spent Fuel Storage Installation

a. Inspection Scope (60855&81700)

The inspector toured the ISFSI, reviewed surveillance records and discussed ISFSI operations and security with the ISFSI Manager and ISFSI Shift Supervisor (ISS).

b. Observations and Findings

The inspector toured the perimeter of the ISFSI and observed that the vertical concrete casks were in good material condition, the ventilation openings were unobstructed and clear, and the perimeter fence was intact and properly posted. The inspector also confirmed continued implementation of several aspects of the licensee's security plan, including security personnel and physical barriers. Additionally, the inspector toured the control room and verified the operability of the control room systems. No findings of significance were identified.

c. Conclusions

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

1.2 Quality Assurance Audits and Self Assessments

a. Inspection Scope (40801)

The inspector assessed the quality assurance audit, surveillance, and condition reports to determine the licensee's capability to self-identify and prevent issues that degrade safety or the quality of decommissioning. The inspector reviewed selected surveillance reports including:

QSR-05-018-YR	Using SPA-3 on a Sled
QSR-05-019-YR	Condition Report 05-386 Follow Up
OSR-05-020-YR	Final Status Survey Activities
QSR-05-024-YR	Final Status Survey Reference Areas
QSR-05-025-YR	Final Status Survey Activities in Survey Units BRT 01-03, BRT 01-05, and BRT 01-07
QSR-05-026-YR	ISFSI PM Program
QSR-05-027-YR	Laboratory Gamma Spectrometry of FSS Samples

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QSR-05-029-YR Remediation Activities
QSR-05-030-YR GEL Offsite Laboratory

The inspector also reviewed the 2005 Yankee-Rowe ISFSI Annual Emergency Plan Exercise.

b. Observations and Findings

Surveillances performed by the licensee were thorough and sufficiently detailed to identify programmatic weaknesses or areas of declining performance in decommissioning program areas. Additionally, the review of the selected condition reports indicated that the licensee had in place a program for reporting on-site safety issues, appropriately classifying the issues, and providing appropriate management review to resolve the issues. No findings of significance were identified.

c. Conclusions

The licensee maintained an effective program to self-identify, prevent, and resolve concerns and problems that would degrade safety or the quality of decommissioning.

2.0 Decommissioning Performance and Status Review

2.1 Decommissioning Performance and Status Review

a. Inspection Scope (71801)

The inspector reviewed activities associated with site decommissioning following the demolition and dismantlement of onsite structures and buildings. Information was gathered through interviews with cognizant individuals, tours of the site, and a review of procedures and records.

b. Observations and Findings

During the previous inspection period the reactor support structure (RSS) and the spent fuel pool (SFP) building were dismantled and demolished. Decommissioning activities during this inspection period centered on remediation of below grade structures and final status surveys. The inspector reviewed radiological sample results data and observed the licensee's operations for segregating and characterizing demolition debris for on site reuse or disposal. Adequate methods for complying with the regulatory release limits were in place including management of on site piles of demolition debris and rubble. The inspector also attended and observed licensee meetings that planned, reviewed, and scheduled site decommissioning activities. The meetings were well run, and it appeared that site management and staff maintained adequate control of site decommissioning activities.

During the previous inspection period, an Unresolved Item, 05000029/2005001-01, was identified regarding the unrestricted release of 40 contaminated concrete shield blocks in 1999. The shield blocks were contaminated with Tritium and Carbon-14 (C-14). Subsequent to their release, the shield blocks were used by a property owner to construct a retaining wall on private

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property in the State of Vermont. The contamination was identified by the licensee in 2005. The licensee and the NRC split samples of the shield blocks, which the NRC sent to their contract laboratory, ORISE, Environmental Site Survey and Assessment Program (ESSAP) laboratory for analysis. The NRC sample results were compared to the results of the analysis performed for the licensee. The resultant comparison confirmed the licensee's analytical results indicating that the shield blocks were contaminated with tritium and C-14. See attachment one (ADAMS ML061530402), which provides the ORISE analytical results. Based on the sample results, the inspector determined that the release of the contaminated shield blocks from the site constituted an improper disposal of radioactive material relative to 10 CFR 20.2001. The inspector further noted that on March 10, 2006, the NRC approved the licensee's request of June 2005 to leave the shield blocks in place in Vermont under 10 CFR 20.2002 because of their low dose significance. This failure constitutes a violation of minor safety significance and is not subject to formal enforcement action. Although the violation was of low safety significance, the minor violation was discussed here because it related to the improper disposal of radioactive material that was also of interest to the public.

c. Conclusion

The licensee maintained an adequate program for demolition and dismantlement of site buildings and structures.

2.2 Occupational Exposure Controls

a. Inspection Scope (83750)

The inspector 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 licensee's radiation protection program. The inspector toured the site and made independent direct exposure radiation measurements.

b. Observations and Findings

Based on the site tour, the inspector noted that observed areas of the site were appropriately posted and labeled for radioactive material. Radiation work permits and survey maps were posted at the entry point for the radiologically controlled area. The inspector noted that as of the conclusion of this inspection period, the on-site source term has been reduced significantly. The licensee stated that the total dose for 2005 was 1.1 person-rem. The licensee moved the health physics (HP) control point and reduced the HP staff in response to this change in potential for radiological hazard. No findings of significance were identified.

c. Conclusions

The licensee implemented an effective program to control and limit occupational radiation exposures.

2.3 Final Surveys

a. Inspection Scope (83801)

The inspector reviewed the licensee's program for performing final status surveys in order to determine the adequacy of the licensee's program to demonstrate that the site has been decontaminated to acceptable radiological levels for unrestricted use. Independent NRC in-process radiation and contamination surveys were performed of: the RSS concrete base and inside open land areas; Primary Auxiliary Building (PAB) remaining wall; Turbine Building (TB) slab area; the remaining SFP and upper Radiological Controlled Area (RCA) yard excavations; and concrete structures within these excavations. The surveys were performed by the NRC's contract survey organization, ORISE and the inspector accompanied ORISE personnel during their survey activities.

b. Observations and Findings

In-process surveys provide confidence that the licensee's survey results are accurate. The ORISE surveys generally confirmed the accuracy of the licensee's survey results. However, the ORISE surveys also identified areas of elevated activity at some locations which were due to discrete small particles of radioactive material. The licensee began a review of their survey procedures relative to the identification of the "hot particles" and the dose significance of the particles. This issue involves the use of in situ gamma spectroscopy that is under review by the licensee, and will be evaluated by the Office of Nuclear Material and Safeguards. In addition to the independent in-process surveys, the inspector also split several samples with the licensee to assess the licensee's capability to characterize various areas and structures of the site prior to remediation and final status surveys. The samples were analyzed by the NRC's contract laboratory, ORISE. The results of the analyses are attached to this inspection report. The results indicated that the licensee correctly characterized systems and structures prior to remediation and final status surveys.

Attachments two through six to this inspection report provide the associated ORISE survey results and are also available in ADAMS as listed on page A-2 of this report.

c. Conclusion

The licensee has implemented an adequate final status survey program to demonstrate that the site will meet acceptable radiological levels for unrestricted use in accordance with its License Termination Plan.

3.0 Radioactive Waste Management

3.1 Radioactive Waste Management and Transportation

a. Inspection Scope (86750)

The inspector reviewed the licensee's program for the shipment of radioactive waste to determine compliance with transportation regulations from the NRC and Department of Transportation (DOT). The inspection of this area consisted of field observations and interviews with licensee personnel related to the packaging and shipping of waste radioactive materials. The inspector reviewed data for selected shipments for 2005 and 2006. The review included package radiation surveys, nuclide characterization, and hazardous waste classification.

b. Observations and Findings

The shipments that were reviewed included low level radioactive waste and DOT exempt shipments in various types of intermodal containers. Shipping containers were stored at designated locations within the site. Loaded containers awaiting shipment were appropriately marked and labeled. Additionally, the container storage area was adequately posted. The majority of the rubble stored in the Southeast Construction Fill Area has been removed from the site.

The inspector observed the shipment of an intermodal container including the loading of the container on the truck, vehicle inspection and radiation survey, and preparation of shipment papers.

Licensee radwaste shipping personnel were knowledgeable and experienced and familiar with the procedures, software, and regulatory requirements for shipments of radioactive material. No findings of significance were identified.

c. Conclusions

The licensee maintained an effective radioactive material shipping program in compliance with regulatory requirements.

4.0 Exit Meeting Summary

The inspectors presented the inspection results to members of licensee management periodically during the inspection, and during exit meetings at the conclusions of on site inspections on September 14, November 9, December 8 and 15, 2005, February 28 and April 26, 2006, and during the telephone conversation on May 15, 2006. The licensee acknowledged the findings presented by the inspectors. During the inspection, the inspectors reviewed with the licensee whether any materials examined during the inspection should be considered proprietary. While proprietary information was reviewed during the inspection, no proprietary information is contained in this report.

PARTIAL LIST OF PERSONS CONTACTED

- *G. Babineau, YAEC, Radiation Protection Manager
- *R. Benner, YAEC, Director of Decommissioning
- *D. Calsyn, YAEC, Quality Assurance Manager
- *R. Dee, YAEC, Scheduler
- *B. Holmgren, YAEC, Decommissioning Project Manager
- *D. Maffei, YAEC, Waste Manager
- *K. Myers, Health Physics Manager, Duratek
- *D. Montt, YAEC, HP and Chemistry Supervisor
- *N. Rademacher, YAEC, Decommissioning Project Manager
- *J. Rollins, YAEC, Regulatory Affairs Manager
- *M. Erickson, YAEC, FSS Project Manager
- *R. Trudeau, YAEC, QA Auditor
- *F. Williams, YAEC, ISFSI Operations Manager

* These individuals participated in the exit briefings.

INSPECTION PROCEDURES USED

IP 60855	Operation of ISFSI
IP 81700	Physical Security Assessment
IP 40801	Self Assessment, Auditing, and Corrective Action
IP 71801	Decommissioning Performance and Review Status
IP 83750	Occupational Radiation Exposure Control
IP 83801	Final Surveys at Permanently Shutdown Reactors
IP 86750	Solid RadWaste Management & transportation of RAM

SUPPLEMENTARY INFORMATION REVIEWED

1. Report for Analysis of Concrete and Soil Samples from the Yankee Nuclear Power Station, Rowe, Massachusetts [Inspection No. 50-029/2005-002] [RFTA No. 05-001/06-001], ADAMS ML061530402
2. In-Process Inspection Survey Results for the Reactor Support Structure Concrete Base and Inside Open Land Areas at the Yankee Nuclear Power Station, Row, Massachusetts [Docket No. 50-29; RFTA No. 05-008], ADAMS ML061530383
3. In-Process Inspection Cursory Survey Results for the Primary Auxiliary Building Remaining Walls at the Yankee Nuclear Power Station, Row, Massachusetts [Docket No. 50-29; RFTA No. 05-008], ADAMS ML061530379
4. In-Process Inspection Survey Results for the Turbine Building Slab Area at the Yankee Nuclear Power Station, Row, Massachusetts [Docket No. 50-29; RFTA No. 05-008], ADAMS ML061530393
5. Report for Analysis of Concrete Samples from the Yankee Nuclear Power Station, Rowe, Massachusetts [Inspection No. 50-029/2005-002] [RFTA No. 05-001/06-001], ADAMS ML061530412
6. In-Process Inspection Survey Results for the Turbine Remaining Spent Fuel Pool and Northeastern Upper RCA Yard Excavations and Concrete Structures within the Excavations at the Yankee Nuclear Power Station, Row, Massachusetts [Docket No. 50-29; RFTA No. 05-008], ADAMS ML061530421

ITEMS OPENED, CLOSED, AND DISCUSSED

Discussed NONE

Opened NONE

Closed URI 05000029/2005001-01 Tritium contaminated shield blocks released from the site

LIST OF ACRONYMS

ADAMS	Agency Document Access and Management System
ALARA	As Low As Reasonably Achievable
DOT	Department of Transportation
ESSAP	Environmental Site Survey and Assessment Program
HP	Health Physics
ISFSI	Independent Spent Fuel Storage Installation
ISS	ISFSI Shift Supervisor
NCV	Non-cited Violation
ODCM	Offsite Dose Calculations Manual
ORISE	Oak Ridge Institute for Science and Education
PAB	Primary Auxiliary Building
PCP	Process Control Program
PDR	Public Document Room
RCA	Radiological Controlled Area
RSS	Reactor Support Structure
SFP	Spent Fuel Pool
TB	Turbine Building
YAEC	Yankee Atomic Electric Company
YNPS	Yankee Nuclear Power Station