

January 13, 2000

Frederick N. Williams  
Plant Superintendent  
Yankee Atomic Electric Company  
49 Yankee Road  
Rowe, Massachusetts 01367

SUBJECT: NRC INSPECTION REPORT NO. 50-29/99-04

Dear Mr. Williams:

On December 31, 1999, the NRC completed an inspection at your nuclear reactor facility in Rowe, Massachusetts. The enclosed report presents the results of that inspection.

During the period covered by this inspection, your conduct of activities at the Rowe facility was generally characterized by safety-conscious operations to maintain the spent nuclear fuel and careful radiological controls for protecting the safety of workers during dismantlement and decommissioning activities. Within the scope of this inspection, you had in place effective programs for self-assessment, cold-weather preparations and security to ensure continued plant safety. Your emergency preparedness exercise demonstrated your continued ability to respond should an event occur. As discussed during our meeting with your representatives on December 14, 1999, we understand that your staffing and decommissioning activities have shifted to focus on implementing a dry cask storage system.

Based on the results of this inspection, the NRC has determined that one Severity Level IV violation of an NRC requirement occurred during this inspection period. This violation concerns the failure by plant personnel to follow procedures, specifically operations procedure OP-2115 Warm or Cold Weather Operation. The violation is being treated as a Non-Cited Violation (NCV), consistent with Section VII. B.1 of the Enforcement Policy. The NCV is described in the subject inspection report. If you contest the violation or severity level of the NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with a copy to the Regional Administrator, Region I; and the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

Mr. F. N. Williams

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if you choose to provide one) will be placed in the NRC Public Document Room (PDR).

Sincerely,

***Original Signed by:  
George Pangburn for***

Ronald R. Bellamy, Chief  
Decommissioning and Laboratory Branch  
Division of Nuclear Material Safety

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

Enclosure: NRC Region I Inspection Report No. 50-29/99-04

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Mr. F. N. Williams

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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION I**

Docket No. 50-29

License No. DPR-03

Report No. 50-29/99-04

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

Facility Name: Yankee Nuclear Power Station

Location: Rowe, Massachusetts

Dates: October 1 - December 31, 1999

Inspectors: S. Shaffer, Health Physicist, Region I  
M. Miller, Sr. Health Physicist, Region I

Approved by: Ronald R. Bellamy, Chief  
Decommissioning and Laboratory Branch  
Division of Nuclear Materials Safety, RI

## EXECUTIVE SUMMARY

### Yankee Facility NRC Inspection Report No. 50-29/99-04

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. This report covers a three-month period of inspection. Areas reviewed included self-assessment, auditing, corrective action, emergency preparedness exercises, cold weather preparations, and security. In general, there were effective programs for protecting the safety of workers and the public during dismantlement and decommissioning activities.

Each of the three main components (Audits, Condition Reports, and Quality Assurance Surveillance Reports) of the licensee's self-assessment program were being implemented effectively. Each of the three components were well documented and clearly communicated their findings. The licensee's auditors were uncovering important issues in a timely and effective manner. No concerns were identified.

The licensee's staff performed a prompt and effective response to a thorough and plausible accident scenario during an emergency response exercise. No concerns were identified.

On December 14, 1999, Duke Engineering and Services representatives provided an update on the Yankee Atomic Energy Company dry fuel storage and fuel inspection activities planned to begin early 2000.

Licensed material is being maintained in a safe secured status at all times. No safety concerns were identified.

One Non-Cited Violation for failure to follow procedure OP-2115, Revision 31 was identified. The facilities, however, had been placed in the proper and safe alignment for operation in cold weather.

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## REPORT DETAILS

### **O1 Summary Of Facility Operations**

Decommissioning activities at the Yankee Nuclear Power Station (NPS) continued under the approval granted through a letter from the NRC (reference correspondence, dated October 28, 1996, from Mr. Morton Fairtile to Mr. James Kay).

The licensee has completed surveys in the turbine building and the safe shutdown/diesel generator building and demolished the safe shutdown/diesel generator building. The debris will be released under existing NRC guidance for unrestricted use or sent to a vendor for radioactive waste processing and disposal.

### **O2 Operations**

#### O2.1 Self-Assessment, Auditing and Corrective Action

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

The licensee's past and on-going activities in self-assessment were reviewed. These activities include Audits, Condition Reports (CRs), and Quality Assurance (QA) Surveillance Reports.

##### b. Observations and Findings

The inspector reviewed Audit Reports Y-99-A-03-01, Y-99-A-06-01, and Y-99-A-08-01. Due to the reduced level of activities on-site, the licensee's audit reports regularly included multiple functional areas in a single audit report. Y-99-A-03-01 covered the functional area of Training and Qualification. Y-99-A-06-01 covered the functional areas of Operations, Technical Specifications, and Special Nuclear Material. Y-99-A-08-01 covered the functional areas of Fire Protection, Housekeeping, and Hazardous Material. The audits were prepared and performed in accordance with the Decommissioning Quality Assurance Program. The audits were performed by four member teams each consisting of an lead auditor and three auditors. Inspector interviews verified that auditors were properly trained and well versed. The audit scopes were sufficiently broad to ensure that the entire functional area(s) was covered by the audit. The audit findings, where warranted, were entered into the licensee's corrective actions program. All findings were documented with sufficient detail to ensure a clear and consistent understanding of the issues. The inspector noted that there was currently no method of tracking resolution of the findings reported in audits. During discussions with the Quality Assurance Department Manager, it was determined that such a method had existed in the past and that it or a similar tracking method was being considered for implementation. It was noted that tracking findings to their resolution would improve the effectiveness of the program as a whole.

The licensee's Corrective Actions Program was initiated in March 1999. There were approximately 150 CRs opened in the first six months of the program. The CR threshold appears to be low enough to capture trending issues before they become larger and more safety significant issues, for example a number of the CRs appear to be attention to detail type issues. These CRs help in keeping the level of attention to detail at the plant as high as possible. Since the program is new, it is undergoing review and improvements are being considered. The inspector noted that there were a number of CRs that were past projected close-out dates without being closed or extended. When the inspector questioned this issue, the licensee stated that all the open CRs were currently being reviewed to determine which were approaching or past their close-out dates. This will be done monthly until a tracking program is developed and implemented. The CRs are consistently providing clear definitions of the issues and are also clearly defining who has responsibility for resolving the issue.

Two QA Surveillance Reports were reviewed by the inspector. They covered the asbestos control program and polychlorinated biphenyl (PCB) storage. The QA Surveillance Reports are prepared by QA department members who are auditor qualified. The QA Surveillance Reports are of a more limited scope than the audits. They are an effective quality assurance tool in that they are more specific and limited than audits and have a quicker turn-around time. The QA Surveillance Reports reviewed were very detailed and provided a very clear description of the findings in the report.

c. Conclusions

Each of the three main components of the licensee's self-assessment program were being implemented effectively. Each of the three components were well documented and clearly communicated their findings. The licensee's auditors were uncovering important issues in a timely and effective manner. No concerns were identified.

O2.2 Facility Tours

The inspector toured most of the radiological controlled areas (RCAs) outside the vapor containment (VC), the service building, the turbine building, the potentially contaminated area (PCA) storage building (a storage/staging area for potentially contaminated equipment and materials), and the spent fuel pool building (SFPB). Posting and labeling of radioactive materials and radiation areas (RAs) continued to meet regulatory requirements. As discussed in NRC Inspection Report 50-29/99-03, a significant number of storage boxes filled with mixed hazardous waste was staged in the PCA warehouse while the licensee was negotiating with a disposal facility to accept the hazardous waste. There were also numerous storage/transport containers (cargo-vans) staged in areas around the controlled area. The licensee has begun making regular shipments to the disposal facility. No significant safety or NRC regulatory concerns were noted by the inspectors during tours of the facility.

O2.3 Current Activities

Most mechanical and structural components have been removed from areas in the VC. Workers continued the chipping and removal of concrete around the area where the reactor vessel was formerly located. Asbestos and PCB abatement on building surfaces continued in the loop areas of the VC.



The licensee began work on removing miscellaneous equipment from the spent fuel pool (SFP) in order to provide additional space in the pool for fuel inspection work. Remote tooling and cameras are being used for the fuel inspections which has allowed the licensee to avoid the need to send divers into the SFP.

The final site survey project was discontinued due to the uncertainty regarding the specifics of a new License Termination Plan (LTP). The licensee had completed final surveys in the turbine building and the safe shutdown building so these buildings would be available for dismantlement. The licensee has not made any final decisions regarding the turbine building. The safe shutdown building has been dismantled.

Occupational safety awareness was evident among the workers at the site. The inspector observed protective equipment and safety processes being used in accordance with procedures. Safety warning signs and barricades were used appropriately.

## **O8 Miscellaneous Items**

### **O8.1 Cold Weather Preparations**

#### **a. Inspection Scope (71714)**

The licensee's preparations for adverse cold weather conditions were reviewed.

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

The licensee's cold weather operations are covered under procedure OP-2115, Warm or Cold Weather Operation. The procedure was partially complete during the inspection. The inspector walked down the procedure with cognizant individuals from the maintenance and operations departments. The majority of the procedure is completed by the operations department, however, a part of the procedure is the responsibility of the maintenance department.

Due to changes in the facility that are on-going due to decommissioning, the procedure requires a number of changes each year. During the walk-down of the operations part of the procedure, it was noted that two parts of the procedure already initialed as completed did not appear to be able to be completed if the procedure was followed verbatim. Discussions were held with the shift supervisor, engineering, and the individuals who had initialed the procedure. It was determined that the procedure referenced the wrong valve in one case and the valve was improperly tagged in the other case. This represents a failure to follow procedure OP-2115, Revision 31. Interviews with the individuals who had performed the work on OP-2115 revealed that the individuals had extensive knowledge of the systems and had done what needed to be done without noticing the two discrepancies. The system had been placed in the safe operational alignment for cold weather operations. Therefore, this Severity Level IV violation is being treated as a Non-Cited Violation in accordance with Section VII. B.1 of the NRC Enforcement Policy. This violation is recorded in the licensee's corrective action program as CR 99-159. **(NCV 99-04-01)** A Procedure Change Notice (PCN) was created to correct the procedure.

## **Conclusions**

One Non-Cited Violation for failure to follow procedure OP-2115, Revision 31 was identified. The facilities had been placed in the proper alignment for operation in cold weather.

## O8.2 Evaluation of Exercises for Power Reactors

### a. Inspection Scope (82301)

The licensee's emergency response program was reviewed during an emergency preparedness exercise.

### b. Observations and Findings

The inspector observed the licensee's emergency preparedness exercise conducted on November 3, 1999. The exercise was prepared by a corporate contractor. The choice of the scenario not only exercised the licensee through a wide range of their Emergency Response Program, but also was a plausible scenario. The scenario was a dropped irradiated fuel bundle which may have ruptured on impact in the pool. The licensee's staff followed procedures promptly and effectively from control room notification to event termination. The licensee managed the exercise effectively and dealt with an inoperable FTS telephone line during the NRC notification. The licensee self-identified an individual who had entered the spent fuel pit restricted area during the early part of the drill, who was not accounted for after the restricted area had been evacuated. Although not part of the exercise scenario, this clearly demonstrated the licensee's event response was working effectively and as planned. Licensee properly classified the event per their requirements, and as the event progressed increased the level of classification when warranted during the exercise. The licensee made the proper notifications during the exercise. The comments made during the critique were constructive and demonstrated a thorough knowledge of the event and required response.

### c. Conclusions

The licensee's staff performed a prompt and effective response to a thorough and plausible accident scenario. No concerns were identified.

## **S1 Security**

### S1.1 Physical Barriers - Vital Areas, Material Access Areas, and Controlled Access Areas

#### a. Inspection Scope (81054)

The licensee security of Controlled Access Areas was reviewed.

b. Observations and Findings

In order to facilitate spent fuel pit clean-up efforts, a fuel up-ender and a fuel guide tray needed to be removed from the spent fuel pit. The removal required that the equipment be removed through the roof hatch of the spent fuel pool island. The inspector observed that security posted a guard on the roof of the building to provide continuous surveillance of the temporary opening into the Controlled Access Area. The inspector also observed that security maintained a continuous presence at the door to the spent fuel pit during entries and performed the required searches.

The licensee held their annual meeting and tour for the local law enforcement agencies. The licensee provided the attendees with a site tour, an opportunity to establish liaisons with the security contractor, an overview of emergency functions, and discussion of dry cask storage.

c. Conclusions

Licensed material is being maintained in a safe and secure status at all times. No safety concerns were identified.

## **MANAGEMENT MEETINGS**

### **X1 Exit Meeting Summary**

The inspector met with the licensee representatives denoted below at the conclusion of the on-site inspection on November 4, 1999. The inspector summarized the purpose, scope, and findings of the inspection. The licensee representatives acknowledged the inspection findings.

### **X2 December 14, 1999 Meeting**

On December 14, 1999, a meeting was held with Yankee Atomic Electric Company in the Region I office to discuss dry fuel storage and fuel inspection at the site. Enclosed is a meeting summary.

## PARTIAL LIST OF PERSONS CONTACTED

- M. Atkins, Licensing
- G. Babineau, Support
- W. Blackadar, Radiation Protection Engineer
- \* C. Ellis, Radiological Engineer
- R. Grippardi, Quality Assurance Supervisor
- \* E. Heath, Radiation Protection and Chemistry Manager
- L. Johnson, Site Surveys
- S. Litchfield, Health and Safety Supervisor
- S. Mullet, Radiation Protection Technician
- D. Reid, Site Manager
- F. Williams, Plant Superintendent
- D. Pierce, Shift Supervisor
- K. LaDuke, QA Auditor
- M. Terrell, DE&S
- N. Purington, DE&S
- B. Darcy, YEAC

\* Denotes those individuals participating in the exit briefing held on November 4, 1999

## LIST OF ACRONYMS

CFR	Code of Federal Regulations
LTP	License Termination Plan
NPS	Nuclear Power Station
PCA	Potentially Contaminated Area
PCB	polychlorinated biphenyl
PCN	Procedure Change Notice
QA	Quality Assurance
RA	Radiation Area
RCA	Radiological Controlled Area
SFP	Spent Fuel Pool
SFPB	Spent Fuel Pool Building
VC	Vapor Containment
YAEC	Yankee Atomic Energy Company

## **INSPECTION PROCEDURES USED**

IP 40801: Self-Assessment, Audits and Corrective Action  
IP 71714: Cold Weather Preparations  
IP 82301: Evaluation of Exercises for Power Reactors  
IP 81054: Physical Barriers

## **ITEMS OPENED, CLOSED, AND DISCUSSED**

### Opened

NCV 99-04-01 Failure to follow procedures

### Closed

NCV 99-04-01 Failure to follow procedures

### Discussed

NONE