



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

July 13, 2001

Mr. K. Heider, Vice President
Operations and Decommissioning
Yankee Atomic Electric Company
49 Yankee Road
Rowe, Massachusetts 01367

SUBJECT: NRC INSPECTION REPORT NO. 05000029/2001001

Dear Mr. Heider:

On June 11, 2001, the NRC completed an inspection at your nuclear reactor facility in Rowe, Massachusetts which covered an inspection period that began on January 20, 2001. The findings of the inspection were discussed with Mr. Brian Wood and members of his staff on June 11, 2001. The enclosed report presents the results of that inspection.

Your Quality Assurance program, self-assessment and corrective action programs, personnel training and qualifications, and construction activities involving your Independent Spent Fuel Storage Installation (ISFSI) were inspected during this twenty-week inspection period. The inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations by the inspectors. The programs were considered to be appropriately implemented and no safety concerns were identified. Effective programs for protecting the safety of workers and the public during ISFSI construction activities and Spent Fuel Pool operations were noted.

In accordance with Section 2.790 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/

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

Docket No. 05000029
License No. DPR-03

Enclosure: NRC Region I Inspection Report No. 05000029/2001001

cc w/encl:

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Mr. K. Heider

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No. 05000029

License No. DPR-03

Report No. 05000029/2001001

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

Facility Name: Yankee Nuclear Power Station

Location: Rowe, Massachusetts

Dates: January 20, 2001 to June 11, 2001

Inspectors: M. Miller, Sr. Health Physicist
J. Wray, Health Physicist

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

EXECUTIVE SUMMARY

Yankee Facility
NRC Inspection Report No. 05000029/2001001

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 twenty week period of inspection. Areas reviewed included ISFSI pad construction activities, Quality Assurance Audits, the corrective action program, personnel qualifications and training, self assessments, and plans for the transition of functional programs to the Fuel Transfer Operations Contractor (FTOC). The inspectors noted effective programs for protecting the safety of workers and the public during ISFSI construction activities and Spent Fuel Pool (SFP) operations.

Operations and Decommissioning Status

The licensee had initiated planning for several spent fuel pool activities. Engineering and project planning activities were being properly coordinated to ensure no safety concerns.

There was a systematic and well documented transition process for turnover of departments, systems and procedures from the licensee to NAC, as their FTOC.

No safety concerns were identified with the Yankee Rowe organization and qualifications of personnel. No safety concerns were noted with respect to the NAC organization and staffing. Training in radiation protection and fuel handling operations was adequate and well documented.

The licensee and NAC maintained effective corrective action programs and performed very good audits and assessments of ISFSI construction activities to help self-identify and correct issues and problems. No safety concerns were identified.

Dry cask storage system components were fabricated and installed per requirements. No safety concerns were identified.

Plant Support and Radiological Controls

The licensee has provided good controls to limit exposures of workers to external sources of radiation. No safety concerns were identified.

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REPORT DETAILS

Summary of Facility Activities

Decommissioning activities at the Yankee Rowe Nuclear Power Station 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).

I. Operations and Decommissioning Status

O1 Conduct of Operations

O1.1 Spent Fuel Pool Activity

a. Inspection Scope (60705)

Planning activities were reviewed with respect to transfer of spent fuel and sorting of Greater Than Class C (GTCC) radioactive waste for long-term dry cask storage. The purpose of Procedure ECDR01-001, which is to control all activities from the spent fuel pool to the dry cask storage pad, control the schedule for project activities, and evaluate these proposed activities in accordance with the recently revised 10 CFR 50.59, were reviewed.

b. Observations

The inspectors discussed the roles between licensee oversight personnel and NAC International staff, who will be the licensee's project contractor for both fuel handling, reconstitution and sorting, as well as the supplier of the storage system. Because the license basis for use of the NAC-MPC cask design requires that fuel characterized as "failed fuel" be contained in reconfigured fuel assemblies prior to loading into the Transfer Storage Cask, reconstitution procedures and specialized tooling and certified fuel handling training were in progress in early April by Framatome, a subcontractor to NAC. The inspectors toured the spent fuel pool and observed no safety concerns.

With respect to planning for GTCC sorting, the inspectors reviewed diagrams of an under-water sorting system that would be used for the first time at Yankee Rowe. Special radiation work permits, As Low As Reasonably Achievable (ALARA) reviews and work control procedures were being developed. The inspector noted that Procedure EDCR 01-001 did not include an engineering evaluation for GTCC sorting and fuel reconstitution, however inputs from these processes will be required to prove that the NAC- MPC Safety Analysis Report (SAR) requirements are met. The inspector questioned the licensee representatives to determine the level of integration between the different contractors to ensure changes to the spent fuel pool were being properly evaluated. Onsite planning had only begun in March, but it appeared that the schedule identified the applicable work control programs.

c. Conclusions

The licensee had initiated planning for several spent fuel pool activities. Engineering and project planning activities were being properly coordinated to ensure no safety concerns.

O1.2 Organization, Management, and Controls

a. Inspection Scope (36801)

The Yankee Rowe Transition Plan was reviewed and selected stages of the transition process were observed to ascertain how the responsibilities and functional areas for decommissioning were being turned over to NAC International, the licensee's FTOC. NAC will be responsible to manage and control the fuel transfer activities in accordance with NRC requirements and the licensee's Quality Assurance (QA) Program, with oversight by the licensee's oversight organization.

b. Observations

The inspector reviewed Functional Area Transition Plans (FTP), and System, Structures and Components Transition Plans (STPs) developed by NAC. There are seventeen FTPs and fourteen STPs. The inspector reviewed in detail the FTP for the Radiation Protection and the Radwaste Disposal Programs as the transition had just become effective during the onsite inspection period. The plan documents were thorough and detailed. Checklists were generated to ensure all program issues were addressed. The inspector observed selected aspects of the transition of responsibilities and noted good coordination and cooperation between the licensee and NAC. In the Radiation Protection functional area, many of the technicians were ex-Yankee Rowe personnel experienced with the site and department procedures, making a smooth and effective transition.

The inspector reviewed available procedures controlling the transfer of responsibility for a number of site systems and components including the Spent Fuel Pool Purification Systems, the Area Radiation Monitoring Systems, the Fuel Handling Equipment, and the Liquid Radioactive Waste Disposal Systems. These procedures were detailed and included sufficient instructions to ensure a safe turnover of applicable systems. The documents included a design basis section as well as requirements for walkdowns of the equipment. The inspector noted licensee management representatives involved in turnover meetings which helped make the transitions successful. No safety concerns were identified.

c. Conclusions

There was a systematic and well documented transition process for turnover of departments, systems and procedures from the licensee to NAC, as their FTOC.

O1.3 Staffing, Qualifications, and Training

a. Inspection Scope (36801)

The staffing by the Yankee Rowe operations and oversight organizations and the FTOC organization was reviewed to ensure adequate qualifications and experience for operations of the SFP and for fuel transfer activities.

b. Observations

The inspector discussed with cognizant licensee and FTOC representatives their onsite staff and proposed staff numbers. With the licensee's shift into an oversight mode, their organization is declining, except in the security area where more personnel are being brought onboard to cover the fuel transfer activities anticipated over the next eighteen months. The staffing numbers appear to be adequate to ensure safe fuel transfer operations. The inspector reviewed licensee and FTOC Certified Fuel Handler (CFH) and equipment operator training and qualifications. A retraining plan for the next two years was developed in January 2001. The plan identified specific aspects of the program to be covered in training each calendar quarter with an annual operability exam required. On an annual basis, the Emergency Plan, and Switching and Tagging will be covered. The inspector examined training and qualification records for all licensee CFHs and had no further questions.

The inspector reviewed the training and qualification matrix for radiation protection technicians to verify that technicians in responsible positions are qualified on the appropriate tasks. The inspector noted that the FTOC had developed a training and qualification matrix similar to that maintained by the licensee. Both matrixes were current and technicians were appropriately trained and qualified.

The inspector randomly selected a representative number of General Employee Training (GET) records for site personnel to ensure that GET is adequately being administered. No safety concerns were identified.

c. Conclusions

No safety concerns were identified with the Yankee Rowe organization and qualifications of personnel. No safety concerns were noted with respect to the NAC organization and staffing. Training in radiation protection and fuel handling operations was adequate and well documented.

O1.4 Self-Assessment, Auditing, and Corrective Action Program

a. Inspection Scope (40801)

A review was performed to evaluate the effectiveness of licensee controls in identifying, resolving, and preventing issues that degrade safety or the quality of decommissioning. The inspector evaluated the licensee's self-assessment, auditing, corrective actions, and root cause evaluations through a review of licensee documents and interviews with licensee personnel.

b. Observations

The inspector reviewed licensee Quality Assurance and oversight audits of FTOC activities including offsite canister fabrication audits. The audits were thorough and comprehensive. Findings were meaningful and corrective actions appear to result in overall improvements to the program. The licensee maintains a surveillance log and has developed an audit schedule for 2001 to include audits of training, security, emergency plan, SFP operations, fire protection, radiation protection and radwaste process controls. The inspector reviewed selected surveillances conducted in 2001 and had no further questions.

The inspector reviewed the licensee's QA Oversight Plan and qualifications of department auditors. The oversight plan was detailed and included roles, responsibilities, and expectations for conduct of work involving the FTOC. Resumes of department personnel indicated that qualified auditors are conducting surveillances and audits. Effective audits were noted in the observance of canister fabrication activities at the manufacturer's facilities in Japan. The inspector had no further questions.

The inspector evaluated the Functional Area Transition Plan for the FTOC Quality Assurance Program and reviewed available FTOC QA documents. An NAC audit of the Ion Exchanger Sluicing and Removal Job conducted April 10 to 11 was reviewed and found to be comprehensive and thorough. The inspector discussed the program with the FTOC QA Manager and reviewed qualifications of personnel. The FTOC QA program had just started on site and based on the inspector's review, it appears that an adequate program has been developed.

The licensee continues to use a Condition Report (CR) program to identify concerns of the staff and ensure timely, appropriate corrective actions. The FTOC has adopted a similar program as part of the transition process. The inspector reviewed condition reports on a routine basis and has determined that the licensee and FTOC identify concerns at an appropriate threshold level. For example, the licensee identified minor discrepancies with SFP access control requirements through their CR program and corrective actions were effective in preventing significant security breaches. Lessons learned from ISFSI activities at Maine Yankee were included in the program documentation. The inspector noted improvements in subsequent Vertical Concrete Cask (VCCs) concrete pours due, in part, to weaknesses identified during the initial concrete pour.

c. Conclusions

The licensee and NAC maintained effective corrective action programs and performed very good audits and assessments of ISFSI construction activities to help self-identify and correct issues and problems. No safety concerns were identified.

O.2 Decommissioning Status of Facilities and Equipment

O2.1 ISFSI Construction and Component Fabrication (60853)

a. Scope

The scope of the inspection was to determine whether ISFSI dry cask storage system components were fabricated and installed in compliance with regulatory and technical requirements.

b. Observations and Findings

During this inspection period, all sixteen VCC liners arrived on site and the VCCs were poured on the ISFSI pad. The inspector observed the arrival survey of one of the liners and observed workers fabricating and positioning rebar around another liner in preparation for pouring concrete. The inspector verified that work was being conducted in accordance with approved procedures and licensed drawings. A tour of the ISFSI pad was conducted with the FTOC Engineering Manager and details on construction activities were discussed. The inspector noted that the security fence and remote visual surveillance system were being installed. The licensee had identified a concern regarding a potential sink hole on the access road to the ISFSI pad and will determine appropriate corrective actions prior to moving fuel. The inspector determined that construction activities for the ISFSI are progressing in a safe manner.

c. Conclusions

Dry cask storage system components were fabricated and installed per requirements. No safety concerns were identified.

II. Plant Support and Radiological Controls

R1 Radiological Protection Controls

R1.1 External Exposure Controls

a. Inspection Scope (83750 and 71801)

The inspection included touring most of the radiological controlled areas (RCAs) and reviewing ALARA plans and post-job reviews for specific work functions. The inspector also interviewed selected radiation protection managers and staff.

b. Observations

During tours of the facility, the inspector observed that areas in the RCAs were appropriately posted and labeled for radioactive materials. Posting and labeling of radioactive materials and radiation areas continued to meet regulatory requirements. Portal monitors and frisking instruments were located in the facility for use by workers as they left radiation areas or contaminated areas.

The FTOC was preparing for sorting of GTCC waste in the spent fuel pool during this inspection period. The inspector reviewed the ALARA plan for the job and determined that the work activity was well planned. A pre-job briefing was held for Procedure OP-4226, "Testing of Fuel Handling Equipment with the Dummy Fuel Assembly". The briefing was conducted adequately and the work was completed in a timely and safe manner.

The inspector reviewed ALARA Review 01-001, "Sluicing Resin from , Dewatering, and Transferring SFP Filter/Demineralizer". The surveillance was thorough and suggestions for improvements for future work were detailed and appropriate.

c. Conclusions

The licensee has provided good controls to limit exposures of workers to external sources of radiation. No safety concerns were identified.

MANAGEMENT MEETINGS

X1 Exit Meeting Summary

The inspectors presented the inspection results to members of licensee management periodically during the inspection, and during an exit meeting with Mr. B. Wood and others on June 11, 2001. The licensee acknowledged the findings presented by the inspectors. The inspector reviewed with the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

X2 Management Meeting

On April 2, 2001, the Deputy Regional Administrator and the Deputy Director, Division of Nuclear Materials Safety, visited the site and observed licensed activities. They met with licensee management and NAC International staff to discuss project schedules.

PARTIAL LIST OF PERSONS CONTACTED

R. Berry, DE&S, Operations Oversight
*G. Babineau, Safety Oversight Manager
W. Blackadar, Radiation Protection Oversight
J. Bourassa, QA Manager, YAEC
S. Garvie, Security Supervisor
K. Heider, Vice President, YAEC
*B. Holmgren, Dry Cask Storage Oversight Manager
*J. Kay, Manager of Regulatory Affairs
K. LaDuke, QA Auditor
D.R. LeFranois, NAC, Site Engineering Manager
C. Palmer, Nac, Health Physics Manager
N. Purington, Site Administration Manager
S. Racz, Quality Assurance Supervisor
N. Rademacher, NAC, Site QA Manager
J. Rucki, NAC, Operations Supervisor
*R. Sauer, NAC, Site Project Manager (Acting)
B. Sklar, NAC, Plant Services Manager
M. Vandale, Radwaste Supervisor, DE&S
*F. Williams, Plant Superintendent
M. Williams, Framatone, Fuel Handling Operations Manager
*B. Wood, Site Manager

* These individuals participated in the exit briefing held on June 11, 2001

LIST OF ACRONYMS

ALARA	As Low As Reasonably Achievable
CFH	Certified Fuel Handler
CFR	Code of Federal Regulations
CR	Condition Report
FTOC	Fuel Transfer Operations Contractor
FTP	Functional Area Transition Plan
GET	General Employee Training
GTCC	Greater Than Class C
ISFSI	Independent Spent Fuel Storage Installation
PDR	Public Document Room
QA	Quality Assurance
RCA	Radiological Controlled Area
Rowe	Yankee Rowe
SAR	Safety Analysis Report
SFP	Spent Fuel Pool
STP	Systems, Structures, and Components Transition Plan
VCC	Vertical Concrete Cask
YAEC	Yankee Atomic Energy Company

INSPECTION PROCEDURES USED

IP 36801	Organization and Management Controls
IP 40801	Self-Assessment and Corrective Action
IP 60705	Preparations for Reactor Fuel Handling
IP 60853	On-Site Fabrication of Components and Construction of an ISFSI
IP 71801	Decommissioning Performance
IP 83750	Occupational Radiation Exposure

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

NONE

Closed

NONE

Discussed

NONE