



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

September 28, 2000

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

SUBJECT: NRC INSPECTION REPORT NO. 05000029/2000002

Dear Mr. Heider:

On August 31, 2000, 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 safety reviews, design changes, and modifications; decommissioning performance; organization, management and cost controls; occupational radiation exposure; radioactive waste treatment, effluent and environmental monitoring; solid waste management and transportation of radioactive materials to ensure continued plant safety.

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 to meet the requirements of 10 CFR Part 50.120. 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,

/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. 05000029/2000002

cc w/encl:

J. M. Oddo, Manager, Regulatory Affairs, DE&S
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M. Atkins, Decommissioning Licensing Manager, DE&S
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R. Sedano, Commissioner, Vermont Department of Public Service
T. Rapone, Massachusetts Executive Office of Public Safety
L. Stevens, New England Conference of Public Utilities Commissioners, Inc.
M. Comai, Yankee Rowe Community Advisory Board
Citizens Awareness Network
Commonwealth of Massachusetts, SLO Designee

U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No. 05000029

License No. DPR-03

Report No. 05000029/2000002

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

Facility Name: Yankee Nuclear Power Station

Location: Rowe, Massachusetts

Dates: June 1 to August 31, 2000

Inspectors: S. Shaffer, Health Physicist, Region I
J. Wray, Health Physicist, Region I
P. Ray, Project Manager, NRR

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

EXECUTIVE SUMMARY

Yankee Facility
NRC Inspection Report No. 05000029/2000002

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 safety reviews, design changes, and modifications; decommissioning performance; organization, management and cost controls; occupational radiation exposure; radioactive waste treatment, effluent and environmental monitoring; solid waste management and transportation of radioactive materials. In general, there were effective programs for protecting the safety of workers and the public during dismantlement and decommissioning activities.

Plant Procedures AP-0018 and AP-0059 contained appropriate instructions to ensure that 10 CFR 50.59 regulatory requirements were addressed in screenings and safety evaluations. Also, the conclusions reached in the screening review and the safety evaluations were appropriate. No safety concerns were identified.

The licensee's decommissioning efforts are proceeding in a safe and effective manner. No concerns were identified.

One Non-Cited Violation for failure to maintain records of continuing training as required by 10 CFR 50.120 was identified. The licensee has modified their training programs to ensure future compliance with the regulation.

The licensee has provided good controls to limit exposures of workers to internal and external sources of radiation. Doses to workers are ALARA and are adequately monitored. The licensee's radiation protection staff is qualified to conduct decommissioning activities at the site.

The licensee continues to process and treat radioactive waste in a safe and effective manner. The licensee implemented and met the TS/ODCM requirements for sampling, analyzing, and assessing the projected dose to the public. Reporting for the REMP and for the radioactive liquid and gaseous effluent control programs also met the requirements. No concerns were identified.

The licensee's programs for solid radioactive waste management and transportation of radioactive material are being implemented in a safe and effective manner. The licensee's decision to reduce the site quality services group's oversight of radioactive material shipments has not reduced the effectiveness of the programs. No concerns were identified.

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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).

O2.1 Safety Reviews, Design Changes, and Modifications (37801)

a. Inspection Scope

The inspector reviewed several 10 CFR 50.59 safety evaluations to determine if adequate assessments of the issues were completed. The inspector reviewed the following documents as part of this review:

- Plant Procedure AP-0018, "Temporary Change and Minor Modification Control," Revision 30 Major
- Plant Procedure AP-0059, "Safety Evaluations," Revision 8 Major
- Engineering Design Change Request 99-302

b. Observations and Findings

Procedure AP-0018 contained the licensee's administrative requirements associated with temporary changes and minor modification control. The instructions contained in AP-0018 and the associated forms for operational safety screenings addressed the appropriate questions to determine if a 10 CFR 50.59 safety evaluation would be required.

Procedure AP-0059 contained the licensee's administrative requirements associated with 10 CFR 50.59 safety evaluations. The instructions contained in AP-0059 and the associated forms addressed the appropriate questions to determine if a 10 CFR 50.59 safety evaluation would be required. Also, the procedure contained preparer and reviewer qualifications. Although a list of qualified evaluators was not available, the licensee was able to provide ample documentation that the evaluators and reviewers were qualified.

The inspector reviewed several safety evaluations that concluded no unreviewed safety questions and a safety screening that concluded that no evaluation was necessary.

- Safety Evaluation for EDCR 99-302, "Independent Spent Fuel Storage Installation Design and Construction"
- Safety Evaluation for Supporting a Relocation and Update of Decommissioning Plan Information into PSDAR Format within the FSAR

- Safety Evaluation for Spent Fuel Pool/Lower-Tier East Bay Grating
- Safety Evaluation for Installation and Use of Fuel Assembly Envelope Gauge
- Modification Safety Evaluation Screening for New Fuel Pool Filter/Demineralizer

The safety screening and safety evaluations were accomplished by qualified personnel. The safety screening ensured the activity did not involve a change to the facility as described in the safety analysis report (SAR) or other licensing basis document, a change to a procedure described in the SAR or other licensing basis document, or represent a test not previously described in the SAR. The inspector determined that the licensee's conclusions of the screening and the safety evaluations were appropriate.

c. Conclusions

Plant Procedures AP-0018 and AP-0059 contained appropriate instructions to ensure that 10 CFR 50.59 regulatory requirements were addressed in screenings and safety evaluations. Also, the conclusions reached in the screening review and the safety evaluations were appropriate. No safety 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. No significant safety or NRC regulatory concerns were noted by the inspectors during tours of the facility.

O2.3 Current Activities

The licensee has completed the VC lay-up project. The licensee has begun making preliminary excavations in the old pole barn area in preparation for the Independent Spent Fuel Storage Installation (ISFSI) construction project. The VC exterior is being repainted in order to abate the PCB spread from the previous paints applied to the VC.

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 Decommissioning Performance and Status Review at Permanently Shutdown Reactors

a. Inspection Scope (71801)

The licensee's current decommissioning status and decommissioning plans for the next year were reviewed. Site housekeeping and fire protection were reviewed with respect to the ability to continue safe storage of spent fuel and safe conduct of decommissioning activities.

b. Observations and Findings

The licensee's decommissioning plans for the near-term were reviewed in detail. The licensee's focus for the immediate future is on the construction of the ISFSI and the transfer of the spent fuel to the installation. This effort will take approximately the next twenty-four months. The licensee's housekeeping is being maintained at a high level which was demonstrated by the condition of the VC at the completion of the lay-up project. Plant tours demonstrated that structures, systems, and components (SSCs) necessary for safe storage of spent fuel are being maintained.

The licensee's fire protection program is continuing to be maintained at a level that minimizes the risk of fires and ensures sufficient response should one occur. Inspector interviews with the plant fire protection coordinator demonstrated the thoroughness of the program design and scope, and the continued level of readiness maintained by the licensee's continuing training efforts.

c. Conclusions

The licensee's decommissioning efforts are proceeding in a safe and effective manner. No concerns were identified.

O8.2 Organization, Management, and Cost Controls at Permanently Shutdown Reactors

a. Inspection Scope (36801)

The licensee's decommissioning organization, staffing, qualifications, and training were reviewed. The decommissioning planning and scheduling for the site were also reviewed.

b. Observations and Findings

The licensee's decommissioning planning and scheduling for the next year or two are focused on the construction of the ISFSI and the transfer of the spent fuel and greater than Class C waste (GTCC) to the storage installation. The licensee continues to coordinate these plans with both the NRC Region I, NRC Headquarters Office, and the Commonwealth of Massachusetts.

The qualifications, training and retraining of staff was reviewed during the inspection. The staff are fully qualified and trained. A review of retraining documentation revealed that the maintenance department was not properly documenting their retraining efforts. This is a violation of 10 CFR 50.120 which, in part, requires that records of qualification and training be maintained for NRC inspection. A training project meeting on February 22, 2000, specifically noted problems with the maintenance departments training program. The licensee initiated CR 2000-069 on May 4, 2000, for training expectation not being achieved. This CR referenced three previously held training advisory committee meetings including the February meeting mentioned above. The licensee initiated CR 2000-099 in response to this inspection finding. The licensee has modified their procedures to ensure that continuing training is done and documented properly. This violation is being treated as a Severity Level IV Non-Cited Violation in accordance with Section VII.B.1 of the NRC Enforcement Manual (**NCV-2000-002-01**).

c. Conclusions

One Non-Cited Violation for failure to maintain records of retraining as required by 10 CFR 50.120 was identified. The licensee has modified their training programs to ensure future compliance with the regulation.

R1 Radiological Protection Controls

R1.1 Occupational Radiation Exposure

a. Inspection Scope (83750)

The inspector reviewed the licensee's occupational program to monitor and control internal and external radiation exposure to employees, including dosimetry records, instrumentation, respiratory protection, qualifications of health physics personnel, audit reports of the department and annual dose reports.

b. Observations

The inspector reviewed exposure records for the year-to-date. The licensee has expended approximately 1.8 person-rem with 1.497 person-rem occurring in the second calendar quarter due to the aggressive radwaste shipping campaign at the site during that time. The site exposure is expected to be comparable to the exposure for 1999 which was 2.291 person-rem. The inspector noted that the licensee established no ALARA dose goal for the year due to the lack of radiologically significant work scheduled for 2000. The licensee stated that an ALARA dose goal will be established for next year because fuel movement to the ISFSI is scheduled.

The inspector verified that there was an adequate supply of radiation survey and monitoring equipment. All equipment checked by the inspector was operable and within the current calibration period. Portal monitors and frisking instruments were located in the facility for use by workers as they left radioactive materials areas or contaminated areas. Current radiological surveys of various work locations were reviewed by the

inspector. The surveys contained detailed information regarding current radiological dose rates and hazards in the work areas.

The inspector reviewed qualifications of health physics personnel at the facility. The licensee maintains a list of qualifications by task and by individual. A representative sample of work activities was selected and qualifications of workers assigned to cover these activities were verified. The inspector found the list of qualified personnel health physics to be thorough and complete.

The inspector reviewed the licensee's respiratory protection program. Approximately 15 to 20 respirators are used per day, all for non-radiological work activities. Respirators were taken off the ready-for-use shelf and surveyed for contamination; no problems were identified. The inspector observed a technician disassemble a respirator and discussed with him the process for washing and repairing all respiratory devices. The program appears to be satisfactory with regard to issuance, use, and repair. The inspector reviewed records of whole body counts and identified no concerns with monitoring for internal uptakes.

Radiological housekeeping was good throughout the plant with appropriate controls established to minimize the spread of contamination. Posting of radioactive material areas and labeling of radioactive materials was good.

The inspector reviewed Audit Report No. Y-99-A-11-01 covering the functional areas of radiation protection and radwaste. The audit was performed in November 1999. The audit was thorough and comprehensive with findings discussed and reviewed at the appropriate levels of management. The personnel conducting the audit appeared to have the necessary level of knowledge in radiation protection. The inspector had no further questions or concerns.

c. Conclusions

The licensee has provided good controls to limit exposures of workers to internal and external sources of radiation. Doses to workers are ALARA and are adequately monitored. The licensee's radiation protection staff is qualified to conduct decommissioning activities at the site.

R3 Review of Annual Reports

R3.1 Radioactive Waste Treatment, and Effluent and Environmental Monitoring

a. Inspection Scope (84750)

The inspector reviewed the licensee's radioactive waste treatment facilities and annual reports to the NRC for sampling, analyzing and assessing the projected dose to the public.

b. Observations and Findings

The inspector toured the licensee's facilities for radioactive waste processing and treatment. The licensee was in the process of drying potentially contaminated soils and hay. The inspector observed the licensee's staff consolidating previously dried soils into shipping containers.

The 1999 Annual Radiological Environmental Operating Report provided measurement results of the Radiological Environmental Monitoring Program (REMP) samples around the Yankee Rowe site and met the Technical Specification/Offsite Dose Calculation Manual (TS/ODCM) reporting requirements. The report included results of the environmental monitoring program, land use census, and interlaboratory comparison program, as required. Over 400 REMP samples (including TLDs) were collected and analyzed in 1999. There were no anomalous measurements, omissions or adverse trends in the report.

The second half of the 1999 Semiannual Radiological Effluent Report provided data indicating total released radioactivity for liquid and gaseous effluents, as well as waste disposals. There were no anomalous measurements, omissions or adverse trends in the report. The 1999 assessment of the projected maximum individual doses resulting from routine radioactive airborne and liquid effluents was included, as required. The 1999 projected doses to the public were well below the TS limits.

c. Conclusion

The licensee continues to process and treat radioactive waste in a safe and effective manner. The licensee implemented and met the TS/ODCM requirements for sampling, analyzing, and assessing the projected dose to the public. Reporting for the REMP and for the radioactive liquid and gaseous effluent control programs also met the requirements. No concerns were identified.

R8 Miscellaneous RP&C Issues

R8.1 Solid Radioactive Waste Management and Transportation of Radioactive Materials

a. Inspection Scope (86750)

The licensee's programs for solid radioactive waste management and transportation of radioactive materials were reviewed. The review included observations of on-going work activities, facility tours, personnel interviews, and licensee documentation reviews.

b. Observations and Findings

The licensee's solid radioactive waste (radwaste) management and transportation of radioactive materials have remained essentially unchanged from the previous year. The only change of note was the licensee's decision to no longer require the quality services group to perform inspections of all radwaste shipments. Effective February 1, 2000, the site quality services group reduced their inspection oversight to periodic audits and

surveillances. The licensee's surveillances performed after the change demonstrated that the reduced oversight was warranted and the licensee's compliance with NRC and Department of Transportation (DOT) regulations was being maintained.

The inspector reviewed a sample of the training and qualification records of licensee personnel involved in radwaste packaging and shipments. Re-qualification training is being performed and documented on a regular basis. A training and qualification matrix is maintained which allows for easy determination of who is qualified for the different procedures.

The licensee has prepared and shipped 55 shipments in the first six months of this year. This has drastically reduced the on-site inventory of material awaiting shipment. The records of shipments were properly documented and maintained. The inspector observed the licensee's personnel preparing a shipment of radioactive material, and had no concerns.

c. Conclusions

The licensee's programs for solid radioactive waste management and transportation of radioactive material are being implemented in a safe and effective manner. The licensee's decision to reduce the site quality services group's oversight of radioactive material shipments has not reduced the programs effectiveness. No 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 August 17, 2000. The inspector summarized the purpose, scope, and findings of the inspection. The licensee representatives acknowledged the inspection findings.

PARTIAL LIST OF PERSONS CONTACTED

- M. Atkins, Licensing
- * G. Babineau, Support
- * W. Blackadar, Radiation Protection Engineer
- * C. Ellis, Radiological Engineer
- S. Racz, Quality Assurance Supervisor
- 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
- * J. Gedutis, Sr. Chemist
- B. Holmgren, Dry Cask Storage

* Denotes those individuals participating in the exit briefing held on August 17, 2000

LIST OF ACRONYMS

CFR	Code of Federal Regulations
CR	Condition Report
DOT	Department of Transportation
FSAR	Final Safety Analysis Report
GTCC	Greater Than Class C
ODCM	Offsite Dose Calculation Manual
NPS	Nuclear Power Station
PCA	Potentially Contaminated Area
PCB	polychlorinated biphenyl
PSDAR	Post-Shutdown Decommissioning Activities Report
RA	Radiation Area
RCA	Radiological Controlled Area
REMP	Radiological Environmental Monitoring Program
RP&C	Radiation Protection and Controls
SAR	Safety Analysis Report
SFPB	Spent Fuel Pool Building
SSCs	Systems, Structures and Components
TS	Technical Specifications
VC	Vapor Containment
YAEC	Yankee Atomic Energy Company

INSPECTION PROCEDURES USED

IP 36801	Organization, Management, and Cost Controls at Permanently Shutdown Reactors
IP 37801	Safety Reviews, Design Changes, and Modifications
IP 71801	Decommissioning Performance and Status Review at Permanently Shutdown Reactors
IP 83750	Occupational Radiation Exposure
IP 84750	Radioactive Waste Treatment, and Effluent and Environmental Monitoring
IP 86750	Solid Radioactive Waste Management and Transportation of Radioactive Materials

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

NCV 2000-002-01 Failure to follow procedures

Closed

NCV 2000-002-01 Failure to follow procedures

Discussed

NONE