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U. S. NUCLEAR REGULATORY COMMISSION
Region I

Report No. 82-10

Docket No. 50-309

License No. DPR-36 Priority -- Category C

Licensee: Maine Yankee Atomic Power Company

83 Edison Drive

Augusta, Maine 04336

Facility Name: Maine Yankee Nuclear Power Station

Inspection at: Wiscasset, Maine

Inspection conducted: July 8 - August 23, 1982

Inspectors:	<u>J. Wiggins for</u>	<u>8/31/82</u>
	P. Swetland, Reactor Inspector	Date signed
	<u>J. Wiggins for</u>	<u>8/31/82</u>
	J. Wiggins, Reactor Inspector	Date signed
	<u>E. M. Kelly</u>	<u>8/31/82</u>
	E. M. Kelly, Reactor Inspector	Date signed
Approved By:	<u>J. Wiggins for</u>	<u>8/31/82</u>
	R. Gallo, Chief, Reactor Projects	Date signed
	Section No. 1A, DPRP	

Inspection Summary:

Inspection on July 8 - August 23, 1982 (Report No. 50-309/82-10)

Areas Inspected: Routine, regular and backshift inspection by resident and regional inspectors (106 hours). Areas inspected included the control room, primary auxiliary building, reactor containment, spray building, auxiliary feed pump room and other licensee controlled areas as required. Activities/Records inspected included Plant Operations, Radiation Protection, Physical Security, Maintenance, followup on previous inspection findings and followup on Licensee events.

Results: No violations were identified.

DETAILS

1. Persons Contacted

R. Bickford, Assistant Operations Department Head

J. Brinkler, Technical Support Department Head

L. Grimard, Operator Training Section Head

J. Hebert, Director, Plant Engineering

W. Paine, Assistant to the Plant Manager

A. Shean, Director of Training

J. Stevens, Supervisor of Specialty Training

E. Wood, Plant Manager

The inspectors also interviewed several plant operators, technicians and members of the engineering and administrative staffs.

2. Followup on Previous Inspection Findings

a. (Closed) Violation (50-309/81-32-01) Failure to administer periodic written examinations in accordance with 10 CFR 55. The inspector reviewed records of the operator requalification training program for the period January - July 1982 which indicated that periodic quizzes have been administered. Further, a review of the planned schedule for the 1982-1983 training cycle indicated the use of weekly quizzes. This item is closed.

b. (Closed) Followup Item (309/81-32-02) NRC to review results of 1981-1982 experimental requalification examination. An examination was given to 6 licensed senior operators (SRO) and 6 licensed operators (RO). The examination was taken in one sitting and contained questions grouped into six areas: nuclear power plant operations; thermodynamics; heat transfer and fluid flow; administrative procedures; plant procedures; instrumentation and controls; and plant design, safety and emergency systems.

The examination results fell into a normal gaussian distribution which demonstrated the validity of the examination. The training department is using these results to evaluate and improve the effectiveness of the requalification program for the 1982-1983 cycle. The annual requalification examination for this cycle will be administered in a single sitting and will be formatted similar to this experimental exam.

The inspector discussed the examination results with the Director of Training on July 22, 1982. The inspector determined that the 12 individuals who participated had completed the licensee's approved requalification program for the 1981-1982 cycle.

This program included the regular annual requalification exam given to all licensed operators for which acceptable results were achieved or an individual accelerated requalification program was administered. The Training and Operations Departments have discussed the results of this examination to evaluate the need for additional training for the individuals involved. The inspector had no further questions in this area.

- c. (Closed) Followup Item (50-309/81-32-03). Licensee to formalize training in 10 CFR topics. The licensee's requalification program records and current schedule indicate that the applicable sections of the 10 CFR are covered in the program. The inspector determined that the lead instructor has prepared a list of code regulations for which lesson plans will be prepared in support of the 1982/1983 requalification program schedule. No further inadequacies were identified.

3. Review of Plant Operations - Plant Inspections

The inspector reviewed plant operation through direct observation throughout the reporting period. As noted below, conditions were found to be in compliance with the following licensee documents:

- Maine Yankee Technical Specifications
- Maine Yankee Technical Data Book
- Maine Yankee Fire Protection Program
- Maine Yankee Radiation Protection Program
- Maine Yankee Tagging Rules
- Administrative and Operating Procedures

a. Instrumentation

Control room process instruments were observed for correlation between channels and for conformance with Technical Specification requirements. No unacceptable conditions were identified.

b. Annunciator Alarms

The inspector observed various alarm conditions which had been received and acknowledged. These conditions were discussed with shift personnel who were knowledgeable of the alarms and actions required. Operator response was verified to be in accordance with procedure 2-300-1, Response to Panalarms, Revision 5. During plant inspections, the inspector observed the condition of equipment associated with various alarms. No unacceptable conditions were identified.

- c. The operating shifts were observed to be staffed to meet the operating requirements of Technical Specifications, Section 5,

both to the number and type of licenses. Control room and shift manning were observed to be in conformance with 10 CFR 50.54.

d. Radiation Protection Controls

Radiation Protection control areas were inspected. Radiation Work Permits in use were reviewed, and compliance with those documents, as to protective clothing and required monitoring instruments, was inspected. Proper posting and control of radiation and high radiation areas was reviewed in addition to verifying requirements for wearing of appropriate personnel monitoring devices. There were no unacceptable conditions identified.

e. Plant Housekeeping Controls

Storage of material and components was observed with respect to prevention of fire and safety hazards. Plant housekeeping was evaluated with respect to controlling the spread of surface and airborne contamination. There were no unacceptable conditions identified.

f. Fire Protection/Prevention

The inspector examined the condition of selected pieces of fire fighting equipment. Combustible materials were being controlled and were not found near vital areas. Selected cable penetrations were examined and fire barriers were found intact. Cable trays were clear of debris. No abnormal conditions were identified.

g. Control of Equipment

During plant inspections, selected equipment under safety tag control was examined. Equipment conditions were consistent with information in plant control logs, and with Local Control Orders 589-82, 601-82 and 612-82.

h. Equipment Lineups

The inspector verified by observation of the Main Control Board and by inspections in the Diesel Generator and Auxiliary Feed Pump Rooms and in the Spray and Turbine Buildings that the major valve and switch positions were correct to insure operability of the Safety Injection System, the Safety Injection Accumulators, Containment Spray, Auxiliary Feedwater, and the Emergency Diesel Generators.

4. Review of Plant Operations - Logs and Records

During the inspection period, the inspector reviewed operating logs and

records covering the inspection time period against Technical Specifications and Administrative Procedure Requirements. Included in the review were:

Control Room Log	- daily during control room surveillance
Jumper and Lifted Leads Log	- all active entries
Maintenance Requests and Job Orders	- all active entries
Safety Tag Log	- all active entries
Plant Recorder Traces	- daily during control room surveillance
Plant Process Computer Printed Output	- daily during control room surveillance
Night Orders	- daily during control room surveillance

The logs and records were reviewed to verify that entries are properly made and communicate equipment status/deficiencies; records are being reviewed by management; operating orders do not conflict with the Technical Specifications; logs and records are maintained in accordance with Technical Specification and Administrative Control Procedure requirements.

Several entries in these logs were the subject of additional review and discussion with licensee personnel. No unacceptable conditions were identified.

5. Observation of Physical Security

The resident inspector made observations, witnessed and/or verified, during regular and off-shift hours, that the selected aspects of the security plan were in accordance with regulatory requirements, physical security plans and approved procedures.

- Maine Yankee Security Plan, dated October 1979
- 15-1, Security Organization and Responsibilities, Revision 6
- 15-2, Security Force Duties, Revision 9
- 15-3, Plant Personnel Security, Revision 9
- 15-7, Access Authorization and Control, Revision 2
- 15-8, Protected Area Entry/Exit Control, Revision 2

a. Physical Protection Security Organization

- Observations and personnel interviews indicated that a full time member of the security organization with authority to direct physical security actions was present, as required.

- Manning of all three shifts on various days was observed to be as required.

b. Physical Barriers

Selected barriers in the protected area, access controlled area, and the vital areas were observed and random monitoring of isolation zones was performed. Observations of truck and car searches were made.

c. Access Control

Observations of the following items were made:

- Identification, authorization and badging
- Access control searches
- Escorting
- Communications
- Compensatory measures when required

No violations were identified.

6. Observation of Maintenance

- a. The inspector observed various maintenance and problem investigation activities. The inspector reviewed these activities to verify compliance with regulatory requirements, including those stated in the Technical Specifications; compliance with applicable codes and standards; required QA/QC involvement; proper use of safety tags; proper equipment alignment and use of jumpers; appropriate personnel qualifications; proper radiological controls for worker protection; adequate fire protection; and appropriate retest requirements. The inspector also ascertained reportability as required by Technical Specifications.
- b. The following documents were reviewed:
 - Quality Assurance Department Inspection Reports 82-221, 222 and 223; Visual Inspection of PCC/SCC Piping Modifications.
 - Maintenance Request (MR) 1773-82, Repair of Component Cooling System Discrepancies.

-- MR 1191-82, Installation of Limiting Devices on Containment Purge Valves.

- c. As a result of NRC identification of non-conformances to design details during a recent modification of the component cooling water system, the licensee conducted a detailed visual re-inspection of this modification on June 4, 1982. The inspection revealed numerous construction deficiencies involving undersize and undercut welds, improper pipe support clearances, concrete anchor bolt engagement and alignment problems and incomplete weld fusion. The licensee documented the deficiencies in QC Inspection Reports 82-221 through 82-223 and commenced maintenance action to correct the problems on July 22, 1982. The inspector questioned the impact of some of these deficiencies on the system operability under design conditions. The licensee had not made a formal evaluation with respect to system operability, however, onsite engineers had not considered the individual errors to be significant. The inspector indicated that the inattention to system operability and excessive time to commence repairs did not conform to industry standards for prompt corrective action in accordance with 10 CFR 50, Appendix B Criterion XVI. The licensee committed to document the bases for temporary acceptance of the documented discrepancies and to provide reanalysis for those discrepancies which are not corrected. On August 5, 1982, the inspector reviewed the licensee's preliminary engineering evaluation and acceptance criteria justifying continued operability of the component cooling water system until repairs or reanalysis were complete. The inspector stated that this matter would be unresolved pending final engineering evaluation of the system operability during its operation with the identified discrepancies and NRC review of the final disposition of these discrepancies. (309/82-10-01).

7. In-Office Review of Licensee Event Reports (LERs)

The inspector reviewed the following LERs received in the RI office to verify that details of the event were clearly reported including the accuracy of the description of cause and adequacy of corrective action. The inspector also determined whether further information was required from the licensee, whether generic implications were indicated, and whether the event warranted on site followup. The following LERs were reviewed:

- 82-18, Loop Fill and Drain Header Cross tie Valve Failed to Operate
- *-- 82-19, Reactor Water Storage Tank(RWST) Temperature Above Safety Analysis Limit
- 82-20, Late Review of Procedure Change Report

- *-- 82-21, Dropped Control Rod Limiting Condition for Operation (LCO)
Allows Operation with a Non-conservative Power Distribution
- *-- 82-22, Slow Operation of Safety Injection Valve Automatic Bus
Transfer Device

8. On Site Followup of LERs

During on site followup, the inspector verified that reporting requirements of Technical Specifications and Regulatory Guide 1.16 had been met, that appropriate corrective action had been taken, that the event was reviewed by the licensee as required, and that continued operation of the facility was conducted within Technical Specification limits. The review included discussions with licensee personnel, review of PORC meeting minutes, and applicable logs. The following LERs were reviewed.

a. 82-19 RWST Temperature Above Safety Analysis Limit

On July 16, 1982 the licensee reported that during a review of analyses conducted to determine how high RWST temperature could be raised to mitigate the consequences of a Pressurized Thermal Shock event, it was determined that the safety analysis assumed maximum RWST temperature was 110^o F. Plant procedures called for maintaining this tank temperature below 125^o F. Actual RWST temperature at that time was 114^o F. The licensee took prompt action to reduce the water temperature below 110^o F. Subsequently on July 21, 1982, further study showed that a maximum RWST temperature limit of 86^o F may be necessary to insure net positive suction head (NPSH) to the low pressure safety injection pumps. The licensee reduced tank temperature below 80^o F and revised procedures so as not to exceed 83^o F. Discussions between the licensee and NRC staff resulted in licensee commitments documented in Region I Confirmatory Action Letter 82-20 dated July 22, 1982. These commitments require documentation of interim measures to insure adequate NPSH to all safeguards pumps by July 27, 1982 and final resolution of NPSH and RWST level and temperature control issues prior to restart from the fall 1982 refueling outage. In addition the licensee will determine if other discrepancies between plant operating conditions and safety analyses exist and implement measures to prevent recurrence of these inadequacies. The inspector verified that the interim measures described in the licensee's letters of July 27 and 28, 1982 were implemented to control RWST temperature. The licensee's determination of interim limits to insure NPSH to safeguards pumps was reviewed by the Region I staff. No inadequacies were identified. Completion of the long term corrective actions will be followed in a subsequent inspection. (309/82-10-2).

b. 82-21 Dropped Rod LCO Allows Operation with a Non-Conservative Power Distribution.

* = Reports selected for onsite followup.

On July 30, 1982 the licensee reported that continued operation with a dropped control rod as permitted by Technical Specification 3.10.D may result in a non-conservative power distribution. The primary radial flux distribution peak caused by the flux depression around the dropped rod will not exceed design fuel limitations. However, xenon redistribution resulting from the abnormal flux pattern produces a higher secondary flux peak which may exceed the specified fuel limits. The licensee changed operator response procedures to dropped rod events to require power reduction to 70% within 1 hour. This lowers the **overall** flux distribution such that the secondary peak falls within acceptable limits. The inspector verified that procedure 2-21, Dropped Rod, Revision 12 had been modified (PCR 82-234) to require the power reduction and preclude recovering the rod before this power reduction is complete. Continued operation with an unretrievable rod has been limited to 2 hours. The licensee committed to make appropriate revisions to TS 3.10 D in the next core reload submittal. Completion of this action will be followed in a subsequent inspection. (309/82-10-03).

- c. 82-22 Slow Operation of Safety Injection Valve Automatic Bus Transfer (ABT) Device

On July 14, 1982, during surveillance testing of the ABT for safeguards valve LSI-M-11 the ABT was slow to return to the normal power supply after satisfactory completion of its safeguards action. Satisfactory results were achieved during subsequent recycling of the ABT. The cause of the failure was attributed to sticking contacts associated with an Agastat Model 2400 time delay relay. Problems with slow operation of these ABT's were previously documented in Region I Inspection Reports 50-309/80-18 and 81-05. The licensee is evaluating a more reliable replacement for this component, which will be installed during the fall 1982 refueling outage. Completion of this action will be reviewed in a subsequent inspection (309/82-10-04).

9. Followup on Events Occurring During the Inspection.

- a. On August 8, 1982 the licensee identified a crack in a sample pipe connected to the suction piping for the B train high pressure safety injection pump (HPSI B). In order to repair the leak HPSI B was isolated placing the plant in a degraded mode with respect to the operability of safeguards systems. HPSI A remained operable throughout the repair. The sample line branch piping was replaced (maintenance request 82-1906) and HPSI B restored within the grace period allowed by Technical Specifications. The inspector will review the engineering evaluation of the pipe failure upon receipt of the Licensee Event Report. (309/82-10-05).

- b. On August 12, 1982 during a controlled shutdown for routine maintenance the plant tripped from 10% power when the steam dump valve opened, significantly increasing the secondary plant load. Failure of the controlling #1 reactor regulating system caused the dump valves to open. The plant tripped when primary system differential temperature (ΔT) equivalent power exceeded the variable over power set point. Upon identification of the failure, control of the steam dumps was switched to the #2 regulating system and a normal shutdown was resumed. The steam dump controller for the #1 reactor regulating was subsequently repaired before returning to power on August 14, 1982. The inspector had no further questions in this area.

10. Containment Purge and Vent Valve Operation

In response to a request from the NRC Office of Nuclear Reactor Regulation, the inspector reviewed gaseous release records for 1981 to determine the length of time the containment purge and vent valves were open during operations when containment integrity was required. This review indicated the valves were not opened during these operations in 1981. The licensee is currently committed to limit the duration of use of both the 42" vent valves and the 4" bypass valve to as low as reasonably achievable (ALARA) and to less than 300 hours/year. The inspector had no further question in this area.

11. Unresolved Items

Unresolved items are matters about which more information is required in order to determine whether they are acceptable items or items of noncompliance. Unresolved items identified during this inspection are discussed in paragraph 6 c.

12. Exit Interviews

At periodic intervals during the course of the inspection, meetings were held with senior facility management to discuss the inspection scope and findings.