

U.S. NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT

Region I

Report No. 50-29/80-10

Docket No. 50-29

License No. DPR-3 Priority -- Category C

Licensee: Yankee Atomic Electric Company

25 Research Drive

Westborough, Massachusetts 01581

Facility Name: Yankee Nuclear Power Station (Yankee Rowe)

Inspection at: Rowe, Massachusetts

Inspection conducted: May 27 - July 3, 1980

Inspectors: T. T. Martin Jr.  
T. Foley, Reactor Inspector

9/10/80  
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Approved by: T. T. Martin  
T. T. Martin, Chief, Reactor Projects  
Section No. 3, RO&NS Branch

9/10/80  
date signed

Inspection Summary:

Inspection on: May 27-July 3, 1980 (Inspection Report No. 50-029/80-10)

Areas Inspected: Routine onsite regular and backshift inspections by the resident inspector (41 inspection hours) of plant operations, including a review of shift logs and operating records, surveillance test, physical security, radiation protection controls, tour of accessible areas of the plant, licensee action on selected previous inspection findings, review of selected Bulletins and Routine Reports, and Instructor qualifications.

Results: No items of noncompliance were identified.

## DETAILS

### 1. Persons Contacted

D. Army, Technical Assistant  
H. Autio, Plant Superintendent  
W. Billings, Chemistry Supervisor  
T. Danek, Operations Supervisor  
L. French, Engineering Assistant  
T. Henderson, Technical Assistant  
F. Hicks, Training Coordinator  
K. Jurentkuff, Day Shift Supervisor  
L. Laffond, Assistant Training Coordinator  
P. Laird, Maintenance Supervisor  
N. St. Laurent, Assistant Plant Superintendent  
R. Randall, Engineering Assistant  
J. Staub, Technical Assistant to Plant Superintendent  
J. Trejo, Plant Health Physicist  
D. Vassar, Assistant Operations Supervisor  
F. Williams, Engineering Assistant

The inspector also interviewed several plant operators, maintenance, Security Health Physics and Instrument and Control personnel during the course of the inspection.

### 2. Previous Inspection Item Update

(Closed) Item of Noncompliance (29/78-21-04): The inspector reviewed training related documentation, procedures and interviewed several persons assigned to the licensee's emergency organization to verify that training required by the Emergency Plan had been conducted. The inspector verified that each person listed as a member of the Emergency Plan organization had received formal lectures pertaining to the specific area to which he was assigned. The inspector interviewed members of the organization to verify that practical demonstration training had been received, and reviewed letters to the Vermont and Massachusetts Departments of Health (Radiological Divisions), inviting representatives to attend Emergency Coordinator refresher training. This item is considered closed.

(Closed) Unresolved Item (29/79-04-01): The inspector reviewed OP-4220, Revision 5, "Primary System Water Balance" and noted that the procedure was revised to remove the change in Vapor Container Drain Tank level from the calculation for accountable leakage, and therefore, the drain tank level change becomes part of the unaccountable leakage. This item is considered closed.

(Closed) Unresolved Item (29/79-04-03): The inspector reviewed AP-5010, Revision 2, Maintenance Department Corrective Maintenance, and noted that the procedure has been revised to require the Shift Supervisor to sign the Work History Sheet, granting permission for the release of equipment for maintenance. This item is considered closed.

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PUBLIC DISCLOSURE, IS INTENTIONALLY LEFT BLANK.

### 3. Review of Plant Operations

#### Shift Logs and Operating Records

- a. The inspector reviewed the following plant procedures to determine the licensee established administrative requirements in this area in preparation for review of various logs and records.
- AP-0001, Plant Procedures and Instructions, Revision 8.
  - AP-2002, Operations Department Personnel Shift Relief, Revision 10.
  - AP-2009, Control Room Area Limits for Control Room Operators, Original.
  - AP-2010, Control Room Access During Accidents and Operations Transients, Original.
  - AP-0017, Switching and Tagging of Plant Equipment, Revision 5.
  - AP-0018, Bypass of Safety Function and Jumper Control Log, Revision 7.
  - AP-2007, Maintenance of Operations Department Logs, Revision 7.
  - AP-0216, Housekeeping and Cleanliness Control, Revision 1.
  - AP-0042, Housekeeping for Maintenance and Modifications, Original.
  - Rules Governing In-Plant Tagging Procedures Local Control Rules, Revision 3.

The above procedures, Technical Specifications, ANSI N18.7-1972 "Quality Assurance Requirements for Nuclear Power Plants" and 10 CFR 50.59 were used by the inspector to determine the acceptability of the logs and records reviewed.

- b. Shift logs and operating records were reviewed to verify that:
- Control Room logs and shift surveillance sheets are properly completed and that selected Technical Specification limits were met.
  - Control Room log entries involving abnormal conditions provide sufficient detail to communicate equipment status, lockout status, correction, and restoration.

- Log Book reviews are being conducted by the staff.
  - Operating and Special orders do not conflict with Technical Specifications requirements.
  - Jumper (Bypass) log does not contain bypassing discrepancies with Technical Specification requirements and that jumpers are properly approved and installed.
- c. The following plant logs and operating records were reviewed:
- Shift Supervisor's Control Room Log: June 1-July 1, 1980
  - Special Orders: 413, 419, 422, 423, 424, 438, 439 and 441
  - Maintenance Request Logs: 80-858, 80-624, 80-562 thru 576 80-542 and 80-531
  - Switching and Tagging Orders: all effective orders.
  - Bypass of Safety Function and Jumper Control Log Request: all active and inactive request.
  - Key Control Log: June 1-July 1, 1980
  - Radio Log: June 1-July 1, 1980

The inspector identified no unacceptable items.

#### 4. Plant Tour

The inspector periodically conducted tours of accessible areas of the plant, including the Primary Auxiliary Building, the Diesel Generator Rooms, the Radioactive Waste Building, the Spent Fuel Pool area, the Turbine Building, the Health Physics Control Point, the Vapor Container, and the Control Room.

The following observations/determinations were made:

##### a. Control Room

Shift turnovers between Shift Supervisors and Control Room Operators were observed on regular and backshifts. Each shift turnovers was observed to be thorough and orderly. Control room manning requirements were met during each observation with respect to the requirements of 10 CFR 50.54(k) and the Technical Specification. The inspector questioned shift personnel concerning the reasons for selected annunciators. All operators questioned were knowledgeable of the reasons for the lighted annunciators.

b. Instrumentation and Annunciators

On several occasions during the inspection, control board annunciators were checked for alarms abnormal for the current plant status. None were identified. The following instrumentation was checked to verify that the required instrumentation was operable and that, where applicable, the values indicated were in accordance with Technical Specifications:

- Pressurizer Pressure, Level and Temperature
- Main Coolant Temperature
- PWST and DWST Levels
- Charging Flow Path
- SI Tank Level
- SI Accumulator Level and Pressure
- Stack Gas Radiation Monitor
- Containment Air Particulate Radiation Monitor
- Batteries 1, 2, and 3 Buss Voltage
- Source Range Nuclear Instrumentation

With the exception of the items discussed below, the inspector identified no inadequacies.

(1) Radiation Monitoring Instrumentation

The inspector observed fourteen radiation monitors. Twelve monitors appeared to be functioning normally and indicated values within allowable ranges. Two monitors, the Inside and Outside Vapor Container Particulate Radiation Monitors, had values within allowable ranges; however, the "Circuit Failure" light was illuminated on each instrument. The inspector questioned several Control Room Operators and the Instrument and Control Supervisor concerning why these "Circuit Failure" lights were illuminated and why the lights were not illuminated on the other twelve instruments. Each person questioned was aware that when the light is "off" on these two instruments, then a circuit problem exists. The inspector verified this fact in the Victoreen Log Ratemeter vendor's manual.

The operators were also aware that when the "Circuit Failure" light is "illuminated" on anyone of the other twelve instruments, ~~manufactured by a different vendor, then a circuit problem exist~~ in the instrument whose light is illuminated.

The inspector had no further comments on this item.

(2) Source Range Instrumentation

The inspector observed that the count rate on the Source Range Nuclear Instrument channels has been decreasing since the plant shutdown in February. The plant has four channels of source range nuclear instrumentation; only one channel however, is required to be operable by Technical Specification requirements under the current plant conditions. During plant startup, at least two channels must be operable. At present, two channels indicate less than two counts per second (cps) and the other two channels indicate approximately ten cps. The latter two channels are newer and of an improved design.

The inspector questioned the licensee whether there would be a sufficient channel count rate to have an "on scale" indication for plant startup in November or December of this year. The licensee showed the inspector a plot of channel count rate versus time for the subject channels. The plot indicated that the channel output would not decrease to less than two cps until January, 1981. Based on an expected plant startup in November-December, at least two source range channels would be operable with indicated count rates in excess of two cps. The licensee stated further that Westinghouse has been consulted on this matter and that Westinghouse would concur in a startup procedure that specified a count rate indication as low as one-half (1/2) cps on the source range instrumentation. The licensee agreed that additional measures may be required to ensure an operable source range channel if plant startup is delayed beyond January, 1981. Source range channel output will be observed by the inspector during subsequent inspections.  
(29/80-10-01)

The inspector had no further comments on this item at the present time.

c. Radiological Controls

Radiation controls established by the licensee, including posting of radiation areas, radiological surveys, condition of step-off pads, and the disposal of protective clothing were observed for conformance with the requirements of 10 CFR 20 and OP-8100, "Establishing and Posting Controlled Areas," and OP-8101, "Plant Radiological Surveys."

The inspector observed on one occasion during a backshift tour that the barricade to the Shutdown Cooling Heat Exchanger Room (SDCHX), a posted "High Radiation Area" was down. Subsequent radiation measurements by the inspector and the licensee found no areas in the SDCHX room where a person could reasonably receive greater than one hundred millirem in one hour. Additionally, the inspector noted on several occasions that the signs and lines indicating the boundary between the uncontrolled area and the potentially contaminated area were lying on the ground. These items were discussed with the plant Health Physics Supervisor. The licensee's representative stated that a swinging gate would be installed to replace the rope barricade at each High Radiation Area and new stantions would be fabricated to support the potentially contaminated area boundary line. This item will be followed by the inspector during subsequent inspections (29/80-10-02).

d. Plant Housekeeping

Plant housekeeping conditions, including general cleanliness and storage of materials to prevent fire hazards were observed in all areas toured. The inspector noted no unacceptable conditions.

e. Fluid Leaks and Piping Vibration

Systems and equipment in all areas toured were observed for the existence of fluid leaks and abnormal piping vibration.

No unacceptable conditions were identified.

f. Pipe Hangers/Seismic Restraints

Pipe hangers and restraints installed on various piping systems through the plant were observed for proper installation and tension.

No unacceptable conditions were identified.

5. Monthly Surveillance

The inspector observed Technical Specifications (T/S) required surveillance testing on the Diesel Generator and the Containment Isolation systems, and verified that testing was performed in accordance with adequate procedures, that test instrumentation was calibrated, that limiting conditions for operation were met, that removal and restoration of the affected components were accomplished, that test results conformed with T/S and procedure requirements and were reviewed by personnel other than those directing the test, and that any inadequacies identified during testing were properly reviewed and resolved by appropriate management personnel.

The inspector identified no inadequacies.

## 6. Review of Licensee Event Reports (LER's)

The inspector reviewed LER's received at the onsite resident office to verify that the details of the event were clearly reported, including the accuracy of the description of the cause and adequacy of the corrective action. The inspector also determined whether further information was required from the licensee and whether generic implications were indicated. The following LER was reviewed and subsequently followed up onsite:

- LER 80-12 linear indications in Boric Acid Line LER 80-12 was submitted to the NRC pursuant to the requirements of IE Bulletin 79-17 (Pipe Cracks in Stagnant Borated Water Systems at PWR Plants). The ER stated that a linear indication was found on a valve in a stagnant borated water line in the Chemical Shutdown System and that the LER may be cancelled after further investigation. Subsequently, the valve, with the indication was cut out of the system, and liquid penetrant examination of the internal surface was performed revealing no "thru-wall" cracking. The inspector observed the internals of this valve with the personnel performing the liquid penetrant examination. The licensee subsequently cancelled the previously submitted LER 80-12, and is currently performing additional inspections of all valves of the same type in the plant. The Cooper Alloy valve, which contained the indication, was subsequently sent to Massachusetts Materials Laboratory for metallurgical testing. Preliminary results indicate that the defect may be caused by Ferritic Segregation Corrosion, and this process is apparently occurring only in a specific type of Cooper Alloy valve which was machined to a scheduled ten pipe size.

The inspector contacted the appropriate RC personnel coordinating potentially generic occurrences and will continue to update these individuals as more information is learned about these valves. The licensee's representative stated that a copy of the metallurgical report will be provided to the NRC when the final report is issued. This item will be followed during subsequent inspections (29/80-10-03).

## 7. Followup on Selected IE Bulletins

The inspector verified that the Bulletin had been received and reviewed by cognizant personnel, that the required response had been returned as required, and that adequate corrective action had been taken if required.

The inspector reviewed the following IE Bulletins:

- 79-03, Longitudinal Weld Defects in 304 Stainless Steel Pipe
- 79-03A, Longitudinal Weld Defects in ASME SA-312 Type 304 Stainless Steel Pipe

- 79-07, Seismic Stress Analysis of Safety Related Piping
- 79-11, Faulty Overcurrent Trip Devices in Circuit Breakers for Engineering Safety Systems
- 79-27, Loss of Non-Class 1-E Instrumentation and Control Power System Bus During Operation
- 79-28, Possible Malfunction of NAMCO Model EA-180 Limit Switches at Elevated Temperatures.

No inadequacies were identified.

8. In-Office Review of Monthly Statistical Reports

The inspector reviewed the licensee's Monthly Statistical Reports for the period January-December, 1979. The inspector also reviewed the Annual Report and 10 CFR 50.59B Reports for 1978 and 1979.

No inadequacies were identified.

9. Qualification of Training Staff Personnel

On March 28, 1980, a letter was sent to all licensees from NRC:NRR requesting that licensee staff training members submit an application for Senior Reactor Operator (SRO) license examination, if not previously qualified as an SRO.

The inspector reviewed licenses issued to the training staff and held discussions with members of the training department to ascertain the status of the individual instructors qualifications. The inspector determined that all staff training instructors either presently hold an SRO license or previously held an SRO license at a similar plant. The inspector notified Operator Licensing Branch (OLB) of these findings via telephone. The inspector had no further questions in this area.

10. Exit Interview

At the conclusion of the inspection, the inspector held a meeting (see Detail 1 for attendees) to discuss the inspection scope and findings.