

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

Region I

Report No. 50-213/78-24

Docket No. 50-213

License No. DPR-61 Priority - Category C

Licensee: Connecticut Yankee Atomic Power Company

P. O. Box 270

Hartford, Connecticut 06101

Facility Name: Haddam Neck Plant

Inspection at: Haddam, Connecticut

Inspection conducted: September 11-15, 1978

Inspectors: *W. J. Kazarus*
W. J. Kazarus, Reactor Inspector

10/2/78
date signed

R. M. Knoll, Reactor Inspector Co-op

date signed

Approved by: *R. R. Kelmig*
R. R. Kelmig, Chief, Reactor Projects Section
No. 1, RO&NS Branch

date signed
10/3/78
date signed

Inspection Summary:

Inspection on September 11-15, 1978 (Report No. 50-213/78-24)

Areas Inspected: Routine, unannounced inspection by a regional based inspector of the licensee's organization and administration; performance of required reviews and audits; plant operations including shift logs and operating records and a tour of accessible areas; followup on previous inspection findings; followup on licensee actions concerning selected IE Bulletins and Circulars; and review of Safety Injection System (SIS) procedures. The inspection commenced with a plant tour on the second shift on September 11, 1978. The inspection involved 28 inspector-hours onsite by one regional based NRC inspector.
Results: No items of noncompliance were identified.

DETAILS

1. Persons Contacted

N. Burnett, Operations Supervisor
R. Eppinger, Reactor Engineer
*J. Ferguson, Engineering Supervisor
*R. Graves, Station Superintendent
H. Klow, Health Physics Supervisor
J. Levine, Maintenance Supervisor
M. Morris, Technical Assistant
A. Townsend, I&C Foreman
*R. Traggio, Assistant Station Superintendent

The inspector also contacted other plant personnel including shift operations, engineering staff, and administrative personnel.

* denotes those present at exit interview.

2. Licensee Action on Previous Inspection Findings

(Open) Unresolved item (213/76-14-10): External containment sump leak. The inspector discussed the licensee's plans for a permanent repair to the recurring leak at the steam generator blowdown discharge/service water discharge piping weld. Permanent repairs are planned during the next refueling outage.

(Closed) Noncompliance (213/77-19-07): Failure to document yearly testing/cleaning of fire hoses. The inspector verified that the testing of the three fire hoses in question had been conducted and tags attached to the hoses as described in the licensee's letter to NRC:RI dated November 29, 1977.

(Closed) Unresolved item (213/78-05-02): Provide a procedure for determining reactivity anomalies. The inspector reviewed procedure SUR 5.3-26, "Excess Reactivity Balance," issued June 2, 1978, which provides the required procedural steps.

(Closed) Unresolved item (213/78-12-02): Demonstration of compliance with Technical Specification 3.20 relative to RCS pressure and inlet temperature (Tc). The licensee has designated the pressurizer pressure recorder as the official indicator of RCS pressure and has revised NOP 2.2-2 data sheet to show 2000 psi as minimum RCS pressure. The Tc recorder is used to demonstrate compliance with the maximum Tc limit. Observation of Tc on the recorder indicated that it was within specification and agreed closely with the narrow range Tc instruments.

(Closed) Unresolved item (213/78-12-03): Inclusion of lifted leads in audit of the Jumper and Bypass Log. SUR 5.1-102 has been revised to include lifted leads as part of the required monthly audit.

(Closed) Deviation (213/78-20-02): Failure to permanently rack out the 5T6 tie breaker. The inspector verified that the 5T6 bus tie breaker had been permanently removed as described in the licensee's letter to NRC:RI dated August 23, 1978.

(Closed) Unresolved item (213/78-20-03): Revise procedure NOP 2.16-1 to reflect the removal of the 5T6 breaker. NOP 2.16-1 Revision 3 reflects this change.

3. Review and Audits

Onsite and Offsite Reviews and Audits

The inspector conducted a review to ascertain whether the onsite and offsite review and audit functions are conducted in conformance with the requirements of the facility Technical Specifications for the preceding year. This review included inspection of PORC minutes, NRB minutes, Licensee Event Reports, and discussions with various staff personnel. During this review the following were verified:

- Proposed changes to Technical Specifications were reviewed as required by facility Technical Specifications.
- Violations of Technical Specifications or rules and regulations were reviewed as required by Technical Specifications.
- Proposed tests and experiments which involve an unreviewed safety question as defined in Section 50.59, 10 CFR were reviewed as required by the facility Technical Specifications.
- All NRB and PORC meetings convened during the previous year were held at the frequency required by Technical Specifications.
- The meeting membership of the NRB and PORC meetings satisfied the quorum requirements of the Technical Specifications.

The review included discussions with licensee personnel and review of Technical Specifications and the following plant procedures and records.

- ADM 1.1-14, "Plant Operations Review Committee," Revision 5.
- Connecticut Yankee Nuclear Review Board Charter, revised March 11, 1977.
- Minutes of NRB Meetings from September 1, 1977 through September 4, 1978.
- Minutes of PORC Meetings from September 1, 1977 through September 7, 1978.

No items of noncompliance were identified.

4. Organization and Administration

- a. The licensee's organization and administration was reviewed to verify that:
 - The licensee's onsite organization structure is as described in the Technical Specification;
 - Personnel qualification levels are in conformance with applicable codes or standards as described in the Technical Specifications;
 - Authorities and responsibilities of licensee personnel are as delineated in the Technical Specifications and applicable standards;
 - Minimum shift crew composition and licensed personnel requirements are in compliance with Technical Specifications;
 - Onsite and offsite safety review committee membership and qualifications are as required by Technical Specifications; and,
 - Changes in organization and structure have been reported to the NRC as required by Technical Specifications.
- b. The review included discussions with licensee personnel and review of Technical Specifications and the following standards, plant procedures, and records.
 - ANSI N18.1, 1971, "Selection and Training of Nuclear Power Plant Personnel."

- ANSI N18.7, 1972, "Administrative Controls for Nuclear Power Plants."
- ADM 1.1-1, "Connecticut Yankee Organization Overall Responsibility and Authority," Revision 6, dated November 22, 1977.
- ADM 1.1-14, "Plant Operations Review Committee," Revision 5, dated June 28, 1978.
- NRB Charter, "Connecticut Yankee," Revision 0, dated March 11, 1977.
- Haddam Neck Plant Organization Chart, CYAPC, Revision 25, dated July 20, 1978.

Except as noted below, findings were acceptable.

- c. During a review of procedure ADM 1.1-1, the inspector noted that the qualification requirements specified for the HP Supervisor were not as stringent as specified in Technical Specification 6.3.1.1. The HP Supervisor meets the requirements of Technical Specifications. This item is unresolved pending revision to ADM 1.1-1 or Technical Specifications. (213/78-24-01)

5. 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 a review of selected logs and records.
 - ADM 1.1-5, Control Room Operating Log, Original.
 - ADM 1.1-6, Plant Records Collection, Storage, Maintenance, and Disposition, Revision 4.
 - ADM 1.1-43, Control Room Area Limits for Control Operators, Original.
 - ADM 1.1-44, Shift Relief and Turnover, Original.

- QA 1.2-2.4, Housekeeping Requirements, Revision 4.
- SUR 5.1-102, Monthly Audit of Bypass and Jumper Log, Revision 1.
- QA 1.2-14.1, Bypass and Jumper Control, Revision 1, March 26, 1975.
- QA 1.2-14.2, Equipment Control (Locking and Tagging), Revision 1, January 1, 1976.
- QA 1.2-16.1, Plant Information Reports, Revision 3.

The inspector verified that these administrative controls were acceptable.

- b. Shift logs and operating records were reviewed to verify that:
 - Control Room log sheet entries are filled out and initialed;
 - Auxiliary log sheets are filled out and initialed;
 - Shift Supervisor and 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 orders do not conflict with Technical Specification requirements;
 - Jumper (Bypass) log does not contain bypassing discrepancies with Technical Specification requirements;
 - "Plant Information Reports" confirm there are no violations of Technical Specification reporting or LCO requirements; and,
 - Logs and records were maintained in accordance with Technical Specifications and the procedures in 5.a above.
- c. The review included discussions with licensee personnel and the following plant shift logs and operating records:

- NOP 2.2-2, Log Sheets which consists of Control Room Part 1 and Part 2, Primary Side Surveillance Form, Secondary Side Surveillance Form, and Radiation Monitoring System Daily Log for the period of July 15 through August 30, 1978.
- Control Room Log Book for the period August 1 - September 14, 1978.
- Night Orders Book for the period May 5, 1978 through September 13, 1978.
- Bypass and Jumper Control Log for the period May 5, through September 12, 1978.
- Tagging Log for the period May 5, 1978 through September 13, 1978.
- Plant Information Reports (PIR) (PIR 78-41 through 78-84).

No items of noncompliance were identified.

6. Plant Tour

The inspector conducted an inspection tour of accessible areas of the plant, including the Primary Auxiliary Building, Turbine Building, Spent Fuel Building, Containment, Switch Gear Room, Diesel Generator Rooms, HP Control Point, Cable Spreading Area, and yard areas. Part of this tour was conducted shortly after the inspector's arrival on site during the second shift on September 11, 1978. Details and findings are noted below.

a. Monitoring Instrumentation and Annunciators

Control Board monitoring instrumentation for the Nuclear Instrumentation System, pressurizer pressure, pressurizer level, control rod position, coolant average temperature and delta T, containment pressure, refueling water storage tank level, axial flux offset, and the Radiation Monitoring System were observed and compared with Technical Specification requirements several times during the inspection. Control Board annunciators were observed for abnormal alarms each time the inspector was in the Control Room.

No items of noncompliance were identified and the reason for each existing alarm was satisfactorily resolved.

b. Radiation 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.

No items of noncompliance were identified.

c. Plant Housekeeping

Plant housekeeping conditions, including general cleanliness and storage of materials to prevent fire hazards, were observed in all areas toured to verify conformance with QA 1.2-2.4, "Housekeeping Requirements." No fire hazards were identified and general cleanliness was acceptable.

The inspector questioned the Maintenance Supervisor and Maintenance Foreman concerning establishment of housekeeping/cleanliness requirements for maintenance activities. They indicated that job supervisors insure that housekeeping/cleanliness standards are maintained by personal involvement and frequent inspection of the job site. There are provisions for designating a housekeeping/cleanliness level (I, II, III, etc.), as delineated in procedure QA 1.2-2.4, on the job order form, but this is nearly always overlooked because there is no specific requirement on the form to make the designation. A new form has been drafted which includes housekeeping requirements and is being considered for implementation. The inspector witnessed maintenance on a main feed pump (replacement of a bearing) during the inspection and observed that housekeeping and cleanliness of the work area were maintained at acceptable levels.

The licensee's actions with regard to revising the job order form will be reviewed during a subsequent inspection. (213/78-24-02)

d. Fluid Leaks and Piping Vibration

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

The inspector witnessed a high level of vibration and possible water hammer of the B main feed pump (MFP) minimum flow recirculation line to the main condenser after the B MFP had been restarted following maintenance. The inspector will review this

phenomenon with the licensee during the next inspection to verify that vibration levels have been evaluated and determined to be acceptable. (21:78-24-03)

e. Pipe Hangers/Seismic Restraints

Spring pipe hangers and hydraulic shock suppressors installed on various piping systems throughout the plant were observed for proper installation, orientation, position and fluid levels as applicable.

No discrepancies were identified.

f. Emergency Power Availability

The inspector verified that the four 480-volt buses were energized, both diesel generators were lined up for automatic actuation, off site power was available, and emergency batteries were operable by checking switch lineups and indications in the Control Room, Diesel Generator Rooms and Switch Gear Room.

No items of noncompliance were identified.

g. Equipment Caution Tags/Jumpers

The inspector verified that caution tags were in place for the following clearance numbers:

58-1, 2, and 3
79-1
80-1, and 2
1046-1

No discrepancies were identified.

The inspector verified that all jumpers missing from the jumper cabinet in the Control Room were accounted for in the Jumper and Bypass Log.

No discrepancies were identified.

h. Selected Valve Positions

By observation during the plant tour, the inspector verified that the following valves and associated locking devices were in the position required by Technical Specification 3.6 to insure the operability of the high and low pressure safety injection systems:

SIV-854A and B
SIV-104A and B
SIV-855A and B
SIV-105A and B

No discrepancies were identified.

i. Licensee Plant Tours

The licensee's policy and practice regarding plant tours have not changed since the previous inspection in this area. No formal administrative requirements exist to specify frequency of tours by plant staff; however, it remains policy to conduct frequent tours to observe housekeeping and plant conditions.

j. Control Room Manning

Control Room manning was reviewed several times during the inspection to verify conformance with the requirements of Technical Specifications, 10 CFR 50.54k, and ADM 1.1-43.

No items of noncompliance were identified.

7. Observation of Surveillance Testing

The inspector witnessed the performance of surveillance testing of the Volume Control Tank level channel which was performed in accordance with plant procedures SUR 5.2-8, "VCT Level Channel (Pneumatic) Surveillance Test" and SUR 5.2-8.1 "VCT Level Switch (LC-100B) External Circuit Test."

No items of noncompliance were identified.

8. IE Bulletins and Circulars

Licensee actions concerning the following IE Bulletins and Circulars were reviewed by the inspector to verify that the Bulletin or Circular was forwarded to appropriate onsite management, a review for applicability was performed, and information in the licensee's reply (when required) concerning applicability and corrective action was accurate.

-- IEC 78-02: Improper Lube Oil for Terry Turbines

Evaluation documented: CY Memo Levine to Graves dated May 11, 1978.

- IEC 78-04: Installation Error That Could Prevent Closing of Fire Doors

Evaluation documented: CY Memo Morris to File dated June 19, 1978.
- IEC 78-06: Potential Common Mode Flooding of ECCS Equipment

Evaluation documented: CY Memo DeLawrence to Ferguson dated July 14, 1978.
- IEC 78-07: Damaged Components on Bergen-Paterson Hydraulic Test Stand

Evaluation documented: CY Memo DeLawrence to Ferguson dated July 14, 1978.
- IEC 78-09: Arcing of General Electric NEMA Size 2 Contactors

Evaluation documented: CY Memo Levine to Graves dated June 28, 1978.
- IEB 78-05: Auxiliary Contact Mechanism GE CR105X

The inspector reviewed the licensee's evaluation memorandum dated April 27, 1978 and performed an inspection of the 480 volt switch-gear to verify that the licensee's response (CYAP Co letter of June 19, 1978) was accurate, in that this type of circuit breaker is not in use at the plant.

No discrepancies were identified.
- IEB 78-06: Defective Cutler-Hammer Type M Relays with DC Coils

The inspector reviewed the licensee's evaluation memorandum dated June 28, 1978 and performed an inspection of the emergency diesel generator control cabinets to verify that the licensee's response (CYAP Co letter dated June 21, 1978), which stated that these relays are not used in any safety related circuits, was accurate.

No discrepancies were identified.
- IEB 78-10: Bergen-Paterson Hydraulic Shock Suppressors

The inspector reviewed the licensee's evaluation memorandum dated July 7, 1978 and performed an inspection of several installed

shock suppressors verifying that this type of shock suppressor is not used at the plant as stated in the licensee's response (CYAP Co letter dated July 26, 1978).

No discrepancies were identified.

No items of noncompliance were identified. Licensee reviews for applicability and evaluations were acceptable.

9. Safety Injection System (SIS) Procedures

The inspector reviewed plant emergency procedures to determine if adequate procedural coverage existed describing operator actions for various situations under which a loss of coolant accident (LOCA) could occur. EOP 3.1-4, "Loss of Coolant," Revision 4, adequately covers actions for a LOCA with the reactor critical and core cooling systems lined up for automatic initiation. No procedural guidance could be identified for the situation which would exist if a LOCA occurred subsequent to tripping core cooling pumps or resetting SIS after a spurious safety injection. Under this condition the reactor would be in a hot shutdown condition and Technical Specifications no longer would require operability of core cooling systems. A LOCA in the hot shutdown condition with a substantial amount of decay heat being generated is still a significant accident. The inspector stressed that procedural guidance should be provided to operators to cover their actions for a LOCA in this situation where automatic action of core cooling systems is blocked or disabled.

The licensee acknowledged the inspector's concerns and agreed to evaluate the procedural coverage provided for operators in this area. This item is unresolved. (213/78-24-04)

10. In-Office Review of Monthly Operating Reports

The inspector reviewed the licensee's Monthly Operating Reports for May-July 1978 in the RI Office to verify that reporting requirements were met.

No inadequacies were identified.

11. Unresolved Items

Unresolved items are items for which more information is necessary to determine if the item is acceptable, an item of noncompliance, or a deviation. Details 4.c and 9 contain unresolved items.

12. Exit Interview

The inspector held a management meeting at the conclusion of the inspection on September 15, 1978 (see paragraph 1 for attendees) to discuss the scope and findings of the inspection as detailed in this report.