

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

NOTICE
1 9/73
REGULATORY HAS NOT OBTAINED
CLEARANCE IN ACCORDANCE WITH 10 CFR 170.11

IE Inspection Report No: 50-29/76-02 Docket No: 50-39
Licensee: Yankee Atomic Electric Company License No: DPR-3
20 Turnpike Road Priority: _____
Westborough, Massachusetts 01581 Category: C
Location: Rowe, Massachusetts 01367 Safeguards Group: _____
Type of Licensee: PWR, 600 MWt (W)
Type of Inspection: Routine, Unannounced
Dates of Inspection: January 12-16, 1976
Dates of Previous Inspection: January 5-8, 1976
Reporting Inspector: *D. R. Haverkamp* 2/26/76
D. R. Haverkamp, Reactor Inspector DATE
Accompanying Inspectors: *J. F. Streeter* 2/26/76
J. F. Streeter, Reactor Inspector DATE

DATE

DATE
Other Accompanying Personnel: _____
DA
Reviewed By: *A. B. Davis* 2/26/76
A. B. Davis, Section Chief, Reactor Projects Section DATE
No. 1, Reactor Operations and Nuclear Support Branch

8011170 250

SUMMARY OF FINDINGS

Enforcement Action

None

Licensee Action on Previously Identified Enforcement Items

- A. Item of Noncompliance - Region I Inspection Report 50-29/75-13, Detail 5.b.
- B. Item of Noncompliance - Region I Inspection Report 50-29/74-16, Detail 15.b.(2).

The licensee's corrective action with respect to the above Items of Noncompliance were reviewed and found to be acceptable and complete. (Details 16 and 20, respectively)

Design Changes

Not Inspected

Unusual Occurrences

About 4:30 A.M. on January 13, 1976, an electrical ground developed in one of four reactor coolant pump motor stators, causing a power surge which resulted in tripping another coolant pump. The 2 of 4 operating reactor coolant pumps caused a low flow reactor trip from approximately eighty percent power. The electrical ground is suspected to be due to leakage of the primary coolant to the pump stator. No spare pump is available at the facility.

The current core is limited to four pump operation by Technical Specifications since three pump operation was not analyzed in the core safety analysis. Duration of the outage is expected to be either three or four weeks.

Other Significant Findings

A. Current Findings

1. Acceptable Areas

- a. Shift Logs and Operating Records. (Detail 3)
- b. Plant Tour. (Detail 4, except Detail 4.c.(1))
- c. Semi-Annual Report. (Detail 5, except Detail 5.c.(1))
- d. Organization and Administration. (Detail 6)
- e. Reportable Occurrences. (Detail 7)
- f. Startup Program. (Detail 8)
- g. Power Distribution. (Detail 9)
- h. Reactivity Balance. (Detail 10)

2. New Unresolved Items

- a. Reported Radiochemistry Data. (Detail 5.c.(1))
- b. Reportable Occurrence 75-11. (Detail 7.d)
- c. Reportable Occurrence 75-12. (Detail 7.e)
- d. Reportable Occurrence 75-17. (Detail 7.i)
- e. Procedure Changes. (Detail 12)

3. Licensee Identified Items of Noncompliance

a. Infractions

- (1) Contrary to Technical Specification D.2.d.(3), the high pressurizer level trip was found to be set in excess of 200 inches. (Detail 7.e)
- (2) Contrary to Technical Specification Table 1, the reactor was brought critical with one rather than two operable intermediate range nuclear instrumentation channels. (Detail 7.j)

b. Deficiencies

None

B. Status of Previous Unresolved Items

1. The following items were reviewed and are considered resolved:

- a. Steam Generator Tube Failure Procedure. (Detail 11)
- b. Quality Assurance Review of ECCS Modifications. (Detail 13)
- c. Use of the Term "NA" in Procedures. (Detail 15)
- d. Plant Records Program. (Detail 19)
- e. Low Pressure Safety Injection Pump Flows. (Detail 21)
- f. Polar Crane Control Circuit Failure. (Detail 22)
- g. Pressurizer Surge Line and ECCS Ring Header Hangers. (Detail 23)
- h. Corrections to Reactor Containment Building Integrated Leak Rate Test Report. (Detail 24)
- i. Special (Night) Orders Log. (Detail 25)
- j. Redundant Low Main Coolant Flow Trip. (Detail 26)

2. The following items were reviewed and remain unresolved:

- a. Switching Log. (Detail 4.c.(1))
- b. Modification Drawings. (Detail 14)
- c. Reportable Occurrence 75-7. (Detail 17)
- d. Plant Ventilation System. (Detail 18)
- e. Identification of Safety Related Instruments and Controls. (Detail 28)

C. Licensee Action on Previously Identified Deviation

The licensee has completed corrective action on the Deviation identified in Region I Inspection Report 50-29/75-03, Detail 75-03. (Detail 27)

Management Interviews

A. Entrance Interview

A pre-inspection interview was conducted onsite at the beginning of the inspection on January 12, 1976, with the following licensee personnel in attendance:

Mr. H. A. Autio, Plant Superintendent
Mr. J. L. Staub, Technical Assistant to Plant Superintendent
Mr. N. N. St. Laurent, Assistant Plant Superintendent

The licensee was requested to identify any unusual operating events since the last inspection and to discuss possible aircraft overflights of the facility. The licensee identified no operational problems that related to plant safety or radiological health. The licensee stated that aircraft overflights of the facility seldom occurred.

During the pre-inspection meeting, the inspector identified the scope and objectives of the inspection and scheduled an exit meeting for January 16.

B. Exit Interview

An exit interview was conducted onsite at the conclusion of the inspection on January 16, with the following licensee personnel in attendance:

Mr. H. A. Autio, Plant Superintendent
Mr. W. D. Billings, Chemistry and Health Physics Supervisor
Mr. R. L. Boutwell, Technical Assistant to TAPS
Mr. T. P. Danek, Operations Supervisor
Mr. D. J. Kauppinen, Engineering Assistant
Mr. P. E. Laird, Maintenance Supervisor
Mr. L. L. Reed, Quality Control and Audit Coordinator
Mr. J. H. Shippee, Instrument and Control Supervisor
Mr. J. L. Staub, Technical Assistant to Plant Superintendent (TAPS)
Mr. N. N. St. Laurent, Assistant Plant Superintendent
Mr. D. B. Vassar, Assistant Operations Supervisor

The scope and objectives of the inspection were discussed and the inspection findings were presented as they appear in this report.

DETAILS

1. Persons Contacted

Mr. H. A. Autio, Plant Superintendent
Mr. R. L. Berry, Technical Assistant to TAPS
Mr. W. D. Billings, Chemistry and Health Physics Supervisor
Mr. T. P. Danek, Operations Supervisor
Mr. M. W. Ebert, Reactor Engineer
Mr. R. L. Eppinger, Technical Assistant to Reactor Supervisor
Mr. D. J. Kauppinen, Engineering Assistant
Mr. L. J. Laffond, Control Room Operator
Mr. P. E. Laird, Maintenance Supervisor
Mr. T. K. Henderson, Technical Assistant to Reactor Supervisor
Mr. W. Howe, Security Chief
Mr. W. H. Moynahan, Administrative Supervisor
Mr. R. C. Pettengill, Control Room Operator
Mr. L. L. Reed, Quality Control and Audit Coordinator
Mr. I. R. Seybold, Plant Health Physicist
Mr. J. H. Shippee, Instrument and Control Supervisor
Mr. J. L. Staub, Technical Assistant to Plant Superintendent (TAPS)
Mr. N. N. St. Laurent, Assistant Plant Superintendent
Mr. E. R. Taylor, Shift Supervisor

2. Inspection Purpose

The inspector stated that the purpose of the inspection was to:

- a. Review Unresolved Items identified in previous inspections.
- b. Review selected Nonroutine Event Reports.
- c. Review selected items related to startup and power distribution measurements.
- d. Review licensee organization and administration.
- e. Review plant operations.
- f. Review semi-annual reports.

The licensee acknowledged this information.

3. Shift Logs and Operating Records

a. Shift logs and operating records were reviewed to verify that:

- (1) Log sheets were filled out and initialed.
- (2) Logs were being maintained and reviewed in accordance with plant procedures.
- (3) Operating Memos and Special Orders did not conflict with the Technical Specifications.
- (4) Jumpers or Bypasses did not result in operations contrary to the Technical Specifications.
- (5) Plant Information Reports confirmed that problems addressed did not result in violations of Technical Specification reporting or LCO requirements.

b. The review included discussions with licensee personnel and review of Technical Specifications and the following plant procedures, shift logs and operating records:

AP-0001 Plant Procedures, Rev. 4, dated 6/13/75.

AP-0004 Plant Information Reports, Rev. 2, dated 8/15/75.

AP-0018 Bypass of Safety Function and Jumper Control, Rev. 2, dated 9/5/75.

AP-0021 Operating Memos, Rev. 1, dated 12/20/74.

AP-0219 Maintenance of Operations Department Logs, Rev. 1, dated 6/15/74.

AP-2006 Special Orders, Rev. 0, dated 10/31/74.

Shift Supervisor (Operations) Log, 10/5/75 - 10/14/75 and 12/15/75 - 12/24/75.

Rowe Station Log 1, 10/5/75 - 10/14/75 and 12/15/75 - 12/24/75.

Rowe Station Log 2, 10/5/75 - 10/14/75 and 12/15/75 - 12/24/75.

Primary Plant Log Sheet, 10/5/75 - 10/14/75 and 12/15/75 - 12/24/75.

Secondary Plant Log Sheet, 10/5/75 - 10/14/75 and 12/15/75 - 12/24/75.

Operating Memos 2C-1, dated 8/27/75; 2P-1, dated 9/19/75; 2U-1, dated 11/15/75; 2U-3, dated 11/15/75; and 2DD-1, dated 11/9/75.

Night Order Book, 9/1/75 - 12/31/75.

Bypass of Safety Function and Jumper Control Log, 10/1/75 - 12/31/75.

Bypass of Safety Function Jumper Control Requests 75-73 through 75-216.

Plant Information Reports 75-6 through 75-12.

Minutes of Plant Operations Review Committee (PORC) Meetings 75-44 through 75-87.

- c. The inspector determined from his record review and discussions that the above inspection items were satisfied.
- d. During the review of Control Room Log Sheet, the inspector noted that Control Room Logs 1 and 2 contained frequent write-overs and some illegible entries and that these logs were not signed by individual operators. The general quality of these logs was found to be in contrast with the Primary and Secondary Plant Log Sheets which did not exhibit these characteristics. The Operations Supervisor drafted a memorandum on January 13, 1976, to all Shift Supervisor and Control Room Operators which required signing of the Control Room Logs and provided a method of correcting entries. The inspector reviewed this memorandum and had no further questions in this area at this time.
- e. During the review of Operating Memos, the inspector noted that the binder located in the Control Room which contained the memos also contained three non-related copies of plant operating procedures and miscellaneous data log sheets. One of the procedures in the binder, OP-2103, Rev. 1, Reactor Startup

and Shutdown, had been superseded by Rev. 2 on November 13, 1975, but was still available for use by the operators. The Operations Supervisor directed the removal of the above non-related procedures and log sheets from the Operating Memo binder and the destruction of the procedures. The above lack of procedural control appeared to be an isolated case. Also, the official procedures manual located in the control room contained the proper procedures. The inspector had no further questions in this area at this time.

4. Plant Tour

- a. The inspector toured accessible areas of the plant, including the Control Room, New Fuel Building, Spent Fuel Building, Safety Injection/Diesel Building, Primary Auxiliary Building and Vapor Container on January 12 and 14. The tours were conducted to verify that:
 - (1) Selected monitoring instrumentation was recording system/component parameters as required.
 - (2) Radiation controls were properly established.
 - (3) Plant housekeeping conditions were acceptable.
 - (4) No unusual fluid leaks or piping vibrations existed.
 - (5) Pipe hanger/seismic restraint settings and oil levels were satisfactory.
 - (6) Selected valves were properly positioned.
 - (7) Selected equipment tags were properly authorized and logged.
 - (8) The control room operators were aware of the reasons for lighted annunciators and had taken action specified in applicable alarm procedures.
 - (9) Plant tours conducted by the Plant Superintendent and Shift Supervisor are consistent with administrative procedures.
 - (10) Control Room manning was in conformance with the Technical Specifications and 10 CFR 50.54(k).

- b. The tours included discussions with licensee personnel, observation of the above conditions and components, measurement of actual radiation levels at selected areas of the Vapor Container and review of Technical Specifications and the following plant procedures and records:

AP-0017 Switching and Tagging Rules for Plant Equipment, Rev. 1, dated 10/25/75.

OP-8100 Establishing and Posting Controlled Areas, Rev. 2, dated 5/2/75.

Switching Log, 10/28/75 - 12/31/75.

- c. The inspector determined from his record review, discussions and observations during the plant tour that the above inspection items were satisfied, except as described below.

- (1) The format of the Switching Logs is such that an individual cannot easily determine all of the outstanding equipment tags in the plant. This item was previously identified as unresolved in Inspection Report 75-10, Detail 3.c.(1). The licensee had attempted to correct the problem by issuing a revision to AP-0017; however, the resulting log format did not substantially improve the ability to determine tag status. The licensee had recognized the continuing problem and is considering various methods for providing individual tag accountability as well as effective tag order control, and will subsequently issue another revision to AP-0017.

This remains as Unresolved Item pending completion of the licensee's corrective action.

5. Semi-Annual Reports

- a. Semi-Annual Reports and facility records relating to events, measurements or equipment performance associated with indications of failed fuel were reviewed to verify that:

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- (1) Information requested to be reported by the Technical Specifications has been reported.
 - (2) The report accurately reflects information documented in facility records.
- b. The review included discussions with licensee personnel and review of Technical Specifications and the following reports and facility records:
- Semi-Annual Operating Report, July - December 1974, Section V, Summary of Plant System Chemistry and Radiochemistry.
- Semi-Annual Operating Report, January - June 1975, Section V, Summary of Plant System Chemistry and Radiochemistry.
- Fuel Assembly Inspection Forms, Core X-XI Refueling for Assembly Nos. B-367, A-405, A-407, A-408, A-409, B-410, A-411, B-414, A-419, B-420 and A-423.
- Fuel Assembly Inspection Forms, Core XI-XII Refueling, for Assembly Nos. A-443, B-444, A-451, B-462, A-463, B-468, B-470, A-473 and A-475.
- c. The inspector determined from his record review and discussions that the above inspection items were satisfied, except as described below.
- (1) The reported values of maximum Iodine-131 concentration in the reactor coolant for the months of April and June 1975 were not consistent with facility radiochemistry records. The licensee will compare all radiochemistry data reported in Section V of the January - June 1975 Semi-Annual Operating Report with facility records and will submit a corrected Section V of the report.

This is an Unresolved Item pending completion of the licensee's corrective action.

6. Organization and Administration

- a. The licensee's organization and administration was reviewed to verify that:

- (1) The licensee's onsite organization structure is as described in the Technical Specifications.
 - (2) Personnel qualification levels are in conformance with applicable codes and standards.
 - (3) Authorities and responsibilities of licensee personnel are as delineated in the Technical Specifications and applicable standards.
 - (4) Shift crew composition and requirements for licensed personnel are in compliance with Technical Specifications.
 - (5) The onsite and offsite safety review committee makeup is as required by Technical Specifications.
 - (6) 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.
- AP-0003 Plant Operations Review Committee, Rev. 0, dated 2/11/74.
- YAEC Table of Organization dated 1/13/76.
- Operational Quality Assurance Manual.
- Shift Assignment Sheet, week of 1/11/76.
- Minutes of Plant Operations Review Committee (PORC) Meetings 75-44 through 75-87.
- Minutes of Nuclear Safety Audit and Review Committee (NSARC) Meetings 75-1-S through 75-17-S.

Semi-Annual Operating Reports, July - December 1974 and January - June 1975.

Personnel records of individuals assigned to positions according to the following functional level categories:

<u>Functional Level</u>	<u>Sample Size</u>
Managers	3
Supervisors	2
Professional-Technical	4
Operator-Technician-Repairman	6

- c. The inspector determined from his record review and discussions that the above inspection items were satisfied.

7. Reportable Occurrences

Reportable Occurrences discussed below were reviewed to verify that:

- the details were clearly reported;
- the corrective actions described were taken to prevent recurrences;
- the occurrences were reviewed and evaluated; and
- Technical Specifications were not exceeded.

These areas were satisfactory for the occurrences reviewed unless otherwise noted.

a. Reportable Occurrence 75-8

- References: (1) Region I Inspection Reports 50-29/75-10, Detail 18, and 50-29/75-16, Detail 11
(2) Licensee letters to Region I dated August 18 and 22, 1975

This occurrence concerned the development of an increased containment leakage rate while the plant was at 96% power. The leakage path was discovered to be through an improperly installed low pressure vent header flange. The inspector stated that the radiological aspects of this occurrence were considered to be satisfactorily evaluated by the licensee in Region I Report 50-29/75-16, Detail 11.

The inspector verified that the licensee's remedial actions of commencing a plant shutdown for the leak source in response to the increased leakage rate as indicated by the Vapor Container Continuous Leak Rate Monitoring System was in accordance with plant procedures during Region I Inspection 50-29/75-10. Followup action by the licensee to prevent recurrence included a revision to Procedure OP-2100, "Plant Startup from Cold Shutdown," to require verification that a flange and new gasket is properly installed on the vent header. The licensee also conducted a survey and determined two other penetrations (cavity purification line and demineralized water supply to the Vapor Container) that need to be checked when containment integrity is being established. The cavity purification line blank flange is now required by the latest revision of OP-2100 to be checked when containment integrity is being established and the demineralized water supply valve is checked closed and locked. The licensee is in the process of determining if it is necessary to add a blank flange to the demineralized water supply line. The licensee is also incorporating the low pressure vent header into the local leakage (Type B&C) testing program.

This is an Unresolved Item pending (1) completion of the licensee's efforts and (2) inspector review of low pressure vent header penetration leak rate data.

b. Reportable Occurrence 75-9

References: (1) Licensee letters to Region I dated September 8 and 16, 1975
(2) Licensee letters to Region I dated April 14 and 23, 1975

This occurrence concerned an inoperable Emergency Diesel Generator(#1) caused by a blown fuse in the control circuit. A similar occurrence on another generator(#3) was reported in Reference (2). The licensee's investigation has led him to believe that the blown fuses were initiated by control circuit supervisory lamp failures caused by increased voltages during battery charges.

The licensee's actions to prevent recurrence included (1) replacing the control circuit supervisory lamps with bulbs having a higher voltage rating, and (2) installing an alarm in the Control Room to give immediate notification to operators of control circuit failure. These actions are documented in PDCR 75-10, Procedure OP-5000.28, JO 75-123, JO 75-158, and MR 75-475 and were reviewed by the inspector. The licensee plans no further action at this time.

The inspector had no further questions concerning this matter.

c. Reportable Occurrence 75-10

References: (1) Licensee letters to Region I dated November 7 and 21 and December 9, 1975
(2) NRC letter to licensee dated December 11, 1975
(3) Region I Inspection Report 50-29/75-15, Detail 3

The inspector noted that Licensing had stated in Reference (2) that Licensing had reviewed the steam generator tube eddy current testing results for Steam Generators No. 1 and No. 4 and concluded that the tubes were in acceptable condition for continued safe operation of the plant with Core XII. The inspector had no further questions concerning this matter.

d. Reportable Occurrence 75-11

References: (1) Licensee letters to Region I dated November 10 and 21, 1975
(2) Licensee letter to Region I dated October 27, 1972

This occurrence concerned the failure during surveillance testing of two Vapor Container solenoid trip valves to actuate. The two valves in question control the position of 7 containment isolation valves. Failure of the two solenoid valves to operate prevented the VC isolation valves from closing as designed. The reactor was in a cold shutdown condition at the time of the occurrence.

The cause was attributed by the licensee to grooves worn in the trip latches due to vibration during normal operations. Corrective action was to file the latches to remove the grooves and to retest. The valves operated satisfactorily when retested. These actions are documented in Procedure OP-4610, JO 75-211, and MR 75-616 and were reviewed by the inspector.

The licensee stated that he would perform the test again during the current maintenance shutdown for repair of a main coolant pump motor and evaluate the need for increased surveillance testing based on the test results. Since one of the valves had previously experienced a similar failure in 1972 (Reference (2)), the licensee has initiated a study into the feasibility of replacing the valves or relocating the existing valves to locations with less vibrations.

This is an Unresolved Item pending completion of the licensee's efforts.

e. Reportable Occurrence 75-12

Reference: Licensee letter to Region I dated December 12, 1975

This occurrence concerned the high pressurizer level scram bistable setpoint being greater than the Technical Specification limit. The setpoint was found out of tolerance by 3" by the licensee during refueling shutdown surveillance testing. The cause was attributed to setpoint drift and the setpoint was reduced to 7" below the maximum TS trip value of 200" to account for drift.

The inspector reviewed Procedures OP-4626 and OP-6101 which documented that the trip was found at 203" and left at 193"; however, in reviewing the previous (7/74) surveillance results, the inspector determined that the setpoint had been incorrectly set at 203" and, therefore, setpoint drift was not the cause of the occurrence. The inspector stated that it appeared that OP-4626 needed to be revised to make it very clear when the TS trips are or are not met. The inspector also stated that a revised Licensee Event Report needed to be submitted. The licensee stated that OP-4626 would be revised and a revised LER would be submitted.

The inspector stated that plant operations during the interval 7/74 - 12/75 with the high level pressurizer trip set greater than the Technical Specification D.2.d.(3) value constituted an Item of Noncompliance and is considered to be an Infraction. Since the licensee identified this item and is taking timely corrective action to prevent recurrence, no response to this item is required; however, the licensee's actions to revise OP-4626 and to submit a revised LER are considered to be an Unresolved Item.

f. Reportable Occurrence 75-13

Reference: Licensee letter to Region I dated December 19, 1975

This occurrence concerned the failure to open during surveillance testing of a redundant solenoid operated relief valve on the safety injection accumulator. The redundant valve was operable. The cause of the failure was an open in the holding coil. The coil was replaced and the valve tested satisfactorily. These actions are documented in JO 75-226 and MR 75-638 and were reviewed by the inspector.

The inspector had no further questions concerning this matter.

g. Reportable Occurrence 75-14

Reference: Licensee letters to Region I dated November 24 and December 8, 1975

This occurrence concerned excessive leakage in an electrical penetration determined during routine Type B electrical penetration testing with the plant in a refueling shutdown condition. The penetration leakage was a result of a cracked gland nut sealing a cable passing through the penetration. The nut was replaced and a satisfactory leakage test was performed. These actions are documented in Procedures OP-5761 and OP-4702, MR 75-649, JO 75-233 and OQCA Inspection Check List dated 1/7/76 and were reviewed by the inspector. The licensee stated that a visual survey had been performed of all gland nuts as a followup on this occurrence and he had found no other nuts in need of replacement.

The inspector had no further questions concerning this matter.

h. Reportable Occurrence 75-16

Reference: Licensee letters to Region I dated December 1 and 12, 1975

This occurrence concerned the failure of a containment isolation valve to pass a Type C surveillance test with the plant in a refueling condition. The valve internals were repaired and a satisfactory Type C test was performed. The licensee stated that the nature of the problem did not indicate a generic problem was involved. The licensee's actions are documented in JO 75-240, MR 75-664 and Procedure OP-4702 and were reviewed by the inspector.

The inspector had no further questions concerning this matter.

i. Reportable Occurrence 75-17

Reference: Licensee letter to Region I dated January 2, 1976

This occurrence concerned the setpoint of the Loop No. 1 isolated loop ΔT interlock being set at 100°F greater than the Technical Specification value of 300°F. The incorrect setpoint was attributed to the associated temperature channel being out of calibration. The channel was recalibrated and the setpoints of all loop channels were reduced to 25°F to account for the drift. The licensee's actions to reset the setpoints are documented in Procedure OP-6200 and were reviewed by the inspector.

The inspector stated that the licensee's corrective action to prevent recurrence would be reviewed further during a subsequent inspection. This matter is an Unresolved Item pending completion of the inspector's review.

j. Reportable Occurrence 75-18

Reference: Licensee letter to Region I dated January 13, 1975

This occurrence concerned the discovery upon reaching criticality during the control rod worth measurement phase of zero power physics testing, that one intermediate range compensated ion chamber was inoperable due to power leads being reversed. The cause was attributed to personnel error when the detector leads were incorrectly connected during the refueling shut-down. Personnel were reminded of the need to exercise care in performing this operation to prevent recurrence.

The inspector stated that bringing the reactor critical with only one of two intermediate channels operable was contrary to the TS Table 1 requirement for two operable channels. This is an Item of Noncompliance and is considered to be an Infraction. Since the licensee identified this item, corrected it, and has taken action to prevent recurrence, no response to this item is required.

8. Startup Program

The inspector reviewed selected raw data to verify that the licensee had conducted the startup program specified in Section 9 of "Yankee Nuclear Power Station Core XII Performance Analysis." The inspector reviewed the portions of Procedures OP-1701, OP-4703 and OP-7103 dealing with control rod position and operability checks, control rod drop times, and measurement of dropped rod worth.

The licensee is in the process of reviewing startup physics data and preparing the startup report required by TS E.1.a. The inspector stated that this area would be reviewed further after the licensee submits that report.

9. Power Distribution

The inspector reviewed an analysis of incore flux traces taken on December 30, 1975. The results of that analysis limited power to 76.3% in accordance with the linear heat generation rate restrictions imposed by Technical Specification D.2.c. The licensee was using Supplement 6 to Proposed Change No. 125 as a limit since that document was more conservative than the approved TS. The Manager of Operations by memo dated December 16 had directed the use of the more conservative limit.

The inspector had no further questions concerning this matter.

10. Reactivity Balance

The inspector reviewed plots of excess reactivity data as a function of burnup and time for Core XI and XII. The data showed that there were no reactivity anomalies requiring reporting in accordance with Technical Specification D.2.a.(9).

The inspector had no further questions concerning this matter.

11. Steam Generator Tube Failure Procedure

Reference: Region I Inspection Report 50-29/75-17, Detail 4

The inspector reviewed procedure OP-3107, "Steam Generator Tube Failure," and the statements made in the Safety Evaluation issued with Amendment 21 to the operating license (DPR-3). The Safety Evaluation states that the loop isolation valves will be open during power operation but does not restrict the closing of these valves with the reactor shutdown. The restriction is imposed to protect against the inadvertent actuation of these valves.

Procedure OP-3107 does not permit the closing of the loop stops in a loop having a steam generator tube failure until the operator has verified that the plant is shutdown (subcritical) and definitely determined from several steam generator parameters that a steam generator tube has failed. OP-3107 calls for isolation of the affected main coolant loop within 30 minutes of the failure. This timing is consistent with the analysis of the steam generator tube rupture analysis in the Final Hazards Summary Report (Page 410:02), Yankee Nuclear Power Station Core XII Performance Analysis (Page 50, Section 7.9), and Technical Specification B.3.

The inspector stated that the use of the main coolant loop isolation valves as specified in OP-3107 after the plant is shutdown to terminate the loss of reactor coolant from a failed steam generator tube is not contrary to the Safety Evaluation supporting Amendment 21 and such isolation is consistent with the Performance Analysis incorporated by reference into Technical Specification B.3. The licensee stated that he had concluded that use of the loop isolation valves in accordance with OP-3107 did not represent an unreviewed safety question. The Unresolved Item identified in the referenced report is considered resolved.

12. Procedure Changes

Reference: Region I Inspection Report 50-29/75-17, Detail 3.a.(1)(c)

- a. The inspector reviewed the status of the licensee's efforts to revise procedures to remove references to 3 loop operation since 3 loop operation is not currently permitted by Technical Specifications. The licensee had completed that review and revised procedures as necessary. The inspector had no further questions concerning this matter.

- b. The licensee had drafted revisions to Annunciator Alarm Procedures affected by the recent ECCS modifications. These procedures are in the review process.
- c. The licensee had drafted a revision to OP-5101, "Maintenance of Motor Operated Valves," to include instructions for re-installing MOV cables lifted to comply with the Technical Specifications.

The inspector stated that items b. and c. above are considered to be an Unresolved Item pending completion of the licensee's effects.

13. Quality Assurance Review of ECCS Modifications

Reference: Region I Inspection Report 50-29/75-17, Detail 3.a.(2)(d)

The licensee informed Region I by telephone on December 12, 1975, that quality assurance personnel had reviewed the documentation, including drawings, associated with Attachments A, B, and C of OP-5000.36, "Installation of Modifications to Prevent Single Failure," and concluded that (1) the ECCS modifications covered by those attachments were completed and correctly accomplished and (2) the drawings were those intended for the modification. The inspector reviewed documentation of that QA review during the inspection and interviewed the QA personnel involved. The inspector stated that the licensee's action resolves the concern identified in the referenced inspection report.

14. Modification Drawings

Reference: Region I Inspection Report 50-29/75-17, Detail 3.a.(2)(c)

During the referenced inspection, the inspector found that two drawings used in implementing Engineering Design Change Request 75-28 were marked "Not Approved Copy." As noted in Detail above, the licensee verified that the drawings marked "Not Approved Copy" were the same drawings approved by engineering personnel as part of the EDCR 75-28 package. The licensee stated that the stamp "Not Approved Copy" was only intended to inform personnel that the drawings were not to be copied for distribution until final engineering drawings were made after completion of the field modification efforts.

The inspector reviewed with the Manager of Operations the licensee's practice of stamping drawings approved for EDCR implementation. The inspector stated that each copy of drawings approved with an EDCR should be clearly marked to indicate that the drawings were approved for implementation of the design change but were not approved for copying for distribution. The inspector stated that the practice of stamping drawings "Not Approved Copy" was confusing. The licensee agreed and stated that the appropriate procedures would be revised to give guidance on the marking of drawings to clearly indicate those drawings for implementation of design changes. The concern identified in the referenced report remains an Unresolved Item pending the licensee's revision of the procedures.

15. Use of the Term "NA" in Procedures

Reference: Region I Inspection Report 50-29/75-10, Detail 17

The inspector's review of completed procedures during the inspection indicated that the licensee had begun annotating reasons on procedures when certain procedural evolutions are not required. These annotations are reviewed by department supervision upon completion of procedures. The licensee had drafted a revision to Procedure AP-0001, "Plant Procedures," to prohibit the use of NA (not applicable) and to give guidance on how to clearly annotate a procedural step or series of steps that are not to be performed. The licensee's actions in annotating procedures resolves the concern identified in the referenced report.

16. Inventory of Offsite Emergency Kit

References: (1) Region I Inspection Report 50-29/75-13, Detail 5.b
(2) Licensee letter (WYR 75-132) to Region I dated November 18, 1975

The inspector interviewed the individual responsible for conducting inventories of the offsite emergency kit and reviewed the results of Procedure OP-3304, "Emergency Equipment Readiness Check," completed on October 25, 1975. The individual indicated that members of the HP organization had been reminded of the necessity to quarterly confirm that the emergency equipment at North Adams Hospital is in place and in acceptable condition. The results of OP-3304 indicated that an acceptable readiness check had been made on October 25. The inspector stated that the licensee's actions resolve the Item of Noncompliance identified in Reference (1).

17. Reportable Occurrence 75-7

References: (1) Licensee letters to Region I dated August 8 and 15, 1975
(2) Region I Inspection Report 50-29/75-10, Detail 6.b

The subject occurrence concerned a vibration induced crack in a nozzle to flange weld on the charging header. The licensee has completed his evaluation of the occurrence and has decided to install pulsation dampeners and sweep elbows to prevent recurrence. This remains an Unresolved Item pending the licensee's completion of system modifications.

18. Plant Ventilation System

Reference: Region I Inspection Report 50-29/75-16, Detail 10

Modification of the plant ventilation system is complete with the exception of minor flow balancing in cubicles in the Primary Auxiliary Building; total flow through the system has been judged to be acceptable. The licensee is considering the installation of additional flow rate monitoring instrumentation in the vent stack and sample lines.

The inspector reviewed selected system operating procedures affected by the ventilation system modifications and noted that the procedures had been revised to reflect the modifications. Procedures reviewed were OP-2380, OP-2383, OP-2386, OP-2478, OP-2601 and OP-3117.

The inspector stated that the Unresolved Item identified in Reference (1) would remain unresolved pending

- a. Final system flow balancing (i.e., licensee completion of OP-2000.22, "Preoperational and Acceptance Testing of the Filtered Ventilation Exhaust and V.C. Purge System.")
- b. Inspector review of in-place testing results of HEPA and charcoal filters.
- c. Determination of need for additional flow instrumentation in stack and sample lines.
- d. Completion of EDCR 74-3, "Filtered Exhaust Ventilation System."

These items will be reviewed during a subsequent inspection.

19. Plant Records Program

- References: (1) Region I Inspection Report 50-29/74-16, Detail 15.b.(1)
(2) Licensee letter (WYR 75-46) to NRC dated April 24, 1975

The licensee submitted as Reference (2) a proposed Operational Quality Assurance Program. This program included the licensee's records system requirements. The submission of these proposed requirements resolves the concern identified in Reference (1).

20. Fireproof Files

- References: (1) Region I Inspection Report 50-29/74-16, Detail 15.b.(2)
(2) Region I Inspection Report 50-29/75-03, Detail 23

The inspector visually verified that the QA documents identified in Reference (1) have been stored in fireproof file cabinets. The licensee's action resolves the Item of Noncompliance identified in Reference (1).

21. Low Pressure Safety Injection Pump Flows

- References: (1) Region I Inspection Report 50-29/74-14, Detail 4.d.(3)
(2) Region I Inspection Report 50-29/74-16, Detail 2
(3) Licensee letter (WYR 75-108) to Region I dated September 19, 1975

The inspector reviewed Revision 2 of Procedures OP-4208, "Flow Test of Two LPSI Pumps on Normal A.C. Power," and OP-4206, "Flow Test of Two HPSI Pumps on Normal A.C. Power." These revised procedures incorporate provisions to use both the Shield Tank Cavity level change and Safety Injection Tank level change during the flow tests to make flow determinations.

The inspector reviewed test results of a flow test (OP-4208) of LPSI pumps 1, 2, and 3 and a flow test (OP-4206) of HPSI pumps 1 and 3 on November 1975. These tests revealed good agreement between the latest gallons/inch calculation for the Shield Tank Cavity and the gallons/inch calculation for the Safety Injection Tank. The test results indicate acceptable flows of approximately 2350 gpm for the LPSI pumps and 500 gpm for the HPSI pumps. The inspector noted that the LPSI results were well above the 2150 gpm flow value assumed in the Core XII ECCS analysis.

The licensee concluded in Reference (3) that based on a revised ECCS analysis using a reduced LPSI flow value the plant was never operated in nonconformance with the ECCS requirements of 10 CFR 50.46.

The actions by the licensee as discussed above satisfactorily resolves the concerns identified in References (1) and (2).

22. Polar Crane Control Circuit Failure

References: (1) Region I Inspection Report 50-29/74-06, Detail 16.b
(2) Region I Inspection Report 50-29/75-03, Detail 12

The inspector reviewed documentation related to Plant Modification 75-17, "VC Polar Crane Redundant Upper Limit Interlock." On October 19, 1975, the licensee completed this modification which included the installation of a redundant upper limit switch on the main hook and the installation of overspeed limit switches on both the main and auxiliary hooks. The concern originally identified in Reference (1) is resolved.

23. Pressurizer Surge Line and ECCS Ring Header Hangers

References: (1) Region I Inspection Report 50-29/74-16; Detail 4.c.(8)
(2) Region I Inspection Report 50-29/75-03, Detail 3.d.(4)
(3) Region I Inspection Report 50-29/75-10, Detail 10

The inspector determined from a review of completed procedures that the licensee made cold setting adjustments to the pressurizer surge line spring hangers during the refueling shutdown. Representatives from the licensee's corporate engineering office visually inspected the ECCS ring header pipe hangers (rigid) in August 1975 and concluded that the hangers as adjusted by the plant were acceptable. These actions resolve the concern identified in Reference (1).

24. Corrections to Reactor Containment Building Integrated Leak Rate Test Report

References: (1) Region I Inspection Report 50-29/75-10, Detail 5.b
(2) Licensee letter (WYR 75-97) to Region I dated September 2, 1975

The licensee submitted as Reference (2) corrections to Summary Technical Report No. 1074, "Reactor Containment Building Integrated Leak Rate Test." That submittal resolves the concern identified in Reference (1).

25. Special (Night) Orders Log

Reference: Region I Inspection Report 50-29/75-10, Detail 3.c.(2)

The inspector reviewed the Special (Night) Orders Log and found that the licensee had updated the log to enable operators to readily determine all outstanding orders. The licensee stated that he periodically reviewed the log and reminded operators of any old orders that are still in effect. The concern identified in the referenced report is resolved.

26. Redundant Low Main Coolant Flow Trip

References: (1) Region I Inspection Report 50-29/74-16, Detail 13.b.(2)
(2) Region I Inspection Report 50-29/75-03, Detail 19
(3) NRC letter (Technical Specification Change 118) dated July 16, 1975

The inspector verified that, during the 1975 refueling shutdown, the licensee reconnected the original low main coolant flow instrumentation using ΔP signals across the steam generators. Both the electrical current dependent and ΔP dependent flow trips have been set in accordance with Technical Specification Table 1 values which were approved by Licensing in Reference (3). The concern identified in Reference (1) is resolved.

27. Individual Rod Position Indication

References: (1) Region I Inspection Report 50-29/75-03, Detail 3.d.(3)
(2) Licensee letter (WYR 75-121)

The inspector verified that the licensee had replaced the individual (primary) rod position indication lights with light emitting diodes. The modified system appeared to be working reliably during the inspection. The licensee's action resolves the Deviation identified in Reference (1).

28. Identification of Safety Related Instruments and Controls

Reference: Region I Inspection Report 50-29/74-16, Detail 13.b.(1)

The licensee stated that a document had been drafted which identified safety related instruments and controls at the plant. The final document is expected to be issued by June 1976. This remains an Unresolved Item.