J. Davis

WISCONSIN PUBLIC SERVICE CORPORATION

Public Service

P.O. Box 1200, Green Bay, Wisconsin 54305

August 9, 1974

U. S. Atomic Energy Commission
Directorate of Regulatory Operations,
Region III
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Attention: Mr. James G. Keppler
Regional Director

Dear Mr. Keppler:

Reference: Docket 50-305
Operating License DPR-43
Letter from Mr. J. Keppler to Mr. E. W. James
dated July 22, 1974

This response is submitted in answer to the four apparent violations of AEC Regulations indicated and identified in Reactor Operations Inspection Report 050-305/74-10.

The activities that appear to be in violation of AEC Regulations as identified below are in reference to Technical Specifications Sections 4.1.a, Table TS 4.1-1.26; 3.5.c, 6.6.2.a; and 6.4.b. The items are identified per report details.

1. Paragraph 6 - Technical Specifications, Section 4.1.a, Table TS 4.1-1.26 requires that protective system logic channels be tested monthly. The protective system logic required to be operable at power levels greater than 10% had not been tested within the time allowable by Table TS 4.1-1 and is a violation of Technical Specification Section 4.1.a.

   Response

   We agree that the logic tests were not performed soon after we reached a power level greater than 10%. They were scheduled to be performed on the next monthly test. The procedure has undergone revision and we believe that with our computerized surveillance test program these tests will not be overlooked in the future.

2. Paragraph 7 - Lack of low flow protection for Loop A while Train B logic test was being performed, with a fault in Loop A flow channels.

COPY SENT TO: PDR ✓
LPDR ✓
NSIC ✓
TIC ✓

50-305 map

Response

When the problem was discovered with the Loop A flow signals, it was not apparent that going to hot shutdown was required. Since it was not known whether Loop B flow signals were operable, it was decided that subjecting the plant to a controlled transient, going from approximately 50% power to hot shutdown, without knowing whether flow protection was available was a less safe condition than verifying that Loop B flow signals were operable. While Loop B flow channels were under test, the operator was instructed to observe flow and take the necessary corrective action in the event of a change in flow. The test in Loop B flow channels took approximately 17 minutes, which is less time than it would take for an orderly shutdown. Although the plant is allowed to be maneuvered at a rate of 5% per minute on a shutdown, it has been our practice to reduce power at a much slower rate to not create any undue system disturbances.

We did not report this as an abnormal occurrence as noted in Action Item 4 of Summary of Findings since our interpretation of the technical specifications was that the remaining flow channels (Loop B) were operable, repairing Loop A flow channel relays was similar to having Loop A flow in test. In the future a similar event, should it occur, will be discussed with the Resident Inspector prior to taking any action, except for the immediate actions required by the Tech Specs.

3. Paragraph 8 - Failure to comply with Section 6.4.b of the Technical Specifications.

Response

We agree that the procedure generated by the equipment vendor and performed by WPS personnel was not reviewed and approved in accordance with the technical specification requirements. We have been stressing to all maintenance and supervisory staff personnel that all procedures which have not been approved be presented to the Plant Operations Review Committee for review and approval.

Sincerely,

E. W. James
Senior Vice President
Power Generation & Engineering

EWJ:sna

cc - Dr. D. F. Knuth, US AEC - Director, DRO
Mr. Dwane Boyd, US AEC - Resident Inspector

DR Central File

UNITED STATES
ATOMIC ENERGY COMMISSION
DIRECTORATE OF REGULATORY OPERATIONS
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

TELEPHONE
(312) 858-2660

July 11, 1974

H. D. Thornburg, Chief, Field Support and Enforcement Branch,
Regulatory Operations, Headquarters

THRU: G. Fiorelli, Chief, Operations Branch

WISCONSIN PUBLIC SERVICE (KEWAUNEE)
INSPECTION REPORT NO. 50-305/74-10

During the subject inspection one item of possibly generic interest and two Technical Specification problems were identified for which Headquarters action is requested.

We request technical review of the adequacy of the diesel generator "Not in Auto" alarm circuit as a possible generic problem which may be applicable to other alarms at this and other facilities. This particular problem was identified by the licensee during investigation of a failure of the diesel generator to start. The local mode switch with positions "Manual," "Off" and "Auto" was not fully turned to the "Auto" position which prevented automatic action. This improper switch position was not annunciated in the control room due to the circuit design which gives a "Not in Auto" alarm only when the switch is fully in either "Manual" or "Off," and does not give a true "Not in Auto" signal between positions.

We recommend that the W Standard Technical Specification wording be adopted for the definitions of abnormal occurrence. The present abnormal occurrence definition 1.a.1.d does not include the "assumed failure of any other single component" statement which has been given as an interpretation to Point Beach and is included in certain draft Technical Specifications including D. C. Cook.

We request clarification of the intent of the provision of Technical Specification 3.5.d which allows the licensee to block a failed channel to prevent an unnecessary reactor trip while testing another channel for approximately four hours duration. We understand that during such testing of a 2 out of 3 logic system the particular protective function which is provided by the sensors may be totally inoperative. The licensee extended this provision to include a low primary coolant loop flow logic failure which caused one logic train to be inoperative. The licensee bypassed the other logic train to

LB

verify operability of that redundant train. During this testing no low flow trip was operable for the affected primary coolant loop. It is RO III's position that continued operation with only one logic train for a trip function and bypassing the operable train for testing is a violation of Technical Specification requirements. We request verification of this position regarding failure in a protective train.

E. L. Jordan
Senior Inspector
Projects Unit 2

cc: J. G. Keppler
J. G. Davis, RO:HQ
B. H. Grier, RO:HQ
DR Central Files
RO Files

DL Central File

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verify operability of that redundant train. During this testing no low flow trip was operable for the affected primary coolant loop. It is RO III's position that continued operation with only one logic train for a trip function and bypassing the operable train for testing is a violation of Technical Specification requirements. We request verification of this position regarding failure in a protective train.

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Projects Unit 2

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J. G. Davis, RO:HQ
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DR Central Files
RO Files

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JUL 22 1974

Wisconsin Public Service Corporation
ATTN: Mr. E. W. James, Senior Vice President
Power Generation & Engineering
Post Office Box 1200
Green Bay, Wisconsin 54305

Docket No. 50-305

Gentlemen:

This refers to the inspection conducted by Mr. C. Feierabend of this office on May 9-10 and May 20-21, 1974, of activities at Kewaunee authorized by AEC Operating License No. DPR-43 and to the discussion of our findings with Mr. Luoma during and at the conclusion of the inspection.

A copy of our report of this inspection is enclosed and identifies the areas examined during the inspection. Within these areas, the inspection consisted of a selective examination of procedures and representative records, interviews with plant personnel, and observations by the inspectors.

During this inspection, it was found that certain of your activities appear to be in violation of AEC requirements. The items and reference to the pertinent requirements are listed under Enforcement Action in the Summary of Findings Section of the enclosed inspection report.

This notice is sent to you pursuant to the provisions of Section 2.201 of the AEC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations. Section 2.201 requires you to submit to this office within twenty days of your receipt of this notice, a written statement or explanation in reply, including: (1) corrective steps which have been taken by you, and the results achieved; (2) corrective steps which will be taken to avoid further violations; and (3) the date when full compliance will be achieved. Such a statement or explanation should be provided for each of the items listed.

In accordance with Section 2.790 of the AEC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of this notice, the enclosed inspection report, and your response to this notice will be placed in the AEC's Public Document Room. If this report contains any information that you or your contractors believe to be proprietary, it is necessary that you make a written application to this office, within twenty days of your receipt of this notice, to withhold such information from public disclosure. Any

JUL 22 1974

such application must include a full statement of the reasons for which it is claimed that the information is proprietary, and should be prepared so the proprietary information identified in the application is contained in a separate part of the document. Unless we receive an application to withhold information or are otherwise contacted within the specified time period, the written material identified in this paragraph will be placed in the Public Document Room.

Should you have any questions concerning this inspection, we will be glad to discuss them with you.

Sincerely yours,

James G. Keppler
Regional Director

Enclosure:
RO Inspection Rpt No. 050-305/74-10

bcc: RO Chief, FS&EB
RO:HQ (4)
Licensing (4)
DR Central Files
RO Files
PDR
Local PDR
NSIC
DTIE
OGC, Beth, P-506A
R. Renfrow, GC (2)

U. S. ATOMIC ENERGY COMMISSION
DIRECTORATE OF REGULATORY OPERATIONS

REGION III

Report Operations Inspection

RO Inspection Report No. 050-305/74-10

Licensee: Wisconsin Public Service Corporation
P. O. Box 1200
Green Bay, Wisconsin 54305

Kewaunee Nuclear Power Plant
Kewaunee, Wisconsin

License No. DPR-43
Category: B

Type of Licensee: PWR 560 Mwe (W)

Type of Inspection: Special, Announced

Dates of Inspection: May 9-10, 1974 and May 20-21, 1974

Dates of Previous Inspection: March 25-27, 1974; April 1-3 and 7, 1974

Principal Inspector: for C. D. Feierabend — 7/17/74 (Date)

Accompanying Personnel: for D. O. Boyd (May 20-21) — 7/17/74 (Date)

Reviewed By: E. L. Jordan
Senior Reactor Inspector — 7/17/74 (Date)

SUMMARY OF FINDINGS

Enforcement Action

The following violations are considered to be of Category II severity:

1. Technical Specification Section 4.1.a requires that protection system logic which is required to be operable above 10% power must be surveillance tested within the time allowable by Table TS-4.1-1 (within 30 days).

   Contrary to the above, the logic that is required to be operable above 10% had not been tested during the interval since preoperational testing in February until May 8, 1974 although operations were conducted above 10% power shortly after authorization on April 7, 1974. (Paragraph 7)

2. Limiting Condition for Operations, Technical Specification Section 3.5.c states that "If for Tables TS 3.5-2 through TS 3.5-4 the number of channels of a particular sub-system in service falls below the limits given in Column Three, or if the values in Column Four cannot be achieved, operation shall be limited according to the requirement shown in Column 6, as soon as practicable."

   Item 10, Table TS 3.5-2 requires two (2) minimum operable channels (Column 3) and one (1) degree of redundancy (Column 4) or operator action to "Maintain hot shutdown" (Column 6) if conditions of Column 3 or 4 cannot be met.

   Contrary to the above, on May 8, 1974 plant operation was permitted to continue at approximately 50% of rated power with no operable channels for loop "A" reactor coolant low flow reactor trip protection. (Paragraph 7)

3. Technical Specification 6.4 states that detailed written procedures, including applicable check-off lists and instructions, shall be prepared, approved and adhered to for actions taken to correct malfunction of systems or components and for preventive and corrective maintenance operations which could have an effect on the safety of the plant. Technical Specification 6.4 also requires review of the above procedures by the Plant Operations Review Committee and approval by the Plant Superintendent prior to implementation.

   Contrary to the above, performance of safeguards system logic testing on May 8, 1974 which resulted in an accidental reactor trip and SI initiation was performed without the benefit of detailed written and properly approved procedures. (Paragraph 8)

The following violation is considered to be of Category III severity:

4. Technical Specification Section 6.6 requires that any abnormal occurrence as specified in Section 1.0 of the Technical Specifications shall be reported to the Atomic Energy Commission within 24 hours.

   Contrary to the above, the violation of limiting conditions for operation, described in item 2 above, was not reported to the Atomic Energy Commission.

Licensee Action On Previously Identified Enforcement Matters

A. Procedures for Abnormal Valve Lineup (RO Inspection Report No. 050-305/73-03)

   Licensee Administrative Control Procedure ACD 4.3, Tagout Log, has been approved and implemented. This item is considered resolved.

B. Inoperable Rod Position Indicator Channels (RO Inspection Report No. 050-305/74-09)

   Not inspected. Licensee reply had not yet been received.

D. Maintenance Procedures Approval (RO Inspection Report No. 050-305/74-09

   Licensee reply had not yet been received. Enforcement Action Item 3 above identifies a similar violation.

Unusual Occurrences

A. Several reactor trips occurred during power escalation testing. (Paragraph 5)

B. A crack in the casing of the feedwater pump 1B required shutdown for repairs. (Paragraph 4)

C. A diesel generator failed to start on signal for automatic start. An abnormal occurrence report[1/] was forwarded. (Paragraph 3)

D. Surveillance testing of the reactor protective system logic identified a relay failure that would not allow the trip signal from the reactor coolant system "A" loop low flow to initiate a reactor trip. (Paragraph 7)

1/ WPS Letter Report to Licensing, No. 050-305/74-5, dated 5/3/74.

E. Testing of lamps (push-to-test) in a safeguards relay rack caused a reactor trip. Sugsequent troubleshooting to identify the cause inadvertantly initiated train "B" safety injection and reactor trip. No water was injected into the reactor coolant system, as the pumps had been placed in "pullout" for the test. (Paragraph 8)

Other Significant Findings

A. Current Findings

Power escalation testing had been completed through 50% of rated power. Testing at 75% power was in progress.

B. Unresolved Items

1. Repair of the feedwater pump and resolution of the pump and/or system design deficiencies. (Paragraph 4)

2. Licensee evaluation of the failure of annunciation of diesel generator control switch position, preventing auto start of a diesel generator. (Paragraph 3)

C. Status of Previously Reported Unresolved Items

1. Vibration of Charging Pump Discharge Lines (RO Inspection Report No. 050-305/73-19)

Action was not complete. This item remains unresolved.

2. Evaluation of Cause of Failures (RO Inspection Report No. 050-305/73-26)

Action was not complete. This item remains unresolved.

3. Licensee Evaluation of the Malfunction of the Spent Fuel Handling Tool (RO Inspection Report No. 050-305/74-01)

Action was not complete. This item remains unresolved.

4. Licensee Evaluation of Diesel Generator Air Start Malfunctions (RO Inspection Report No. 050-305/74-02)

Action was complete. This item is considered resolved.

5. Licensee Evaluation of the Failure of the Instrument Bus Power Supply (RO Inspection Report No. 050-305/74-05)

Not inspected. This item remains unresolved.

6. Licensee Investigation of Failure of Five Detection System Caused by Auxiliary Feedwater System Rupture Disc (RO Inspection Report No. 050-305/74-06)

Not inspected. This item remains unresolved.

7. Protective System Logic Test Deficiencies (RO Inspection Report No. 050-305/74-08)

Revision of test procedures had been completed, however, violations of Technical Specification requirements were identified. Resolution of Enforcement Action Item 1 above will resolve this item.

8. Licensee Evaluation of Generator Lockout Relays (RO Inspection Report No. 050-305/74-09)

Not inspected. This item remains unresolved.

Management Interview

The inspector conducted interviews with Mr. Luoma on May 10, 1974 and on May 21, 1974 at the conclusion of the inspection.

The inspector stated that the purpose of Mr. Boyd's participation in this inspection was to meet the licensee's plant staff in preparation for assuming responsibility for inspection. The inspector discussed the scope of the inspection and the results.

A. Feedwater Pumps

Feedwater pump repairs were in progress. The licensee stated that the testing performed to date indicated that power escalation testing through 75% can be completed with one feedwater pump.

B. Reactor Trips

The inspector stated that there still appeared to be more reactor trips than should be expected at this stage of testing. The licensee agreed that there had been more trips than anticipated but that identification of a cause of problems in the condensate system (Paragraph 9) should reduce the number of trips caused by the feedwater system.

C. Plant Operation Review Committees (PORC)

The inspector stated that he had reviewed the minutes of the PORC and noted that the time between completion of a meeting and forwarding of

the minutes for review (over a month) appeared to be excessive. The licensee stated that efforts would be made to improve the schedule.

D. Diesel Generator Controls

The inspector stated that the failure of a diesel generator to start, described in an Abnormal/Occurrence Report[2/] identified a questionable design philosophy in annunciator logic, in that the selector switch could indicate that the system was properly aligned when, in fact, it was not. (Paragraph 3)

The licensee stated that evaluation of the occurrence was not yet complete but operators have been cautioned to verify that the switches are solidly in the "Auto" position.

E. Violations of Technical Specifications

The inspector stated that, during the inspection, the following violations of Technical Specifications had been identified:

1. Surveillance Testing of Reactor Protection System (RPS) Logic

Surveillance testing of the RPS logic was not performed in accordance with the requirements of Technical Specifications. (Paragraph 6)

The licensee disagreed, and stated that he considered that the test was performed in accordance with the Technical Specifications, in that the test procedure had been completed at low power within the previous 30 days.

The inspector stated that the test performed at that time did not include any of the logic that is activated at approximately 10% power and that those portions of the logic test had not been performed within the previous 30 days, although the reactor had operated above 10% of power during this time. The inspector stated that his review of the surveillance test procedure indicated that the procedure was technically adequate for performing the logic tests in both cases, i.e., at levels below 10% and the alternative steps for testing above 10% power, but that control of scheduling the test did not require logic testing to be performed for the functions active above 10% as soon as practicable after reaching that level, if the tests had not been performed within the time allowable by Technical Specifications.

2. Surveillance testing of the reactor trip logic identified a relay failure which prevented the trip signal generated by the loop "A" low flow channels from initiatiating a reactor trip. (Paragraph 7)

The inspector stated that failure of a portion of the RPS logic that prevented a reactor trip signal from the coincident trip

2/ IBID.

channels is considered to be an abnormal occurrence. The inspector stated that during discussions of the occurrence it became apparent that there was a deficiency in the definition of abnormal occurrence in the Technical Specifications, and that a recommendation would be made to change the Technical Specifications.

The inspector stated that the action taken by the licensee to place the redundant logic train into test to demonstrate operability put the system in violation of Limiting Conditions for Operations, and that the definition for abnormal occurrence includes any plant condition that results in a violation of Limiting Conditions for Operation.

The licensee stated that the action taken was considered to be appropriate because the logic test could be done quickly (approximately 17 minutes) compared to a longer time to repair the system. The inspector stated that the Technical Specifications did not provide that alternative and that Table TS 3.5-2 is specific in requiring "Hot Shutdown" if the minimum instrument operability condition cannot be met.

3. Inadvertent Actuation of Safety Injection (SI) System

During a special test of a portion of the SI logic system inadvertent activation of Train "B" of the SI system initiated a reactor trip and subsequently caused overflow and dilution of a boric acid tank (BAT). The inspector stated that this appeared to be an abnormal occurrence. (No report was required based on the licensee's explanation)

The licensee disagreed that this was an abnormal occurrence as defined in Section 1.a of the Technical Specifications, as the requirement for concentration of the boric acid in the BAT was required by Section 3.2.b as conditions to be satisfied before the reactor was made critical and that the reactor trip initiated by the SI signal made the reactor subcritcal. The licensee stated that the concentration of one BAT was restored to meet the minimum requirements prior to again making the reactor critical and that it was the licensee's position that the occurrence did not result in a failure which could render the system incapable of performing its intended safety function.

The inspector stated that the procedure for the testing being conducted at the time inadvertent operation of the SI system occurred had not been reviewed and approved in accordance with Technical Specification requirements.

The licensee disagreed that there was a requirement for review and approval.

The inspector stated that any maintenance or test operation that involves lifting and replacing leads in a protection system can affect nuclear safety and requires review by the PORC and approval by the Plant Superintendent.

REPORT DETAILS

1. Persons Contacted

Wisconsin Public Service Corporation (WPS)

C. Luoma, Plant Superintendent
R. Lange, Assistant Plant Superintendent
C. Steinhardt, Reactor Supervisor
M. Stern, Reactor Test Engineer
D. Hintz, Technical Advisor
R. Patefield, Engineer
W. Truttman, Operations Supervisor
R. Sitzman, Assistant Operations Supervisor
M. Singh, Shift Supervisor
J. Bly, Shift Supervisor
D. Ristau, Shift Supervisor
W. Wagner, Control Operator
J. Richmond, Technical Supervisor
A. Ninmer, Assistant Maintenance Supervisor
D. McSwain, Instrument and Control Supervisor
L. Arno, Lead Instrument and Control Technician
T. Moore, Administrative Assistant

Nuclear Services Corporation (NSC)

W. Rowley, Manual and Procedures Coordinator
H. Ilisko, Instrument and Control Engineer

Multi-Amp Engineering Services Corporation

L. Hyde, Test and Service Engineer

2. General

Power escalation testing had been completed through 50% of rated power. The licensee had not yet completed evaluation of the test results. Testing at approximately 75% was in progress. Testing at levels greater than 75% cannot be performed until feedwater pump repairs are complete.

3. Diesel Generator Failure to Start

Failure of a diesel generator to start automatically was described in an abnormal occurrence report.[3/] Review of the occurrence and discussions with the plant staff confirmed that the description of the occurrence was accurate. The occurrence appears to identify a

3/ Ibid.

mode of failure that could be attributed to design philosophy for annunciator circuits. The licensee had not yet completed evaluation of this aspect of the occurrence.

4. Feedwater Pumps

During plant operations with one feedwater pump out of service for repairs, the operating pump developed a crack in the casing that required shutdown. The failure was not unexpected, as defects had been identified in another facility and in the pump undergoing repair at the time. The licensee expedited repairs and testing of the pump that had been undergoing repairs, so that startup testing could be resumed.

The failed pump casing was removed and sent to the vendor for examination and repair, however, the licensee determined that repairs and testing could best be effected on site. At the time of the inspection, repairs to the pump casing were in progress. Startup testing above 75% cannot be performed until both feedwater pumps are operational.

5. Reactor Trips

Twelve reactor trips associated with steam generator level and feedwater steam flow mismatch signals, had occurred since the last inspection. This was partially due to the inaccuracies of flow instrumentation in the low power condition, which provided a signal to the reactor protection logic most of the time. Steam generator level control at low power levels is not automatic, and requires considerable skill and experience. The contributing factors were that only one feedwater pump was available, the condensate pump screens required periodic cleaning to provide adequate suction pressure for the feedwater pumps and a problem with feedwater flow through the air ejectors. Elimination of these factors, together with operation at higher power levels, is expected to minimize the number of unscheduled reactor trips.

Other trips were caused by personnel error during surveillance testing and/or maintenance of instrumentation, however, the number of these trips is decreasing as the plant staff gains experience.

6. Surveillance Testing of Protective System Logic Channels

Technical Specifications, Section 4.1.a, Table TS 4.1-1.26 requires that protective system logic channels be tested monthly. The licensee recognized that a test of the logic channels for plant conditions below 10% of rated power could not provide for testing of certain logic functions that were required to be operable above 10% power without "jury rigging" to bypass undesired reactor trip or safety injection caused by the test. This was discussed in a previous inspection report.[4/]

4/ RO III Inspection Report No. 050-305/74-08.

The licensee revised the surveillance test procedure to provide certain steps to be performed at $<$ 10% power with alternate steps for logic tests at powers of $>$ 10%.

The licensee had tested protective system logic channels specified in Technical Specification Table 4.1-1.26 during preoperational testing in February 1974. Tests of logic functions which are required for operation at $<$ 10% power were verified to have been performed just preceding initial critical on March 7, 1974 and on April 11, 1974. Tests of logic functions required above 10% power were not performed until May 8, 1974, (since February, 1974) although operation was authorized above 10% on April 7, 1974 and extended operations above 10% were conducted on April 17-25 and 27-30, 1974.

Discussions with the staff and consultant personnel who were cognizant of the system design indicated that the intent was that the test be performed prior to startup at low power levels (steps possible $<$ 10%) and that the test would be performed at $>$ 10% to include the balance of the logic as soon as feasible after the 10% interlock functions had been satisfied. However, the licensee had not implemented any scheduling program other than monthly, and did not differentiate whether a "low power" or "$>$ 10%" logic test had been completed. The fact that protective system logic required to be operable at power level $>$ 10% had not been tested within the time allowable by Table TS-4.1-1 is a violation of Technical Specification Section 4.1.a.

7. Failure of Relay in Reactor Protection System (RPS) Logic

During performance of surveillance testing of RPS logic channels, it was discovered that Train "A" of the RCS Loop "A" low flow logic (2 of 3 logic to trip) would not cause a reactor trip. The plant was operating at approximately 50% power when the failure was discovered.

a. Violation of Limiting Conditions for Operation

The licensee elected to continue operation at steady power while performing a test of the redundant (Train "B") logic. The test demonstrated that Train "B" logic was operable, and it was returned to service.

The reactor had been protected from RCS low flow in loop "A" by the train "B" logic, however, for the period that Train "B" logic test was being performed, (approximately 17 minutes) the reactor did not have low flow protection for loop "A" of the RCS. This was a violation of Limiting Conditions for Operation as specified by Technical Specification 3.5.c, which states that " If for Tables TS 3.5-2 through TS 3.5-4 the number of channels of a particular

sub-system in services falls below the limits given in Column Three, or if the values in Column Four cannot be achieved, operation shall be limited according to the requirement shown in Column 6 as soon as practicable."

b. Failure to Report

The licensee did not report the occurrence as an abnormal occurrence. Violation of Limiting Condition for Operation is defined as an Abnormal Occurrence (Section 1.a.1(b) of the Technical Specifications). This was a violation of Section 6.6.2.a of the Technical Specifications.

8. Inadvertent Actuation of Safety Injection (SI) System

a. Background

A problem associated with the test circuits for protective system logic had been identified during system testing. The problem recurred during surveillance testing and caused a reactor trip.

The logic test circuits include lamps that indicate logic action while the system is being tested. In some cases the tests caused relays to actuate, causing undesired actuation of protective relays. The licensee proposed a circuit modification to place resistors in series with the test lamp to assure that relay action would not occur during performance of testing. As a part of the evaluation, the system vendor requested that the licensee perform tests to determine relay action resulting from testing and to measure pick up voltage for relays in each of the circuits.

b. Test Procedure

Review of the test procedure and discussion with the personnel involved in performance of the test identified inadequacies in the procedure and in implementation and control of the procedure.

The test procedure used had not been reviewed and approved in accordance with the requirements of Section 6.4.b of the Technical Specifications.

The test called for voltage measurements, which required lifting leads in safeguards system logic circuits. The procedure did not provide step by step control or a record of lifted leads. Discussions with the test engineer indicated that a systematic check had in fact been employed, using a logic diagram to check off leads lifted and reconnected, however this was not included in the test record. An apparent inadequacy exists in control of lifted leads and/or jumper control.

c. Performance of the Test

Although the vendor recommended that the test be performed with the plant shut down to avoid inadvertent tripping, the licensee started testing the circuits (Train B) with the reactor critical (hot standby). During the test an inadvertent SI signal was initiated tripping the reactor and starting the 1B train SI. The train B SI pumps and the containment spray pump controls had been placed in "pullout" to prevent inadvertent actuation. All other SI actions for Train "B" responded as designed.

d. Dilution of Boric Acid Tanks (BAT)

When the BAT suction valve opened, water from the refueling water storage tank (RWST) transferred by gravity to BAT-1A, diluting the concentrated boric acid and causing the tank to overflow. The operator closed the suction valve to BAT-1A and opened the valve between BAT-1A and BAT-1B to transfer some of the water from BAT-1A to BAT-1B to transfer some of the water from BAT-1A to BAT-1B to minimize the overflow. Subsequent sampling of the BAT tanks indicated that both of the BAT's had been diluted below the minimum concentration of boric acid specified by Section 3.2.b.3 of the Technical Specifications, which specifies minimum concentration for criticality.

The licensee borated one BAT to meet the minimum concentration limits specified by Section 3.2.b.3 of the Technical Specification before the reactor was again made critical.

9. Air Ejector Condenser

After several reactor trips had been caused by trips of feedwater pumps due to low suction pressure the licensee determined one cause was excessive pressure drop through the air ejector condensers. The apparent cause was that there was no bypass to control the amount of pressure drop as flow increases. The licensee modified the condensate system to add a control valve that will modulate bypass flow so that adequate flow will be maintained through the air ejector condenser and will provide sufficient flow to maintain feedwater pump suction pressure.