Public Service
Electric and Gas
Company

Joseph J. Hagan

Vice President - Nuclear Operations

Public Service Electric and Gas Company P.O. Box 236, Hancocks Bridge, NJ 08038 609-339-1200

SEP 20 1994

NLR-N94003
LCR 93-06

United States Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Gentlemen:

LICENSE CHANGE REQUEST
REACTOR TRIP SYSTEM SURVEILLANCE REQUIREMENTS REVISIONS
SALEM GENERATING STATION UNIT NOS. 1 AND 2
FACILITY OPERATING LICENSE NOS. DPR-70 AND DPR-75
DOCKET NOS. 50-272 AND 50-311

This letter submits an application for amendment to Appendix A of Facility Operating Licenses DPR-70 and DPR-75 for Salem Generating Station (SGS), Unit Nos. 1 and 2, and is being filed in accordance with the requirements of 10CFR50.90. Pursuant to the requirements of 10CFR50.91 (b) (1), a copy of this request for amendment has been sent to the State of New Jersey.

The proposed changes adopt the Westinghouse Standard Technical Specifications (NUREG-1431) Channel Functional Test surveillance frequency for the Manual Reactor Trip Switches and for the Reactor Trip Breakers (RTB) and relocate RTB maintenance requirements from the Technical Specifications to the Salem Updated Final Safety Analysis Report. PSE&G notes that the Manual Reactor Trip Switch and the RTB Channel Functional Test surveillance frequency changes would result in these items being similar to the current technical specifications of Shearon Harris Nuclear Power Plant and Diablo Canyon Units 1 and 2.

The proposed changes have been evaluated in accordance with 10CFR50.91 (a) (1), using the criteria in 10CFR50.92 (c), and it has been determined that this request involves no significant hazards consideration.

PSE&G considers this submittal to be a Cost Beneficial Licensing Action (CBLA). We have estimated the cost savings as $26.6k/yr for each Salem Unit. Savings over the life of the plants are $585k for Unit 1 and $ 692k for Unit 2.

A description of the requested amendment, supporting information and analyses for the change, and the bases for a no significant hazards consideration determination are provided in Attachment A. The current Technical Specifications pages affected by the

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proposed changes are provided in Attachments B and C as pen and ink changes for Salem Unit 1 and Unit 2 respectively.

Upon NRC approval of this proposed change, PSE&G requests that the amendment be made effective on the date of issuance, but implemented within sixty days to provide sufficient time for associated administrative activities.

Should you have any questions on this transmittal, please contact us.

Sincerely,

Affidavit
Attachments (3)

C Mr. T. T. Martin, Administrator - Region I
U. S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Mr. J. C. Stone, Licensing Project Manager - Salem
U. S. Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Rockville, MD 20852

Mr. C. Marschall (S09)
USNRC Senior Resident Inspector

Mr. K. Tosch, Manager IV
NJ Department of Environmental Protection
Division of Environmental Quality
Bureau of Nuclear Engineering
CN 415
Trenton, NJ 08625

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STATE OF NEW JERSEY)
)SS.
COUNTY OF SALEM)

J. J. Hagan, being duly sworn according to law, deposes and says:

I am Vice President - Nuclear Operations of Public Service Electric and Gas Company, and as such, I find the matters set forth in the above referenced letter, concerning the Salem Generating Station, Unit Nos. 1 and 2, are true to the best of my knowledge, information and belief.

J. J. Hagan

Subscribed and Sworn to before me
this 20th day of September, 1994

Kimberly Jo Brown

KIMBERLY JO BROWN
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires April 21, 1998

My Commission expires on _____

LICENSE AMENDMENT APPLICATION
REACTOR TRIP SYSTEM SURVEILLANCE REQUIREMENT REVISIONS
SALEM GENERATING STATION UNIT NOS. 1 AND 2
FACILITY OPERATING LICENSE DPR-70 AND DPR-75
DOCKET NOS. 50-272 AND 50-311

I. DESCRIPTION OF THE CHANGES

This amendment request proposes to revise Salem Unit 1 and Salem Unit 2 Technical Specification Section 3/4.3.1 "Reactor Trip System Instrumentation," Surveillance Requirements in Table 4.3-1 as follows:

A. Functional Unit 1. Change CHANNEL FUNCTIONAL TEST frequency for the Manual Reactor Trip Switch from prior to Startup "S/U" to refueling "R." Also change the MODES IN WHICH SURVEILLANCE REQUIRED from "N.A." to "1, 2, and *."

B. Functional Unit 21. Delete CHANNEL FUNCTIONAL TEST prior to Startup "S/U" for the Reactor Trip Breaker. Change monthly CHANNEL FUNCTIONAL TEST to a monthly staggered test basis. Also, delete reference to the semi-annual CHANNEL FUNCTIONAL TEST regarding preventive maintenance.

C. Notation (9) is reworded to incorporate standard nomenclature. Reference to perform a functional test within previous 24 hours is removed, consistent with the change to Functional Unit 1 (Item A, above).

D. Notation (10) is deleted and marked as such, consistent with the change to Functional Unit 21 (Item B, above).

E. Notation (11) is reworded to standard nomenclature. The reference to response time testing of Under Voltage (UV) and Shunt Trip/Breakers is deleted, consistent with the change to Functional Unit 21 (Item B, above).

F. Notation (12) is deleted and marked as such consistent with the change to Functional Unit 21 (Item B, above).

II. REASONS FOR THE CHANGES

In 1983 the NRC issued Generic Letter (GL) 83-28 to address licensees actions related to Reactor Trip System (RTS) reliability. NRC attention was focused on this issue because of the discovery (at Salem Unit 1) of generic implications of Anticipated Transient Without Scram (ATWS) events associated with the RTS.

Results from these activities included industry evaluated surveillance testing and an improved maintenance program for the Salem Generating Station. Actions for reliability improvements included monthly functional testing of the RTS, including independent testing of the diverse trip features. In PSE&G letters dated April 8, 1983 and April 28, 1983 (Reference 1 and 2) additional surveillance testing was committed to in order to verify operability of the Reactor Trip Breakers within 24 hours prior to start-up through independent testing of the under voltage and shunt trip attachments and operation of the RTB utilizing the Manual Reactor Trip Switches. As noted in the April 8, 1983 letter, PSE&G complied with this frequency with the understanding that the NRC Staff would reconsider this requirement following completion of the long term breaker testing program.

GL 85-09 was issued to provide guidance on specific Technical Specification changes associated with Item 4.3 of GL 83-28. This generic letter concluded that licensees should propose Technical Specification changes to explicitly require independent testing of the RTB undervoltage (UV) and shunt trip mechanisms during power operation, RTB bypass breaker testing prior to use, and independent testing of the Control Room manual trip switch contacts and wiring during each refueling outage. Operability requirements for the diverse trip features (UV and shunt trip mechanisms) were also included. GL 85-09 did not impose more frequent RTB testing requirements or response time testing. These commitments were made previously (noted above) as long term and short term actions in response to the Salem event via PSE&G letter dated April 28, 1983. NRC SER dated May 31, 1989, in support of Amendment Nos. 97 and 74 (Salem Unit 1 and Salem Unit 2 respectively), did note that the proposed changes for Table 4.3-1 were "consistent with, and more exact than, those of GL 85-09."

Subsequently, the NRC Staff, in the process of determining

if additional guidance was needed for GL 83-28 Item 4.2.3 and Item 4.2.4, reviewed industry operating experience for the period 1986 through early 1991 based upon information in the Nuclear Plant Reliability Data System and in Licensee Event Reports. As noted in Supplement 1 to GL 83-28, dated October 7, 1992, the review revealed that the vast majority of reported RTB failures were failures to close rather than failures to open, or were degraded conditions detected during planned maintenance, testing or inspection. In light of this operating experience, the NRC concluded that actions already completed pursuant to GL 83-28 (i.e. plant modifications, comprehensive preventive maintenance programs or established surveillance testing) have been effective in improving the reliability of the RTB's to perform their function (i.e. open). Additionally, the NRC has promulgated the requirements for reducing the risk from ATWS events in 10CFR50.62. Modifications associated with this regulation further reduce the risk resulting from RTB failures.

In consideration of the above discussion, this amendment request to revise the Salem Unit 1 and Unit 2 Technical Specification Section 3/4.3.1 "Reactor Trip System Instrumentation" Surveillance Requirements in Table 4.3-1 is based on the following reasons:

A. The Channel Functional Test frequency changes, for the Manual Reactor Trip Switch functions, adopt the Westinghouse Standard Technical Specification (STS, NUREG-1431) frequencies. Performing the Manual Reactor Trip Switch CHANNEL FUNCTIONAL TEST every refueling instead of requiring it within 24 hours prior to each startup reduces the potential for inadvertent actuation of plant protective equipment and reduces unnecessary schedule burden on plant personnel. The Modes are changed for consistency with Functional Unit 1 in Technical Specification Table 3.3-1.

B. The proposed Channel Functional Test frequency changes, for the Reactor Trip Breaker (RTB) functions, incorporate the Westinghouse STS frequencies. Changing the RTB Channel Functional Test frequency from monthly to monthly staggered would make RTB testing consistent with testing of the associated logic train. Performing the CHANNEL FUNCTIONAL TEST every Refueling instead of 24 hours prior to startup, reduces the potential for inadvertent actuation of plant protective equipment and reduces unnecessary schedule burden on plant personnel.

Relocating the preventive maintenance commitment to the Salem Updated Final Safety Analysis Report (UFSAR) conforms with NRC guidance presented in the "Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors" published in the Federal Register (58 FR 39132) and reduces regulatory burden. The commitment is adequately controlled and is enforceable in accordance with the 10CFR50.59. The change allows flexibility to re-evaluate maintenance activities in order to assure optimized practice.

C. Notation (9) is reworded to standard nomenclature. This reduces the potential for misinterpretation by clearly defining the test intent. Performance of a functional test within 24 hours prior to startup is deleted for reasons made for Functional Unit 1 (Item A, above).

D. Notation (10) is deleted consistent with reasons made for Functional Unit 21 (Item B, above) in not requiring the CHANNEL FUNCTIONAL TEST 24 hours prior to each startup.

E. Notation (11) is reworded to standard nomenclature. This reduces the potential for misinterpretation by clearly defining the test intent. Removing the reference to response time testing is consistent with the associated reasons noted under Functional Unit 21 (Item B, above).

F. Notation (12) is deleted consistent with the associated reasons for moving periodic maintenance commitments to the UFSAR made in Functional Unit 21 (Item B, above).

III. JUSTIFICATION FOR CHANGES

A. Changing Functional Unit 1, Manual Reactor Trip Switch, CHANNEL FUNCTIONAL TEST frequency from 24 hours prior to Startup to Refueling and changing the MODES IN WHICH SURVEILLANCE REQUIRED from "N.A." to "1, 2 and *."

This change incorporates the Westinghouse STS requirements. GL 85-09 permits Manual Reactor Trip Switch testing during each refueling outage. As noted in Westinghouse STS BASES Section B.3.3.1 under Surveillance Requirement SR 3.3.1.14, this frequency is

based on the known reliability of the Function and the multichannel redundancy available, and has been shown to be acceptable through industry operating experience. The Salem design is not unique and operational data is consistent with industry experience.

Furthermore, the requirement of the Channel Functional Test in the 24 hour period prior to each Startup imposes unnecessary burdens on the facility, as well as plant personnel, by creating added potential for inadvertent actuation of plant protective equipment.

The Modes are changed for consistency with Functional Unit 1 in Technical Specification Table 3.3-1.

The GL 85-09 requirement to independently test the Manual Reactor Trip Switches remains unchanged. Associated Notation (9) has also been modified to support the purpose of the CHANNEL FUNCTIONAL TEST.

B. Eliminating Functional Unit 21, Reactor Trip Breaker CHANNEL FUNCTIONAL TEST within 24 hours prior to startup, changing the monthly test to monthly staggered and relocating the semi-annual maintenance requirements to the Salem UFSAR.

1. The performance of a Channel Functional Test in the 24 hour period prior to startup is not a requirement of the Westinghouse STS. The NRC staff imposed this additional surveillance test on Salem as a result of the 1983 ATWS Event. The need to perform the test within a 24 hour period prior to each Startup imposes unnecessary schedule burdens on the facility and diverts resources from activities required for plant safety.

2. Another result of the 1983 ATWS Event was that the Staff imposed monthly surveillance testing on Salem. Because of plant-specific commitments, the Salem RTB surveillance testing frequencies exceed industry standards including the Westinghouse STS. The change to a monthly staggered Channel Functional Test by inclusion of existing Notation (5) would adopt the NRC approved Westinghouse STS surveillance frequency and would permit the RTB test frequency to be consistent with that of the associated logic trains, which are presently on a

monthly staggered testing frequency. Conducting RTB testing with the associated logic train reduces the potential for personnel errors and inadvertent actuation. As noted in Westinghouse STS BASES Section B.3.3.1, under Surveillance Requirements SR 3.3.1.4, the surveillance frequency of every 31 days on a STAGGERED TEST BASIS was justified in WCAP-10271-P-A Supplement 2, Rev. 1, dated June 1990 (Reference 3).

More frequent testing increases the number of component operating cycles over a given time frame. NRC studies (e.g., NUREG/CR-4715) have confirmed that routine breaker opening and closing operations is among the primary mechanically induced stress mechanisms. More frequent testing results in increased component wear and potentially reduced component operating life. This change reduces the wear on breaker components and reduces the burden of planning, completing, and documenting RTB testing on a different schedule from the remaining logic train components.

The GL 85-09 requirement to independently test the RTB UV and shunt trip mechanisms and test RTB bypass breakers prior to use remains unchanged.

3. The primary cause of the Salem ATWS Event was inadequate maintenance on the Reactor Trip Breakers. As a result, licensees, including PSE&G, improved the RTB maintenance activities. The NRC staff, however, required Salem to incorporate specific semi-annual maintenance commitments into the Technical Specifications. The Technical Specifications do not normally contain such maintenance activities.

   The relocation of the RTB and the Reactor Trip Bypass Breaker maintenance commitments from the Technical Specifications to the Salem UFSAR is consistent with Commission guidance presented in the "Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors" published in the Federal Register (58 FR 39132).

NRC studies (e.g., NUREG-1366) have confirmed that enhanced maintenance activities have reduced the RTB failure rate, thus improving RTB reliability and availability. Relocating the RTB Technical Specification maintenance activity commitment to the Salem UFSAR reduces regulatory burden. As noted by the NRC policy statement (58 FR 39132), adequate controls are provided through the enforceability of the provisions of 10CFR50.59. PSE&G anticipates delineating the maintenance activity commitment for the RTB and Bypass Breakers in Salem UFSAR Section 7.2.3.3. UFSAR Section 7.2.3.3 currently addresses the PSE&G response to Generic Letter 83-28.

C. Modification of Notation (9) to delete reference to the CHANNEL FUNCTIONAL TEST 24 hours prior to startup and to assure the purpose of the Manual Reactor Trip Switch CHANNEL FUNCTIONAL TEST is maintained.

Consistent with the change for Functional Unit 1, this change incorporates the improved Westinghouse STS for Manual Reactor Trip Switch testing during each refueling outage. Notation (9) is changed to utilize standard nomenclature to assure the test includes independent verification of the undervoltage and shunt trip mechanism. As noted in improved Westinghouse STS BASES Section (B.3.3.1) Surveillance Requirement (SR 3.3.1.14), the frequency is based on the known reliability of the Function and the multichannel redundancy available, and has been shown to be acceptable through operating experience. The Salem design is not unique and operational data is consistent with industry experience.

The requirement to independently test the Manual Reactor Trip Switches (GL 85-09) remains unchanged.

D. Deletion of Notation (10).

Consistent with the removal of RTB CHANNEL FUNCTIONAL TEST within 24 hours prior to Startup, (Functional Unit 21) Notation (10) is deleted.

E. Revision of Notation (11) to remove reference to response time testing of UV and shunt trip/breakers and to utilize standard nomenclature to assure the test

includes independent verification of the undervoltage and shunt trip mechanism.

The RTB Channel Functional Test is a trip actuating device operational test. Its purpose is to verify operability by actuation of the end devices (i.e., UV and shunt trip mechanisms). The test must independently verify the UV and shunt trip mechanisms. The NRC approved Westinghouse STS does not explicitly call out response time testing as part of the RTB Channel Functional Test. Response time testing is a maintenance function that goes beyond the stated purpose of the Channel Functional Test. Remaining elements of the existing Channel Functional Test are unchanged. The proposed monthly staggered test will continue to independently verify UV and shunt trip actuation. It should be noted that Technical Specification Table 3.3-2, "Reactor Trip System Instrumentation Response Items" addresses channel response time. Table 3.3-2 is not being modified by this change request.

F. Deletion of Notation (12).

The preventive maintenance requirements will be delineated in the Salem UFSAR. This is consistent with Commission policy noted in the NRC policy for Technical Specification improvements (58 FR 39132). This change is discussed above at Item B.3 of the Justification For Change.

IV. SIGNIFICANT HAZARDS ANALYSIS CONSIDERATION

Pursuant to 10CFR50.92, PSE&G has reviewed the proposed changes to determine if our request involves a significant hazards consideration. PSE&G has determined that the operation of Salem Unit 1 and Salem Unit 2, in accordance with the proposed changes:

1. Does not involve a significant increase in the probability or consequence of an accident previously evaluated.

The proposed changes do not affect accident conditions or assumptions. They change the existing surveillance

test and their frequencies to make them consistent with industry standards, and relocate maintenance requirements to the UFSAR.

The changes, for the Manual Reactor Trip Switch and Reactor Trip Breaker (RTB) CHANNEL FUNCTIONAL TEST frequency, incorporate the established Westinghouse STS surveillance frequencies. These surveillance frequencies have received previous NRC review and generic approval via the issuance of NUREG-1431. The Westinghouse STS does not require Channel Functional Test for the Manual Reactor Trip Switches or the RTB prior to each reactor startup.

The addition of the RTB shunt trip feature for automatic reactor trips, the improved RTB maintenance activities developed over the past several years, and the implementation of 10CFR50.62 requirements have improved RTB reliability. These features are unaffected by the proposed changes. Excessive RTB testing results in increased component wear and possibly reduced component life. Testing the RTBs with associated logic trains reduces the potential for human errors and associated plant transients.

The consequences of accidents previously evaluated are unaffected by the proposed changes.

2. Does not create the possibility of a new or different kind of accident from any accident previously evaluated.

   The proposed changes do not modify any system or equipment, nor alter any process function. The Manual Reactor Trip Switch and RTB functionality remains unchanged. Therefore these changes do not create a new or un-evaluated accident or operating condition.

3. Does not involve a significant reduction in a margin of safety.

   The proposed changes adopt the NRC approved Westinghouse STS surveillance testing frequencies to maintain RTB reliability. Reduced testing at power, consistent with the associated logic train test frequency, reduces the potential for inadvertent actuation and personnel errors. Thus, the proposed

changes enhance plant safety.

V. CONCLUSION

Based on the above, PSE&G has determined that the proposed changes do not involve a significant hazards consideration.

VI. REFERENCES

1. PSE&G Letter to D.G. Eisenhut from R.A. Uderitz dated April 8, 1983.

2. PSE&G Letter to D.G. Eisenhut from R.A. Uderitz dated April 28, 1983.

3. WCAP-10271-P-A, Supplement 2, Revision 1, "Evaluation of Surveillance Frequencies And Out Of Service Times For The Reactor Protection Instrumentation System," Approved June 1990.