Public Service
Electric and Gas
Company

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JAN 18 1991

NLR-N90214
LCR 90-16

United States Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Gentlemen:

LICENSE AMENDMENT APPLICATION
EDUCTOR FLOW TESTING CLARIFICATION
SALEM GENERATING STATION
FACILITY OPERATING LICENSES 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 the Salem Generating Station Unit Nos. 1 and 2 and is being filed in accordance with the provisions of 10CFR50.90. This amendment application requests changes to Technical Specification (TS) Surveillance Requirements 4.6.2.1.c.2 (Unit 1) and 4.6.2.1.d.2 (Unit 2). These surveillances specify requirements for flow rate testing of the spray additive system eductors. Specifically, the proposed changes would: 1) clarify the testing methodology associated with these surveillance requirements and 2) relocate the surveillance requirements from LCO 3.6.2.1 to LCO 3.6.2.2. Attachment 1 contains a detailed description of the proposed changes along with our 10CFR50.92 analysis of significant hazards. Marked up TS pages showing the proposed changes are included as Attachment 2.

In accordance with 10CFR50.91(b)(1), a copy of this request has been sent to the State of New Jersey as indicated below. Upon NRC approval, please issue a License Amendment which will be effective upon issuance and shall be implemented within 60 days of issuance. This latitude permits appropriate procedural modifications necessary to implement the proposed changes.

A001
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Should you have any questions or comments on this transmittal, do not hesitate to contact us.

Sincerely,

R. LaBruna

Affidavit
Attachments (2)

C Mr. J. C. Stone
Licensing Project Manager

Mr. T. Johnson
Senior Resident Inspector

Mr. T. Martin, Administrator
Region I

Mr. Kent Tosch, Chief
New Jersey Department of Environmental Protection
Division of Environmental Quality
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CN 415
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REF: NLR-N90214
LCR 90-16

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

S. LaBruna, 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 our letter dated JAN 18 1991, concerning the Salem Generating Station, Unit Nos. 1 and 2, are true to the best of my knowledge, information and belief.

S. LaBruna

Subscribed and Sworn to before me
this 18th day of JANUARY, 1991

Valerie Moniz
Notary Public of New Jersey

VALERIE MONIZ
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires Mar. 28, 1993

My Commission expires on

ATTACHMENT 1
PROPOSED CHANGES TO THE TECHNICAL SPECIFICATIONS

LICENSE AMENDMENT APPLICATION
EDUCTOR FLOW TESTING CLARIFICATION
SALEM GENERATING STATION
FACILITY OPERATING LICENSES DPR-70 AND DPR-75 NLR-N90214
DOCKET NOS. 50-272 AND 50-311 LCR 90-16

I. Description of Proposed Changes

This amendment application is being submitted to clarify ambiguities contained within the existing Technical Specification (TS) surveillance requirements for the containment spray system. Specifically, changes are being proposed to Surveillance Requirements 4.6.2.1.c.2 (Unit 1) and 4.6.2.1.d.2 (Unit 2). These surveillances specify requirements for spray additive system eductor flow rate testing. The proposed changes: 1) provide clarification to the existing eductor flow test surveillance requirements and 2) move the surveillance requirements from LCO 3.6.2.1 to LCO 3.6.2.2. The proposed changes are described in further detail below.

A. Clarification for Existing Requirements

Surveillance Requirements 4.6.2.1.c.2 (Unit 1) and 4.6.2.1.d.2 (Unit 2) require that the spray additive tank eductor flow rate be verified within specified limits (35 ± 3.5 gpm) with the spray pumps operating in the recirculation mode. Questions have surfaced regarding the testing methodology to be employed in meeting the intent of this surveillance requirement.

There are two different testing methods which may be used to verify the specified eductor flow rate. The first method involves measuring the flow rate to the eductor while taking suction from the spray additive tank (SAT). This method provides the most direct means of verifying the flow rate but requires that sodium hydroxide (NaOH) be injected into the system. Injection of NaOH into the system is an extremely undesirable action in that it would foul the system and require extensive clean up following testing. Additionally, injecting NaOH into the system could result in spraying containment with NaOH if an equipment malfunction or operator error were to occur.

The second method uses a test line from the refueling water storage tank (RWST) which ties into the eductor line downstream of the SAT isolation valves. This test line allows the flow test to be performed using RWST water. The SAT remains isolated from the system and NaOH injection is precluded. Since there are elevation differences between

the SAT and RWST, the indicated flow rate during testing with the flow from the RWST (RWST at 41 ± 0.5 feet) must be 57 gpm ± 10% to ensure that the flow from the SAT would be 35 gpm ± 10% from the SAT. This correlation is based on Westinghouse analysis. The validity of the correlation was verified during testing in December 1980. All parameters which could affect the results of the correlation are the same for both Units 1 and 2 and the correlation is therefore applicable for both units.

Initial flow rate verification was carried out during startup using the first test method with demineralized water in the SAT. Subsequent tests have been carried out using the second test method (i.e., the test line from the RWST).

We believe the second method provides an accurate means of verifying the required flow rate and intend to continue using this method to satisfy the surveillance requirement. In order to avoid confusion and ambiguity, we are modifying the surveillance requirement to more precisely describe our testing methodology. The existing surveillance requirement would be replaced by the following.

> "Verifying that the spray additive tank eductor flow will be 35 ± 3.5 gpm to each containment spray system. Testing may be performed by measuring the flow of borated water from the RWST through the installed 2" test line and Valve CS31; using this test line up with the spray pump operating in the recirculation mode and the RWST level at 41 feet ± 0.5 feet, the measured flow shall be 57 gpm ± 5.7 gpm."

B. Relocation of Surveillance Requirements

We are proposing to move Surveillance Requirements 4.6.2.1.c.2 (Unit 1) and 4.6.2.1.d.2 (Unit 2) from LCO 3.6.2.1 to LCO 3.6.2.2. These surveillances specify requirements for flow rate testing of the spray additive system eductors. When the eductor flow testing is conducted using the test line, an additional test is necessary to verify that proper flow exists in the line between the SAT and the point at which the test line ties into the eductor supply line. This second test is included under Surveillance Requirement 4.6.2.2.d. It is inconsistent to have the two tests necessary for verifying adequate spray additive flow included under two separate LCOs. The subject tests are necessary to verify the operability of the spray additive function of the containment spray system, and we are therefore proposing to consolidate these tests under the LCO for the spray additive system.

II. Reason for Proposed Changes

A. Clarification for Existing Requirements

The change to the eductor flow test surveillance requirement is intended to clarify the existing requirement and to eliminate the associated confusion and ambiguity. If the requirement were to be interpreted to require direct measurement of flow from the SAT, injection of NaOH into the system would be required. Such action would be extremely undesirable in that it would foul the system and require extensive cleanup following completion of the test. Conducting testing by actually injecting NaOH into the system could also result in spraying containment with NaOH if an equipment malfunction or operator error were to occur.

B. Relocation of Surveillance Requirements

Movement of the subject surveillance requirements from LCO 3.6.2.1 to LCO 3.6.2.2 consolidates all spray additive system eductor flow rate testing under a single LCO. The eductor testing supports operability of the spray additive system and more appropriately belongs as a requirement under LCO 3.6.2.2. This change also achieves consistency with the Westinghouse Standard TSs and the proposed MERITS TSs.

III. Justification for the Change

A. Clarification for Existing Requirements

The MERITS Bases for the eductor flow test surveillance requirement states that test water may be used instead of NaOH solution for the flow test to avoid fouling the system provided the differences in flow characteristics are taken into account. As noted earlier, we have completed an analysis to account for differences in flow characteristics. This analysis was completed with the assistance of Westinghouse and considered the following flow characteristic differences:

1. The flow instrument used to measure eductor flow rate during testing is calibrated for NaOH. The density differences between water and NaOH were taken into consideration to obtain the corresponding flow for water.

2. Since the RWST is used as the eductor suction source instead of the SAT, the elevation differences between the RWST and the SAT were taken into consideration.

Based on these considerations, an indicated flow rate of 57 gpm $\pm$ 10% obtained using the test configuration will ensure adequate flow (35 $\pm$ 3.5 gpm) from the SAT.

The eductor flow testing was witnessed by the NRC in December 1980. The NRC inspector noted that the test was conducted using the RWST and a test line to provide a source of additive water to the eductor. The new acceptance criterion (57 $\pm$ 5.7 gpm) was also noted along with the fact that the acceptability of the correlation was successfully demonstrated by repeating the test using the RWST as the additive water source and throttling the manual valve in the supply line to obtain equivalent SAT pressure at the eductor supply point. Refer to Inspection Report 50-272/80-32 and 50-311/80-22 dated January 21, 1981 for further details.

As evident from the above discussion, the existing test methodology has been accepted by the NRC, Westinghouse, and MERITS. Although the existing test method does not directly measure flow from the SAT to the eductor, the test configuration has been correlated to the actual configuration by accounting for differences in flow characteristics. The validity of the correlation has been verified through testing. As a result, we conclude that the existing test method provides an accurate means of verifying specified flow to the eductor as required by the TS surveillance requirement.

B. Relocation of Surveillance Requirements

As specified in Section 6.2.2.1 of the UFSAR, the containment spray system functions to provide the following:

1. Capability to spray cool water into the containment atmosphere in the event of a LOCA thereby ensuring that containment pressure is maintained below its design limit.

2. Capability to remove elemental iodine from the containment atmosphere should it be released during a LOCA.

The TSs contain two separate LCOs intended to ensure that these capabilities are maintained. LCO 3.6.2.1 is intended to address the containment cooling function of the containment spray system while LCO 3.6.2.2 is intended to address the spray additive function of the system. The eductor flow rate surveillance requirements are intended to verify operability of the containment spray additive system, and as such, should be included as part of LCO 3.6.2.2.

The proposed relocation is consistent with the Westinghouse Standard TSs and the proposed MERITS TSs. The action statements for LCO 3.6.2.1 and LCO 3.6.2.2 are identical, and as a result, actions required due to failure to meet the flow test requirements remain the same.

IV. Significant Hazards Consideration Evaluation

The proposed changes to the Salem Generating Station Technical Specifications:

1. **Do not involve a significant increase in the probability or consequences of an accident previously evaluated.**

A. Clarification for Existing Requirements

Our analysis of both offsite and control room doses following a LOCA take credit for iodine removal by the containment spray system. The iodine removal capability of the spray system is dependent on maintaining a sufficiently high pH in the containment spray water through the use of NaOH injection. Injection of 35 gpm ± 10% through the eductors from the SAT maintains the post accident injection spray pH within a range which will ensure the capability of the spray to remove iodine from the containment atmosphere and limit offsite and control room doses to within 10 CFR Part 100 limits. Differences in flow characteristics between the test configuration and the actual configuration have been considered, and the test specified in the proposed surveillance requirement will adequately verify that the actual flow rate is within the specified limits. Since the proposed test maintains our ability to verify that the accident analysis assumptions are being met, the proposed change will not increase the probability or consequences of a previously analyzed accident.

B. Relocation of Surveillance Requirements

Moving Surveillance Requirements 4.6.2.1.c.2 (Unit 1) and 4.6.2.1.d.2 (Unit 2) from LCO 3.6.2.1 to LCO 3.6.2.2 consolidates the spray additive eductor testing under a single LCO. These surveillance requirements are intended to verify operability of the eductors, and since the eductors are part of the spray additive system, these surveillances should be included as part of the LCO for the spray additive system. The action statements for LCOs 3.6.2.1 and 3.6.2.2 are identical, and as a result, actions required due to failure to meet the flow test requirements remain the same. Based on the above information, the proposed change will not increase the probability or consequences of a previously analyzed accident.

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

A. Clarification for Existing Requirements

The proposed change requires no procedure or plant modifications, does not alter the function of any of the affected systems, and involves no new modes of plant operation. As such, the change will not create the possibility of a new or different kind of accident from any accident previously evaluated.

B. Relocation of Surveillance Requirements

The proposed change requires no procedure or plant modifications, does not alter the function of any of the affected systems, and involves no new modes of plant operation. As such, the change will not create the possibility of a new or different kind of accident from any accident previously evaluated.

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

A. Clarification for Existing Requirements

The existing test method provides an adequate means of verifying specified flow to the eductor as required by the TS surveillance requirement. The surveillance tests still require that we verify that the limits assumed in the accident analysis are being maintained. No changes to safety limits or margins of safety are created as a result of this change. As such, the proposed change will not reduce a margin of safety.

B. Relocation of Surveillance Requirements

This change moves a surveillance requirement from one LCO to another. This relocation consolidates all spray additive eductor testing under a single LCO and places the subject surveillance requirement with the LCO for the system for which it was intended. This change will not affect actions required as a result of failure to meet the surveillance requirement. No changes to safety limits or margins of safety are created as a result of this change. As such, the proposed change will not reduce a margin of safety.

V. Conclusion

As discussed above, PSE&G has concluded that the proposed changes to the Technical Specifications do not involve a significant hazards consideration since the changes: (i) do not involve a significant increase in the probability or consequences of an accident previously evaluated, (ii) do not create the possibility of a new or different kind of accident from any accident previously evaluated, and (iii) do not involve a significant reduction in a margin of safety.