

Public Service  
Electric and Gas  
Company

**Stanley LaBruna**

Vice President - Nuclear Operations

Public Service Electric and Gas Company P.O. Box 236, Hancocks Bridge, NJ 08038 609-339-4800

February 22, 1990

NLR-N90003

LCR 90-01

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

Gentlemen:

REQUEST FOR AMENDMENT  
SALEM GENERATING STATION  
UNITS NOS. 1 AND 2  
FACILITY OPERATING LICENSE NOS. DPR-70 AND DPR-75  
DOCKET NOS. 50-272 AND 50-311

In accordance with the requirements of 10CFR50.90, Public Service Electric and Gas Company (PSE&G) hereby transmits a request for amendment of Facility Operating Licenses DPR-70 and DPR-75 for Salem Generating Station, Unit Nos. 1 and 2, respectively. In accordance with 10CFR50.91 (b) (1) requirements, a copy of this request has been sent to the State of New Jersey.

The proposed amendment modifies Technical Specification Section 3.1.1.4 for Unit No. 1 and 3.1.1.3 for Unit No. 2 and the associated bases to change the end of life negative temperature coefficient limit. Westinghouse Safety Evaluations WCAP 12451 (proprietary) and WCAP 12452 (non-proprietary) have been issued to support this change. Northeast Utilities Millstone Unit 3 Nuclear Station has previously submitted and received this change.

PSE&G believes that sufficient technical justification is provided to demonstrate that the proposed changes do not involve a significant hazards consideration, and that this LCR does not require a significant amount of technical review and should be processed as a Category 2 change.

Attachment 1 includes a description, justification and significant hazards analysis for the proposed change. Attachment 2 contains the Technical Specification pages revised with pen and ink changes.

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We request that the implementation date be established at 60 days following issuance of the approved License Amendment. Should you have any questions regarding this transmittal, please feel free to contact us.

Sincerely,

A handwritten signature in cursive script, appearing to read "S. L. Bruno".

Attachments

w/o attachment 3

C Mr. J. C. Stone  
Licensing Project Manager

Mr. T. Johnson  
Senior Resident Inspector

Mr. W. T. Russell, Administrator  
Region I

Mr. Kent Tosch, Chief  
New Jersey Department of Environmental Protection  
Division of Environmental Quality  
Bureau of Nuclear Engineering  
CN 415  
Trenton, NJ 08625

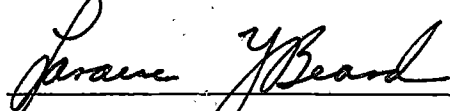
STATE OF NEW JERSEY            )  
                                      ) SS.  
COUNTY OF SALEM                )

Stanley 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 February 22, 1990 , concerning the Salem Generating Station, Unit Nos. 1 and 2, are true to the best of my knowledge, information and belief.



Subscribed and Sworn to before me  
this 22<sup>nd</sup> day of February, 1990



Notary Public of New Jersey

LARAIN Y. BEARD  
Notary Public of New Jersey  
My Commission Expires May 1, 1991

My Commission expires on \_\_\_\_\_

## Attachment 1

NLR-N90003

LCR 90-01

### PROPOSED CHANGE TO TECHNICAL SPECIFICATIONS SALEM UNITS 1 AND 2

#### I. Description of Change

Revise the Technical Specifications listed below to change the limit for the end-of-life (EOL) most negative moderator temperature coefficient (MTC). Specifically, the proposed changes will:

1. Change the most negative MTC limit from  $-3.8 \times 10^{-4} \Delta k/k/^{\circ}F$  (Unit 1) and from  $-4.0 \times 10^{-4} \Delta k/k/^{\circ}F$  (Unit 2) to  $-4.4 \times 10^{-4} \Delta k/k/^{\circ}F$  for both units.
2. Change the associated surveillance requirement MTC from  $-2.9 \times 10^{-4} \Delta k/k/^{\circ}F$  (Unit 1) and from  $-3.1 \times 10^{-4} \Delta k/k/^{\circ}F$  (Unit 2) to  $-3.7 \times 10^{-4} \Delta k/k/^{\circ}F$  for both units.
3. Revise the Bases Sections for both units to account for these changes.

#### II. REASON FOR CHANGE

The current limits are overly conservative when compared to the analysis assumptions. Salem Unit 1 will be required to perform the 300 ppm MTC SR measurement in the middle of July 1990. With the current and planned fuel management strategy, it is expected that MTC values will be more negative than the existing 300 ppm surveillance criteria. This does not necessarily mean either the most negative MTC that would occur near EOL (LCO limit) would be exceeded or that the safety analysis MTC would be exceeded. However, this does involve a requirement to remeasure the MTC at least once per 14 effective full-power days (EFPD) for the remainder of the cycle. These repeated measurements are undesirable in that they entail perturbations to normal reactor operation, which may increase the likelihood of system upsets and plant trips.

### III. Justification for Change

The limitations on MTC are provided in the Technical Specifications to ensure that the value of this coefficient remains within the limiting condition assumed in the Final Safety Analysis Report (FSAR) accident and transient analysis. To demonstrate compliance with the most negative MTC LCO, Technical Specification SR 4.1.1.4b (Unit 1) and 4.1.1.3b (Unit 2) call for measurement of the MTC prior to EOL (near 300 ppm equilibrium boron concentration). The hot full power (HFP) MTC value will gradually become more negative with further core depletion and boron concentration reduction. The 300 ppm MTC SR value should necessarily be less negative than the EOL LCO limit. The 300 ppm SR value is selected to provide assurance that the EOL LCO limit will be met when the 300 ppm surveillance criteria is met.

Accident analyses do not explicitly input a MTC but rather a constant moderator density coefficient (MDC). Converting the MDC value used in the accident analyses to MTC is a simple calculation which accounts for the rate of change of moderator density with temperature at the conditions of interest.

For those non-LOCA transients where analysis results are made more severe by assuming maximum moderator feedback, a constant MDC value of  $0.43 \Delta k/gm/cc$  has been assumed to exist throughout the transient. Converting this to a limiting MTC for the Salem Units at HFP gives about  $-5.2 \times 10^{-4} \Delta k/k/^{\circ}F$ . The proposed Technical Specification most negative MTC value of  $-4.4 \Delta k/k/^{\circ}F$  conservatively assures that the actual MTC will not exceed the safety analysis value. Therefore, the design-basis accidents are not effected. Hence, there are no significant increases in consequences associated with this Technical Specification change.

For LOCA analyses (large and small break), the only significance of a change in MTC would be to the extent that it may affect the rate of decrease of residual fissions. The reactivity assumptions of the LOCA analyses are such as to minimize the negative reactivity feedback. The result is that the MTC value proposed is bounded. Consequentially, the proposed change to the MTC would show no effect for the LOCA analyses.

Westinghouse Safety Evaluations WCAP 12451 and WCAP 12452 provide a detailed explanation of both the previous methodology for determining the margin between the safety analysis MTC and the LCO and SR values, as well as the new methodology. The new methodology for determining the margin to the LCO identifies all core operational parameters that directly affect MTC and calculates the magnitude of each based on current and anticipated reload cores. The margin from the LCO to the SR was calculated using recent Salem reload cores and reload cores of 4 loop plants similar to the Salem units. The validity of these margins will be examined for each reload cycle as part of the normal reload design process. Additional conservatism has been included in the proposed LCO and SR values, to reduce the possibility of future changes. The Technical Specification will continue to require that surveillance be performed, so that any deviations between the operating core and design predictions that may affect the validity of the accident analysis assumptions can be detected, and continued surveillance and appropriate action taken.

#### IV. Significant Hazards Consideration

In accordance with 10CFR 50.92, PSE&G has reviewed the proposed changes and concluded the proposed changes do not involve a significant hazards consideration because the changes would not:

1. Involve a significant increase in the probability or consequences of an accident previously analyzed.

The proposed change in the LCO limit from  $-3.8 \times 10^{-4} \Delta k/k/^\circ F$  (Unit 1) and from  $-4.0 \times 10^{-4} \Delta k/k/^\circ F$  (Unit 2) to  $-4.4 \times 10^{-4} \Delta k/k/^\circ F$  still ensures that the accident analyses MDC is not exceeded. The proposed change in the surveillance limit from  $-2.9 \times 10^{-4} \Delta k/k/F$  (Unit 1) and from  $-3.1 \times 10^{-4} \Delta k/k/F$  (Unit 2) to  $-3.7 \times 10^{-4} \Delta k/k/F$  conservatively ensures that the LCO limit will not be exceeded.

2. Create the possibility of a new or different kind of accident.

There is no change in the plant design or in the operating procedures. Additionally, there are no new failure modes introduced by the proposed changes. Therefore, there can be no impact on plant response to the point where a different accident is created.

3. Involve a significant reduction in a margin of safety.

The proposed changes have no impact on the consequences of an accident or on any of the protective boundaries. Therefore, there is no significant reduction in any margin of safety.

#### IV. Conclusions

Based on the information presented above, PSE&G has concluded there is no significant hazards consideration.



ATTACHMENT 2