

Mr. Harold W. Keiser  
Chief Nuclear Officer & President  
PSEG Nuclear LLC - X04  
Post Office Box 236  
Hancocks Bridge, NJ 08038

SUBJECT: SALEM NUCLEAR GENERATING STATION, UNIT NOS. 1 AND 2, REQUEST  
FOR ADDITIONAL INFORMATION RE: INCREASE LICENSED POWER  
LEVELS BY APPROXIMATELY 1.4 PERCENT (TAC NOS. MB0521 AND  
MB0522)

Dear Mr. Keiser:

By application dated November 10, 2000, PSEG Nuclear LLC requested amendments to Facility Operating License Nos. DPR-70 and DPR-75 and the Technical Specifications, to increase the licensed power levels at the Salem Nuclear Generating Station, Unit Nos. 1 and 2, by approximately 1.4%.

The U.S. Nuclear Regulatory Commission staff is reviewing your amendment application and requires additional information in order to complete its evaluation. We discussed the enclosed request for additional information with your staff during a telephone call on April 12, 2001. During the call, we understand that you agreed to respond to this letter within 15 days from the date of this letter. If circumstances result in the need to revise the target date, please contact me at (301) 415-1324, understanding that a delay in your response is likely to adversely affect our review schedule.

Sincerely,

Robert J. Fretz, Project Manager, Section 2  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. 50-272 and 50-311

Enclosure: Request for Additional Information

cc w/encl: See next page

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ACCESSION NUMBER: ML010990132      TEMPLATE = NRR-088

OFFICE	PDI-2/PM	PDI-2/LA	PDI-2/SC
NAME	RFretz	TLClark	JClifford
DATE			

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## REQUEST FOR ADDITIONAL INFORMATION

### POWER UPRATE AMENDMENT REQUEST

#### SALEM NUCLEAR GENERATING STATION, UNIT NOS. 1 AND 2

By application dated November 10, 2000, PSEG Nuclear LLC (PSEG) submitted a request to increase licensed power levels for Salem Nuclear Generating Station, Unit Nos. 1 and 2 (Salem) by 1.4 percent. By letter dated December 5, 2000, PSEG Nuclear provided additional information (Westinghouse Topical Reports WCAP-15565, Revision 0 and WCAP-15566, Revision 0) to support its November 10, 2000, submittal. The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the submittals and finds that additional information in the following areas is needed to complete its review:

Nuclear power plants are licensed to operate at a specified power, which, at operating power levels, is indicated in the control room by neutron flux instrumentation that has been calibrated to correspond to core thermal power. Core thermal power is determined by a calculation of the energy balance of the plant nuclear steam supply system. The accuracy of this calculation depends primarily upon the accuracy of feedwater flow, temperature, and pressure measurements, which are not safety grade and are not included in the plant technical specifications.

The uncertainty of calculating values of core thermal power determines the probability of exceeding the power levels assumed in the design basis transient and accident analyses. In this regard, to allow for uncertainties in determining thermal power (e.g., instrument measurement uncertainties), Appendix K to 10 CFR Part 50, requires loss of coolant accident (LOCA) and emergency core cooling system (ECCS) analyses to assume that the reactor had operated continuously at a power level at least 102 percent of the licensed thermal power. The 2 percent power margin uncertainty value was intended to address uncertainties related to heat sources in addition to instrument measurement uncertainties. Later, the NRC concluded that, at the time of the original ECCS rulemaking, the 2 percent power margin requirement appeared to be based solely on considerations associated with power measurement uncertainty.

Appendix K to 10 CFR Part 50 did not require demonstration of the power measurement uncertainty and mandated a 2 percent margin, notwithstanding that the instruments used to calibrate the neutron flux instrumentation may be more accurate than originally assumed in the ECCS rulemaking. In the June 1, 2000, *Federal Register* (Volume 65, Number 106, Rules and Regulations, pages 34913-34921) the Commission published a final rule to reduce an unnecessarily burdensome regulatory requirement by allowing licensees to justify a smaller margin for power measurement uncertainty by using more accurate instrumentation to calculate the reactor thermal power and thereby calibrate the neutron flux instrumentation.

The purpose of the proposed changes is to obtain a power uprate on the basis of plant modifications that would result in improved accuracy of feedwater flow rate measurement, which is used in the calculation of reactor thermal power. The improved instrumentation (Crossflow ultrasonic flow measurement system) would allow the licensee to operate Salem with a reduced margin between the actual power level and the 102 percent margin used in the licensing basis ECCS analyses.

ENCLOSURE

To complete its review of the proposed license changes, the staff requests a description of the programs and procedures that will control calibration of the non-safety-grade instrumentation that affect the total power uncertainty described in the licensee's proposed power uprate license amendment. The licensee has provided this information for the Crossflow system. For the remaining instrumentation the description should include a discussion of the procedures for:

- a. Maintaining calibration;
- b. Controlling software and hardware configuration;
- c. Performing corrective actions;
- d. Reporting deficiencies to the manufacturer; and
- e. Receiving and addressing manufacturer deficiency reports.

The regulatory basis for this question is to verify that programs and procedures are in place to demonstrate that the actual power measurement uncertainty will not exceed the 0.6 percent uncertainty assumed in the licensee's analyses. This will provide assurance that the 1.4 percent power uprate is justified given the 2 percent margin required by Appendix K to 10 CFR Part 50.

PSEG Nuclear LLC

Salem Nuclear Generating Station,  
Unit Nos. 1 and 2

cc:

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