PSE&G

Public Service Electric and Gas Company P.O. Box E Hancocks Bridge, New Jersey 08038

Nuclear Department

Ref 1) NS-EPR-3545, 1/20/82

October 14, 1982

Director of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Attention: Mr. Steven Varga, Chief
Operating Reactors Branch #1
Division of Licensing

Gentlemen:

CYCLE 5 RELOAD ANALYSIS
FACILITY OPERATING LICENSE DPR-70
UNIT NO. 1
SALEM GENERATING STATION
DOCKET NO. 50-272

Salem Unit No. 1 is expected to conclude its fourth cycle of operation and commence a refueling outage on October 15, 1982. It is anticipated that Cycle 4 will achieve a cycle burnup of 6000 MWD/MTU. Startup of Cycle 5 is scheduled to occur in mid-December. This letter is to inform you of PSE&G's review and plans regarding Salem No. 1 Cycle 5 reload core which is expected to achieve a burnup of 11500 MWD/MTU.

The Cycle 5 reload core will consist of 52 new Westinghouse 17x17 fuel assemblies. The assemblies will have an enrichment of 3.4 w/o (see attached figure).

A review was performed on Salem No. 1 Cycle 5 reload core which addressed those incidents analyzed and reported in the Salem FSAR that could potentially be affected by the fuel reload. This review was performed in accordance with the Westinghouse reload methodology as outlined in the March 1978 Westinghouse topical report "Westinghouse Reload Safety Evaluation Methodology" (WCAP-9272). All Cycle 5 assemblies are of the same mechanical, nuclear and thermal hydraulic design as the Cycle 4 assemblies. The total peaking factor envelope is the same for both Cycle 4 and Cycle 5. Kinetic parameter values for Cycle 5 remain within the bounds of the current limits.

A001

Since all parameters for Cycle 5 remain within the bounds of the current limits, no accident reanalysis was required. However, the dropped RCCA event was analyzed according to the new dropped rod methodology described in Reference 1. Results show that the DNB design basis is met for all dropped rod events initiated from full power so that the interim operating restrictions are no longer necessary. However until formal NRC notification is received to remove them, the plant shall continue to operate under the interim restrictions.

The locations of the Optimized Demonstration Fuel Assemblies are shown in the attachment. Both are instrumented with a movable incore flux detector and thermocouple.

The criteria with respect to $F_{\Delta H}$ and F_Q used to determine the location of the Optimized Assemblies are as follows:

1. Demonstration assemblies are placed in the core such that the lead power fuel rods operate at least 6% lower in $F_{\Delta H}$ than the maximum allowed design value for the standard assemblies.

2. Demonstration assemblies are located such that they operate with F_Q values at least 0.10 lower than the design value for standard assemblies.

PSE&G has reviewed the bases of the reload analysis and the Westinghouse Reload Safety Evaluation (RSE) Report with Westinghouse. The review of all incidents demonstrated that the results of all the postulated events are within allowable limits. The reload safety evaluation demonstrated that Technical Specification changes are not required for operation of Salem Unit 1 at rated thermal power during Cycle 4. Salem's Station Operations Review Committee has concluded that no unreviewed safety questions as defined by 10CFR50.59 are involved with this reload. Therefore, based on this review application for amendment to the Salem Unit 1 operating license is not required.

The reload core design will be verified during the startup physics testing program. This program will include, but not be limited to, the following tests:

1. Control rod drive tests and drop time
2. Critical boron concentration measurements
3. Control rod bank worth measurements

4. Moderator temperature coefficient measurement
5. Power coefficient measurement, and
6. Startup power distribution measurements using the incore flux mapping system.

Very truly yours,

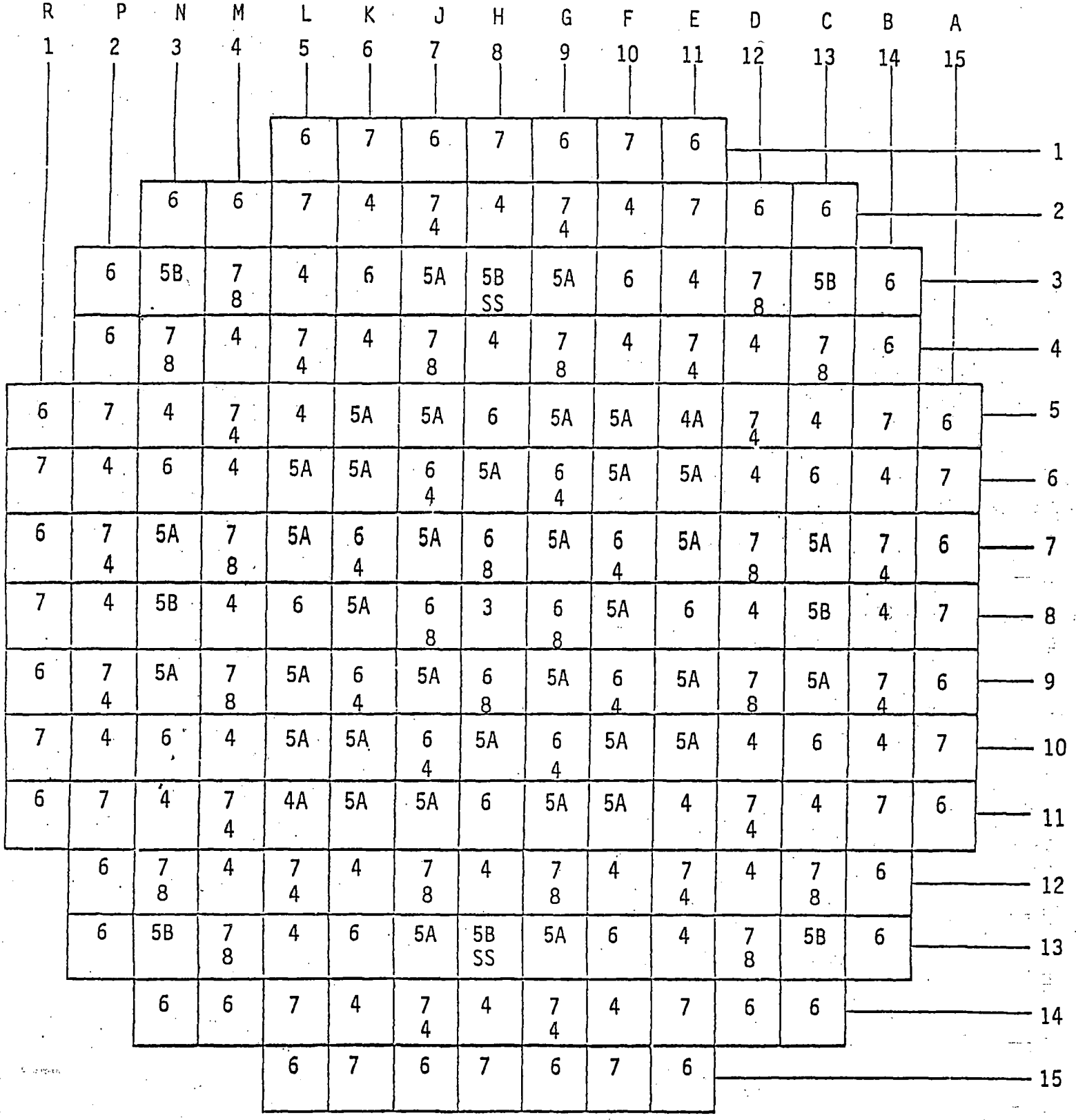
E. A. Liden
Manager - Nuclear
Licensing & Regulation

Attachment
CC: Mr. Leif Norrholm
Senior Resident Inspector

Mr. William Ross
Licensing Project Manager

SALEM 1 CYCLE 5

Region 3 - Standard 17x17	3.30 w/o	Region 5B Standard 17x17	3.41 w/o
Region 4 - Standard 17x17	2.80 w/o	Region 6 Standard 17x17	3.40 w/o
Region 4A- Optimized 17x17	2.80 w/o	Region 7 Standard 17x17	3.40 w/o
Region 5A- Standard 17x17	2.80 w/o		



X Region
Y Number of Burnable Poison Rods
SS Secondary Source Rods