NFU 84-335

PSE&G

Public Service Electric and Gas Company P.O. Box 236 Hancocks Bridge, New Jersey 08038

Nuclear Department

December 14, 1984

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

Attention: Mr. Steven A. Varga, Chief
Operating Reactors Branch No. 1
Division of Licensing

Gentlemen:

CYCLE 3 RELOAD ANALYSIS
FACILITY OPERATING LICENSE DPR-75
UNIT NO. 2
SALEM GENERATING STATION
DOCKET NO. 50-311

Salem Unit No. 2 concluded its second cycle of operation and commenced a refueling outage on October 4, 1984. Cycle 2 achieved a cycle burnup of 5,664 MWD/MTU. The startup of Cycle 3 is scheduled for April 1, 1985. The intent of this letter is to inform you of PSE&G's plans regarding Salem No. 2, Cycle 3 reload core which is expected to achieve a burnup of 16,700 MWD/MTU.

The Cycle 3 reload core will utilize 68 new Region 5 Westinghouse 17x17 fuel assemblies and 1,664 fresh burnable poison rods. The Region 5 feed fuel consists of 64 assemblies at 3.8 w/o enrichment and 4 assemblies at 3.4 w/o (see attached Figure 1). All Region 5 assemblies are of the same mechanical, nuclear and thermal hydraulic design as the Region 4 assemblies, which were inserted in Cycle 2, with the exception of the end plug design change. This design change was implemented to facilitate modified fuel rod loading techniques.

Westinghouse has completed the safety evaluation of the Cycle 3 reload core design in accordance with the Westinghouse reload methodology as outlined in the Westinghouse topical report, "Westinghouse Reload Safety Evaluation Methodology, WCAP 9273, March 1978." Based on this methodology, those incidents analyzed and reported in the Salem UFSAR that could potentially be affected by the fuel reload were addressed.

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The Cycle 3 reload analysis is predicated on the NRC approval of an amendment to the Salem 2 Technical Specification regarding the K(Z) curve (Reference 1) which was submitted to the NRC on October 15, 1984. The reload analysis showed that all cycle 3 peaking factors, rod worths and kinetic parameter values meet current limits with the exception of the Cycle 3 SCRAM curve. An investigation of the transients impacted by the change in the Cycle 3 SCRAM curve showed that the previously accepted safety limits were not exceeded. Therefore, no reanalysis was performed.

The dropped RCCA event was analyzed according to the new dropped rod methodology described in Reference 2. Results show that the DNB design basis is met for all dropped rod events initiated from full power so that the interim operating restrictions (Reference 3) will be removed for this cycle.

PSE&G has reviewed the Cycle 3 reload analysis. The review included performing an independent reload safety evaluation using in-house computer codes. The review demonstrated that the results of all the postulated events are within allowable limits assuming the approval of the K(Z) curve amendment.

The Radial Peaking Factor Limit Report for Salem Unit No. 2, Cycle 3 is presently in preparation. It will be submitted to the NRC at least 60 days prior to initial criticality of Cycle 3.

The Salem Operations Review Committee has concluded that for the operation of Salem Unit 2 at rated thermal power, the cycle 3 reload involves no unreviewed safety question as defined by 10CFR50.59. Therefore, pending NRC approval of the Salem Unit 2 K(Z) curve Technical Specification amendment, for which expedited NRC review and handling has been requested, this reload will proceed under the provisions of 10CFR50.59.

The reload core design will be verified during the startup physics testing program. This program will include, but is not 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, and
5. Power distribution measurements using the incore flux mapping system.

Very truly yours,

E. A. Liden
Manager - Nuclear
Licensing and Regulation

References:

1. Letter from E. Liden (PSE&G) to NRC (Attn. S. Varga) Request for Amendment, Facility Operating License, Unit No. 2, Salem Generating Station, Docket No. 50-311, LCR 84-08, dated October 15, 1984.

2. Letter from Cecil D. Thomas (NRC) to E. P. Rahe, Jr., (Westinghouse) Subject: Acceptance for Referencing of Licensing Topical Report WCAP-10297-A(p), WCAP-10248-A (NS-EPR-2545) Entitled "Dropped Rod Methodology for Negative Flux Rate Trip Plants," March 31, 1983.

3. Letter from Steven A. Varga (NRC) to R. A. Uderitz (PSE&G), Docket Nos. 50-272 and 50-311, dated November 1, 1982.

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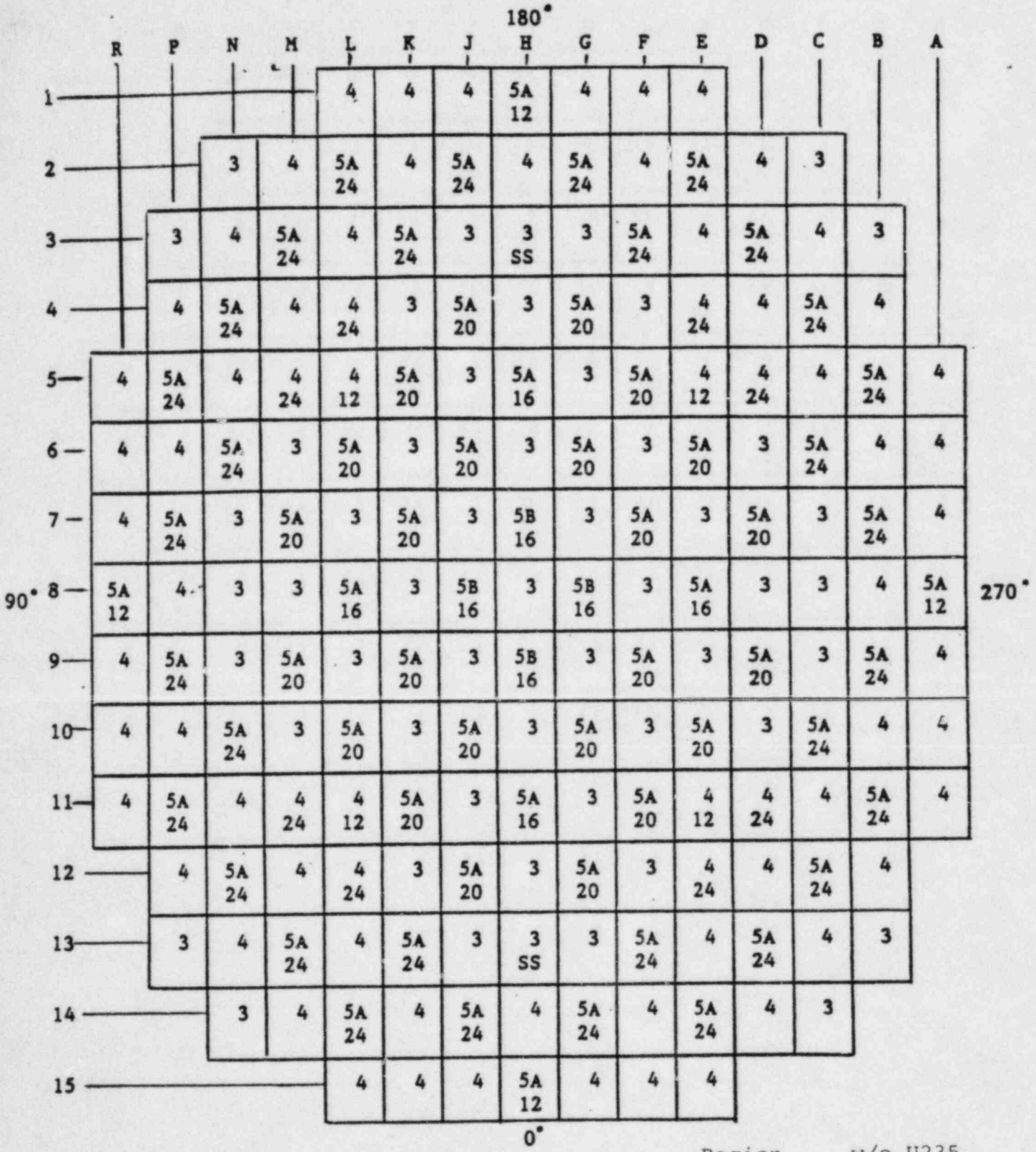
Attachment

C Mr. Donald C. Fischer
Licensing Project Manager

Mr. James Linville
Senior Resident Inspector

FIGURE 1
CORE LOADING PATTERN
SALEM UNIT 2 CYCLE 3



Region	w/o U235
3	3.12
4	3.42
5A	3.80
5B	3.40

X — REGION NUMBER
Y — NUMBER OF BURNABLE ABSORBER RODS

SS SECONDARY SOURCE RODS