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Company

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United States Nuclear Regulatory Commission
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Gentlemen:

PLANT SPECIFIC REPORT
SALEM REACTOR PHYSICS METHODS, NFU-0039, REVISION 2
SALEM UNIT NOS. 1 AND 2
DOCKET NOS. 50-272 AND 50-311

Public Service Electric and Gas (PSE&G) hereby transmits the following plant specific report entitled, "Salem Reactor Physics Methods," (NFU-0039, Revision 2). The reviewer assigned to the initial report submitted on January 20, 1986 was Brookhaven National Laboratory (BNL).

On June 19, 1986, BNL transmitted to PSE&G a core analysis standard problem (reference 2). The analysis by PSE&G (reference 3) and the evaluation of these computations by BNL (reference 4) served as the NRC's review of sections 1.0 to 3.0 of NFU-0039 Revision 1. BNL's review of these sections concluded that PSE&G's methodology, including codes, core modeling and associated input data, is acceptable for analyzing core performance and determining reload safety analysis input.

As stated in PSE&G letter dated May 9, 1990 (reference 6), the Reload Safety Evaluation (RSE) method sections 4.0 and 5.0 of NFU-0039 Revision 1 have been removed in Revision 2 of this report. PSE&G is currently in the process of developing enhanced RSE methods, which includes a formal interface between PSE&G reactor analysis and Westinghouse Safety analysis methodology. The RSE method sections will be modified and submitted as a separate report for NRC review and approval.

In NFU-0039, Revision 2, sections 1.0 through 3.0 have not been modified with the exception of adding a description of the extended burnup model. The results and conclusions determined in Revision 0 have not changed. The new Section 4.0 contains the benchmark results for the extended burnup model, as applied to the five most recent 18-month cycles for both Salem units. The intent of these additional calculations was to verify that the calculation allowances and conservatism associated with the original model are still applicable to the extended burnup model.

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The extended burnup model is similar to the earlier physics model. Both use the same 3D nodal code (TRINODE) normalized to the same 2D diffusion theory code (PDQ). The difference between the models is in the generation of cross sections. The original model used EPRI-CELL and its associated linking codes (ARMP methodology), along with CPM to generate control rod cross sections. The extended burnup model uses CPM for generation of all cross sections and physics data. The use of CPM gives the extended burnup model the capability to include mixed burnable poison loadings. As part of the benchmark process, both models were run in parallel for a recent 18-month cycle.

PSE&G has demonstrated in Section 4.0 that the reliability factors originally reported are applicable to the extended burnup model. In addition, the methodology used is not significantly different from the original ARMP methodology. Therefore, the results presented for the extended burnup model do not invalidate the original conclusions from the BNL test problem as to adequacy of methods.

To facilitate NRC review, PSE&G would entertain meeting with the NRC and BNL to present the extended burnup model methodology, benchmark results and conclusions. This could include open discussions of any questions or concerns in order that the NRC review of the revised physics methods can be closed out in the necessary time frame.

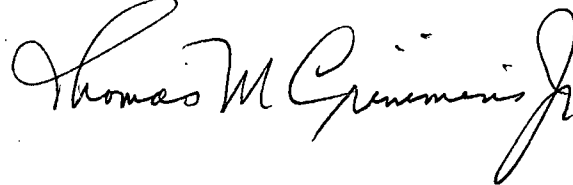
PSE&G plans to utilize the in-house physics and RSE methodologies for the 10CFR50.59 evaluation of Salem Unit 2 Cycle 9. This cycle is currently projected to begin power operation in November of 1994. In order to meet this objective, the following tentative schedule for submittal and NRC approvals is proposed:

1. NRC approval of NFU-0039, Revision 2 6/29/92
2. PSE&G submittal of RSE methods report 1/08/93
3. NRC approval of RSE methods report 1/07/94
 (in support of Salem 2 Cycle 9 reload)

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Should you have any questions regarding this information, please do not hesitate to contact us.

Sincerely,



Enclosure

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