



10 CFR 50.90

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United States Nuclear Regulatory Commission
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SALEM GENERATING STATION – UNIT 1 and UNIT 2
FACILITY OPERATING LICENSE NOS. DPR 70 and DPR-75
NRC DOCKET NOS. 50-272 and 50-311

Subject: CHANGE IN COMMITMENT CONCERNING CONTROL ROD TESTING

References: (1) Letter from NRC to PSEG: "CHANGE IN COMMITMENT CONCERNING CONTROL ROD TESTING, SALEM NUCLEAR GENERATING STATION, UNIT NOS. 1 AND 2 (TAC NOS. MD1488 AND MD1489)," dated April 26, 2007

Reference 1 provided an NRC assessment of a commitment change associated with Salem Amendment Nos. 232 and 213, and requested a 30 day response from PSEG Nuclear, LLC (PSEG) to address the issues raised. The response is provided below.

The NRC assessment concluded that when PSEG incorporated Amendments 232 and 213 (which deleted Technical Specification (TS) 3/4.1.3.2.2), PSEG should have processed a UFSAR change, in accordance with 10 CFR 50.71(e), to incorporate any analyses related to the parameter K_{eff} and its value of no greater than 0.95. This value was in TS 3/4.1.3.2.2 that was deleted by the Amendments 232 and 213. The NRC assessment further concluded that if an analyses related to K_{eff} and its value of no greater than 0.95 had been incorporated in the UFSAR, this may have required PSEG to obtain prior NRC approval, in accordance with 10 CFR 50.59(c)(2)(viii), when it subsequently changed (in 2005) the K_{eff} parameter value to no greater than 0.98.

PSEG has reviewed the issues raised in Reference 1 and has concluded that no UFSAR change was required related to Amendments 232 and 213. A discussion of these issues is provided below.

10 CFR 50.71(e) states, in part, that each person licensed to operate a nuclear power reactor shall update periodically, as provided in paragraphs 10 CFR 50.71(e)(3) and (4), the FSAR originally submitted as part of the application for the operating license, to assure that the information included in the FSAR contains the latest material developed. This submittal shall contain all the changes necessary to reflect information and

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analyses submitted to the Commission by the licensee or prepared by the licensee pursuant to Commission requirement since the submission of the original FSAR or, as appropriate, the last update to the FSAR. The submittal shall include the effects of: all changes made in the facility or procedures as described in the FSAR; all safety analyses and evaluations performed by the licensee either in support of approved license amendments or in support of conclusions that changes did not require a license amendment in accordance with 10 CFR 50.59(c)(2); and all analyses of new safety issues performed by or on behalf of the licensee at Commission request.

Further regulatory guidance is provided in RG 1.181, "Content of the Updated Final Safety Analysis Report in Accordance with 10 CFR 71(e)". RG 1.181 Regulatory Position C.1 states that Revision 1 of NEI 98-03, "Guidelines for Updating Final Safety Analysis Reports," dated June 1999, provides methods that are acceptable to the NRC staff for complying with the provisions of 10 CFR 50.71(e).

NEI 98-03, "Guidelines for Updating Final Safety Analysis Reports," provides detailed guidance on complying with the requirements of 10CFR 50.71(e). Section 6.1.2, "Changes to Facilities or Procedures" states that "the UFSAR must be updated to reflect the following effects, as applicable, of changes implemented under 10 CFR 50.90 or 10 CFR 50.59, including supporting safety evaluations:

- a change requires update of the existing UFSAR information, including changes to existing design bases, safety analyses or description of existing structures, systems, components or functions described in the UFSAR
- a change results in the removal from the plant of SSCs described in the UFSAR or the elimination of functions or procedures described in the UFSAR
- a change or supporting safety evaluation results in new design bases or safety analyses, or associated description, that must be included in the UFSAR

If a change or supporting safety evaluation does not affect existing UFSAR information and does not result in new design bases, safety analyses or UFSAR description, the UFSAR does not need to be updated to reflect the change."

The existing UFSAR description, at the time of the amendment requests, did not include any specific discussion, or analyses related to K_{eff} . UFSAR Section 4.3.1.5, "Shutdown Margin" contained the appropriate information, per 10 CFR 50.34(b), identifying that shutdown margin is specified in the Technical Specifications (i.e., TS 3/4.1.1.1). Therefore no change was required to the existing UFSAR description as a result of Amendments 232 and 213.

The amendment request to delete TS 3/4.1.3.2.2 was not based on any new or revised safety analyses. The basis for the amendment (PSEG Letter LRN00100, dated April 13, 2000) was continued compliance with TS 3/4.1.1 that required appropriate boron concentration to meet the required shutdown margin. The amendment request stated: "In the shutdown condition, compliance with the shutdown margin requirements in TS 3/4.1.1 ensures that the reactor will be maintained sufficiently subcritical to preclude inadvertent criticality. The method for calculating required RCS boron concentration is

controlled by procedure to ensure adequate SDM is maintained in modes 3, 4 and 5 when the reactor trip breakers are closed. Plant procedures will continue to ensure inadvertent criticality is precluded during full length rod testing." The method for calculating the required boron concentration was not required to be changed to support the amendment.

The amendment request further stated, "While more than one shutdown or control bank may be withdrawn from the fully inserted position at a time, a shutdown margin of at least 5% delta-k (K_{eff} no greater than 0.95) will continue to be maintained by procedures during full-length control rod testing to prevent inadvertent criticality in the shutdown condition". This statement was not related to any analyses, existing or new; it was a simple confirmation that appropriate procedural controls continued to be in place. The concluding statement of the Justification section of the amendment request specifically cited the basis for the requested change:

"Adequate shutdown capability is maintained by boration as required by TS 3/4.1.1.1. Operability of the shutdown and control rod group demand position indication is not required in modes 3, 4 and 5 to ensure the ability of the plant to be shutdown and therefore is not required by 10 CFR 50.36."

The justification for the amendment request was not based on any new analysis related to the value of K_{eff} . Consequently, there was no requirement, per 10 CFR 50.71(e), RG 1.181 and NEI 98-03, to update the UFSAR; no new analysis was involved. In addition, the basis for the amendment did not identify any requirement to relocate any information from TS to the UFSAR.

The value of K_{eff} remained in procedures as a parameter input for the calculation to determine boron concentration in accordance with TS 3/4.1.1.1. Since more than one rod bank could be withdrawn at a time, the nuclear design reports need to include the calculation to determine the boron concentration to maintain appropriate K_{eff} with up to all of the control rod banks withdrawn. However, this is not new analysis, just appropriate adjustment from the prior single bank withdrawn calculation. The analyses methodology remained unchanged and involved taking the core reload model and determining the boron concentration or core reactivity under the conditions of interest (i.e., reactor temperature, time in core life, specific rod bank or banks withdrawn).

The PSEG amendment approach was consistent with the Standard Technical Specifications for Westinghouse Plants, NUREG-1431, Rev. 1, and prior amendments that had been issued to both D. C. Cook and Zion Power Stations. The sole basis for these changes was that adequate shutdown capability is maintained by boration and its' related TS, which is consistent with the PSEG amendment request.

Based on the preceding discussion, since there were no changes in any safety analysis, and no new safety analyses, there was no requirement to revise the UFSAR per 10 CFR 50.71(e) at the time amendments 232 and 213 were implemented. This is consistent with the guidance provided in RG 1.181 and NEI 98-03.

If you have any questions or require additional information, please do not hesitate to contact Mr. Jamie Mallon at (610) 765-5507.



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