

April 26, 2007

Mr. William Levis
Senior Vice President & Chief Nuclear Officer
PSEG Nuclear LLC - N09
Post Office Box 236
Hancocks Bridge, NJ 08038

SUBJECT: CHANGE IN COMMITMENT CONCERNING CONTROL ROD TESTING,
SALEM NUCLEAR GENERATING STATION, UNIT NOS. 1 AND 2 (TAC NOS.
MD1488 AND MD1489)

Dear Mr. Levis:

By letter dated April 28, 2006 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML061290585), PSEG Nuclear LLC (PSEG or the licensee) provided notification to the Nuclear Regulatory Commission (NRC or the Commission) regarding a change in a commitment concerning control rod testing for Salem Nuclear Generating Station, Unit Nos. 1 and 2 (Salem). This letter provides the results of the NRC staff's review of the commitment change.

As discussed in your letter, the commitment change pertains to Salem Units 1 and 2 Amendment Nos. 232 and 213, which were issued by the NRC staff on August 17, 2000 (ADAMS Accession No. ML003735428). These amendments approved the deletion of Technical Specification (TS) 3/4.1.3.2.2, which related to control rod group demand position indication during plant Modes 3, 4, and 5. On the basis of statements made in PSEG's amendment request dated April 13, 2000 (ADAMS Accession No. ML003706440), the NRC's staff's safety evaluation for Amendment Nos. 232 and 213 stated, in part, that:

Compliance with the TS 3/4.1.1 shutdown margin requirements in Modes 3, 4, and 5 ensures that the reactor will be maintained sufficiently subcritical to preclude inadvertent criticality. The method for calculating the required RCS [reactor coolant system] boron concentration is controlled by plant procedures to ensure adequate shutdown margin (SDM) is maintained in shutdown Modes 3, 4, and 5 when the trip breakers are closed. These procedures will continue to ensure inadvertent criticality is precluded during full length control rod testing. **Although more than one shutdown or control bank may be withdrawn from the fully inserted position at a time, a shutdown margin of at least 5% Δk (k_{eff} no greater than 0.95) will continue to be maintained by procedures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.** [emphasis added]

Your letter dated April 28, 2006, stated that although the amendments resulted in being able to perform control rod testing on multiple banks, maintaining k_{eff} at or below 0.95 requires the RCS to be borated to around 2700 parts per million (ppm) well over the typical refueling boron concentration of approximately 2100 ppm. The high boron concentration can result in excessive primary water processing to dilute back down to the critical boron concentration (i.e., potential outage schedule impact).

Your letter indicated that PSEG performed an evaluation to determine if a less restrictive k_{eff} could be implemented. Based on this evaluation, PSEG revised its commitment to read as follows:

Although more than one shutdown or control bank may be withdrawn from the fully inserted position at a time, the maximum allowable core k_{eff} will be limited to no greater than 0.98 (assuming that all shutdown and control rod banks are fully withdrawn), during full length control rod testing, to preclude inadvertent criticality during the performance of the specific evolution in the shutdown condition.

Your letter stated that the revised commitment was implemented using the provisions of Section 50.59 of Title 10 of the *Code of Federal Regulations* (10 CFR).

The NRC's requirements for licensee updates to the facility Final Safety Analysis Report (FSAR) are provided in 10 CFR 50.71(e). This regulation 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 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. The updated information shall be appropriately located within the FSAR.

10 CFR 50.71(e)(4) further provides that all FSAR revisions must be filed annually or 6 months after each refueling outage provided the interval between successive updates does not exceed 24 months. The revisions must reflect all changes up to a maximum of 6 months prior to the date of filing.

NRC Regulatory Guide 1.181, "Content of the Updated Final Safety Analysis Report in Accordance with 10 CFR 50.71(e)," dated September 1999, endorses Nuclear Energy Institute (NEI) 98-03, "Guidelines for Updating Final Safety Analysis Reports," Revision 1, dated June 1999 (ADAMS Accession No. ML003779028), as providing methods acceptable to the NRC staff for complying with the provisions of 10 CFR 50.71(e).

As discussed above, 10 CFR 50.71(e) requires that FSAR updates shall include 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. Section 3.6 of NEI 98-03 states, in part, that safety analyses are analyses performed pursuant to Commission requirement to demonstrate the integrity of the reactor coolant pressure boundary, **the capability to shut down the reactor and maintain it in a safe shutdown condition**, or the capability to prevent or mitigate the consequences of accidents [emphasis added].

By letter dated May 5, 2006 (ADAMS Accession No. ML061320301), PSEG submitted Revision 22 of the Salem UFSAR. Your letter stated that Revision 22 included changes required to reflect plant configuration as of November 6, 2005. Your letter dated April 28, 2006, indicated that the subject commitment change was made in 2005. Based on NRC Headquarters staff interface with the NRC Salem resident inspectors, it is our understanding that the subject commitment change was made prior to November 6, 2005.

Since the commitment pertains to changes to Salem procedures to preclude inadvertent criticality, the NRC staff believes that the analyses done by PSEG related to the commitment would meet the NEI 98-03 definition of "safety analyses" insofar that they were performed to demonstrate the capability to maintain the reactor in a safe shutdown condition. As such, the change in commitment should have been reflected in Revision 22 of the Salem FSAR. However, the NRC staff was unable to locate any discussion of this change in the Salem FSAR. In addition, analyses related to the original commitment made in support of Amendment Nos. 232 and 213 should have previously been incorporated in the FSAR.

The NRC staff concludes that had the analyses done by PSEG been previously incorporated in the Salem UFSAR, the change in commitment would likely have required prior NRC approval based on the requirements in 10 CFR 50.59. Specifically, 10 CFR 50.59(c)(2)(viii) requires that a licensee obtain a license amendment, pursuant to 10 CFR 50.90, if the change would "result in a departure from a method of evaluation described in the FSAR (as updated) used in establishing the design bases or in the safety analyses."

The NRC staff requests that, within 30 days of the date of this letter, PSEG provide its plans and schedule for resolving the aforementioned conditions. Note, the above issues may be assessed further by the NRC Region I inspection staff.

This completes the NRC staff efforts on TAC Nos. MD1488 and MD1489 for the review associated with the commitment change. If you have any questions regarding this matter, I may be reached at 301-415-1420.

Sincerely,

/ra/

Richard B. Ennis, Senior Project Manager
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-272 and 50-311

cc: See next page

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 Richard B. Ennis, Senior Project Manager
 Plant Licensing Branch I-2
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 Office of Nuclear Reactor Regulation

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