March 11, 2008

MEMORANDUM TO: Harold K. Chernoff, Chief
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

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

SUBJECT: SALEM NUCLEAR GENERATING STATION, UNIT NO. 1,
DRAFT REQUEST FOR ADDITIONAL INFORMATION
(TAC NO. MD7172)

The attached draft request for information (RAI) was transmitted on March 11, 2008, to Mr. Jeff Keenan of PSEG Nuclear LLC (the licensee). This information was transmitted to facilitate an upcoming conference call in order to clarify the licensee's submittal for Salem Nuclear Generating Station (Salem), Unit No. 1, dated October 10, 2007. The submittal provided the steam generator tube inspection report for Salem Unit No. 1 refueling outage 18 (1R18).

This memorandum and the attachment do not convey or represent an NRC staff position regarding the licensee's submittal.

Docket No. 50-272

Attachment: Draft RAI

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DRAFT REQUEST FOR ADDITIONAL INFORMATION

REGARDING STEAM GENERATOR TUBE INSPECTIONS CONDUCTED

DURING THE SPRING 2007 REFUELING OUTAGE AT

SALEM NUCLEAR GENERATING STATION, UNIT NO. 1

DOCKET NO. 50-272

By letter dated October 10, 2007 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML072970094), PSEG Nuclear LLC (the licensee) submitted a report to the Nuclear Regulatory Commission (NRC) describing the results of the steam generator (SG) tube inspections conducted during the spring 2007 refueling outage (refueling outage 1R18) at Salem Nuclear Generating Station (Salem), Unit No. 1.

The Nuclear Regulatory Commission (NRC) staff has reviewed the information the licensee provided and would like to discuss the following issues to clarify the submittal.

1. You indicated that you inspected 20% of the hot-leg population of internal tubesheet over expansions (OEX) and bulges (BLG) from the top of the tubesheet (TTS) to 17 inches below the TTS. Please provide the total population of OEXs and BLGs in each SG.

2. Please discuss the scope and results of any secondary side inspections, including foreign object search and retrieval performed during the spring 2007 outage. Please discuss the extent to which visual inspections were performed at possible loose part indications identified through eddy current examinations and the results of these exams. Please discuss the extent to which loose parts were identified visually but not by eddy current examination, also, please discuss the extent to which loose parts were identified by +Point^{TM} coil inspection but not by bobbin coil inspection.

3. For each refueling outage and for each SG inspection outage since the installation of your SGs, please provide the cumulative effective full power months of operation that the SGs had accumulated at the time of the outage.

4. You indicated, in part, that in approximately 62 tubes you performed rotating coil inspections of dents and dings that had bobbin voltages greater than 5 volts. Please clarify whether you inspected all dents and dings greater than 5 volts in all four SGs (i.e., are all dents and dings greater than 5 volts located in 62 tubes). In particular, provide the percentage of greater than 5-volt dents and dings examined, the percentage of greater than or equal to 2-volt dents and dings in the U-bends examined, and the percentage of anti-vibration bar (AVB) wear indications examined with a rotating coil. Please confirm that all new AVB wear indications were inspected with a rotating coil.

Attachment

5. You indicated that none of the detected indications challenged the structural integrity performance criterion; therefore, the accident-induced leakage performance criterion is also satisfied. Although you may be able to demonstrate that you satisfied the accident-induced leakage performance criterion, such a conclusion is not supported simply because you satisfied the structural integrity performance criterion. That is, all tubes could have adequate structural integrity and the SG may not satisfy the accident-induced leakage performance criterion. Please clarify/correct your statement.

6. Please summarize the basis for your 32-percent through-wall repair criterion for wear at the AVBs. The NRC staff notes that the indication in SG 13 in row 54, column 65 at the 3rd AVB grew from 27-percent through-wall to 71-percent through-wall over two cycles. This indication exceeded your 63-percent condition monitoring limit (although the tube had adequate integrity). If one were to assume that similar growth could occur in other tubes, it would appear that a repair criterion less than 27-percent through-wall should have been implemented if the goal is to operate more than one cycle between inspections. The NRC staff also notes that although this tube had integrity it could be because the material properties of the specific tube were higher than those used during the determination of the condition monitoring limit (and the next tube may have worse properties).

7. The number of tubes plugged for AVB wear and the growth rates for these indications appear higher than for other plants with Model F SGs. Please discuss any insights on why you may have more tubes affected by wear and the higher growth rates.