



**AUG 10 2010**

10 CFR 50  
10 CFR 51  
10 CFR 54

LR-N10-0295

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001

Salem Nuclear Generating Station, Unit No. 1 and Unit No. 2  
Facility Operating License Nos. DPR-70 and DPR-75  
NRC Docket Nos. 50-272 and 50-311

Subject: Responses to NRC Requests for Additional Information dated July 12, 2010, July 19, 2010 and July 23, 2010 Related to Various Sections of the Salem Nuclear Generating Station, Units 1 and 2 License Renewal Application

- References:
1. Letter from Ms. Bennett Brady (USNRC) to Mr. Thomas Joyce (PSEG Nuclear, LLC) "REQUEST FOR ADDITIONAL INFORMATION FOR SALEM NUCLEAR GENERATING STATION UNITS 1 AND 2 LICENSE RENEWAL APPLICATION REGARDING ASME SECTION XI ISI, SUBSECTIONS IWB, IWC, AND IWD (TAC NOS. ME1834 AND ME1836)," dated July 12, 2010
  2. Letter from Ms. Bennett Brady (USNRC) to Mr. Thomas Joyce (PSEG Nuclear, LLC) "REQUEST FOR ADDITIONAL INFORMATION FOR THE SALEM NUCLEAR GENERATING STATION, UNIT 1 AND UNIT 2, LICENSE RENEWAL APPLICATION, SECTION 4.6 (TAC NOS. ME1834 AND ME1836)," dated July 19, 2010
  3. Letter from Ms. Bennett Brady (USNRC) to Mr. Thomas Joyce (PSEG Nuclear, LLC) "REQUEST FOR ADDITIONAL INFORMATION FOR ELASTOMER COMPONENTS FOR THE SALEM NUCLEAR GENERATING STATION, UNIT 1 AND UNIT 2, LICENSE RENEWAL APPLICATION (TAC NOS. ME1834 AND ME1836)," dated July 23, 2010

In the Reference 1 letter, the NRC requested additional information related to the ASME Section XI ISI Subsections IWB, IWC and IWD Program associated with the Salem Nuclear Generating Station, Units 1 and 2 (Salem) License Renewal Application (LRA). Reference 2 requested additional information related to Section 4.6 of the Salem LRA. Reference 3 requested additional information associated with elastomer components. Enclosed are the responses to these requests for additional information.

A141  
NRK

AUG 10 2010

This letter and its enclosure contain no regulatory commitments.

If you have any questions, please contact Mr. Ali Fakhar, PSEG Manager - License Renewal, at 856-339-1646.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on 8/10/10

Sincerely,



Robert C. Braun  
Senior Vice President Operations  
PSEG Nuclear LLC

Enclosure: Responses to Requests for Additional Information

cc: Regional Administrator – USNRC Region I  
B. Brady, Project Manager, License Renewal – USNRC  
R. Ennis, Project Manager - USNRC  
NRC Senior Resident Inspector – Salem  
P. Mulligan, Manager IV, NJBNE  
L. Marabella, Corporate Commitment Tracking Coordinator  
Howard Berrick, Salem Commitment Tracking Coordinator

**Enclosure**

**Responses to Requests for Additional Information related to Various Sections of  
the Salem Nuclear Generating Station, Units 1 and 2,  
License Renewal Application (LRA)**

RAI B.2.1.1-01  
RAI 3.3.2.2.13-01  
RAI 4.6-01

**RAI B.2.1.1-01**

**Background:**

GALL AMP XI.M1, "ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD" states in program element 4, "detection of aging effects," that components are examined and tested as specified in Tables IWB-2500-1, IWC-2500-1, and IWD-2500-1, respectively, for Class 1, 2, and 3 components. However, LRA Section B.2.1.1 states that the Salem ASME Section XI program includes a risk-informed inservice inspection (RI-ISI) program used to determine the inspection locations, inspection frequency, and inspection techniques for Class 1 Category B-F and B-J, and Class 2 Category C-F-1 and C-F-2 welds.

**Issue:**

RI-ISI and other alternatives to ASME Code Section XI specifications are approved for only the current 10-year ISI interval in accordance with 10 CFR 50.55a. There is no assurance that such alternatives, if requested, would be approved for future ISI intervals; such alternatives are not approved as part of license renewal in accordance with 10 CFR 54; and the plant's current 10-year ISI interval does not overlap with the period of extended operation. Because the current 10-year ISI interval does not continue into the period of extended operation, the staff needs clarification with regard to discussion of RI-ISI and other alternatives to ASME Code Section XI specifications in the "Program Description" for LRA Appendix B.2.1.1.

**Request:**

Please clarify why RI-ISI or other alternatives are being discussed in the LRA's "Program Description" for the ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD program, or revise the LRA to delete discussion of RI-ISI and other alternatives to the requirements of ASME Code Section XI, Subsections IWB, IWC, and IWD.

**PSEG Response:**

Clarification for why Risk-Informed In-Service Inspection (RI-ISI) and other alternatives to ASME Code Section XI specifications were discussed in the LRA is provided. These alternatives were discussed in the LRA because they are contained in the existing Salem Unit 1 and 2 Generating Station ISI Program Plans for the Third Ten-Year Inspection Intervals, which were used to evaluate the ISI programs against the associated GALL program requirements. Salem recognizes that the license renewal process does not review and approve future station ISI program plans including RI-ISI and other alternatives to the ASME Code Section XI requirements. The current ten-year ISI intervals for Salem Units 1 and 2 do not continue into the period of extended operation, therefore Salem Unit 1 and 2 will be required to submit updates to the Salem Unit 1 and 2 Generating Station ISI Program Plans at the end of their current ten-year ISI intervals. The Salem Unit 1 and 2 Generating Station ISI Program Plan updates will be developed and submitted to the NRC staff for review and approval in accordance with the requirements of 10 CFR 50.55a.

**RAI 3.3.2.2.13-01**

Background:

License renewal application (LRA) Subsection 3.3.2.2.13 states that item number 3.3.1-34 is not applicable for Salem Nuclear Generating Station (Salem) because elastomer components that experience wear are periodically replaced and therefore are not subject to aging management review. As required by 10 CFR 54.21 (a)(ii), "Structures and components subject to an aging management review shall encompass those structures and components ... that are not subject to replacement based on a qualified life or specified time period."

Issue:

Although the LRA states that elastomer components that experience wear are periodically replaced, it is not clear to the staff whether the replacement frequency is based on a qualified life or on a specified time period.

Request:

- a) Identify what systems contain in-scope elastomer components that experience wear and are subject to periodic replacement.
- b) Clarify whether the replacement frequency for elastomer components that experience wear is based on a qualified life or on a specified time period.
- c) Provide the technical basis for the components' qualified life or replacement time period, and justify why that replacement frequency is adequate to provide reasonable assurance that failure due to age-related wear does not occur between successive replacements.

PSEG Response:

- a) Elastomer materials can be subject to wear as a result of repeated relative motion between two surfaces, frequent manipulation, exposure to hard abrasive particles or other operating conditions that could cause removal of surface layers. The population of in-scope elastomer components that experience wear and are subject to periodic replacement at Salem is limited to the fire hoses in the Fire Protection system. Fire hoses are subject to relative motion when installed on hose reels or hose racks, or when deployed for use or testing.
- b) Salem Fire Protection system fire hoses are periodically tested and inspected and replaced based on condition, in accordance with National Fire Protection Association (NFPA) standards as described in Salem LRA Section 2.1.6.4, "Consumables". NFPA standards require monitoring condition or performance during testing and inspection to determine if the fire hoses are at the end of their qualified lives.
- c) Fire hoses in the Fire Protection system are periodically tested and inspected and replaced based on condition, in accordance with National Fire Protection Association (NFPA) standards as described in Salem LRA Section 2.1.6.4, "Consumables". NFPA standards are designed such that the inspection and test frequencies outlined are sufficient to preclude failure due to age-related wear between successive fire hose replacements. Salem

operating experience does not indicate the occurrence of failure of fire hoses between successive inspections and testing activities. Therefore, the implementation of the requirements of NFPA standards is adequate to provide reasonable assurance that failure due to age-related wear does not occur between successive replacements.

**RAI 4.6-01**

**Background:**

In license renewal application (LRA) Section 2.3.3.9, "Scoping and Screening," the applicant listed a total of 33 cranes and hoists as in-scope for license renewal. Table 3.3.2-9 of the LRA requires a time-limited aging analysis (TLAA) of crane/hoist bridge/trolley girders for aging management due to cumulative fatigue damage/fatigue in accordance with GALL Report recommendations.

**Issue:**

LRA Section 4.6 "Crane Load Cycle Limit," identified TLAA for only three cranes: "Polar Gantry Crane," "Fuel Handling Crane," and the "Cask Handling Crane." TLAA for other in-scope cranes with girders are not provided in LRA Section 4.6.

**Request:**

Explain why a TLAA for other cranes with girders is not included in the LRA. The staff needs this information to confirm that an evaluation of the fatigue of the in-scope crane girders has been performed that will remain valid for the period of extended operation as required by 10 CFR 54.21(c)(1)(i).

**PSEG Response:**

Time-Limited Aging Analyses (TLAAs) are provided only for those cranes with girders whose analyses were considered to meet all of the six (6) criteria specified in 10 CFR 54.3(a), therefore defining them as a TLAA. Of the thirty-two (32) in-scope cranes and hoists, the Polar Gantry Crane and the Cask Handling Crane have girders with an associated TLAA as discussed in LRA Section 4.6. The third crane discussed in LRA Section 4.6 is the Fuel Handling Crane, which has a girder with an associated TLAA, and is evaluated as part of the Fuel Handling & Fuel Storage System, and not part of Cranes and Hoists system. Structural and seismic calculations were found for the Polar Gantry Crane, Fuel Handling Crane, and the Cask Handling Crane.

The calculations and analyses, along with other plant documents, for these three cranes were found to reference design specifications that incorporate the requirements of either EOCI-61, "Specifications for Electric Overhead Traveling Cranes", 1961, or its replacement document, CMAA-70, "Specifications for Top Running Bridge and Gantry Type Multiple Girder Electric Overhead Traveling Cranes". Contained within CMAA-70 are a set of design limitations on the allowable stress range for repeated loads that depends upon load cycles, service class, and design configurations. As a result, the Polar Gantry Crane, the Fuel Handling Crane, and the Cask Handling Crane were conservatively considered to have a TLAA, and were further evaluated with a service class consisting of a minimum allowable design value of 20,000 load cycles as discussed in Section 4.6 of the LRA.

The remaining in-scope cranes and hoists, including those comprising the Fuel Handling & Fuel Storage System, either do not have girders, or have girders that do not have calculations and analyses that would be considered a TLAA.

Therefore, no further evaluation is required of in-scope cranes and hoists beyond those discussed in Section 4.6 of the LRA.