



OCT 07 2010

10 CFR 50  
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LR-N10-0369

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: Response to NRC Request for Additional Information dated September 29, 2010, Related to Potential Impact Of Primary Water Stress Corrosion Cracking (PWSCC) In Steam Generator (SG) Divider Plate Assembly On Adjacent Components associated with the Salem Nuclear Generating Station, Units 1 and 2 License Renewal Application

Reference: 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 (TAC NOS. ME1834 AND ME1836)," dated September 29, 2010

In Reference 1, the NRC requested additional information related to potential impact of Primary Water Stress Corrosion Cracking (PWSCC) in Steam Generator (SG) Divider Plate Assembly on adjacent components, associated with the Salem Nuclear Generating Station, Units 1 and 2 (Salem) License Renewal Application. Enclosed is the response to the request for additional information.

Commitment number 50 of the License Renewal Commitment List is added as shown on page 4 of the Enclosure.

There are no other new or revised regulatory commitments contained in this letter.

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

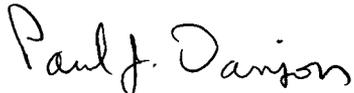
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OCT 07 2010

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

Executed on 10/7/10

Sincerely,



Paul J. Davison  
Vice President, Operations Support  
PSEG Nuclear LLC

Enclosure: Response to Request for Additional Information related to potential impact of  
Primary Water Stress Corrosion Cracking (PWSCC) in Steam Generator (SG)  
Divider Plate Assembly on adjacent components

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

Response to Request for Additional Information related to potential impact of Primary Water Stress Corrosion Cracking (PWSCC) in Steam Generator (SG) Divider Plate Assembly on adjacent components, associated with the Salem Nuclear Generating Station, Units 1 and 2 License Renewal Application (LRA)

RAI 3.1.1-02 (Follow-up to RAI 3.1.1-01)

**RAI 3.1.1-02**

**Follow-up to RAI 3.1.1-01 on SNGS SG DP PWSCC**

Background:

Based on foreign operating experience, the staff's concern in RAI 3.1.1-01 was about the potential impact of primary water stress corrosion cracking (PWSCC) in steam generator (SG) divider plate assembly on adjacent components, which are part of the reactor coolant pressure boundary (channel head, tubesheet, tube-to-tubesheet weld). In its response to RAI 3.1.1-01, dated July 08, 2010, the applicant describes the materials of its SGs divider plate assembly, which are Alloy 600 for the stub runner and the divider plate, and Alloy 82/182 for the welds that attach the divider plate and stub runner to each other, and to the channel head and to the tubesheet. The applicant also provides additional elements in order to justify why the potential for cracking of its SG divider plate propagating into adjoining components and resulting in loss of the integrity of the reactor coolant pressure boundary would not be expected to occur, and therefore the SGs divider plate does not require an aging management program consisting of inspections for crack propagation.

Issue:

Although not considered to be an immediate safety issue, the potential presence of cracks in Alloy 600 steam generator divider plate assemblies may result in a condition where these cracks could propagate into surrounding pressure boundary areas, such as the tube-to-tubesheet welds and the channel head. Although the applicant has provided qualitative arguments for concluding that divider plate cracking is not a concern, the RAI response does not provide an appropriate and sufficient basis for justifying the applicant's conclusions. Further, the use of analytical tools to predict the behavior of service-induced cracking (in other components) has not always bounded actual service performance of these cracks.

Request:

The applicant is requested to provide an aging management program (AMP), changes to an existing AMP, or a commitment to inspection(s) that would demonstrate the condition of the steam generator divider plate assemblies to support a conclusion that there will be no adverse consequences of divider plate assembly degradation during the renewed license period.

PSEG Response:

As discussed in our response to RAI 3.1.1-01 in PSEG letter LR-N10-0247, dated July 8, 2010, this issue applies only to the Salem Unit 1 steam generators due to the materials of construction of their divider plate assemblies.

The original Salem Unit 1 Westinghouse Model 51 steam generators were replaced with Westinghouse Model F steam generators, and all four went into operation in April 1998. Each of the four Model F steam generators contain a divider plate assembly consisting of an Alloy 600 plate and stub runner, and Alloy 82/182 welds.

The Electric Power Research Institute (EPRI) has extensively evaluated the foreign operating experience with divider plate cracking in their reports dated June 2007, November 2008, and December 2009, and concluded that a cracked divider plate in a Westinghouse Model F steam generator is not a safety concern, and does not affect the design of the adjacent pressure boundary components.

The current industry plans are to study the potential for divider plate crack growth, and develop an industry-applied resolution to the concern through the EPRI Steam Generator Management Program (SGMP) Engineering and Regulatory Technical Advisory Group. This industry-lead effort is expected to begin in 2011 and is expected to be completed within two years.

Salem performed a VT-3 inspection of each of the four Unit 1 steam generator divider plates during a 2004 outage. The results of the examination indicated no Alloy 600 component degradation or weld cracks. In the spring outage of 2010, Salem performed a Visual Examination (VE) in accordance with Code Case N-722 as amended by 10 CFR 50.55a, on an Alloy 600 component and found no evidence of boron leakage. This component is the bottom bowl drain, which is located in the primary channel head, and is subjected to the same environment as the divider plate assembly, and experiences an operating pressure of 2,235 psig. The divider plate is not a pressure boundary component, and is subject to only a differential pressure across the plate of less than 50 psi. To date, there has been no evidence of cracking in the Alloy 600 components within the steam generator pressure boundary.

However, Salem will perform an inspection of each of the four (4) Unit 1 steam generators to assess the condition of the divider plate assembly. The examination technique(s) used will be capable of detecting primary water stress corrosion cracking (PWSCC) in the steam generator divider plate assemblies and the associated welds. The steam generator divider plate inspections will be completed within the first (10) years of the period of extended operation.

Salem also plans to remain involved with the on-going industry studies related to divider plate cracking to ensure that any inspection requirements or other resolution actions promulgated to the industry are evaluated and implemented, as appropriate.

As a result of this RAI response, the commitment discussed above is added to Table A.5 License Renewal Commitment List as shown below:

**A.5 License Renewal Commitment List**

NO.	Program or Topic	Commitment	UFSAR Supplement Location (LRA App. A)	Enhancement or Implementation Schedule	Source
50	Steam Generator Divider Plate Inspection	Salem will perform an inspection of each of the four (4) Unit 1 steam generators to assess the condition of the divider plate assembly. The examination technique(s) used will be capable of detecting primary water stress corrosion cracking (PWSCC) in the steam generator divider plate assemblies and the associated welds. The steam generator divider plate inspections will be completed within the first ten (10) years of the Salem Unit 1 period of extended operation.	Not Applicable	Prior to August 2026	Letter LR-N10-0369