



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

August 3, 2010

Mr. Thomas Joyce
President and Chief Nuclear Officer
PSEG Nuclear LLC
P.O. Box 236
Hancocks Bridge, NJ 08038

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION REGARDING ASME
SECTION XI, SUBSECTION IWE FOR THE SALEM NUCLEAR GENERATING
STATION UNITS 1 AND 2 LICENSE RENEWAL APPLICATION
(TAC NOS. ME1834 AND ME1836)

Dear Mr. Joyce:

By letter dated August 18, 2009, Public Service Enterprise Group Nuclear, LLC, submitted an application pursuant to Title 10 of the *Code of Federal Regulations* Part 54 for renewal of Operating License Nos. DPR-70 and DPR-75 for Salem Nuclear Generating Station Units 1 and 2, respectively. The staff of the U.S. Nuclear Regulatory Commission (NRC or the staff) is reviewing this application in accordance with the guidance in NUREG-1800, "Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants." During its review, the staff has identified areas where additional information is needed to complete the review. The staff's request for additional information is included in the Enclosure. Further requests for additional information may be issued in the future.

Items in the enclosure were provided to John Hufnagel and other members of your staff, and a mutually agreeable date for the response is within 30 days from the date of this letter. If you have any questions, please contact me by telephone at 301-415-2981 or by e-mail at bennett.brady@nrc.gov.

Sincerely,

A handwritten signature in black ink, appearing to be "Bennett M. Brady", written over a large, stylized scribble.

Bennett M. Brady, Project Manager
Projects Branch 1
Division of License Renewal
Office of Nuclear Reactor Regulation

Docket No. 50-272 and 50-311

Enclosure:
As stated

cc w/encl: Distribution via Listserv

REQUEST FOR ADDITIONAL INFORMATION REGARDING
ASME SECTION XI, SUBSECTION IWE FOR THE
SALEM NUCLEAR GENERATING STATION UNITS 1 AND 2
LICENSE RENEWAL APPLICATION
(TAC NOS. ME1834 AND ME1836)

RAI B.2.1.28-03

Background:

In response to RAI B.2.1.28-1, PSEG committed to perform additional corrective actions and augmented inspections for the Unit 1 and 2 containment liners and moisture barriers before the period of extended operation.

Issue:

The most recent IWE inspections of the Unit 1 and Unit 2 containment liners were performed in the spring of 2010 and fall of 2009, respectively. These inspections identified the need for augmented inspections and other corrective actions in accordance with requirements in ASME Section XI Subsection IWE. IWE-2420 requires that augmented inspections be completed during the next inspection period. The period of extended operation for Salem Units 1 and 2 will commence in August 2016 and April 2020, respectively. The staff is concerned that delays in completing the augmented inspections and corrective actions until prior to the start of the period of extended operation may affect the leak tightness of the containment liner.

Request:

The applicant is requested to provide a detailed schedule for performing corrective actions and augmented inspections for the Unit 1 and 2 containment liners that comply with requirements in ASME Section XI Subsection IWE.

Follow-up RAI B.2.1.28-04

Background:

In response to RAI B.2.1.28-2, PSEG committed to perform examinations of inaccessible areas of the Unit 1 and 2 containment liners at 57 randomly selected insulation panels, in each unit, before the period of extended operation to detect evidence of loss of material. In addition, a total of 12 containment liner insulation panels will be selected, in each unit, during each ten-year inspection interval of the period of extended operation, to monitor the condition of the containment liner plates behind the liner insulation panels.

Issue:

The most recent IWE inspections of the Unit 1 and Unit 2 containment liners were performed in the spring of 2010 and fall of 2009, respectively. These inspections identified the need for inspecting inaccessible portions of the containment liners located behind the insulation panels because corrosion was detected in some liner plate sections located behind the insulation. The period of extended operation for Salem Units 1 and 2 will commence in August 2016 and April

2020, respectively. Therefore, the staff is concerned that corrosion in the inaccessible portions of the liners could remain undetected until the period of extended operation. This delay in inspection of liner plates located behind the randomly selected insulation panels may affect the leak tightness of the containment liners. By the requirements of 10 CFR 54.3 the effects of aging on the functionality of in-scope structures such as the containment liner must be managed to maintain the current licensing basis (CLB) during the period of extended operation. In addition, the RAI response does not clearly identify the time gap between inspections of liner plates located behind 57 randomly selected insulation panels and the subsequent inspections of liner plates located behind the 12 insulation panels.

Request:

The applicant is requested to provide the following:

1. Schedule for performing liner plate inspections at 57 randomly selected locations and augmented inspections for Unit 1 and 2 containment liners that comply with requirements in ASME Section XI Subsection IWE and 10 CFR 54.3.
2. The time gap between inspections of liner plates at 57 randomly selected insulation panels and subsequent inspections at 12 insulation panels.

RAI B.2.1.33-05

Background:

In its response to RAI B.2.1.33-1, dated May 13, 2010, the applicant stated that:

1. The predicted depth of penetration of concrete after 70 years exposure to spent fuel pool (spf) water at 100°F is 1.30 inch. The applicant has analyzed the concrete structure assuming degradation of this layer; however, this assumes that borated water only migrates through the concrete along the construction joint.
2. Salem has also assessed the impact of potential degradation of the slab on the integrity of the SFP liner. The primary concern is that local degradation of the slab can create "voids" underneath the SFP liner. If a void corresponds to the location of a rack foot, the foot may no longer be supported on a firm surface. A scoping assessment included in MPR-2613 demonstrates that the liner is sufficiently ductile to accommodate the load from the fuel racks even if the foot of the rack is positioned over an area of local concrete degradation.
3. The applicant committed to perform a shallow core sample in the SFP wall where previous inspections have shown ingress of borated water through concrete. The core sample will be examined to assess degradation from the borated water.

Issue:

1. During the audit, the staff observed photographs of the fuel handling building (FHB) sump room which seem to indicate that borated water had penetrated to the outside surface of the SFP wall even above the construction joint, indicating leakage was migrating through the concrete in locations other than the construction joint.
2. The staff could not find any details of the scoping analysis in the MPR -2613. There is only a short one paragraph discussion in section 7.3 of the report.
3. The applicant has not provided details about when the core drill will be taken, or the tests that will be performed on the core.

Request:

The applicant is requested to provide the following:

1. Provide an assessment that addresses whether or not the predicted penetration depth of 1.30 inch includes any margin for uncertainties in the test or actual field conditions. In addition, identify and assess the structural impacts of water migrating through existing cracks in the concrete, other than the construction joint. With the possibility of leakage at locations other than the construction joint, discuss whether or not additional visual examinations (i.e. annual, 18 months, etc.) of concrete for cracks, spalls, and stains on the exposed concrete surface due to rebar corrosion will be conducted to assure the concrete is not experiencing degradation.
2. Provide the depth and width of voids considered and a summary of the analysis results for the SFP liner.
3. Provide the timeline for performing the core drill, the size of the core, as well as the tests which will be performed on the core. In addition, provide any plans for performing additional core drills to track changes/degradation in concrete and rebar during the period of extended operation.

Follow-up RAI B.2.1.33-06

Background:

In its response to RAI B.2.1.33-2, dated May 13, 2010, the applicant stated that: "Evidence of boric acid deposits on the Unit 2 containment liner under the fuel transfer canal has been observed during multiple outages since November 2000.

The leakage path is postulated to be through the reactor cavity and fuel transfer canal liner, then through concrete construction joints and cracks, and then down the sides of the containment liner behind the lagging inside containment.

This leakage has the potential to impact the containment liner. The impact of leakage on the containment liner is documented in Salem's response to RAI B.2.1.28-1."

Issue:

Salem's response to RAI B.2.1.28-1 includes onetime inspection results for randomly selected areas of inaccessible portions of the containment liners, and does not include any specific inspection requirements for the liner plate located in areas of postulated leakage. In addition, the response to RAI B.2.1.28-1 does not include any corrective actions for preventing borated water from flowing down the containment liner.

Request:

The applicant is requested to provide details of any corrective actions planned to prevent flow of borated water down the containment liner during the period of extended operation. In addition, provide plans for inspecting inaccessible portions of containment liners located in areas of postulated leakage.

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Sincerely,
/RA/ B. Pham for

Bennett M. Brady, Project Manager
Projects Branch 1
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DATE	7/22/10	7/16/10	08/03/10	08/03/10

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Letter to T. Joyce from B. Brady dated August 3, 2010

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