

June 11, 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 FOR SALEM NUCLEAR
GENERATING STATION UNITS 1 AND 2 LICENSE RENEWAL APPLICATION
SECTIONS 3.1.2 AND 3.3.2 (TAC NO ME1834 / ME1836)

Dear Mr. Joyce:

By letter dated August 18, 2009, as supplemented by letter dated January 23, 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,

/RA/

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: See next page

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OFFICE	LA:DLR	BC:DLR:RPB1	PM:DLR:RPB1
NAME	I. King	B. Pham	B. Brady
DATE	6/9/10	06/11/10	06/11/10

OFFICIAL RECORD COPY

Letter to T. Joyce from B. Brady dated June 11, 2010

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GENERATING STATION UNITS 1 AND 2 LICENSE RENEWAL APPLICATION
SECTIONS 3.1.2 AND 3.3.2(TAC NO ME1834 / ME 1836)

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BHarris, OGC

ABurritt, RI

RConte, RI

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Salem Nuclear Generating Station,
Units 1 and 2

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Salem Nuclear Generating Station,
Units 1 and 2

- 2 -

cc:

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U.S. Nuclear Regulatory Commission
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Salem County Administrator
Administration Building
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Salem, NJ 08079

REQUEST FOR ADDITIONAL INFORMATION FOR SALEM NUCLEAR
GENERATING STATION UNITS 1 AND 2 LICENSE RENEWAL APPLICATION SECTIONS
3.1.2 AND 3.3.2 (TAC NO ME1834 / ME1836)

RAI 3.1.2.1-01

Background:

License renewal application (LRA) Table 3.1.1, item 3.1.1-80, addresses loss of fracture toughness due to thermal aging and neutron irradiation embrittlement of cast austenitic stainless steel (CASS) reactor vessel internals exposed to reactor coolant and neutron flux. LRA item 3.1.1-80 also indicates that the PWR Vessel Internals Program (LRA Section B.2.1.7) will be substituted to manage the aging effect in CASS reactor vessel internal components exposed to reactor coolant and neutron flux. LRA Table 3.1.2-3 further addresses one aging management review (AMR) line item to manage the loss of fracture toughness due to thermal aging and neutron irradiation embrittlement of the CASS incore guide cruciforms exposed to reactor coolant and neutron flux.

Issue:

The staff noted that the LRA Table 3.1.2-3 does not address loss of fracture toughness due to thermal aging and neutron irradiation embrittlement of rod control cluster assembly (RCCA) guide tube assemblies (lower flanges), upper internals assembly (upper support column bases), and upper internals assembly (static flow mixers) although the LRA table indicates that the materials of the components is CASS and the PWR Vessel Internals Program is credited to manage the changes in dimensions due to void swelling and cracking due to stress corrosion cracking (SCC) and irradiation-assisted stress corrosion cracking.

The staff also noted that the aging effects addressed for the components in the LRA table indicate that neutron irradiation is applicable to the components because the void swelling and irradiation-assisted stress corrosion cracking require the exposure of the components to neutron irradiation. In addition, the staff noted that the omission of the components in managing loss of fracture toughness for the CASS reactor vessel internals is not consistent with GALL Vol. 1, Table 1 ID 80 that addresses loss of fracture toughness due to thermal aging and neutron irradiation embrittlement for CASS reactor internals including upper internals assembly, lower internal assemblies and control rod guide tube assembly.

Request:

1. Describe what program(s) is used to manage loss of fracture toughness due to thermal aging and neutron irradiation embrittlement of CASS rod control cluster assembly (RCCA) guide tube assemblies (lower flanges), upper internals assembly (upper support column bases), and upper internals assembly (static flow mixers) that are described in LRA Table 3.1.2-3. In addition, if the applicant does not have a program to manage loss of fracture toughness for the CASS vessel internal components, justify why it is not required to manage loss of fracture toughness for the components.

ENCLOSURE

RAI 3.3.2.2-3

Background:

LRA Section 3.3.2.2.3.2 addresses cracking due to SCC that could occur in stainless steel and stainless clad steel heat exchanger components exposed to treated water greater than 60°C (>140°F). The LRA states that Item Number 3.3.1-5 is not applicable to the Auxiliary Systems for stainless steel and stainless clad steel heat exchanger components exposed to treated water because this component, material, environment, and aging effect/mechanism for Auxiliary System components are managed within Item 3.3.1-90 and uses the Water Chemistry Program to manage the aging effects of components exposed to treated borated water at temperatures greater than 60° C (> 140° F). The staff also noted the LRA states that the Water Chemistry aging management program (AMP) “does not provide for detection of aging effects. However, components located in selected areas at Salem will receive a one-time visual inspection....”

The staff reviewed LRA Section 3.3.2.2.3.2 against the criteria in Standard Review Plan-License Renewal (SRP-LR) Section 3.3.2.2.3.2 which states that cracking due to SCC could occur in stainless steel and stainless clad steel heat exchanger components exposed to treated water greater than 60°C (>140°F). The SRP-LR further states that the GALL Report recommends further evaluation of a plant-specific AMP to ensure that these aging effects are adequately managed. Acceptance criteria are described in Branch Technical Position RLSB-1 (Appendix A.1 of this SRP-LR).

Issue:

The staff noted the applicant relies on Water Chemistry Program alone to managed cracking due to SCC in stainless steel and stainless clad steel heat exchanger components exposed to treated water greater than 60°C (>140°F) whereas a plant-specific program in accordance with SRP-LR, Appendix A.1 has a “detection of aging effects” element which is not addressed in the Water Chemistry Program.

Request:

Provide the method that will be used to detect cracking or provide justification for not performing activities that will detect cracking SCC in stainless steel and stainless clad steel heat exchanger components exposed to treated water greater than 60°C (>140°F).