June 30, 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 THE REVIEW OF THE HOPE CREEK GENERATING STATION LICENSE RENEWAL APPLICATION FOR METAL FATIGUE OF REACTOR COOLANT PRESSURE BOUNDARY PROGRAM (TAC NO ME1832)

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 (10 CFR Part 54) for renewal of Operating License No. NPF-57 for the Hope Creek Generating Station. 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. 50-354

Enclosure:
As stated

cc w/encl: See next page

June 30, 2010

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

Docket Nos. 50-354

Enclosure:
As stated
cc w/encl: See next page
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ADAMS Accession No.: ML101580481

OFFICE	PM:DLR:RPB1	LA:DLR	BC:DLR:RPB1	PM:DLR:RPB1
NAME	BBrady	SFigueroa	BPham w/edits	BBrady
DATE	6/29/10	6/8/10	6/30/10	6/30/10

OFFICIAL RECORD COPY

Letter to T. Joyce from B. Brady dated June 30, 2010

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE HOPE CREEK GENERATING STATION LICENSE RENEWAL APPLICATION FOR METAL FATIGUE OF REACTOR COOLANT PRESSURE BOUNDARY PROGRAM (TAC NO ME1832)

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Hope Creek Generating Station

cc:

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Senior Vice President Nuclear
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Director Nuclear Oversight
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Township Clerk
Lower Alloways Creek Township
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Radiation Protection Programs
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Regional Administrator, Region I
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475 Allendale Road
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Mr. Paul Davison
Vice President, Operations Support
PSEG Nuclear LLC
One Alloway Creek Neck Road
Hancocks Bridge, NJ 08038

cc:

Ms. Christine Neely
Director – Regulator Affairs
PSEG Nuclear LLC
One Alloway Creek Neck Road
Hancocks Bridge, NJ 08038

Senior Resident Inspector
Hope Creek Generating Station
U.S. Nuclear Regulatory Commission
Drawer 0509
Hancocks Bridge, NJ 08038

Mr. Earl R. Gage
Salem County Administrator
Administration Building
94 Market Street
Salem, NJ 08079

REQUEST FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE HOPE CREEK GENERATING STATION LICENSE RENEWAL APPLICATION FOR METAL FATIGUE OF REACTOR COOLANT PRESSURE BOUNDARY PROGRAM
(TAC NO ME1832)

RAI B.3.1.1-1

Background:

Enhancement 1 of LRA AMP B3.1.1, Metal Fatigue of Reactor Coolant Pressure Boundary Program, states that the "parameters monitored or inspected" program element of the AMP will be enhanced to "include additional transients beyond those defined in the Technical Specifications and the UFSAR, and expanding the fatigue monitoring program to encompass other components identified to have fatigue as an analyzed aging effect, which require monitoring."

The NRC's recommended program elements for these types of AMPs are given in Section X.M1, "Metal Fatigue of Reactor Coolant Pressure Boundary," of NUREG-1801, Revision 1, Volume 2 (GALL AMP X.M1). Section 3.0 of NUREG-1800, Revision 1, "Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants" (SRP-LR), defines such enhancements.

Issue 1:

It is not evident whether the stated enhancement is being made to make the "parameters monitored or inspected" program element of AMP B.3.1.1 consistent with the corresponding program element in GALL AMP X.M1. It is also not apparent to the staff what is being enhanced relative to the information that has been provided for LRA AMP B.3.1.1, and specifically whether the enhancement will be of the 'basis document or procedure" for this AMP or the implementing procedure for this AMP, or both.

Request 1:

Confirm that the stated enhancement is being proposed to make the "parameter monitored or inspected" program element of LRA AMP B.3.1.1 consistent with that in GALL AMP X.M1. Also, clarify exactly what documents or procedures will be enhanced (e.g., basis document, implementing procedure, etc.) relative to enhancement 1 of LRA AMP B.3.1.1.

Issue 2:

The current licensing basis transients for Hope Creek are those specified in Technical Specification (TS) Table 5.7.1-1, which are required to be tracked pursuant to the requirements in TS 5.7.1. The design basis transients for Hope Creek are identified in UFSAR Sections 3.9.1.1.1 through 3.9.1.1.11 and in UFSAR Tables 3.9-1 and 3.9-1a. The UFSAR sections and tables include transients that are listed in TS Table 5.7.1-1 and are required to be tracked pursuant to TS 5.7.1, and design basis transients that do not appear to be within the scope of these TS requirements. Thus, it is not evident what process or protocol at Hope Creek would mandate tracking of those design basis transients that are listed in one of the stated UFSAR sections or tables but are not within the scope of the stated TS requirements.

Request 2:

Clarify the process, procedure, or protocol that will be used at Hope Creek to track the occurrences of those design basis transients that are listed in UFSAR but are not within the scope of TS 5.7.1.

Issue 3:

The enhancement states that the program will be enhanced to track additional transients that are not within the scope of either the applicable TS requirements or UFSAR design basis sections or tables. The staff needs to know which transients are being referred to here, and if it is necessary to track them for possible inclusion in updated cumulative usage factor (CUF) analyses, whether the applicant will be updating the design basis in UFSAR Section 3.9.1.1 to include them.

Request 3:

Identify the additional transients that are being referred to in Enhancement #1 of the AMP and clarify which ASME Code Class 1 components these additional transients are related to. Clarify whether an update of the design basis will be performed to include these transients. If the design basis will be updated, identify which of the Sections or Tables in UFSAR Section 3.9.1.1 will be updated to include these transients and clarify whether this will be covered within the scope of an applicable LRA commitment. Justify your basis for omitting these transients from the design basis (as given in applicable sections or tables in UFSAR Section 3.9.1.1) if the design basis will not be updated to include these transients.

Issue 4:

The enhancement states, in part, that the program will be enhanced to expand the “fatigue monitoring program to encompass other components identified to have fatigue as an analyzed aging effect, which require monitoring.” However, it appears that a similar enhancement is given in Enhancement 4 of the AMP, which was placed appropriately on the “corrective actions” program element in GALL AMP X.M1. The “corrective action” program element recommendation in GALL AMP X.M1 states, in part, that for programs that monitor a sample of high fatigue usage locations, “corrective actions include a review of additional affected reactor coolant pressure boundary locations,” and appears to be the only program element in GALL AMP X.M1 that specifically mentions expansion of program to additional reactor coolant pressure boundary components. Thus, it is not apparent to the staff on whether the expansion criteria in Enhancement 1 should be applied to “scope of program,” “monitoring and trending,” or “corrective actions” program elements for the program (or to some combination of these elements), or whether it is redundant with the enhancement discussed in Enhancement 4 of the AMP.

Request 4:

Clarify whether the expansion criterion in Enhancement 1 is being applied as an enhancement of the "monitoring and trending" program element or "corrective actions" program element of the AMP, or whether it is redundant with the enhancement discussed in Enhancement 4 of the AMP. Justify why the expansion aspect of Enhancement 1 has also not been placed on the "scope of program" or "monitoring and trending" program elements of the AMP, if the expansion aspect of the enhancement does not relate to a corrective action activity.

RAI B.3.1.1-2

Background:

Enhancement 2 of LRA AMP B.3.1.1 states that the "Metal Fatigue of Reactor Coolant Pressure Boundary program will be enhanced to use a software program to automatically count transients and calculate cumulative usage on select components." The applicant identifies that this enhancement is applicable to the following program elements of the AMP: (1) "scope of program"; (2) "preventative actions"; (3) "parameters monitored or inspected"; (4) "monitoring and trending"; and (5) "acceptance criteria."

The GALL and SRP-LR criteria stated as background information for RAI B3.1.1-1 apply to this RAI as well.

Issue:

It is not evident whether the stated enhancement is being made to make the "scope of program"; "preventative actions"; "parameters monitored or inspected"; "monitoring and trending"; and "acceptance criteria" program elements of AMP B3.1.1 in order to make them consistent with the corresponding program elements in GALL AMP X.M1. It is also not apparent to the staff exactly what is being enhanced relative to the information that has been provided in LRA AMP B.3.1.1, and specifically whether the enhancement will involve an enhancement of the computer programming for FatiguePro® monitoring software, the stated program elements in the basis document or procedure" for this AMP, the implementing procedure for this AMP, or some combination of these software/document bases. It is also not evident to the staff how this enhancement will be tied to the stated program elements of this AMP and to the implementing procedure for the software package if the enhancement only pertains to an anticipated update of FatiguePro® software programming to cover the scope of the "scope of program"; "preventative actions"; "parameters monitored or inspected"; "monitoring and trending"; and "acceptance criteria" program elements in GALL AMP X.M1.

Request:

Confirm that the stated enhancement is being proposed to make the "scope of program"; "preventative actions"; "parameters monitored or inspected"; "monitoring and trending"; and "acceptance criteria" program elements of AMP B3.1.1 consistent with those in GALL AMP X.M1. Clarify exactly what will be enhanced (e.g., FatiguePro® software programming, program elements in the basis document, implementing procedure, etc.) relative to enhancement 1 of LRA AMP B.3.1.1. Justify why the associated program elements in AMP B.3.1.1 and the associated implementing procedure would not have to be updated as well to account for this

enhancement if the implementation of the enhancement will be limited only to an anticipated update of FatiguePro® software programming (i.e., only for the purpose of adjusting the scope of the software programming to include and bound the scope of the "scope of program"; "preventative actions"; "parameters monitored or inspected"; "monitoring and trending"; and "acceptance criteria" program element recommendations in GALL AMP X.M1).

RAI B.3.1.1-3

Background:

Enhancement 3 of LRA AMP B.3.1.1 states that the "Metal Fatigue of Reactor Coolant Pressure Boundary program will be enhanced to address the effects of the reactor coolant environment on component fatigue life by assessing the impact of the reactor coolant environment on a sample of critical components for the plant identified in NUREG/CR-6260." The applicant identifies that this enhancement is applicable to the following program elements of the AMP: (1) "preventative actions"; (2) "parameters monitored or inspected"; (3) "monitoring and trending"; and (4) "acceptance criteria."

The GALL and SRP-LR criteria stated as background information for RAI B.3.1.1-1 apply to this RAI as well. The "monitoring and trending" and "acceptance criteria" program elements in GALL AMP X.M1 are the only program elements that deal with the adequacy of environmental fatigue calculations. The "monitoring and trending" program element recommendation relates the need to the AMP to monitor and trend the impact of environmental fatigue on the CUF values of the Class 1 reactor coolant pressure boundary components that correspond to those listed and analyzed in NUREG/CR-6260 or that are considered to be bounding for the component locations listed in the NUREG. The "acceptance criteria" program element recommendation relates the need to the AMP to establish acceptance criteria for CUF calculations based on the ASME Section III design limit for CUF calculations, and for the need to adjust this criterion (in either the calculations themselves or on a reduction of the acceptance limit) if the component being analyzed is one of the components for the environmental fatigue calculations in the AMP.

Issue:

The relationship of Enhancement 3 to the monitoring and trending" program element recommendation in GALL AMP X.M1 appears to be self evident. However, it is not apparent to the staff whether this enhancement is being used to make the "preventative actions," "parameters monitored or inspected," and "acceptance criteria" program elements for AMP B.3.1.1 consistent with those in GALL AMP X.M1. If this is the purpose, the staff seeks clarification on how this enhancement relates to the acceptance criterion recommendation for environmental fatigue calculations in the "acceptance criteria" program element of GALL AMP X.M1. It is also not evident to the staff how this enhancement relates to the "preventative actions" and "parameters monitored or trended" program elements in GALL AMP X.M1 (which do not mention criteria for environmental calculations or assessments).

Request:

Confirm that the stated enhancement is being proposed to make the "preventative actions"; "parameters monitored or inspected"; "monitoring and trending"; and "acceptance criteria" program elements of AMP B.3.1.1 consistent with that in GALL AMP X.M1. Clarify how this

enhancement relates to conforming with the acceptance criterion recommendation for environmental fatigue calculations in the “acceptance criteria” program element of GALL AMP X.M1 and with the aging management recommendations in the “preventative actions” and “parameters monitored or trended” program elements in GALL AMP X.M1 (which are silent relative to criteria for environmental fatigue calculations).

RAI B.3.1.1-4

Background*:*

Enhancement 4 of LRA AMP B3.1.1 states that the “Metal Fatigue of Reactor Coolant Pressure Boundary program will be enhanced to require a review of additional reactor coolant pressure boundary locations if the usage factor for one of the environmental fatigue sample locations approaches its design limit.” The applicant identifies that this enhancement is applicable to the “corrective action” program element of the AMP.

The GALL and SRP-LR criteria stated as background information for RAI B.3.1.1-1 apply to this RAI as well.

Issue:

It is not evident whether the stated enhancement is being made to make the “corrective actions” program element of AMP B.3.1.1 consistent with the corresponding program element in GALL AMP X.M1. It is also not apparent to the staff what is being enhanced relative to the information that has been docketed for LRA AMP B.3.1.1, and specifically whether the enhancement will involve an enhancement of the ‘basis document or procedure” for this AMP or the implementing procedure for this AMP, or both.

Request:

Confirm that the stated enhancement is being proposed to make the “corrective actions” program element of LRA AMP B.3.1.1 consistent with that in GALL AMP X.M1. Clarify what will be enhanced (e.g., basis document, implementing procedure, etc.) relative to enhancement 4 of LRA AMP B.3.1.1.