

June 22, 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 FIRE PROTECTION (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 22, 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 FIRE PROTECTION (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 Nos. 50-354

Enclosure:
As stated

cc w/encl: See next page

DISTRIBUTION:

See next page

ADAMS Accession No.: ML101610448

OFFICE	PM:DLR:RPB1	LA:DLR	BC:DLR:RPB1	PM:DLR:RPB1
NAME	B. Brady	SFiguroa	B. Pham	B. Brady
DATE	6/ /10	6/14/10	6/17/10	06/22/10

OFFICIAL RECORD COPY

Letter to T. Joyce from B. Brady dated June 22, 2010

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE
HOPE CREEK GENERATING STATION LICENSE RENEWAL APPLICATION
FOR FIRE PROTECTION (TAC NO ME1832)

DISTRIBUTION:

HARD COPY:

DLR RF

E-MAIL:

PUBLIC

RidsNrrDir Resource

RidsNrrDirRpb1 Resource

RidsNrrDirRpb2 Resource

RdsNrrDirRarb Resource

RidsNrrDirRasb Resource

RidsNrrDirRapb Resource

RidsOgcMailCenter Resource

BPham

BBrady

CEccleston

REnnis

CSanders

BHarris, OGC

ABurritt, RI

RConte, RI

MModes, RI

DTiff, RI

NMcNamara, RI

Hope Creek Generating Station

cc:

Mr. Robert Braun
Senior Vice President Nuclear
PSEG Nuclear LLC
One Alloway Creek Neck Road
Hancocks Bridge, NJ 08038

Mr. Brian Booth
Director Nuclear Oversight
PSEG Nuclear
P.O. Box 236
Hancocks Bridge, NJ 08038

Mr. John Perry
Station Vice President – Hope Creek
PSEG Nuclear
P.O. Box 236
Hancocks Bridge, NJ 08038

Mr. Larry Wagner
Plant Manager - Hope Creek
PSEG Nuclear LLC
One Alloway Creek Neck Road
Hancocks Bridge, NJ 08038

Mr. Michael Gallagher
Vice President – License Renewal Projects
Exelon Nuclear LLC
200 Exelon Way
Kennett Square, PA 19348

Mr. Jeffrie J. Keenan, Esquire
Manager - Licensing
PSEG Nuclear LLC
One Alloway Creek Neck Road
Hancocks Bridge, NJ 08038

Mr. Gregory Sosson
Director Corporate Engineering
PSEG Nuclear LLC
One Alloway Creek Neck Road
Hancocks Bridge, NJ 08038

Mr. Michael Gaffney
Manager - Hope Creek Regulatory
Assurance
PSEG Nuclear LLC
One Alloway Creek Neck Road
Hancocks Bridge, NJ 08038

Mr. Ali Fakhar
Manager, License Renewal
PSEG Nuclear LLC
One Alloway Creek Neck Road
Hancocks Bridge, NJ 08038

Township Clerk
Lower Alloways Creek Township
Municipal Building, P.O. Box 157
Hancocks Bridge, NJ 08038

Mr. Paul Bauldauf, P.E., Asst. Director
Radiation Protection Programs
NJ Department of Environmental
Protection and Energy, CN 415
Trenton, NJ 08625-0415

Mr. Brian Beam
Board of Public Utilities
2 Gateway Center, Tenth Floor
Newark, NJ 07102

Regional Administrator, Region I
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Mr. Paul Davison
Vice President, Operations Support
PSEG Nuclear LLC
One Alloway Creek Neck Road
Hancocks Bridge, NJ 08038

Hope Creek Generating Station

- 2 -

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 FIRE PROTECTION (TAC NO ME1832)

RAI 3.3.2.2.10.6 -01

Background:

SRP-LR Section 3.3.2.2.10, item 6 refers to Table 3.3.1, item 28 and GALL Report Item VII.G-9 and recommends further evaluation of a plant-specific program to manage loss of material due to pitting and crevice corrosion for copper alloy piping, piping components, and piping elements exposed to internal condensation. LRA Section 3.3.2.2.10.6 states that copper alloy fire protection system piping, piping components, and piping elements exposed to internal condensation are managed for loss of material due to pitting and crevice corrosion by the Fire Protection and Fire Water System Programs. Specifically, the Fire Protection Program is credited to manage loss of material for the copper alloy restricting orifice in LRA Table 3.3.2-10, page 3.3-187.

Issue:

The description of the Fire Protection Program in LRA Section B.2.1.17 states that the program performs visual inspections of fire barriers and the external surfaces of the halon and CO₂ systems, and includes performance testing of the diesel driven fire pump fuel supply lines. The description of the Fire Protection Program does not include criteria for inspections of the internal surfaces of components which could detect loss of material for the copper alloy restricting orifice listed in Table 3.3.2-10.

Request:

Justify how the Fire Protection Program will adequately manage the aging effect of loss of material due to pitting and crevice corrosion for the copper alloy restricting orifices exposed to internal condensation in LRA Table 3.3.2-10.

RAI 3.3.2.3.10-02

Background:

LRA Table 3.3.2-10, Fire Protection System, states that alumina silicate fire barriers (wraps) exposed to an indoor air environment have an aging effect of change in material properties and credits the Fire Protection Program to manage this aging effect. Non-metallic fire barrier wraps are not evaluated for aging effects in the GALL Report and no inspection criteria are discussed in GALL AMP XI.M26, Fire Protection Program, regarding visual inspections for change in material properties of fire barrier wraps.

Issue:

In LRA Section B.2.1.17, the applicant stated that the Fire Protection Program performs periodic visual inspection to detect age related degradation of fire barriers. However, the LRA did not include a description of the change in material properties that will be managed by the program

or the parameters that will be observed during the visual inspections of the alumina silicate fire barriers (wraps).

Request:

Describe the material properties of the aluminum silicate fire barrier wraps that will be managed by the Fire Protection Program, the parameters that will be observed during the visual inspection of the aluminum silicate fire barrier wraps, and the acceptance criteria used to evaluate the change in material properties. Justify how the visual inspections performed by the Fire Protection Program are adequate to manage the aging effect of change in material properties for alumina silicate fire barriers (wraps).

RAI 3.3.2.3.10-03

Background:

LRA Table 3.3.2-10, Fire Protection System Summary of Aging Management Evaluation, states that polymer hoses exposed to air-indoor – external, and air/gas - wetted internal, have no aging effects requiring management. The LRA also references plant-specific footnote 18, which states:

The polymer (plexiglass) material located indoors and subject to an indoor air or air-gas (wetted) environment is not subject to significant aging effects. Polymer materials do not experience aging effects unless exposed to temperatures, radiation or chemicals capable of attacking the specific polymer chemical composition. Polymer materials are selected for compatibility with the environment during the design, and, if properly selected, will not experience significant degradation. Polymer (Teflon) material in this non-aggressive air environment is not expected to experience significant aging effects. This is consistent with plant operating experience.

Issue:

Although polymer hoses are not evaluated for aging effects in the GALL Report, polymers do experience aging in certain environments, including radiation environments. It is not clear to the staff where the polymer hoses listed in LRA Table 3.3.2-10 are located such that the environment is considered non-aggressive.

Request:

Explain the bounding environmental conditions used to determine that the environment is non-aggressive and the selection criteria used for the polymer hoses within the scope of license renewal.

RAI 3.3.1-01

Background:

SRP-LR Table 3.3.1, item 54 recommends GALL AMP XI.M24, “Compressed Air Monitoring Program,” to manage loss of material for stainless steel piping, piping components, and piping elements exposed to internal condensation within the compressed air system. LRA Table 3.3.1, item 3.3.1-54 states that the Fire Protection Program will be substituted to manage loss of material due to pitting and crevice corrosion of the stainless steel piping, piping components and piping elements exposed to wetted air in the Fire Protection System. Specifically, the Fire Protection Program is credited to manage aging for stainless steel spray nozzles in LRA Table 3.3.2-10, page 3.3-187.

SRP-LR Table 3.3.1, item 71 recommends GALL AMP XI.M38, “Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program”, to manage loss of material for steel piping, piping components, and piping elements exposed to moist air or condensation. LRA Table 3.3.1, item 3.3.1-71 states that the Fire Protection Program will be substituted to manage loss of material due to general, pitting and crevice corrosion of the steel piping, piping components and piping elements exposed to wetted air in the Fire Protection System. Specifically, the Fire Protection Program is credited to manage aging for galvanized steel piping and components in LRA Table 3.3.2-10, page 3.3-184, and for steel spray nozzles in LRA Table 3.3.2-10, page 3.3-187.

Issue:

The Compressed Air Monitoring Program includes control of contaminants in order to limit loss of material due to corrosion, and leakage testing to detect loss of material. The “Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program” includes inspections of the internal surfaces of piping and components to detect loss of material. The description of the Fire Protection Program in LRA Section B.2.1.17 does not include criteria for inspections of the internal surfaces of components or leakage testing which could detect loss of material. LRA Section B.2.1.17 states, “The program also provides for aging management of external surfaces of the Halon and carbon dioxide fire suppression system components through periodic functional tests and visual inspections for any loss of material.” It is not clear to the staff how the Fire Protection Program is adequate to manage loss of material for the steel and stainless steel components for which it is credited in Table 3.3.2-10 under items 3.3.1-54 and 3.3.1-71.

Request:

Justify how the Fire Protection Program will adequately manage the aging effect of loss of material due to pitting and crevice corrosion for the various steel and stainless steel components exposed to an internal environment of air/gas – wetted discussed above.

RAI 3.3.1.65-01

Background:

LRA Table 3.3.1, line item 3.3.1-65 addresses reinforced concrete structural fire barriers (e.g., walls, ceilings and floors) exposed to air – indoor uncontrolled with an aging effect of concrete cracking and spalling due to aggressive chemical attack and reaction with aggregates. In the discussion column for line item 3.3.1-65, the LRA states that this item is not applicable because these concrete aging effects and mechanisms are addressed with the applicable building structure in Section 3.5. Line item 3.3.1-65 is associated with GALL Report item VII.G-28, which recommends use of the Fire Protection and Structures Monitoring Programs to manage these aging effects.

Issue:

The Structures Monitoring Program performs inspection of structures such that structures are inspected at least once in 10 years, while the Fire Protection Program inspections are performed on an 18 month frequency for fire barriers outside containment. The staff reviewed Section 3.5 and could not determine where this material, environment and aging effect was addressed for fire barriers because there were no entries for these components being managed by the fire protection program.

Request:

Identify how reinforced concrete structural fire barriers (e.g., walls, ceilings and floors) exposed to air – indoor uncontrolled are adequately managed for the aging effects of cracking and spalling due to aggressive chemical attack and reaction with aggregates, given that they are not listed in any Table 2 entries in LRA Section 3.5, and the inspection interval for the Structures Monitoring Program is ten years versus the GALL recommended frequency of 18 months for fire barriers.