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U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Hope Creek Generating Station
Facility Operating License No. NPF-57
NRC Docket No. 50-354

Subject: Responses to 1) NRC Request for Additional Information, dated June 30, 2010, Related to the Metal Fatigue of Reactor Coolant Pressure Boundary Program; 2) NRC Request for Additional Information, dated June 29, 2010, Related to Fiberglass Doors and 3) NRC Request for Additional Information, dated July 12, 2010, Related to Compressed Air Monitoring, all associated with the Hope Creek Generating Station License Renewal Application

References:
1. Letter from Ms. Bennett Brady (USNRC) to Mr. Thomas Joyce (PSEG Nuclear, LLC) "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)", dated June 30, 2010
2. Letter from Ms. Bennett Brady (USNRC) to Mr. Thomas Joyce (PSEG Nuclear, LLC) "REQUEST FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE HOPE CREEK GENERATING STATION LICENSE RENEWAL APPLICATION FOR FIBERGLASS DOORS (TAC NO. ME1832)," dated June 29, 2010
3. Letter from Ms. Bennett Brady (USNRC) to Mr. Thomas Joyce (PSEG Nuclear, LLC) "REQUEST FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE HOPE CREEK GENERATING STATION LICENSE RENEWAL APPLICATION FOR COMPRESSED AIR MONITORING (TAC NO ME1832)," dated July 12, 2010

In the Reference 1 letter, the NRC requested additional information related to the Metal Fatigue of Reactor Coolant Pressure Boundary Program of the Hope Creek Generating Station License Renewal Application (LRA). In the Reference 2 letter, the NRC requested additional information

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related to fiberglass doors. In the reference 3 letter, the NRC requested additional information about Compressed Air Monitoring. Enclosed are the responses to these requests for additional information.

There are no 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.

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

Executed on 7/26/10

Sincerely,

Robert C. Braun
Senior Vice President Nuclear
PSEG Nuclear LLC

Enclosure: Responses to Requests for Additional Information

cc: Regional Administrator – USNRC Region I
B. Brady, Project Manager, License Renewal – USNRC
R. Ennis, Project Manager - USNRC
NRC Senior Resident Inspector – Hope Creek
P. Mulligan, Manager IV, NJBNE
L. Marabella, Corporate Commitment Tracking Coordinator
T. Devik, Hope Creek Commitment Tracking Coordinator

Enclosure

Responses to Requests for Additional Information related to the Hope Creek Generating Station License Renewal Application

RAI B.3.1.1-1
RAI B.3.1.1-2
RAI B.3.1.1-3
RAI B.3.1.1-4
RAI 3.5.2.3.5-01
RAI 3.3.1.54-01

Note: For clarity, portions of the original LRA text are repeated in this Enclosure. Added text is shown in ***Bold Italics***, and deletions are shown with strikethrough text.

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 self 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 exactly 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 involve an enhancement 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.

PSEG Response:

Enhancement 1 is proposed to make the "parameters monitored or inspected" program element 3 of the Hope Creek Metal Fatigue of Reactor Coolant Pressure Boundary (MFRCPB) LRA AMP B.3.1.1 consistent with the GALL AMP X.M1. Element 3, "Parameters Monitored/Inspected", of the GALL program recommends monitoring of all plant transients that cause cyclic strains, which are significant contributors to fatigue usage factor. Additional transients meeting this GALL criterion, beyond those in the current Hope Creek MFRCPB program, have been identified and will be added to the enhanced program. These transients are in addition to those defined in the Technical Specifications, and the UFSAR, and are identified in LRA Table 4.3.1-1 with "N" (No) under the column titled "Included in Table 3.9-1 or Table 3.9-1a of UFSAR?".

The addition of new transients to be monitored by the Hope Creek MFRCPB aging management program is identified as Enhancement 1 to the current program, and is included in LRA Appendix B Section B.3.1.1 as Enhancement 1 to the program. This program enhancement will

be implemented by revising the program implementing procedures to include monitoring of the additional transients added by Enhancement 1 to the Hope Creek LRA AMP B.3.1.1 program.

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.

PSEG Response:

The process that will be used at Hope Creek to track the occurrences of those design basis transients that are listed in the UFSAR, but are not within the scope of TS 5.7.1 will be the combination of procedures and a fatigue monitoring software program. With Enhancement 2, this process will become predominantly automated based on plant parameter monitoring utilizing a software program to obtain plant operating data, and supplemented by input from manual cycle counting.Input to the software program will result in computation of cumulative fatigue usage for components within the scope of the MFRCPB Aging Management Program (LRA AMP B.3.1.1).

Existing plant procedures currently track transients listed in the Technical Specifications. These procedures will be enhanced to track the occurrences of those design basis transients that are listed in the UFSAR but are not within the scope of TS 5.7.1. These enhanced procedures will be credited to implement the Hope Creek MFRCPB Aging Management Program for license renewal. These implementing procedures will be annotated to identify the associated license renewal program commitments. The MFRCPB Aging Management Program is described in the Hope Creek LRA Appendix A, Section A.3.1.1. Enhancements 1 and 2 are included in Appendix A, Table A.5, Commitment 46. Appendix A is the Hope Creek UFSAR Supplement that will become part of the UFSAR following approval of the renewed operating license.

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.

PSEG Response:

The additional transients referred to in Enhancement 1 of the AMP are in addition to those defined in the Technical Specifications and in UFSAR Table 3.9-1 and Table 3.9-1a, and are identified in LRA Table 4.3.1-1 with "N" (No) under the column titled "Included in Table 3.9-1 or Table 3.9-1a of UFSAR?". These additional transients are not monitored in the current Hope Creek fatigue monitoring program. The Class 1 components presented in the Hope Creek LRA related to these transients are those listed in the following table.

Transient in LRA Table 4.3.1-1		Class 1/Other Component(s) Related to the Transient	LRA Table Listing the Component
Safety Relief Valve (SRV) Actuations	Single	Main Steam Line B (Node 200)	Table 4.3.3-1
		Main Steam Line C (Node 100)	Table 4.3.3-1
		Main Steam Line D (Node 300)	Table 4.3.3-1
		Suppression Chamber Components and Welds- Torus Shell	Table 4.6.1-1
		Suppression Chamber Components and Welds -Weld	Table 4.6.1-1
		Vent System Components and Welds- Vent Header	Table 4.6.1-1
		Vent System Components and Welds- Weld	Table 4.6.1-1
	Multiple	Reactor Recirculation A Node 204	Table 4.3.3-1
		Reactor Recirculation B Node 204	Table 4.3.3-1
		RHR Shutdown Cooling Return A Node 601	Table 4.3.3-1
		RHR Shutdown Cooling Return B Node 601	Table 4.3.3-1
		Suppression Chamber Components and Welds- Torus Shell	Table 4.6.1-1
		Suppression Chamber Components and Welds -Weld	Table 4.6.1-1
RWCU Pump Trip		Reactor Water Cleanup Node 570	Table 4.3.3-1
		Reactor Water Cleanup Node 575	Table 4.3.3-1
		Reactor Water Cleanup Node 905	Table 4.3.3-1
Standby Liquid Control (SLC) Injection		Not associated with any limiting locations	Not associated with any limiting locations
Control Rod Drive (CRD) Events: CRD Isolation, Single CRD Scram, Single CRD Scram During Refueling		CRD Penetrations (CRD Housing @ Weld)	Table 4.3.1-2
		CRD Penetrations with Excavation (B)	Table 4.3.1-2

These additional transients and their associated design number of cycles are derived from events reported from all UFSAR sources, as indicated in LRA Table 4.3.1-1, Note 1, and also from the applicable design basis calculations. Since these additional transients are already included in the design basis, no changes to the design basis are being made, and therefore no changes to UFSAR Section 3.9.1.1 are required as a result of the additional transients being added to the MFRCPB Aging Management Program. Since no sections or tables in UFSAR Section 3.9.1.1 are changed, activities to revise UFSAR Section 3.9.1.1 are not required, and are not within the scope of the Hope Creek LRA Table A.5 Commitment 46.

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.

PSEG Response:

The expansion criterion in Enhancement 1 is for expansion of the number of transients and components being monitored by the program, and not for expansion of the reactor coolant pressure boundary locations to be reviewed as a result of an environmental fatigue sample location usage factor approaching its design limit in Enhancement 4, and therefore is not redundant. Enhancement 1 does not provide enhancements to the "scope of program" or the "corrective action" program elements, since these elements do not discuss the transients or components to be monitored by the program. Enhancement 1 can be applied to the "monitoring and trending" program element 5, since the expansion of components increased the number of "high fatigue usage locations" beyond those in the current fatigue monitoring program.

The GALL AMP X.M1, Element 5 recommends the program monitor a sample of high fatigue usage locations and this sample is to include the locations identified in NUREG/CR-6260, as a minimum, or alternatives are proposed based on plant configuration. Additional transients and a sample of high fatigue usage locations meeting this GALL criterion, beyond those in the current Hope Creek MFRCPB program, have been identified and will be added to the enhanced Hope Creek LRA AMP B.3.1.1 program.

It was determined Enhancement 1 should be applied to the GALL X.M1, element 5, "Monitoring and Trending". Therefore, Hope Creek LRA Appendix B, Section B.3.1.1, on page B-223, will be revised as shown below to apply Enhancement 1 to the "Monitoring and Trending" program element 5.

B.3.1.1 METAL FATIGUE OF REACTOR COOLANT PRESSURE BOUNDARY

Enhancements

Prior to the period of extended operation, the following enhancements will be implemented in the following program elements:

1. The Metal Fatigue of Reactor Coolant Pressure Boundary program 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. Program Elements Affected: Parameters Monitored or Inspected (Element 3) ***and Monitoring and Trending (Element 5).***

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).

PSEG Response:

Enhancement 2 will make the "scope of program", "preventive actions", "parameters monitored/inspected", "monitoring and trending", and "acceptance criteria" program elements of LRA AMP B.3.1.1.consistent with those in GALL AMP X.M1. Each of these elements has attributes which will be enhanced when the fatigue monitoring software program is installed and operating. For example, for the "scope of program" element, the software program will provide the capability to monitor fatigue usage such that it provides as stated in GALL AMP X.M1, "preventive measures to mitigate fatigue cracking of metal components".

The current Hope Creek program as described in LRA AMP B.3.1.1 does not use a fatigue monitoring software program. Enhancement 2 will cause implementation of the use of fatigue monitoring software program, and not be limited to only an anticipated update of the software program. Implementation of the fatigue monitoring software program involves not only installation of the fatigue monitoring software program, but also implementation of new and/or revised procedures. Since the elements affected by this enhancement have not changed, program elements in the basis document do not have to be updated.

As indicated above, Enhancement 2 will involve implementation of the use of a fatigue monitoring software program for monitoring fatigue usage, and updating implementing procedures, but will not involve updating the program elements in AMP B.3.1.1.

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).

PSEG Response:

Enhancement 3 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.

Enhancement 3 provides additional acceptance criterion to the existing MFRCPB program to maintain the fatigue usage factor below the design code limit using the fatigue life correction factors developed to assess the impact of environmental fatigue. Therefore, this was determined to be an enhancement to make the "acceptance criteria" program element of AMP B.3.1.1 consistent with GALL AMP X.M1.

Enhancement 3 also relates to recommendations in the "preventative actions" program element in GALL AMP X.M1 by considering the effects of the reactor coolant environment on the component fatigue life.

Enhancement 3 relates to recommendations in the "parameters monitored or inspected" and "monitoring and trending" program elements in GALL AMP X.M1 by adding the monitoring of a sample of critical components for the plant identified in NUREG/CR-6260.

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.

PSEG Response:

Enhancement 4 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. Implementing procedures will be revised to include the review of additional reactor coolant pressure boundary locations, if the usage factor for one of the environmental fatigue sample locations approaches its design limit, but will not involve updating the basis document.

RAI 3.5.2.3.5-01

Background:

In license renewal application (LRA) Table 3.5.2-5, the applicant stated that fiberglass doors exposed to indoor or outdoor air have no aging effect requiring management. The applicant cited generic note F for the AMR items, indicating that the material is not evaluated in the Generic Aging Lessons Learned Report for this component. The applicant also cited a plant specific note for these items stating, "Based on plant operating experience, there are no aging effects requiring management for this material and environment combination."

Issue:

Aging of fiberglass reinforced plastics, such as fiberglass doors, could occur when they are exposed to environmental conditions such as rain, sunlight, indoor UV lighting, ozone, and exposure to the atmosphere. The aging effects include loss of material or changes in material properties. The LRA does not provide sufficient information to ensure that degradation of fiberglass doors will not occur in an indoor or outdoor air environment.

Requests:

1. For the indoor air application, state whether or not the fiberglass doors are exposed to direct UV lighting or ozone.

2. For the outdoor air application, state how the doors are protected from environmental effects such as rain and sunlight, or propose how the aging effects of loss of material and change in material properties will be managed.

PSEG Response:

The response to request "1" and "2" are combined since the fiberglass door component type, exposed to indoor or outdoor air do have aging effects requiring management as part of the Structures Monitoring Program. The fiberglass door should have included loss of material or changes in material properties, due to exposure to ultraviolet radiation or ozone, which was inadvertently omitted.

LRA Section 3.5.2.1.5 and Table 3.5.2-5 (Fire Water Pump House) on pages 3.5-8 and 3.5-152 respectively, are revised to add this aging effect as shown below.

3.5.2.1.5 Fire Water Pump House

Aging Effects Requiring Management

The following aging effects associated with the Fire Water Pump House components require management:

- ***Loss of Material/Changes in Material Properties***

Table 3.5.2-5, Fire Water Pump House

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG 1801 Vol. 2 Item	Table 1 Item	Notes
Doors	Shelter, Protection	Fiberglass	Air - Indoor	~~None~~ ***Loss of Material/ Changes in Material Properties***	~~None~~ ***Structures Monitoring Program***			F, 2
Doors	Shelter, Protection	Fiberglass	Air - Outdoor	~~None~~ ***Loss of Material/ Changes in Material Properties***	~~None~~ ***Structures Monitoring Program***			F, 2

Plant Specific Notes:
2. Based on ~~plant~~ ***industry*** operating experience, ~~there are no~~ ***the*** aging effects ~~requiring management~~ for this material and environment combination ***will be monitored through the Structures Monitoring Program.***

LRA Table 2.4-5 (Fire Water Pump House, Components Subject to Aging Management Review), shown on Page 2.4-23, list doors with a shelter, and protection intended function, therefore no change is required for this table.

As part of the enhanced Structures Monitoring Program, a recurring task has been established on a five-year frequency to inspect the components in the Fire Water Pump House. The Structures Monitoring Program implementing procedure will be revised for the inspections of fiberglass doors.

Therefore, the Structures Monitoring Program is the appropriate aging management program. Periodic visual inspections of fiberglass doors performed under the Structures Monitoring Program will detect material degradation, such as, loss of material prior to loss of the required component intended function.

RAI 3.3.1.54-01

Background:

SRP-LR Table 3.3-1, item 54 addresses stainless steel compressed air system piping, piping components, and piping elements exposed to internal condensation and recommends GALL AMP XI.M24, "Compressed Air Monitoring Program," to manage loss of material due to pitting and crevice corrosion for these components. GALL AMP XI.M24 recommends performing periodic air quality checks to ensure contaminants are maintained within industry guidelines, leakage testing to ensure the integrity of the system and inspections to identify corrosion.

Issue:

LRA Table 3.3.1, item 3.3.1-54 addresses stainless steel compressed air system piping, piping components, and piping elements exposed to internal condensation. In its review of components associated with item number 3.3.1-54, the staff noted that the applicant cited generic note E and credited the Periodic Inspection Program to manage aging for stainless steel piping, fittings, valve bodies, flow elements, restricting orifices, and thermowells exposed internally to wetted air or gas in LRA Tables 3.3.2-4, 3.3.2-15, 3.3.2-17, 3.3.2-20, 3.3.2-21, 3.3.2-29, and 3.3.2-31. The applicant's Periodic Inspection Program includes periodic visual inspections of components and ultrasonic wall thickness measurements to detect loss of material; however, the applicant's Periodic Inspection Program does not include any preventive measures, such as air quality checks, which are included in the GALL Report recommended AMP

Request:

Explain how these stainless steel components will be adequately managed by the Periodic Inspection Program, given that the program does not include any preventive measures.

PSEG Response

The following Summary of Aging Management Evaluation tables for the identified license renewal systems reference LRA Table 1 Item 3.3.1-54 (NUREG-1801 Volume 2 Item VII.D-4) and credit the Periodic Inspection (Hope Creek Appendix B, Section B.2.2.2) aging management program to manage aging for stainless steel piping, fittings, valve bodies, flow elements, restricting orifices, and thermowells exposed internally to a wetted air or gas environment:

- Table 3.3.2-4, Containment Inerting and Purging System
- Table 3.3.2-15, Hardened Torus Vent System
- Table 3.3.2-17, Leak Detection and Radiation Monitoring System
- Table 3.3.2-20, Primary Containment Leakage Rate Testing System
- Table 3.3.2-21, Process and Post Accident Sampling Systems
- Table 3.3.2-29, Standby Diesel Generators and Auxiliary Systems
- Table 3.3.2-31, Torus Water Cleanup System

The LRA Table 3.3.1 Discussion column for Item 3.3.1-54 addresses how this GALL item was used, including a statement of consistency with GALL. The first paragraph of the discussion

addresses where the Compressed Air Monitoring aging management program (Hope Creek LRA Appendix B, Section B.2.1.16) is credited, consistent with GALL.

As stated in the second paragraph of the Discussion column, this GALL item was also aligned to components in various systems based on material, environment and aging effect. This alignment follows from the definition of the referenced Standard Note E, which can apply when the LRA line is consistent with the NUREG-1801 item for material, environment and aging effect but a different aging management program is credited. This alignment was intended to show agreement between the LRA and GALL, with respect to the identified aging effects and mechanisms for the material and environment combination. This alignment was not intended to suggest consistency with the aging management program recommended by GALL for this item.

In this case, the recommended GALL program is not applicable for aging management of the stainless steel piping, fittings, valve bodies, flow elements, restricting orifices, and thermowells in systems where internal air quality is not maintained. The recommended GALL program and associated aging management activities, including preventive measures, are specifically applicable to components in the compressed gas systems. The Compressed Air Monitoring aging management program includes preventive measures, such as air quality sampling, because the compressed gas systems contain features that maintain the air quality in the system (i.e., filters and air driers). By maintaining the air quality and preventing infiltration of moisture and contaminants corrosion is prevented on the internal surfaces of components in the compressed gas systems.

The systems listed above are not designed to maintain a moisture and contaminant free environment. Therefore, the preventive measures described in the Compressed Air Monitoring aging management program are not applicable and this program is not appropriate to manage aging of the internal surfaces of components in the above listed systems.

The Periodic Inspection aging management program is credited to manage aging effects of stainless steel piping, fittings, valve bodies, flow elements, restricting orifices, and thermowells in the identified license renewal systems. The Periodic Inspection aging management program includes periodic visual inspections of components and ultrasonic wall thickness measurements to detect loss of material of stainless steel components in an Air/Gas – Wetted environment. These inspections assure component integrity such that the component intended function is maintained. The 10-year inspection frequency is based on the corrosion resistant properties of stainless steel materials, in addition to industry and plant-specific operating experience with these materials in an Air/Gas – Wetted environment.

As described in LRA Appendix B.2.2.2, Element 10, Operating Experience, numerous inspections of stainless steel components subjected to an internal environment where condensation and wetting is possible have been performed. The results from periodic internal inspections performed indicate component conditions are satisfactory, and did not indicate internal surface corrosion or degradation of stainless steel components in this environment after more than 30 years in service. These inspection results indicate that the stainless steel material provides adequate corrosion resistance and additional preventive measures are not required. Performance of the aging management activities defined in the Periodic Inspection aging management program provide reasonable assurance that potential aging effects associated with the identified stainless steel component internal surfaces in an Air/Gas – Wetted environment will be adequately managed so that the intended functions will be maintained consistent with the current licensing basis for the period of extended operation.