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APR 06 2010

10 CFR 50
10 CFR 51
10 CFR 54

LR-N10-0110

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: Response to NRC Request for Additional Information, dated March 22, 2010, Related to Section 2.3.3.10 of the Hope Creek Generating Station License Renewal Application

Reference: Letter from Mr. Donnie Ashley (USNRC) to Mr. Thomas Joyce (PSEG Nuclear, LLC) "REQUEST FOR ADDITIONAL INFORMATION REGARDING SCOPING OF FIRE PROTECTION AND METAL FATIGUE FOR THE HOPE CREEK GENERATING STATION", dated March 22, 2010

In the referenced letter, the NRC requested additional information related to Section 2.3.3.10 of the Hope Creek Generating Station License Renewal Application (LRA). Enclosed are the responses to this request for additional information.

This letter and its enclosure contain no regulatory commitments.

If you have any questions, please contact Mr. Ali Fakhar, PSEG Manager - License Renewal, at 856-339-1646.

AIH2
NRR

APR 06 2010

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

Executed on 4/6/2010

Sincerely,

Paul J. Davison

Paul J. Davison
Vice President, Operations Support
PSEG Nuclear LLC

Enclosure: Responses to Request for Additional Information

cc: S. Collins, Regional Administrator – USNRC Region I
D. Ashley, Senior 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 Request for Additional Information related to Section 2.3.3.10 of the Hope Creek Generating Station License Renewal Application (LRA)

RAI 2.3.3.10-1
RAI 2.3.3.10-2
RAI 2.3.3.10-3
RAI 2.3.3.10-4
RAI 2.3.3.10-5

Note : In the responses, impacts to the LRA are explained, and where appropriate to facilitate understanding, portions of the LRA are repeated with the change highlighted by strikethroughs for deleted text and bolded italics for inserted text.

RAI 2.3.3.10-1

The following LRA drawings shows fire protection system components as out of scope (i.e., not colored in green):

- LR - M - 22 - 0, SH. 1, "Fire Protection - Fire Water Permanent & Temporary Fire Pumphouse": The Deep Well Water Pumps and associated components to Fire Water Storage Tanks OAT508 and OBT508

The staff requests that the applicant verify whether the fire protection systems and components listed above are in the scope of license renewal in accordance with 10 CFR 54.4(a) and whether they are subject to an AMR in accordance with 10 CFR 54.21(a)(1). If these systems and components are excluded from the scope of license renewal and are not subject to an AMR, the staff requests that the applicant provide justification for the exclusion.

PSEG Response:

The Fire Water Storage Tanks (0AT508, 0BT508) provide separate sources of water to the electric motor driven and diesel engine driven fire pumps. The fire pump suction piping and valve arrangement allows either fire pump to take water from either or both water storage tanks. Each tank provides a dedicated fire water storage capacity of 328,000 gallons to meet the demands of the largest sprinkler system and manual hose streams in a postulated fire. The water level in each storage tank is maintained above the 328,000 gallon level and is verified weekly. An alarm in the main control room alerts operators if there is a low level condition in either tank. The Fire Water Storage Tanks (0AT508, 0BT508) and associated components (colored green on license renewal boundary drawing LR-M-22-0, Sheet 1) are in the scope of license renewal and subject to aging management review.

The Deep Well Water Pumps are in the Fresh Water Supply System and pump water from onsite wells to the fresh water and domestic water storage tanks. The well pumps are used to initially fill the Fire Water Storage Tanks, and they automatically maintain additional tank level above the level dedicated for fire protection, for use by the demineralized water and boiler makeup systems. The demineralized water and boiler makeup systems are fed through an external tap physically located above the fire water level of 328,000 gallons.

The two Fire Water Storage Tanks provide sufficient dedicated water supplies for Fire Protection System use. The Deep Well Water Pumps and associated demineralized water system piping and components are not required to function in the event of a fire. These components do not provide structural support for safety-related components, and do not have the potential for spatial interaction because they are not located in an area containing safety-related components. The Deep Well Water Pumps and associated demineralized water system piping and components (colored black on license renewal boundary drawing LR-M-22-0, Sheet 1) are not in the scope of license renewal and are not subject to aging management review.

RAI 2.3.3.10-2

Tables 2.3.3-10 and 3.3.2-10 of the LRA do not include the following fire protection components:

- hose racks
- passive components in diesel engines for fire water pumps
- fire retardant coating for structural steel
- sight glasses (foam storage tank)
- spray nozzles (iodine removal filter)

The staff requests that the applicant determine whether Tables 2.3.3-10 and 3.3.2-10 should include each component listed above and, if not, justify the exclusion.

PSEG Response:

The scoping results for each of the above components are as follows:

- Hose racks

Hose rack assemblies consist of valves, piping and fittings. These components are included in the "Valve Body" and "Piping and Fittings" component type in LRA Tables 2.3.3-10 and 3.3.2-10. Fire hoses are evaluated as consumables, as described in LRA Section 2.1.6.4. Fire hoses are periodically inspected in accordance with NFPA standards and replaced as required, and are therefore not long-lived and not subject to aging management review.

- Passive components in diesel engines for fire water pumps

The diesel driven fire water pump (00P521) was purchased as a pump and pump driver assembly from the pump manufacturer. The pump and diesel engine driver are mounted together on the vendor supplied equipment base plate, which is anchored and grouted to the Fire Water Pump House foundation slab. The equipment supports and supporting structural components are subject to aging management review and are included in the applicable tables in the structural sections 2.4 and 3.5 of the LRA.

The diesel engine as supplied from the manufacturer includes various components necessary to support engine operation. Many of these components are either located internal to the engine, or are physically mounted on the engine. These components are considered integral subcomponent parts of the active diesel engine assembly. Table 2.1-5 of NUREG-1800, Revision 1, "Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants" and Appendix B of NEI 95-10, Revision 6, "Industry Guideline for Implementing the Requirements of 10 CFR Part 54 – The License Renewal Rule" indicate that Fire Pump Diesel Engines are not subject to aging management review. The engine components that are part of the active engine assembly are not included in LRA Tables 2.3.3-10 or 3.3.2-10. Boundary Drawing LR-M-22-0, Sheet 1, Note 7 indicates that diesel engine components integral to the active diesel engine assembly are not subject to aging management review.

The piping and components that provide the external cooling water to and from the diesel engine are included in LRA Tables 2.3.3-10 and 3.3.2-10. The component types are Piping and Fittings, Strainer Body and Valve Body.

Fuel oil components that are not part of the active diesel engine assembly are included in LRA Tables 2.3.3-10 and 3.3.2-10. This includes the outdoor fuel oil storage tank, the fuel inlet and return piping and components from the tank up to and including the flexible metal hose connections to the diesel engine assembly. The fuel oil prefilter mounted on the engine assembly is also included in LRA Tables 2.3.3-10 and 3.3.2-10. The component types are Filter Housing, Hoses, Piping and Fittings and Valve Body.

It was discovered that the flexible metal hose components were inadvertently identified with an Air – Outdoor environment. These hoses are located indoor. Table 3.3.2-10 Component Type "Hoses" (LRA page 3.3-181) is revised as follows:

Table 3.3.2-10 Fire Protection System

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Hoses	Pressure Boundary	Copper Alloy with less than 15% Zinc	~~Air – Outdoor (External)~~ ***Air – Indoor (External)***	~~Loss of Material/Pitting and Crevice Corrosion~~ ***None***	~~Fire Protection~~ ***None***	***V.F-3***	***3.2.1-53***	~~G, 11~~ ***A***

- Fire retardant coating for structural steel

Fire retardant coatings are present on structural steel in various buildings at Hope Creek, including the Reactor, Auxiliary and Turbine Buildings. These coatings are in scope for License Renewal and are subject to aging management review. Table 2.3.3-10 (LRA page 2.3-141) is revised to add the component type Fire Barriers (Fire Retardant Coating for Structural Steel) as follows:

Table 2.3.3-10 Fire Protection System
Components Subject to Aging Management Review

Component Type	Intended Function
Fire Barriers (Fire Retardant Coating for Structural Steel)	***Fire Barrier***

Table 3.3.2-10 (LRA page 3.3-177) is revised to add the component type Fire Barriers (Fire Retardant Coating for Structural Steel) as follows:

Table 3.3.2-10 Fire Protection System

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Fire Barrier (Fire Retardant Coating for Structural Steel)	***Fire Barrier***	***Cementitious Fire Proofing***	***Air – Indoor***	***Loss of Material/ Cracking***	***Fire Protection***			***F, 19***

Table 3.3.2-10 Plant Specific Notes (LRA Page 3.3-196) is revised to add note 19, as follows:

19. Based on industry standards and guidelines, cementitious fireproofing is susceptible to loss of material/cracking in this environment. This aging effect will be monitored and managed with the Fire Protection Program.

- Sight glasses (foam storage tank)

A foam fire suppression system is provided for the fuel oil storage tank, as shown on boundary drawing LR-M-22-0, Sheet 6. In the original design, foam was supplied from a foam storage tank and associated piping and components, including a tank site glass, located in the Fuel Oil Foam House. This foam supply system has been removed from service, disconnected and replaced by an onsite portable foam supply. The sight glass has also been removed from service, and is therefore not in the scope of license renewal and not subject to aging management review.

- Spray nozzles (iodine removal filter)

Fire protection water spray systems are installed for ventilation systems that contain charcoal adsorber beds for iodine removal. These ventilation systems and associated charcoal filter units are identified below:

- Control Room Emergency Filter Units (AVH400, BVH400)
- Technical Support Center (TSC) Emergency Filter Unit (0VH313)
- Filtration, Recirculation and Ventilation System (FRVS) Recirculation Units (AVH213, BVH213, CVH213, DVH213, EVH213, FVH213)
- FRVS Ventilation Filter Units (AVH206, BVH206)
- Containment Prepurge Filter Unit (0VH200)
- Radwaste Tank Filter Units (AVH306, BVH306)

The fire protection spray systems associated with these filter units are identified on Boundary Drawing LR-M-22-0, Sheet 3, as 1D1, 1D2, 1PD3, 1PD4, 1PD5, 1PD6, 1PD7, 1PD8, 1PD9, 1PD10, 1PD11, 0D3, 0D4 and 0D5.

The Control Room Emergency Filter Units (AVH400, BVH400) and TSC Emergency Filter Unit (0VH313) charcoal adsorber bed deluge is accomplished by flooding the associated charcoal bed through stainless steel distribution piping located within the filter unit housing. Fire suppression water is discharged to the charcoal bed through holes drilled in the distribution piping at appropriate locations to flood the bed. Spray nozzles are not used in these units. The distribution piping located inside the HVAC filter unit is evaluated with Piping and Fittings for aging management review in the Fire Protection System, shown on LRA Tables 2.3.3-10 and 3.3.2-10.

It was discovered that the Control Room and Control Area HVAC System incorrectly identified spray nozzles associated with the charcoal bed fire suppression system Tables 2.3.3-7 and 3.3.2-7. Table 2.3.3-7 (LRA page 2.3-125) is revised to delete the component type Nozzle as follows:

Table 2.3.3-7 Control Room and Control Area HVAC Systems Components Subject to Aging Management Review

Component Type	Intended Function
~~Nozzle~~	~~Spray~~

Table 3.3.2-7 (LRA page 3.3-162) is revised to delete the component type Nozzle as follows:

Table 3.3.2-7 Control Room and Control Area HVAC Systems

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
~~Nozzle~~	~~Spray~~	~~Copper Alloy with 15% Zinc or More~~	~~Air/Gas – Wetted (External)~~	~~Loss of Material/Pitting and Crevice Corrosion~~	~~Periodic Inspection~~	~~VII.F1-16~~	~~3.3.1-25~~	~~E, 2, 5~~
~~Nozzle~~	~~Spray~~	~~Copper Alloy with 15% Zinc or More~~	~~Air/Gas – Wetted (Internal)~~	~~Loss of Material/Pitting and Crevice Corrosion~~	~~Periodic Inspection~~	~~VII.F1-16~~	~~3.3.1-25~~	~~E, 2~~

Boundary Drawing LR-M-89-1, Sheet 1, Note 5, is replaced with the following:

5. Charcoal deluge spray piping consists of water distribution piping with drilled holes to flood the carbon beds, and is evaluated as Piping and Fittings with the Fire Protection System for Aging Management Review.

The Filtration, Recirculation and Ventilation System (FRVS) Recirculation Units (AVH213, BVH213, CVH213, DVH213, EVH213, FVH213) charcoal adsorber bed deluge arrangement is the same as the Control Room and Control Area HVAC System described above. Charcoal adsorber bed fire suppression is accomplished by flooding the associated charcoal bed through

stainless steel distribution piping located within the filter unit housing. Fire suppression water is discharged to the charcoal bed through holes drilled in the distribution piping at appropriate locations to flood the bed. Spray nozzles are not used in these units. The distribution piping located inside the HVAC filter unit is evaluated with Piping and Fittings for aging management review in the Fire Protection System, shown on LRA Tables 2.3.3-10 and 3.3.2-10.

It was discovered that Boundary Drawing LR-M-83-1, Sheet 1, Note 8, incorrectly describes the charcoal bed deluge as having spray nozzles. This note is replaced with the following:

8. Charcoal deluge spray piping consists of water distribution piping with drilled holes to flood the carbon beds, and is evaluated as Piping and Fittings with the Fire Protection System for Aging Management Review.

The FRVS Ventilation Filter Units (AVH206, BVH206), Containment Prepurge Filter Unit (0VH200) and Radwaste Tank Filter Units (AVH306, BVH306) charcoal adsorber bed deluge is accomplished by spraying the associated charcoal bed through galvanized steel distribution piping and brass spray nozzles located within the filter unit housing. Fire suppression water is discharged to the charcoal bed through the spray nozzles at appropriate locations to cool the bed. The distribution piping and spray nozzles are evaluated for aging management review in the Fire Protection System. These charcoal bed spray nozzles were inadvertently omitted from LRA Tables 2.3.3-10 and 3.3.2-10. Table 2.3.3-10 (LRA page 2.3-141) is revised to include component type Spray Nozzles (Charcoal Filter) as follows:

Table 2.3.3-10 Fire Protection System
Components Subject to Aging Management Review

Component Type	Intended Function
Spray Nozzles (Charcoal Filter)	***Spray***

Table 3.3.2-10 (LRA page 3.3-187) is revised to include component type Spray Nozzles (Charcoal Filter) as follows:

Table 3.3.2-10 Fire Protection System

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Spray Nozzles (Charcoal Filter)	***Spray***	***Copper Alloy with 15% Zinc or More***	***Air - Indoor (External)***	***None***	***None***	***V.F-3***	***3.2.1-53***	***A***
Spray Nozzles (Charcoal Filter)	***Spray***	***Copper Alloy with 15% Zinc or More***	***Air - Indoor (Internal)***	***None***	***None***	***V.F-3***	***3.2.1-53***	***A***

RAI 2.3.3.10-3

Safety Evaluation Report, NUREG-1048, dated October, 1984, NUREG-1048, Supplement No. 5, dated April 1986, and Updated Final Safety Analysis Report, Table 9.5-2, list various types of fire suppression systems for fire suppression activities. The listed fire suppression systems include:

- Halon 1301 total flooding fire suppression system in the quality assurance vault in the administration building and underneath the raised floor of room 1 in the guardhouse

The staff requests that the applicant verify whether the fire suppression system listed above is in the scope of license renewal in accordance with 10 CFR 54.4(a) and subject to an AMR in accordance with 10 CFR 54.21(a)(1). If it is excluded from the scope of license renewal and not subject to an AMR, the staff requests that the applicant provide justification for the exclusion.

PSEG Response:

The Halon total flooding fire suppression system in the quality assurance (QA) vault in the administrative building is not in the scope of license renewal in accordance with 10 CFR 54.4(a) and is not subject to an AMR in accordance with 10 CFR 54.21(a)(1). This room in the administration building is no longer used as a QA vault. The Halon total flooding fire suppression system in this room is not required to protect safety-related systems, structures, and components. This fire suppression system does not protect systems, structures, and components required for safe shutdown during postulated fire events, and is not relied on in safety analyses or plant evaluations to perform a function that demonstrates compliance with the Commission's regulations for fire protection.

The Halon total flooding fire suppression system underneath the raised floor of room 1 in the guardhouse is not in the scope of license renewal in accordance with 10 CFR 54.4(a) and is not subject to AMR in accordance with 10 CFR 54.21(a)(1). The Halon total flooding fire suppression system in the guardhouse is not required to protect safety related systems, structures, and components. This fire suppression system does not protect systems, structures, and components required for safe shutdown during postulated fire events, and is not relied on in safety analyses or plant evaluations to perform a function that demonstrates compliance with the Commission's regulations for fire protection.

These systems are not safety-related, and failure of these systems cannot prevent accomplishment of safety-related functions. These systems are not credited to demonstrate compliance with any of the regulated events in accordance with 10 CFR 54.4(a)(3). Therefore, these systems do not have any intended functions for license renewal and are not in scope.

RAI 2.3.3.10-4

Section 9.5.1.4, "General Plant Guidelines," of NUREG-1048, Supplement No. 5, dated April 1986, states on page 9-9:

> ...the staff also questioned the fire rating of certain bullet-resistant panels used in the control rooms. The applicant provided the staff with .... a letter from the manufacturer certifying that these panels were fabricated from the same type of materials and in a configuration used in 3-hour-rated fire doors..."

The staff requests that the applicant verify whether bullet-resistant panels are in the scope of license renewal in accordance with 10 CFR 54.4(a) and subject to an AMR in accordance with 10 CFR 54.21(a)(1). If they are excluded from the scope of license renewal and not subject to an AMR, the staff requests that the applicant provide justification for the exclusion.

PSEG Response:

Bullet-resistant panels are installed in control room walls. Additionally, the wall in the control room viewing area has a bullet-resistant glass window.

The bullet-resistant steel wall panels and window are in the scope of License Renewal and are subject to AMR. Review of Table 3.3.2-10 of the Hope Creek LRA determined that the steel and glass fire barrier materials were inadvertently omitted from this table. Table 3.3.2-10 is revised to add these materials to the existing component type Fire Barrier (Walls, Ceilings and Floors) as shown below:

Table 3.3.2-10 Fire Protection System

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-1801 Vol.2 Item	Table 1 Item	Notes
Fire Barrier (Walls, Ceilings and Floors)	*Fire Barrier*	*Carbon Steel*	*Air – Indoor*	*Loss of Material/ corrosion*	*Fire Protection*			*F.11*
Fire Barrier (Walls, Ceilings and Floors)	*Fire Barrier*	*Glass*	*Air – Indoor*	*None*	*None*	*VII.J-8*	*3.3.1-93*	*C*

Additionally, LRA Section 3.3.2.1.10, Fire Protection System, is revised to include glass material.

RAI 2.3.3.10-5

Section 9.5.1.4, "General Plant Guidelines," of NUREG-1048, Supplement No. 5, dated April 1986, states on page 9-11:

> ...In the SER the staff identified 12 locations were the applicant committed to install automatic sprinkler systems to protect areas containing high concentrations of cables and cable trays..."

The staff requests that the applicant verify whether these automatic sprinkler systems are in the scope of license renewal in accordance with 10 CFR 54.4(a) and subject to an AMR in accordance with 10 CFR 54.21(a)(1). If they are excluded from the scope of license renewal and not subject to an AMR, the staff requests that the applicant provide justification for the exclusion.

PSEG Response:

The automatic preaction sprinkler systems described in NUREG-1048, Supplement No. 5, Section 9.5.1.4, "General Plant Guidelines," have been installed and are described in the Hope Creek UFSAR Section 9.5.1.1.14. These automatic sprinkler systems are included in the scope of license renewal in accordance with 10 CFR 54.4(a) and subject to an AMR in accordance with 10 CFR 54.21(a)(1). These preaction sprinkler systems are designated as 1PS6, 1PS7, 1PS8, 1PS9, 1PS10, 1PS11, 1PS12, 1PS13, 1PS14, 1PS15 and 1PS16, and are shown as in scope on license renewal boundary drawing LR-M-22-0, sheet 3. The typical detail for these systems is Detail V, shown on license renewal boundary drawing LR-M-22-0, sheet 6.