PSEG Nuclear LLC
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PSEG
Nuclear LLC

10 CFR 50, Appendix E

LR-N11-0249
August 25, 2011

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

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

Salem Nuclear Generating Station, Units 1 and 2
Renewed Facility Operating License Nos. DPR–70 and 75
NRC Dockets Nos. 50-272 and 50-311

SUBJECT: Supplemental Response to Requests for Additional Information (RAIs) for Emergency Action Level Changes

References:
(1) Letter LR-N10-0355, Thomas Joyce to US NRC Document Control Desk, "EMERGENCY ACTION LEVEL CHANGES," dated October 14, 2010.
(2) e-mail from Richard Ennis, NRC Project Manager, to Paul Duke, PSEG Licensing Manager, "Draft RAI – Hope Creek and Salem EAL Scheme Change," dated April 20, 2011.
(3) Letter LR-N11-0217, David Burgin to US NRC Document Control Desk, "Response to Requests for Additional Information (RAIs) for Emergency Action Level Changes," dated July 14, 2011.
(4) e-mail from Richard Ennis, NRC Project Manager, to Paul Duke, PSEG Licensing Manager, "Salem/Hope Creek EAL Upgrade - Questions re: RAI Responses," dated August 2, 2011.

In the reference 1 letter, PSEG Nuclear LLC (PSEG) submitted a request for Nuclear Regulatory Commission (NRC) approval for the adoption of revised Emergency Action Levels (EALs) for use at the Hope Creek Generating Station (HCGS) and Salem

Nuclear Generating Station (SGS) in accordance with 10 CFR 50, Appendix E, Section IV(B)(1) and 10 CFR 50.4(b)(5). Subsequent to that submittal, the NRC provided RAIs (reference 2) related to the reference 1 submittal. PSEG submitted a response to the RAIs with the reference 3 letter. Subsequent to the reference 3 submittal the NRC contacted PSEG (reference 4) with a request to discuss one of the RAI responses. As a result of that discussion, PSEG has decided to amend two Hope Creek and two Salem EAL Technical Basis Documents (HA2.1 and HA2.2) and the RAI response submitted in Attachment 1 of reference 3.

PSEG hereby submits the amended response to RAI #16 as Attachment 1 and the amended EAL Technical Basis Documents HA2.1 and HA2.2 for Hope Creek and Salem in Attachments 2 and 3 respectively and requests that they serve as supplements to the corresponding documents provided in the reference 3 submittal.

This letter contains no new commitments and no revisions to existing commitments.

Should you have any questions concerning this letter, or require additional information, please contact Lee Marabella at (856) 339-1208 or Craig Banner at (856) 339-1157.

Sincerely,

David Burgin
Manager - Emergency Preparedness

Attachments (3)

Attachment 1: Amended Salem/Hope Creek Generating Stations Response to U.S. NRC Request For Additional Information (RAI) Emergency Action Level Scheme Change to NEI 99-01, Revision 5 for RAI #16
Attachment 2: HCGS Emergency Action Level Technical Bases Documents HA2.1 and HA2.2
Attachment 3: SGS Emergency Action Level Technical Bases Documents HA2.1 and HA2.2

C (with attachments)

Project Manager, Hope Creek Generating Station, Salem Units 1 and 2 and Hope Creek, USNRC
Regional Administrator, Region I, USNRC
NRC Resident Inspector, Hope Creek, USNRC
NRC Resident Inspector, Salem Units 1 & 2, USNRC

C (without attachments)

Corporate Commitment Tracking Coordinator
Manager, NJ Bureau of Nuclear Engineering
Manager, Delaware Emergency Management Agency

ATTACHMENT 1

Salem/Hope Creek Generating Stations

Amended Salem/Hope Creek Generating Stations
Response to U.S. NRC Request for Additional Information
(RAI) Emergency Action Level Scheme Change to
NEI 99-01, Revision 5 for RAI #16

ATTACHMENT 1

Amended Salem/Hope Creek Generating Stations
Response to U.S. Nuclear Regulatory Commission Request for Additional Information (RAI)
Emergency Action Level Scheme Change to NEI 99-01, Revision 5 for RAI #16

RAI #	EAL	Question	S/HC Response
16	HA2.1	EAL HA2.1: Please explain why a timing requirement was added for this EAL. The justification provided for adding a timing requirement to this EAL is not of sufficient detail and erroneously assumes that the timing basis for EAL HU2 is applicable to this EAL. In addition, the necessary requirement for assessing for visible damage or degraded performance is not incorporated in this EAL (and HA2.2). Please provide further justification for these deviations, or revise this EAL to align with the generic EAL scheme development guidance.	Deleted the HA2.1 15 minute timing requirement. The revised HA2.1 and HA2.2 bases wording includes both the VISIBLE DAMAGE and DEGRADED PERFORMANCE threshold criteria which is in alignment with the generic EAL scheme in NEI 99-01, Rev. 05.

ATTACHMENT 2

Hope Creek Generating Stations (HCGS)

HCGS Emergency Action Level
Technical Bases Document HA2.1 and HA2.2

EAL Category: H – Hazards & Other Conditions Affecting Plant Safety

EAL Subcategory: 2 – Fire or Explosion

Initiating Condition: **FIRE** or **EXPLOSION** in a **VITAL AREA** affecting the operability of plant safety systems required to establish or maintain safe shutdown

OPCON Applicability: All

EAL# & Classification Level: **HA2.1 – ALERT**

EAL:

FIRE in **ANY** **Table H-1** plant structure

AND

Resulting in **ANY** one of the following:

- **VISIBLE DAMAGE** to **ANY** plant structure in **Table H-1**
- **VISIBLE DAMAGE** to **ANY** safety system components within a **Table H-1** structure
- Control Room indication of **DEGRADED PERFORMANCE** of a **Safety System** within a **Table H-1** structure

Table H-1 Plant Structures Containing Safe Shutdown Systems or Components
• Reactor Building • Control/Auxiliary Building • Service Water Intake Structure • Service/Radwaste Building

Basis:

VISIBLE DAMAGE is used to identify the magnitude of the **FIRE** and to discriminate against minor **FIRES.**

The reference to structures containing safety systems or components is included to discriminate against **FIRES** in areas having a low probability of affecting safe operation. The significance here is not that a safety system was degraded but the fact that the **FIRE** was large enough to cause damage to these systems.

The use of **VISIBLE DAMAGE** should not be interpreted as mandating a lengthy damage assessment prior to classification. The declaration of an Alert and the activation of the Technical Support Center will provide the Emergency Director with the resources needed to perform detailed damage assessments.

Escalation of this emergency classification level, if appropriate, will be based on EALs in Category S, System Malfunctions, Category F, Fission Product Barrier Degradation, or Category R, Abnormal Rad Levels / Rad Effluent.

Explanation/Discussion/Definitions:

The Table H-1 Plant Structures Containing Safe Shutdown Systems or Components include those plant structures identified as Seismic Category I.

Definitions:

> **FIRE**: Combustion characterized by heat and light. Sources of smoke such as slipping drive belts or overheated electrical equipment do not constitute **FIRES**. Observation of flame is preferred but is NOT required if large quantities of smoke and heat are observed.
>
> **EXPLOSION**: A rapid, violent, unconfined combustion, or catastrophic failure of pressurized/energized equipment that imparts energy of sufficient force to potentially damage permanent structures, systems, or components.
>
> **VITAL AREAS**: Typically any site specific areas, normally within the **PROTECTED AREA**, that contains equipment, systems, components, or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation.
>
> **PROTECTED AREA (PA)**: A security controlled area within the **OWNER CONTROLLED AREA (OCA)** that is enclosed by the security perimeter fence and monitored by intrusion detection systems. Access to the **PA** requires proper security clearance and is controlled at the Security Center.

OWNER CONTROLLED AREA (OCA): Property owned, maintained and controlled by PSEG Nuclear as part of the Salem & Hope Creek Generating Station complex. For the purpose of emergency classification, area from the PSEG Nuclear access road checkpoint and inward towards the stations is considered the **OCA**.

VISIBLE DAMAGE: Damage to equipment or structure that is readily observable without measurements, testing, or analysis. Damage is sufficient to cause concern regarding the continued operability or reliability of the affected structure, system, or component. Example damage includes: deformation due to heat or impact, denting, penetration, rupture, cracking, and paint blistering. Surface blemishes (e.g., paint chipping, scratches) should not be included.

DEGRADED PERFORMANCE: Assessment of degraded safe shutdown system performance includes examination of systems in standby status as well as those in operation. When a safe shutdown system is in operation, its performance can be directly observed and compared to its design capability (e.g., rated flow is required but cannot be achieved). When an operating safe shutdown system cannot fulfill its design function, its performance is degraded. When a safe shutdown system is in standby, its performance capability may not be readily determined. One or more of the following can provide indirect indication of its performance capability:

- Electrical faults on power supplies
- Normally closed breakers in tripped position
- System annunciators activated
- System warning lights lit
- Insufficient system pressure from keep-fill pumps
- Elevated area temperatures or radiation levels
- Increased sump pump operation in areas in which the system is located

EAL Bases Reference(s):

1. NEI 99-01, Rev. 05, HA2 Example EAL #1
2. UFSAR Table 3.2-1 HCGS Classification of Structures, Systems and Components

EAL Category: H – Hazards & Other Conditions Affecting Plant Safety

EAL Subcategory: 2 – Fire or Explosion

Initiating Condition: **FIRE** or **EXPLOSION** in a **VITAL AREA** affecting the operability of plant safety systems required to establish or maintain safe shutdown

OPCON Applicability: All

EAL# & Classification Level: **HA2.2 – ALERT**

EAL:

EXPLOSION in **ANY** **Table H-1** plant structure

AND

Resulting in **ANY** one of the following:

- **VISIBLE DAMAGE** to **ANY** plant structure in **Table H-1**
- **VISIBLE DAMAGE** to **ANY** safety system components within a **Table H-1** structure
- Control Room indication of **DEGRADED PERFORMANCE** of a **Safety System** within a **Table H-1** structure

Table H-1 Plant Structures Containing Safe Shutdown Systems or Components
• Reactor Building • Control/Auxiliary Building • Service Water Intake Structure • Service/Radwaste Building

Basis:

VISIBLE DAMAGE is used to identify the magnitude of the **EXPLOSION** and to discriminate against minor **EXPLOSIONS.**

The reference to structures containing safety systems or components is included to discriminate against **EXPLOSIONS** in areas having a low probability of affecting safe operation. The significance here is not that a safety system was degraded but the fact that the **EXPLOSION** was large enough to cause damage to these systems.

The use of **VISIBLE DAMAGE** should not be interpreted as mandating a lengthy damage assessment prior to classification. The declaration of an Alert and the activation of the Technical Support Center will provide the Emergency Director with the resources needed to perform detailed damage assessments.

The Emergency Coordinator also needs to consider any security aspects of the **EXPLOSION**.

Escalation of this emergency classification level, if appropriate, will be based on EALs in Category S, System Malfunctions, Category F, Fission Product Barrier Degradation, or Category R, Abnormal Rad Levels / Rad Effluent.

Explanation/Discussion/Definitions:

If the **EXPLOSION** is determined to be hostile in nature, the event is classified under EAL HS4.1.

The Table H-1 Plant Structures Containing Safe Shutdown Systems or Components include those plant structures identified as Seismic Category I.

Definitions:

> **FIRE**: Combustion characterized by heat and light. Sources of smoke such as slipping drive belts or overheated electrical equipment do not constitute **FIRES**. Observation of flame is preferred but is NOT required if large quantities of smoke and heat are observed.
>
> **EXPLOSION**: A rapid, violent, unconfined combustion, or catastrophic failure of pressurized/energized equipment that imparts energy of sufficient force to potentially damage permanent structures, systems, or components.
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- Electrical faults on power supplies
- Normally closed breakers in tripped position
- System annunciators activated
- System warning lights lit
- Insufficient system pressure from keep-fill pumps
- Elevated area temperatures or radiation levels
- Increased sump pump operation in areas in which the system is located

EAL Bases Reference(s):

1. NEI 99-01, Rev. 05, HA2 Example EAL #1
2. UFSAR Table 3.2-1 HCGS Classification of Structures, Systems and Components

ATTACHMENT 3

Salem Generating Stations (SGS)

SGS Emergency Action Level
Technical Bases Document HA2.1 and HA2.2

EAL Category: C – Hazards & Other Conditions Affecting Plant Safety

EAL Subcategory: 2 – Fire or Explosion

Initiating Condition: **FIRE** or **EXPLOSION** in a **VITAL AREA** affecting the operability of plant safety systems required to establish or maintain safe shutdown

Mode Applicability: All

EAL# & Classification Level: **HA2.1 – ALERT**

EAL:

FIRE in **ANY** **Table H-1** plant structure

AND

Resulting in **ANY** one of the following:

- **VISIBLE DAMAGE** to **ANY** plant structure in **Table H-1**
- **VISIBLE DAMAGE** to **ANY** safety system components within a **Table H-1** structure
- Control Room indication of **DEGRADED PERFORMANCE** of a **Safety System** within a **Table H-1** structure

Table H-1	**Plant Structures Containing Safe Shutdown Systems or Components**
	• Auxiliary Building • Service Water Intake Structure • Control Point Area • Inner/Outer Penetration Areas • Containment • Fuel Handling Building • Service Building • RWST, PWST, and AFWST Area

Basis:

VISIBLE DAMAGE is used to identify the magnitude of the **FIRE** and to discriminate against minor **FIRES.**

The reference to structures containing safety systems or components is included to discriminate against **FIRES** in areas having a low probability of affecting safe operation. The significance here is not that a safety system was degraded but the fact that the **FIRE** was large enough to cause damage to these systems.

The use of **VISIBLE DAMAGE** should not be interpreted as mandating a lengthy damage assessment prior to classification. The declaration of an Alert and the activation of the Technical Support Center will provide the Emergency Director with the resources needed to perform detailed damage assessments.

Escalation of this emergency classification level, if appropriate, will be based on EALs in Category S, System Malfunctions, Category F, Fission Product Barrier Degradation, or Category R, Abnormal Rad Levels / Rad Effluent.

Explanation/Discussion/Definitions:

The Table H-1 Plant Structures Containing Safe Shutdown Systems or Components include those plant structures identified as Seismic Category I.

Definitions:

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EXPLOSION: A rapid, violent, unconfined combustion, or catastrophic failure of pressurized/energized equipment that imparts energy of sufficient force to potentially damage permanent structures, systems, or components.

VITAL AREAS: Typically any site specific areas, normally within the **PROTECTED AREA**, that contains equipment, systems, components, or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation

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- Insufficient system pressure from keep-fill pumps
- Elevated area temperatures or radiation levels
- Increased sump pump operation in areas in which the system is located

EAL Bases Reference(s):

1. NEI 99-01, Rev. 05, HA2 Example EAL #1
2. UFSAR 3.2 Classification of Structures, Components and Systems

EAL Category: C – Hazards & Other Conditions Affecting Plant Safety

EAL Subcategory: 2 – Fire or Explosion

Initiating Condition: **FIRE** or **EXPLOSION** in a **VITAL AREA** affecting the operability of plant safety systems required to establish or maintain safe shutdown

Mode Applicability: All

EAL# & Classification Level: **HA2.2 – ALERT**

EAL:

EXPLOSION in **ANY** **Table H-1** plant structure

AND

Resulting in **ANY** one of the following:

- **VISIBLE DAMAGE** to **ANY** plant structure in **Table H-1**
- **VISIBLE DAMAGE** to **ANY** safety system components within a **Table H-1** structure
- Control Room indication of **DEGRADED PERFORMANCE** of a **Safety System** within a **Table H-1** structure

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Basis:

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- Increased sump pump operation in areas in which the system is located

EAL Bases Reference(s):

1. NEI 99-01, Rev. 05, HA2 Example EAL #1
2. UFSAR 3.2 Classification of Structures, Components and Systems