Attachment 7

SGS EAL
Comparison Matrix

Salem Generating Station

EAL Comparison Matrix

Draft E – 8/12/10

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Introduction

This document provides a line-by-line comparison of the Initiating Conditions (ICs), Mode Applicability and Emergency Action Levels (EALs) in NEI 99-01 Revision 5, Methodology for Development of Emergency Action Levels, and the SGS ICs, Mode Applicability and EALs. This document provides a means of assessing SGS differences and deviations from the NRC endorsed guidance given in NEI 99-01. Discussion of SGS EAL bases and lists of source document references are given in the EAL Technical Bases Document. It is, therefore, advisable to reference the EAL Technical Bases Document for background information while using this document.

Comparison Matrix Format

The ICs and EALs discussed in this document are grouped according to NEI 99-01 Recognition Categories. Within each Recognition Category, the ICs and EALs are listed in tabular format according to the order in which they are given in NEI 99-01. Generally, each row of the comparison matrix provides the following information:

- NEI EAL/IC identifier
- NEI EAL/IC wording
- SGS EAL/IC identifier
- SGS EAL/IC wording
- Description of any differences or deviations

EAL Emphasis Techniques

Due to the width of the table columns and table formatting constraints in this document, line breaks and indentation may differ slightly from the appearance of comparable wording in the source documents. NEI 99-01 Revision 5 (ADAMS Accession Number ML080450149) is the source document for the NEI EALs; the SGS EAL Technical Bases Document for the SGS EALs.

The print and paragraph formatting conventions summarized below guide presentation of the SGS EALs. Space restrictions in the EAL table of this document sometimes override this guidance in cases when following the guidance would introduce undesirable complications in the EAL layout.

- Words or acronyms that are both uppercase and bold are defined terms.
- EAL threshold values and table references are bold but are not uppercase.
- EAL words or acronyms that are not threshold values and not defined terms may be emphasized by using uppercase print.
- Bold font, uppercase and underscore are used for logic terms, and quantifiers such as any, all, both, etc.

Global Differences

The differences listed below generally apply throughout the set of EALs. The global differences do not decrease the effectiveness of the intent of NEI 99-01 Revision 5.

1. The NEI phrase "Notification of Unusual Event" has been changed to "Unusual Event" to reduce EAL-user reading burden.
2. The generic term "Emergency Director" has been replaced with the term "Emergency Coordinator" as the site specific title used at SGS and HCGS.
3. NEI 99-01 IC Example EALs are implemented in separate plant EALs to improve clarity and readability. For example, NEI lists all IC HU1 Example EALs under one IC. The corresponding SGS EALs appear as unique EALs (e.g., HU1.1 through HU1.5).
4. Mode applicability identifiers (numbers/letter) modify the NEI 99-01 mode applicability names as follows: 1 - Power Operation, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown, 5 - Cold Shutdown, 6 - Refueling, D – Defueled. NEI 99-01defines Defueled as follows: "All reactor fuel removed from reactor pressure vessel. (Full core off load during refueling or extended outage)."
5. NEI 99-01 uses words for phrases such as greater than, less than, greater than or equal to, etc. in the wording of ICs and example EALs. To reduce EAL-user reading burden and for consistency with plant procedures, SGS has adopted use of the symbols >, ≥, < and ≤ in place of the NEI 99-01 modifiers.
6. NEI EALs that include a time interval such as "15 minutes or longer" are expressed as conditional phrases "**AND [interval] minutes** have

elapsed (Note 3)" to ensure the associated interval is not obscured by the EAL wording. (Some format variations are adopted to maintain proper syntax.) The parenthetical reference to a note directs the EAL-user to the appropriate NEI note concerning interpretation of the time interval.

7. EAL notes are numbered to facilitate referencing in the EAL matrix.
8. The NEI phrase "RPV/RCS water level" has been changed to "RCS level" for constancy with SGS EOPs and other operating procedures.
9. IC/EAL identification:

- NEI 99-01 defines the thresholds requiring emergency classification (example EALs) and assigns them to ICs which, in turn, are grouped in "Recognition Categories." The Recognition Categories, however, are so broad and the IC descriptions are so varied that an EAL is difficult to locate in a timely manner when the EAL-user must refer to a set of EALs with the NEI organization and identification scheme. The NEI document clearly states that the EAL/IC/Recognition Category scheme is **not** intended to be the plant-specific EAL scheme for any plant, and appropriate human factors principles should be applied to development of an EAL scheme that helps the EAL-user make timely and accurate classifications. SGS endeavors to improve upon the NEI EAL organization and identification scheme to enhance usability of the plant-specific EAL set. To this end, the SGS IC/EAL scheme includes the following features:

a. Division of the NEI EAL set into three groups:

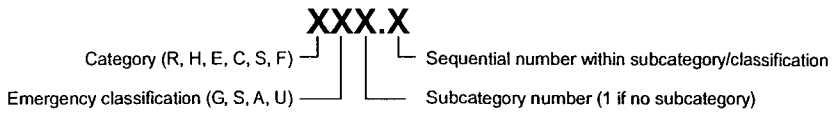
- EALs applicable under <u>all</u> plant operating modes – This group would be reviewed by the EAL-user any time emergency classification is considered.
- EALs applicable only under <u>hot</u> operating modes – This group would only be reviewed by the EAL-user when the plant is in Hot Shutdown, Hot Standby, Startup, or Power Operations mode.
- EALs applicable only under <u>cold</u> operating modes – *This group would only be reviewed by the EAL-user* when the plant is in Cold Shutdown, Refueling or Defueled mode.

The purpose of the groups is to avoid review of hot condition EALs when the plant is in a cold condition and avoid review of cold condition EALs when the plant is in a hot condition. This approach significantly minimizes the total number of EALs that must be reviewed by the EAL-user for a given plant condition, reduces EAL-user reading burden and, thereby, speeds identification of the EAL that applies to the emergency.

b. Within each of the above three groups, assignment of EALs to categories/subcategories – Category and subcategory titles are selected to represent conditions that are operationally significant to the EAL-user. Subcategories are used as necessary to further divide the EALs of a category into logical sets of possible emergency classification thresholds. The SGS EAL categories/subcategories and their relationship to NEI Recognition Categories are listed in Table 1.

c. Unique identification of each EAL – Four characters comprise the EAL identifier as illustrated in Figure 1.

Figure 1 – EAL Identifier



The first character is a letter associated with the category in which the EAL is located. The second character is a letter associated with the emergency classification level (G for General Emergency, S for Site Area Emergency, A for Alert, and U for Unusual Event). The third character is a number associated with one or more subcategories within a given category. Subcategories are sequentially numbered beginning with the number "1". If a category does not have a subcategory, this character is assigned the number "1". The fourth character is a number preceded by a period for each EAL within a subcategory.

EALs are sequentially numbered within the emergency classification level of a subcategory beginning with the number "1".

The EAL identifier is designed to fulfill the following objectives:

- Uniqueness – The EAL identifier ensures that there can be no confusion over which EAL is driving the need for emergency classification.
- Speed in locating the EAL of concern – When the EALs are displayed in a matrix format, knowledge of the EAL identifier alone can lead the EAL-user to the location of the EAL within the classification matrix. The identifier conveys the category, subcategory and classification level. This assists ERO responders (who may not be in the same facility as the Emergency Coordinator) to find the EAL of concern in a timely manner without the need for a word description of the classification threshold.
- Possible classification upgrade – The category/subcategory/identifier scheme helps the EAL-user find higher emergency classification EALs that may become active if plant conditions worsen.

Note that the NEI 99-01 identifier only identifies the IC, not the specific example EAL threshold. The NEI scheme, therefore, does not fulfill the above objectives which are desirable in facilitating timely and accurate emergency classification.

Table 2 lists the SGS ICs and EALs that correspond to the NEI ICs/Example EALs when the above EAL/IC organization and identification scheme is implemented.

Differences and Deviations

In accordance NRC Regulatory Issue Summary (RIS) 2003-18 "Use of Nuclear Energy Institute (NEI) 99-01, Methodology for Development of Emergency Action Levels" Supplements 1 and 2, a difference is an EAL change in which the basis scheme guidance differs in wording but agrees in meaning and intent, such that classification of an event would be the same, whether using the basis scheme guidance or the SGS EAL. A deviation is an EAL change in which the basis scheme guidance differs in wording and is altered in meaning or intent, such that classification of the event could be different between the basis scheme guidance and the SGS proposed EAL.

Administrative changes that do not actually change the textual content are neither differences nor deviations. Likewise, any format change that does not alter the wording of the IC or EAL is considered neither a difference nor a deviation.

The following are examples of differences:

- Choosing the applicable EAL based upon plant type (i.e., BWR vs. PWR).
- Using a numbering scheme other than that provided in NEI 99-01 that does not change the intent of the overall scheme.
- Where the NEI 99-01 guidance specifically provides an option to not include an EAL if equipment for the EAL does not exist at SGS (e.g., automatic real-time dose assessment capability).
- Pulling information from the bases section up to the actual EAL that does not change the intent of the EAL.
- Choosing to state ALL Operating Modes are applicable instead of stating N/A, or listing each mode individually under the Abnormal Rad Level/Rad Effluent and Hazard and Other Conditions Affecting Plant Safety sections.
- Using synonymous wording (e.g., greater than or equal to vs. at or above, less than or equal vs. at or below, greater than or less than vs. above or below, etc.)
- Adding SGS equipment/instrument identification and/or noun names to EALs.
- Changing the format of the EALs to conform to the SGS EAL convention (e.g., numbering individual EALs, re-ordering individual EALs within an IC that does not affect the logic, etc.).
- Combining like ICs that are exactly the same but have different operating modes as long as the intent of each IC is maintained and the overall progression of the EAL scheme is not affected.

- Any change to the IC and/or EAL, and/or basis wording, as stated in NEI 99-01, that does not alter the intent of the IC and/or EAL, i.e., the IC and/or EAL continues to:
    - Classify at the correct classification level.
    - Logically integrate with other EALs in the EAL scheme.
    - Ensure that the resulting EAL scheme is complete (i.e., classifies all potential emergency conditions).

The following are examples of deviations:

- Use of altered mode applicability.
- Altering key words or time limits.
- Changing words of physical reference (protected area, safety-related equipment, etc.).
- Eliminating an IC. This includes the removal of an IC from the Fission Product Barrier Degradation category as this impacts the logic of Fission Product Barrier ICs.
- Changing a Fission Product Barrier from a Loss to a Potential Loss or vice-versa.
- Not using NEI 99-01definitions. The intent is for all NEI 99-01 users to have a standard set of defined terms as defined in NEI 99-01. Differences due to plant types are permissible (BWR or PWR). Verbatim compliance to the wording in NEI 99-01 is not necessary as long as the intent of the defined word is maintained. Use of the wording provided in NEI 99-01 is encouraged since the intent is for all users to have a standard set of defined terms as defined in NEI 99-01.
- Any change to the IC and/or EAL, and/or basis wording as stated in NEI 99-01 that does alter the intent of the IC and/or EAL, i.e., the IC and/or EAL:
    - Does not classify at the classification level consistent with NEI 99-01.
    - Is not logically integrated with other EALs in the EAL scheme.
    - Results in an incomplete EAL scheme (i.e., does not classify all potential emergency conditions).

The "Difference/Deviation Justification" columns in the remaining sections of this document identify each difference between the NEI 99-01 IC/EAL wording and the SGS IC/EAL wording. An explanation that justifies the reason for each difference is then provided. If the difference is determined to be a deviation, a statement is made to that affect and explanation is given that states why classification may be different from the NEI 99-01 IC/EAL and the reason for its acceptability. In all cases, however, the differences and deviations do not decrease the effectiveness of the intent of NEI 99-01 Revision 5. A summary list of SGS EAL deviations from NEI 99-01 is given in Table 3.

Table 1 – SGS EAL Categories/Subcategories

SGS EALs		NEI
Category	**Subcategory**	**Recognition Category**
Group: Any Operating Mode:		
R – Abnormal Rad Release / Rad Effluent	1 – Offsite Rad Conditions 2 – Onsite Rad Conditions/Fuel Pool Events 3 - CR/CAS Rad	Abnormal Rad Levels/Radiological Effluent
E - ISFSI	Spent Fuel Transit	Events Related to Independent Spent Fuel Storage Installations
H – Hazards & Other Conditions Affecting Plant Safety	1 – Natural & Destructive Phenomena 2 – Fire or Explosion 3 – Hazardous Gas 4 – Security 5 – Control Room Evacuation 6 – EC Judgment	Hazards and Other Conditions Affecting Plant Safety
Group: Hot Conditions:		
S – System Malfunction	1 – Loss of AC Power 2 – Loss of DC Power 3 – ATWT / Criticality 4 – Inability to Reach or Maintain Shutdown Conditions 5 – Instrumentation 6 – Communications 7 – Fuel Clad Degradation 8 – RCS Leakage	System Malfunction
F – Fission Product Barrier Degradation	None	Fission Product Barrier Degradation
Group: Cold Conditions:		
C – Cold Shutdown / Refuel System Malfunction	1 – Loss of AC Power 2 – Loss of DC Power 3 – RCS Level 4 – RCS Temperature 5 – Communications 6 – Inadvertent Criticality	Cold Shutdown./ Refueling System Malfunction

Table 2 – NEI / SGS EAL Identification Cross-Reference

NEI		Salem Generating Station	
IC	**Example EAL**	**Category and Subcategory**	**EAL**
RU1	1	R – Abnormal Rad Release / Rad Effluent, 1 – Offsite Rad Conditions	RU1.1 RU1.2
RU1	2	N/A	N/A
RU1	3	R – Abnormal Rad Release / Rad Effluent, 1 – Offsite Rad Conditions	RU1.3
RU1	4	N/A	N/A
RU1	5	N/A	N/A
RU2	1	R – Abnormal Rad Release / Rad Effluent, 2 – Onsite Rad Conditions & Fuel Pool Events	RU2.1
RU2	2	R – Abnormal Rad Release / Rad Effluent, 2 – Onsite Rad Conditions & Fuel Pool Events	RU2.2
RA1	1	R – Abnormal Rad Release / Rad Effluent, 1 – Offsite Rad Conditions	RA1.1 RA1.2
RA1	2	N/A	N/A
RA1	3	R – Abnormal Rad Release / Rad Effluent, 1 – Offsite Rad Conditions	RA1.3
RA1	4	N/A	N/A
RA1	5	N/A	N/A
RA2	1	R – Abnormal Rad Release / Rad Effluent, 2 – Onsite Rad Conditions & Fuel Pool Events	RA2.2

NEI		Salem Generating Station	
IC	**Example EAL**	**Category and Subcategory**	**EAL**
RA2	2	R – Abnormal Rad Release / Rad Effluent, 2 – Onsite Rad Conditions & Fuel Pool Events	RA2.1
RA3	1	R – Abnormal Rad Release / Rad Effluent, 2 – CR/CAS Rad	RA3.1
RS1	1	R – Abnormal Rad Release / Rad Effluent, 1 – Offsite Rad Conditions	RS1.1
RS1	2	R – Abnormal Rad Release / Rad Effluent, 1 – Offsite Rad Conditions	RS1.2
RS1	3	N/A	N/A
RS1	4	R – Abnormal Rad Release / Rad Effluent, 1 – Offsite Rad Conditions	RS1.3
RG1	1	R – Abnormal Rad Release / Rad Effluent, 1 – Offsite Rad Conditions	RG1.1
RG1	2	R – Abnormal Rad Release / Rad Effluent, 1 – Offsite Rad Conditions	RG1.2
RG1	3	N/A	N/A
RG1	4	R – Abnormal Rad Release / Rad Effluent, 1 – Offsite Rad Conditions	RG1.3
CU1	1, 2	C – Cold SD/ Refuel System Malfunction, 3 – RCS Level	CU3.1
CU2	1	C – Cold SD/ Refuel System Malfunction, 3 – RCS Level	CU3.2
CU2	2	C – Cold SD/ Refuel System Malfunction, 3 – RCS Level	CU3.3
CU3	1	C – Cold SD/ Refuel System Malfunction, 1 – Loss of AC Power	CU1.1
CU4	1	C – Cold SD/ Refuel System Malfunction, 4 – RCS Temperature	CU4.1
CU4	2	C – Cold SD/ Refuel System Malfunction, 4 – RCS Temperature	CU4.2
CU6	1, 2	C – Cold SD/ Refuel System Malfunction, 5 – Communications	CU5.1
CU7	1	C – Cold SD/ Refuel System Malfunction, 2 – Loss of DC Power	CU2.1

NEI		Salem Generating Station	
IC	**Example EAL**	**Category and Subcategory**	**EAL**
CU8	1	C – Cold SD/ Refuel System Malfunction, 6 – Inadvertent Criticality	CU6.1
CU8	2	N/A	N/A
CA1	1	C – Cold SD/ Refuel System Malfunction, 3 – RCS Level	CA3.1
CA1	2	C – Cold SD/ Refuel System Malfunction, 3 – RCS Level	CA3.2
CA3	1	C – Cold SD/ Refuel System Malfunction, 1 – Loss of AC Power	CA1.1
CA4	1, 2	C – Cold SD/ Refuel System Malfunction, 4 – RCS Temperature	CA4.1
CS1	1, 2	N/A	N/A
CS1	3	C – Cold SD/ Refuel System Malfunction, 3 – RCS Level	CS3.2
CG1	1	N/A	N/A
CG1	2	C – Cold SD/ Refuel System Malfunction, 3 – RCS Level	CG3.2
D-AU1 D-AU2 D-SU1 D-HU1 D-HU2 D-HU3 D-AA1 D-AA2 D-HA1 D-HA2		N/A	N/A
EU1	1	E- ISFSI	EU1.1

NEI		Salem Generating Station	
IC	**Example EAL**	**Category and Subcategory**	**EAL**
FU1	1	F – Fission Product Barriers	2 or 3 points
FA1	1	F – Fission Product Barriers	4 or 5 points
FS1	1	F – Fission Product Barriers	6 - 11 points
FG1	1	F – Fission Product Barriers	12 or 13 points
HU1	1	H – Hazards, 1 – Natural & Destructive Phenomena	HU1.1
HU1	2	H – Hazards, 1 – Natural & Destructive Phenomena	HU1.2
HU1	3	H – Hazards, 1 – Natural & Destructive Phenomena	HU1.4
HU1	4	H – Hazards, 1 – Natural & Destructive Phenomena	HU1.3
HU1	5	H – Hazards, 1 – Natural & Destructive Phenomena	HU1.5
HU2	1	H – Hazards, 2 – Fire or Explosion	HU2.1
HU2	2	H – Hazards, 2 – Fire or Explosion	HU2.2
HU3	1	H – Hazards, 3 – Toxic, Corrosive, Asphyxiant & Flammable Gas	HU3.1
HU3	2	H – Hazards, 3 – Toxic, Corrosive, Asphyxiant & Flammable Gas	HU3.2
HU4	1, 2, 3	H – Hazards, 4 – Security	HU4.1
HU5	1	H – Hazards, 6 – EC Judgment	HU6.1
HA1	1	H – Hazards, 1 – Natural & Destructive Phenomena	HA1.1
HA1	2	H – Hazards, 1 – Natural & Destructive Phenomena	HA1.2
HA1	3	H – Hazards, 1 – Natural & Destructive Phenomena	HA1.4

NEI		Salem Generating Station	
IC	**Example EAL**	**Category and Subcategory**	**EAL**
HA1	4	H – Hazards, 1 – Natural & Destructive Phenomena	HA1.3
HA1	5	H – Hazards, 1 – Natural & Destructive Phenomena	HA1.6
HA1	6	N/A	N/A
HA2	1	H – Hazards, 2 – Fire or Explosion	HA2.1 HA2.2
HA3	1	H – Hazards, 3 – Toxic, Corrosive, Asphyxiant & Flammable Gas	HA3.1
HA4	1, 2	H – Hazards, 4 – Security	HA4.1
HA5	1	H – Hazards, 5 – Control Room Evacuation	HA5.1
HA6	1	H – Hazards, 6 – EC Judgment	HA6.1
HS2	1	H – Hazards, 5 – Control Room Evacuation	HS5.1
HS3	1	H – Hazards, 6 – EC Judgment	HS6.1
HS4	1	H – Hazards, 4 – Security	HS4.1
HG1	1, 2	H – Hazards, 4 – Security	HG4.1
HG2	1	H – Hazards, 6 – EC Judgment	HG6.1
SU1	1	S – System Malfunction, 1 – Loss of AC Power	SU1.1
SU2	1	S – System Malfunction, 3 – Inability to Reach or Maintain Shutdown Conditions	SU3.1
SU3	1	S – System Malfunction, 5 – Instrumentation	SU5.1
SU4	1	S – System Malfunction, 7 – Fuel Clad Degradation	SU7.1

NEI		Salem Generating Station	
IC	**Example EAL**	**Category and Subcategory**	**EAL**
SU4	2	S – System Malfunction, 7 – Fuel Clad Degradation	SU7.2
SU5	1, 2	S – System Malfunction, 8 – RCS Leakage	SU8.1
SU6	1, 2	S – System Malfunction, 6 – Communications	SU6.1
SU8	1 (BWR)	N/A	N/A
SU8	1 (PWR)	S – System Malfunction, 3 – ATWT / Criticality	SU3.1
SA2	1	S – System Malfunction, 3 – ATWT / Criticality	SA3.1
SA4	1	S – System Malfunction, 5 – Instrumentation	SA5.1
SA5	1	S – System Malfunction, 1 – Loss of AC Power	SA1.1
SS1	1	S – System Malfunction, 1 – Loss of AC Power	SS1.1
SS2	1	S – System Malfunction, 3 – ATWT / Criticality	SS3.1
SS3	1	S – System Malfunction, 2 – Loss of DC Power	SS2.1
SS6	1	S – System Malfunction, 5 – Instrumentation	SS5.1
SG1	1	S – System Malfunction, 1 – Loss of AC Power	SG1.1
SG2	1	S – System Malfunction, 3 – ATWT / Criticality	SG3.1

NEI 99-01	SGS
Barrier Threshold	**EAL**
FC Loss 1	FB1-L
FC Loss 2	FB4-L
FC Loss 3	FB2-L
FC Loss 6	FB3-L
FC Loss 8	FB5-L
FC P-Loss 1	FB1-P
	FB2-P
FC P-Loss 3	FB3-P
FC P-Loss 4	FB4-P
FC P-Loss 8	FB5-P
RCS Loss 2	RB2-L
RCS Loss 4	RB3-L
RCS Loss 6	RB1-L
RCS Loss 8	RB4-L
RCS P-Loss 1	RB1-P
	RB2-P
RCS P-Loss 2	RB3-P
RCS P-Loss 8	RB4-P
CNTMT Loss 2	CB1-L
	CB2-L
CNTMT Loss 4	CB3-L
	CB4-L
CNTMT Loss 5	CB5-L
CNTMT Loss 8	CB6-L
CNTMT P-Loss 1	CB1-P
CNTMT P-Loss 2	CB6-P
	CB7-P
	CB8-P
CNTMT P-Loss 3	CB3-P
	CB4-P
CNTMT P-Loss 6	CB5-P
CNTMT P-Loss 7	CB2-P
CNTMT P-Loss 8	CB9-P

Table 3 – Summary of Deviations

NEI		SGS EAL	Description
IC	Example EAL		
HU2	1	HU2.1	The generic bases for HU2 example EAL #1 has been revised to clarify when the 15 minute classification time begins (what constitutes a credible notification/report of a fire). For events where only a single fire or smoke detector has alarmed, the 15 minute clock starts once on/near-scene visual confirmation is received.

Table 4 – Defined Terms

NEI Term and Definition	SGS Term and Definition	Difference/Deviation Justification
AFFECTING SAFE SHUTDOWN: Event in progress has adversely affected functions that are necessary to bring the plant to and maintain it in the applicable HOT or COLD SHUTDOWN condition. Plant condition applicability is determined by Technical Specification LCOs in effect. Example 1: Event causes damage that results in entry into an LCO that requires the plant to be placed in HOT SHUTDOWN. HOT SHUTDOWN is achievable, but COLD SHUTDOWN is not. This event is not "AFFECTING SAFE SHUTDOWN." Example 2: Event causes damage that results in entry into an LCO that requires the plant to be placed in COLD SHUTDOWN. HOT SHUTDOWN is achievable, but COLD SHUTDOWN is not. This event is "AFFECTING SAFE SHUTDOWN."	None	The NEI term and definition have been deleted because they are no longer used in NEI 99-01 and is not used in the Salem EALs.
BOMB: Refers to an explosive device suspected of having sufficient force to damage plant systems or structures.	**BOMB:** Refers to an explosive device suspected of having sufficient force to damage plant systems or structures.	None
CIVIL DISTURBANCE: A group of persons violently protesting station operations or activities at the site.	**CIVIL DISTURBANCE**: A group of persons violently protesting station operations or activities at the site.	None
CONFINEMENT BOUNDARY: The barrier(s) between areas containing radioactive substances and the environment.	**CONFINEMENT BOUNDARY:** is the barrier(s) between areas containing radioactive substances and the environment and includes the multi-purpose canister (MPC) and, for the purposes of	The term "is" has been added to the beginning of the SGS definition for clarity. The phrase "and includes the multi-purpose canister (MPC) and, for the purposes of this EAL, the associated cask

NEI Term and Definition	SGS Term and Definition	Difference/Deviation Justification
	this EAL, the associated cask shielding.	shielding" was added to better define the term "barrier(s) used in the definition.
CONTAINMENT CLOSURE: The site specific procedurally defined actions taken to secure containment (primary or secondary for BWR) and its associated structures, systems, and components as a functional barrier to fission product release under existing plant conditions.	**CONTAINMENT CLOSURE:** Is the Salem procedurally defined action taken to secure containment and its associated structures, systems, and components as a functional barrier to fission product release under existing plant conditions. **CONTAINMENT CLOSURE** status is checked and verified using S1(S2).OP-AB.CONT-0001(Q)	The NEI phrase "...site specific..." has been replaced with the sentence "CONTAINMENT CLOSURE status is checked and verified using S1(S2).OP-AB.CONT-0001(Q)" to specify the document in which the procedurally defined actions can be found. The term "Is" has been added to the beginning of the SGS definition for clarity.
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.	**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.	None
EXTORTION: An attempt to cause an action at the station by threat of force.	None	The NEI term and definition have been deleted because they are no longer used in NEI 99-01 and is not used in the Salem EALs.
FAULTED: (PWRs) in a steam generator, the existence of secondary side leakage that results in an uncontrolled drop in steam generator pressure or the steam generator being completely depressurized.	**FAULTED**: (PWRs) in a steam generator, the existence of secondary side leakage that results in an uncontrolled drop in steam generator pressure or the steam generator being completely depressurized.	None
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.	**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.	None
HOSTAGE: A person(s) held as leverage against the station to ensure that demands	**HOSTAGE:** A person(s) held as leverage against the station to ensure that demands will be met by	None

NEI Term and Definition	SGS Term and Definition	Difference/Deviation Justification
will be met by the station.	the station.	
HOSTILE ACTION: An act toward a NPP or its personnel that includes the use of violent force to destroy equipment, take HOSTAGES, and/or intimidate the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, PROJECTILEs, vehicles, or other devices used to deliver destructive force. Other acts that satisfy the overall intent may be included. HOSTILE ACTION should not be construed to include acts of civil disobedience or felonious acts that are not part of a concerted attack on the NPP. Non-terrorism-based EALs should be used to address such activities (i.e., this may include violent acts between individuals in the owner controlled area).	**HOSTILE ACTION:** An act toward Salem or Hope Creek or its personnel that includes the use of violent force to destroy equipment, take **HOSTAGES**, and/or intimidate PSEG to achieve an end. This includes attack by air, land, or water using guns, explosives, **PROJECTILE**s, vehicles, or other devices used to deliver destructive force. Other acts that satisfy the overall intent may be included. **HOSTILE ACTION** should not be construed to include acts of civil disobedience or felonious acts that are not part of a concerted attack on Salem or Hope Creek. Non-terrorism-based EALs should be used to address such activities (i.e., this may include violent acts between individuals in the **OCA**).	The NEI terms "NPP" and "licensee" have been replaced with "Salem or Hope Creek" and "PSEG" to identify the specific entities to which the terms apply. The NEI phrase "owner controlled area" has been changed to "OCA" for simplification. OCA is the approved acronym for owner controlled area.
HOSTILE FORCE: One or more individuals who are engaged in a determined assault, overtly or by stealth and deception, equipped with suitable weapons capable of killing, maiming, or causing destruction.	**HOSTILE FORCE:** One or more individuals who are engaged in a determined assault, overtly or by stealth and deception, equipped with suitable weapons capable of killing, maiming, or causing destruction.	None
IMMINENT: Mitigation actions have been ineffective, additional actions are not expected to be successful, and trended information indicates that the event or condition will occur. Where IMMINENT timeframes are specified, they shall apply.	**IMMINENT:** Mitigation actions have been ineffective, additional actions are not expected to be successful, and trended information indicates that the event or condition will occur within approximately 2 hours (unless a different time is specified).	The NEI sentence "Where IMMINENT timeframes are specified, they shall apply" has been replaced with the phrase "...within approximately 2 hours (unless a different time is specified)" to provide a reasonable estimate of the duration over which trended information should be forecasted. This is a clarification of the NEI 99-01 definition and is consistent with previous training provided to Emergency Coordinators at Salem. to maintain the same specific time frame used in previously approved NUMARC EALs which is consistent with NEI99-01, Rev. 4 definition on page 5-F-1 and is consistent with the previous training provided to Emergency Coordinators at

NEI Term and Definition	SGS Term and Definition	Difference/Deviation Justification
		Salem.
INTRUSION: A person(s) present in a specified area without authorization. Discovery of a BOMB in a specified area is indication of INTRUSION into that area by a HOSTILE FORCE.	None	The NEI term and definition have been deleted because they are no longer used in NEI 99-01 and is not used in the Salem EALs.
INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI): A complex that is designed and constructed for the interim storage of spent nuclear fuel and other radioactive materials associated with spent fuel storage.	**INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI):** A complex that is designed and constructed for the interim storage of spent nuclear fuel and other radioactive materials associated with spent fuel storage.	None
NORMAL PLANT OPERATIONS: Activities at the plant site associated with routine testing, maintenance, or equipment operations, in accordance with normal operating or administrative procedures. Entry into abnormal or emergency operating procedures, or deviation from normal security or radiological controls posture, is a departure from NORMAL PLANT OPERATIONS.	**NORMAL PLANT OPERATIONS**: Activities at the plant site associated with routine testing, maintenance, or equipment operations, in accordance with normal operating or administrative procedures. Entry into abnormal or emergency operating procedures, or deviation from normal security or radiological controls posture, is a departure from **NORMAL PLANT OPERATIONS**.	None
PROJECTILE: An object directed toward a NPP that could cause concern for its continued operability, reliability, or personnel safety.	**PROJECTILE:** An object that impacts Salem and/or Hope Creek that could cause concern for continued operability, reliability, or personnel safety.	The NEI phrase "An object directed toward..." has been changed to "An object that impacts..." because PROJECTILES can be the result of an event that was not "directed" at the station but still "impacted the station. For Example, if a ship, plane, vehicle, etc. were to explode near the station a PROJECTILE could impact the stations but it was not "directed" at the station. The NEI "NPP" is "Salem and/or Hope Creek" stations. The NEI phrase "...for its continued operability..." has been changed to "...for continued operability..." to make the sentence flow better.

PROTECTED AREA: Typically the site specific area which normally encompasses all controlled areas within the security PROTECTED AREA fence.	**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.	The NEI "site specific area" at SGS is defined by the phrase "A security controlled area within the OWNER-CONTROLLED AREA (OCA) that is enclosed by the security perimeter fence and monitored by intrusion detection systems." The NEI phrase "...encompasses all controlled areas within the...fence" has been deleted because the above description of "site specific area" provides a more detailed definition that plant operators can better relate to. The sentence "Access to the PA requires proper security clearance and is controlled at the Security Center" is added clarification the plant operators can better relate to.
RUPTURED: (PWRs) in a steam generator, existence of primary-to-secondary leakage of a magnitude sufficient to require or cause a reactor trip and safety injection.	**RUPTURED**: in a steam generator, existence of primary-to-secondary leakage of a magnitude sufficient to require or cause a reactor trip and safety injection.	None
SABOTAGE: Deliberate damage, mis-alignment, or mis-operation of plant equipment with the intent to render the equipment inoperable. Equipment found tampered with or damaged due to malicious mischief may not meet the definition of SABOTAGE until this determination is made by security supervision.	**SABOTAGE**: Deliberate damage, mis-alignment, or mis-operation of plant equipment with the intent to render the equipment inoperable. Equipment found tampered with or damaged due to malicious mischief may not meet the definition of **SABOTAGE** until this determination is made by security supervision.	None
SECURITY CONDITION: Any Security Event as listed in the approved security contingency plan that constitutes a threat/compromise to site security, threat/risk to site personnel, or a potential degradation to the level of safety of the plant. A SECURITY CONDITION does not involve a HOSTILE ACTION.	**SECURITY CONDITION: ANY** Security Event as listed in the approved security contingency plan that constitutes a threat/compromise to site security, threat/risk to site personnel, or a potential degradation to the level of safety of the plant. A **SECURITY CONDITION** does not involve a **HOSTILE ACTION**.	None
SIGNIFICANT TRANSIENT: An UNPLANNED event involving one or more of	**SIGNIFICANT TRANSIENT**: An **UNPLANNED** event based on EC judgment, but includes as a	The NEI phrase "...event involving one or more of the following..." has been changed to "...event based on EC

the following: (1) automatic turbine runback greater than 25% thermal reactor power, (2) electrical load rejection greater than 25% full electrical load, (3) Reactor Trip, (4) Safety Injection Activation, or (5) thermal power oscillations greater than 10%.	minimum any one of the following: (1) automatic turbine runback greater than 25% thermal reactor power, (2) electrical load rejection greater than 25% full electrical load, (3) Reactor Trip, or (4) Safety Injection Activation.	judgment, but includes as a minimum any one of the following…" to allow for EC judgment in determining if a **SIGNIFICANT TRANSIENT** has occurred. At times a number of minor events that occur at the same time could result in conditions equal to a **SIGNIFICANT TRANSIENT.** The NEI phrase "(5) thermal power oscillations greater than 10%" has been deleted because PWRs are not susceptible to thermal power oscillations greater than 10%.
STRIKE ACTION: A work stoppage within the PROTECTED AREA by a body of workers to enforce compliance with demands made on (site specific). The STRIKE ACTION must threaten to interrupt NORMAL PLANT OPERATIONS.	None	The NEI term and definition have been deleted because they are no longer used in NEI 99-01 and is not used in the Salem EALs.
UNISOLABLE: A breach or leak that cannot be promptly isolated.	**UNISOLABLE:** A breach or leak that cannot be promptly isolated from the Control Room.	The phrase "from the Control Room" has been added to the SGS definition to emphasize the meaning of "promptly." In accordance with NEI basis discussion of example EALs using the term "UNISOLABLE," prompt isolation attempts include automatic isolation and manual action in the Control Room to close isolation valves.
UNPLANNED: A parameter change or an event that is not the result of an intended evolution and requires corrective or mitigative actions.	**UNPLANNED**: A parameter change or an event that is not the result of an intended evolution and requires corrective or mitigative actions.	None
VALID: An indication, report, or condition, is considered to be VALID when it is verified by (1) an instrument channel check, (2) indications on related or redundant indicators, or (3) by direct observation by plant personnel, such that doubt related to the indicator's operability, the condition's existence, or the report's accuracy is removed. Implicit in this definition is the need for timely assessment.	**VALID**: An indication, report, or condition, is considered to be **VALID** when it is verified by (1) an instrument channel check, (2) indications on related or redundant indicators, or (3) by direct observation by plant personnel, such that doubt related to the indicator's operability, the condition's existence, or the report's accuracy is removed. Implicit in this definition is the need for timely assessment.	None

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.	**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.	None
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.	VI**TAL 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.	None

Category R

Abnormal Rad Levels / Rad Effluent

NEI IC#	NEI IC Wording and Mode Applicability	SGS IC#(s)	SGS IC Wording and Mode Applicability	Difference/Deviation Justification
AU1	Any release of gaseous or liquid radioactivity to the environment greater than 2 times the Radiological Effluent Technical Specifications/ODCM for 60 minutes or longer. MODE: All	RU1	Any release of gaseous or liquid radioactivity to the environment greater than 2 times the ODCM for 60 minutes or longer MODE: All	Deleted reference to RETS. ODCM limits provide the SGS site-specific Radiological Effluent Technical Specifications.

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	VALID reading on **ANY** of the following radiation monitors greater than the reading shown for 60 minutes or longer: (site specific monitor list and threshold values) Note: The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the release duration has exceeded, or will likely exceed, the applicable time. In the absence of data to the contrary, assume that the release duration has exceeded the applicable time if an ongoing release is detected and the release start time is unknown.	RU1.1	**VALID** gaseous monitor reading **> Table R-1** column "UE" **AND** **≥ 60 minutes** have elapsed (Note 2) Note 2: The Emergency Coordinator should NOT wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the release duration has exceeded, or will likely exceed, the applicable time. In the absence of data to the contrary, assume that the release duration has exceeded the applicable time if an ongoing release is detected and the release start time is unknown.	Gaseous release is emphasized in this EAL to be consistent with the NEI basis, which states "Some sites may find it advantageous to address gaseous and liquid releases with separate initiating conditions and EALs." The NEI phrase "VALID reading on **ANY** of the following radiation monitors greater than the reading shown …" has been replaced with "**VALID** gaseous monitor reading **> Table R-1** column "UE"…" • The SGS radiation monitors that detect radioactivity effluent release to the environment are listed in Table R-1. • UE, Alert, SAE and GE thresholds for all SGS continuously monitored gaseous release pathways are listed in Table R-1 to consolidate the information in a single location and, thereby, simplify identification of the thresholds by the EAL user. • The values shown in Table R-1 column "UE", consistent with the NEI bases, represent two times the ODCM release limits for both liquid and gaseous release. The alarm setpoints for both liquid and gaseous effluent monitors are conservatively set to

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
				ensure the ODCM release limits are not exceeded. An asterisk note "For high radiation conditions on Letdown Line Monitor 1R31A (2R31), refer to EAL SU7.1" has been added to Table R-1. A Letdown Line radiation monitor alarm is an abnormal radiological condition and can be reasonably associated with Category R EALs. It is placed in the System Malfunction category to conform to NEI 99-01 guidance, however. The note helps direct the EAL user to the EAL applicable to abnormal letdown line radiation.
2	VALID reading on any effluent monitor reading greater than 2 times the alarm setpoint established by a current radioactivity discharge permit for 60 minutes or longer. Note: The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the release duration has exceeded, or will likely exceed, the applicable time. In the absence of data to the contrary, assume that the release duration has exceeded the applicable time if an ongoing release is detected and the release start time is unknown.	RU1.2	**ANY VALID** liquid monitor reading **> Table R-1** column "UE" **AND** **≥ 60 minutes** have elapsed (Note 2) Note 2: The Emergency Coordinator should NOT wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the release duration has exceeded, or will likely exceed, the applicable time. In the absence of data to the contrary, assume that the release duration has exceeded the applicable time if an ongoing release is detected and the release start time is unknown.	Liquid release is emphasized in this EAL to be consistent with the NEI basis, which states "Some sites may find it advantageous to address gaseous and liquid releases with separate initiating conditions and EALs." The NEI phrase "VALID reading on any effluent monitor reading greater than 2 times the alarm setpoint established by a current radioactivity discharge permit ..." has been replaced with "**ANY VALID** liquid monitor reading **> Table R-1** column "UE"...." The SGS radiation monitors that detect radioactivity effluent release to the environment are listed in Table R-1. UE, Alert, SAE and GE thresholds for all SGS continuously monitored release pathways are listed in Table R-1 to consolidate the information in a single location and, thereby, simplify identification of the thresholds by the EAL user. The values shown in Table R-1 column "UE", consistent with the NEI bases, represent two times the ODCM release limits for both liquid and gaseous release. The alarm setpoints for both liquid and gaseous effluent monitors are conservatively set to ensure the ODCM release limits are not exceeded.
3	Confirmed sample analyses for gaseous or liquid releases indicates concentrations or release rates greater than 2 times (site specific RETS values) for 60	RU1.3	Confirmed sample analyses for gaseous or liquid releases indicate concentrations or release rates **> Table R-2** column "UE"	The NEI phrase "greater than 2 times (site specific RETS values)" has been changed to "**> Table R-2** column "UE"..." The values shown in Table R-2 column "UE", consistent with the NEI bases, represent 2 times ODCM 3/4.11.1/2

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
	minutes or longer. Note: The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the release duration has exceeded, or will likely exceed, the applicable time. In the absence of data to the contrary, assume that the release duration has exceeded the applicable time if an ongoing release is detected and the release start time is unknown.		**AND** **≥ 60 minutes** have elapsed (Note 2) Note 2: The Emergency Coordinator should NOT wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the release duration has exceeded, or will likely exceed, the applicable time. In the absence of data to the contrary, assume that the release duration has exceeded the applicable time if an ongoing release is detected and the release start time is unknown.	concentrations.
4	VALID reading on perimeter radiation monitoring system greater than 0.10 mR/hr above normal* background sustained for 60 minutes or longer [for sites having telemetered perimeter monitors] * Normal can be considered as the highest reading in the past twenty-four hours excluding the current peak value.	N/A	N/A	Deleted NEI Example EAL #4 because the plant is not equipped with a perimeter radiation monitoring system. This threshold is properly addressed by the radiation monitors listed in Table R-1 and dose assessment capabilities.
5	VALID indication on automatic real-time dose assessment capability greater than (site-specific value) for 60 minutes or longer [for sites having such	N/A	N/A	Deleted NEI Example EAL #5 because the plant is not equipped with real-time dose assessment. This threshold is properly addressed by the radiation monitors listed in Table R-1 and dose assessment capabilities.

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
	capability]			

Table R-1 Effluent Monitor Classification Thresholds*

	Release Point	Monitor	GE	SAE	ALERT	UE
Gaseous	Plant Vent Effluent Noble Gas Unit 1 + Unit 2	1R41D + 2R41D **OR** SPDS combined release rate	8.48E+09 µCi/sec	8.48E+08 µCi/sec	4.84E+07 µCi/sec	4.84E+05 µCi/sec
Liquid	Containment Fan Coil Process	1(2)R13A/B	----	----	1.64E+05 cpm	1.64E+03 cpm
Liquid	Liquid Radwaste Disposal Process	1R18 2R18	----	----	N/A ***See EAL RA1.3***	U1= 5.50E+05 cpm U2= 9.90E+05 cpm
Liquid	Steam Generator Blowdown Process	1R19A-D 2R19A-D	----	----	U1= 6.40E+05 cpm U2= 8.30E+05 cpm	U1= 6.40E+03 cpm U2= 8.30E+03 cpm
Liquid	Non-Rad Liquid Waste	2R37	----	----	3.60E+05 cpm	3.60E+03 cpm

* For high radiation conditions on Letdown Line Monitor 1R31A (2R31), refer to EAL SU7.1

Table R-2 Effluent Sample Classification Thresholds				
	Release Point	**Sample**	ALERT	UE
Gaseous	Plant Vent	NG	6.40E-01 μCi/cc	6.40E-03 μCi/cc
		I-131	5.60E-05 μCi/cc	5.60E-07 μCi/cc
	Unmonitored	Isotopic	200 x ODCM 3/4.11.2	2 x ODCM 3/4.11.2
Liquid	Containment Fan Coil	Isotopic	200 x ODCM 3/4.11.1	2 x ODCM 3/4.11.1
	Liquid Radwaste Disposal	Isotopic	200 x ODCM 3/4.11.1	2 x ODCM 3/4.11.1
	Steam Generator Blowdown	Isotopic	200 x ODCM 3/4.11.1	2 x ODCM 3/4.11.1
	Chemical Waste Basin	Isotopic	200 x ODCM 3/4.11.1	2 x ODCM 3/4.11.1
	Unmonitored	Isotopic	200 x ODCM 3/4.11.1	2 x ODCM 3/4.11.1

NEI IC#	NEI IC Wording and Mode Applicability	SGS IC#(s)	SGS IC Wording and Mode Applicability	Difference/Deviation Justification
AU2	Unplanned rise in plant radiation levels MODE: All	RU2	**UNPLANNED** rise in plant radiation levels MODE: All	None

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	a. UNPLANNED water level drop in a reactor refueling pathway as indicated by (site specific level or indication). **AND** b. VALID Area Radiation Monitor reading rise on (site specific list).	RU2.1	**UNPLANNED** water level drop in the refueling cavity, refueling canal or spent fuel pool (SFP) as indicated by **ANY** of the following: • Confirmed SFP low level alarm (OHA-C35 SFP LVL LO) • RVLIS - Refueling Mode • Visual observation (local or remote) **AND** **VALID** area radiation monitor reading rise on **ANY** of the following: • 1(2)R5 Fuel Handling Bldg • 1(2)R9 Fuel Storage Area • 1(2)R32A Fuel Handling Crane Fuel Handling Bldg (local monitor) • 1(2)R2 Containment • Temporary ARM	The NEI phrase "...a reactor refueling pathway as indicated by (site specific level or indication)..." has been changed to "the refueling cavity, refueling canal or spent fuel pool (SFP) as indicated by **ANY** of the following: ..." for clarification. The listed low water level indications and alarm are the site-specific thresholds and refer to the spent fuel pool and refueling cavity as explained in the basis for the EAL. The "site-specific" monitors are those located on the 130' ele. of either the Containment or FHB because radiation levels in these areas are likely to be affected by the loss of inventory from the refueling cavity, spent fuel pool and fuel transfer canal.
2	UNPLANNED VALID Area Radiation Monitor readings or	RU2.2	**UNPLANNED VALID** area radiation monitor readings or survey results rise	The term "indicate a..." has been deleted for proper English.

	survey results indicate a rise by a factor of 1000 over normal* levels. *Normal levels can be considered as the highest reading in the past twenty-four hours excluding the current peak value.		by a factor of **1,000** over normal levels (Note 7) Note 7: Normal levels can be considered as the highest reading in the past 24 hours excluding the current peak value	The NEI asterisks and note have been changed to Note 7. Numbering this information facilitates referencing in the EAL matrix. The NEI term "twenty-four" has been replaced with Arabic numerals for clarification.

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
AA1	Any release of gaseous or liquid radioactivity to the environment greater than 200 times the Radiological Effluent Technical Specifications/ODCM for 15 minutes or longer. MODE: All	RA1	Any release of gaseous or liquid radioactivity to the environment greater than 200 times the ODCM for 15 minutes or longer MODE: All	Deleted reference to RETS. ODCM limits provide the SGS site-specific Radiological Effluent Technical Specifications.

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	VALID reading on **ANY** of the following radiation monitors greater than the reading shown for 15 minutes or longer: (site specific monitor list and threshold values) Note: The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the release duration has exceeded, or will likely exceed, the applicable time. In the absence of data to the contrary, assume that the release duration has exceeded the applicable time if an ongoing release is detected and the release start time is unknown.	RA1.1	**VALID** gaseous monitor reading **> Table R-1** column "ALERT" **AND** **≥ 15 minutes** have elapsed (Note 2) Note 2: The Emergency Coordinator should NOT wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the release duration has exceeded, or will likely exceed, the applicable time. In the absence of data to the contrary, assume that the release duration has exceeded the applicable time if an ongoing release is detected and the release start time is unknown.	Gaseous release is emphasized in this EAL to be consistent with the NEI basis, which states ""Some sites may find it advantageous to address gaseous and liquid releases with separate initiating conditions and EALs." The NEI phrase "VALID reading on **ANY** of the following radiation monitors greater than the reading shown …" has been replaced with "**VALID** gaseous monitor reading **> Table R-1** column "ALERT"…" • The SGS radiation monitors that detect radioactivity effluent release to the environment are listed in Table R-1. • UE, Alert, SAE and GE thresholds for all SGS continuously monitored gaseous release pathways are listed in Table R-1 to consolidate the information in a single location and, thereby, simplify identification of the thresholds by the EAL-user. • The values shown in Table R-1 column "Alert", consistent with the NEI bases, represent two hundred times the ODCM release limits for both liquid and gaseous release. The alarm setpoints for both liquid and gaseous effluent monitors are conservatively set to

				ensure the ODCM release limits are not exceeded.
2	VALID reading on any effluent monitor reading greater than 200 times the alarm setpoint established by a current radioactivity discharge permit for 15 minutes or longer. Note: The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the release duration has exceeded, or will likely exceed, the applicable time. In the absence of data to the contrary, assume that the release duration has exceeded the applicable time if an ongoing release is detected and the release start time is unknown.	RA1.2	**ANY VALID** liquid monitor reading **> Table R-1** column "ALERT" **AND** **≥ 15 minutes** have elapsed (Note 2) Note 2: The Emergency Coordinator should NOT wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the release duration has exceeded, or will likely exceed, the applicable time. In the absence of data to the contrary, assume that the release duration has exceeded the applicable time if an ongoing release is detected and the release start time is unknown.	The NEI phrase "VALID reading on any effluent monitor reading greater than 200 times the alarm setpoint established by a current radioactivity discharge permit ..." has been replaced with "**ANY VALID** liquid monitor reading **> Table R-1** column "ALERT" ..." Liquid release is emphasized in this EAL to be consistent with the NEI basis, which states "Some sites may find it advantageous to address gaseous and liquid releases with separate initiating conditions and EALs." The SGS radiation monitors that detect radioactivity effluent release to the environment are listed in Table R-1. UE, Alert, SAE and GE thresholds for all SGS continuously monitored release pathways are listed in Table R-1 to consolidate the information in a single location and, thereby, simplify identification of the thresholds by the EAL user. The values shown in Table R-1 column "Alert", consistent with the NEI bases, represent two hundred times the ODCM release limits for both liquid and gaseous release. The alarm setpoints for both liquid and gaseous effluent monitors are conservatively set to ensure the ODCM release limits are not exceeded.
3	Confirmed sample analyses for gaseous or liquid releases indicates concentrations or release rates greater than 200 times (site specific RETS values) for 15 minutes or longer. Note: The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the release duration has exceeded, or will likely exceed, the applicable time. In the absence of data to the contrary, assume that	RA1.3	Confirmed sample analyses for gaseous or liquid releases indicate concentrations or release rates **> Table R-2** column "ALERT" **AND** **≥ 15 minutes** have elapsed (Note 2) Note 2: The Emergency Coordinator should NOT wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the release duration has exceeded, or will likely	The NEI phrase "greater than 200 times (site specific RETS values)" has been changed to "**> Table R-2** column "ALERT"..." The values shown in Table R-2 column "ALERT", consistent with the NEI bases, represent 200 times ODCM 3/4.11.1/2 concentrations.

	the release duration has exceeded the applicable time if an ongoing release is detected and the release start time is unknown.		exceed, the applicable time. In the absence of data to the contrary, assume that the release duration has exceeded the applicable time if an ongoing release is detected and the release start time is unknown.	
4	VALID reading on perimeter radiation monitoring system reading greater than 10.0 mR/hr above normal* background for 15 minutes or longer. [for sites having telemetered perimeter monitors] * Normal can be considered as the highest reading in the past twenty-four hours excluding the current peak value.	N/A	N/A	Deleted NEI Example EAL #4 because the plant is not equipped with a perimeter radiation monitoring system. This threshold is properly addressed by the radiation monitors listed in Table R-1 and dose assessment capabilities.
5	VALID indication on automatic real-time dose assessment capability indicating greater than (site specific value) for 15 minutes or longer. [for sites having such capability]	N/A	N/A	Deleted NEI Example EALs #5 because the plant is not equipped with and real-time dose assessment. This threshold is properly addressed by the radiation monitors listed in Table R-1 and dose assessment capabilities.

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
AA2	Damage to irradiated fuel or loss of water level that has resulted or will result in the uncovering of irradiated fuel outside the reactor vessel. MODE: All	RA2	Damage to irradiated fuel or loss of water level that has or will resulted in the uncovering of irradiated fuel outside the Reactor Vessel MODE: All	None

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	A water level drop in the reactor refueling cavity, spent fuel pool or fuel transfer canal that will result in irradiated fuel becoming uncovered.	RA2.2	A water level drop in the refueling cavity, spent fuel pool or refueling canal that will result in irradiated fuel becoming uncovered	None
2	A VALID alarm or (site specific elevated reading) on **ANY** of the following due to damage to irradiated fuel or loss of water level. (site specific radiation monitors)	RA2.1	Damage to irradiated fuel or loss of water level (uncovering irradiated fuel outside the Reactor Vessel) that causes a **VALID** high alarm on **ANY** of the following radiation monitors: Fuel Handling Bldg • 1(2)R5 Fuel Handling Bldg • 1(2)R9 Fuel Storage Area • 1(2)R32A Fuel Handling Crane Fuel Handling Bldg (local monitor) • 1(2)R41A Plant Vent Containment • 1(2)R2 Containment	Reordered the wording of the EAL to clarify that the increased radiation levels are the result of damage or uncovering of irradiated fuel. Incorporated the IC wording to clarify that the EAL threshold is based on uncovering irradiated fuel outside the Reactor Vessel. The NEI phrase "VALID alarm" has been changed to "**VALID** high alarm" because it is the high alarm signal associated with the listed radiation monitors that warns of elevated radiation levels anticipated if spent fuel were to become uncovered. The listed radiation monitors represent the site-specific equivalents.

			• 1(2)R11A Containment Air - Particulate • 1(2)R12A Containment Vent - Noble Gas • 1(2)R12B Containment Vent - Iodine	

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
AA3	Rise in radiation levels within the facility that impedes operation of systems required to maintain plant safety functions. MODE: All	RA3	Rise in radiation levels within the facility that impedes operation of systems required to maintain plant safety functions MODE: All	None

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	Dose rate greater than 15 mR/hr in **ANY** of the following areas requiring continuous occupancy to maintain plant safety functions: (site specific area list)	RA3.1	Dose rates **> 15 mR/hr** in **EITHER** of the following: • Control Room (1(2)R1A) • Central Alarm Station	The phrase "Control Room (1(2)R1A)...Central Alarm Station..." has been added to the plant EAL to clarify the meaning of areas requiring continuous occupancy. These areas are specifically identified in the NEI IC AA3 basis discussion. The SGS Rad Waste Control Room is not required to be continuously occupied in order to maintain plant safety functions. ARM 1(2)R1A monitors area radiation level in the Control Room. The Central Alarm Station does not have permanently installed radiation monitoring.

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
AS1	Off-site dose resulting from an actual or IMMINENT release of gaseous radioactivity greater than 100 mrem TEDE or 500 mrem Thyroid CDE for the actual or projected duration of the release. MODE: All	RS1	Offsite dose resulting from an actual or imminent release of gaseous radioactivity greater than 100 mRem TEDE or 500 mRem thyroid CDE for the actual or projected duration of the release MODE: All	None

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	VALID reading on **ANY** of the following radiation monitors greater than the reading shown for 15 minutes or longer: (site-specific list) The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time. If dose assessment results are available, declaration should be based on dose assessment instead of radiation monitor values. Do not delay declaration awaiting dose assessment results.	RS1.1	**VALID** gaseous monitor reading **> Table R-1** column "SAE" **AND** Dose assessment results are NOT available **AND** **≥ 15 minutes** have elapsed (Note 1) Note 1: If dose assessment results are available, declaration should be based on dose assessment (EAL RS1.2) instead of gaseous monitor values. Do NOT delay declaration awaiting dose assessment results. The Emergency Coordinator should NOT wait until the applicable time has elapsed, but should declare the event	The NEI phrase "VALID reading on **ANY** of the following radiation monitors greater than the reading shown …" has been replaced with "**VALID** gaseous monitor reading **> Table R-1** column "SAE"…" • The SGS radiation monitors that detect radioactivity effluent release to the environment are listed in Table R-1. • UE, Alert, SAE and GE thresholds for all SGS continuously monitored gaseous release pathways are listed in Table R-1 to consolidate the information in a single location and, thereby, simplify identification of the thresholds by the EAL-user. • The values shown in Table R-1 column "SAE", consistent with the NEI bases, represent 10% of the EPA PAG for gaseous release. The condition "AND Dose assessment results are NOT available" has been added to the plant EAL to emphasize the importance dose assessment results and use of this EAL. The first and second sentences of the note have been reversed and "(EAL RS1.2)" has been added to the note to

			as soon as it is determined that the condition will likely exceed the applicable time.	emphasize the importance of dose assessment results.
2	Dose assessment using actual meteorology indicates doses greater than 100 mrem TEDE or 500 mrem thyroid CDE at or beyond the site boundary.	RS1.2	Dose assessment using actual meteorology indicates TEDE 4-day dose **> 4.0E+02 mRem** or Thyroid CDE dose **> 2.0E+03 mRem** at or beyond the **MINIMUM EXCLUSION AREA (MEA)**	The NEI phrase "doses greater than 100 mrem TEDE or 500 mrem thyroid CDE" has been changed to "TEDE 4-day dose **> 4.0E+02 mRem** or Thyroid CDE dose **> 2.0E+03 mRem**" because the TEDE 4-day dose (output of PSEG dose assessment model – MIDAS) assumes a 4 hr release duration. To obtain the approximate dose for a projected release condition of 1 hour, the TEDE 4-day dose value would need to be divided by 4. A TEDE 4-Day Dose > 4.0E+02 mRem correspond directly to a TEDE dose rate value of 100 mRem/hr and exceeds 10% of the EPA Protective Actions Guides (PAGs). The Thyroid-CDE Dose > 2.0E+03 mRem correspond directly to an CDE dose rate value of 500 mRem/hr and exceeds 10% of the EPA Protective Actions Guides (PAGs) which was established in consideration of the 1:5 ratio of the EPA PAG for TEDE and thyroid CDE. The NEI phrase "site boundary" has been replaced with "**MINIMUM EXCLUSION AREA (MEA).**" The MEA is the boundary used in the MIDAS dose assessment program that most closely approximates the site boundary. For Salem the MEA is 0.79 miles.
3	VALID perimeter radiation monitoring system reading greater than 100 mR/hr for 15 minutes or longer. [for sites having telemetered perimeter monitors]	N/A	N/A	Deleted NEI Example EAL #3 because the plant is not equipped with a perimeter radiation monitoring system. This threshold is properly addressed by the radiation monitors listed in Table R-1 and dose assessment capabilities.
4	Field survey results indicate closed window dose rates greater than 100 mR/hr expected to continue for 60 minutes or longer; or analyses of field survey samples indicate thyroid CDE greater than 500 mrem for	RS1.3	Field survey results indicate closed window dose rates **> 100 mRem/hr** expected to continue for **≥ 1 hr** at or beyond the **PROTECTED AREA BOUNDARY** **OR**	Split the example into two logical conditions separated by the "OR" logical connector for usability. The NEI abbreviation "R" has been replaced with the plant term "Rem" to agree with units of measure given in the EPA PAGs. The NEI phrase "one hour" has been abbreviated "1 hr" to

	one hour of inhalation, at or beyond the site boundary.		Analyses of field survey samples indicate I-131 concentration **> 3.85E-07 µCi/cc** at or beyond the **PROTECTED AREA BOUNDARY**	reduce EAL-user reading burden. The NEI phrase "thyroid CDE greater than 500 mrem for one hour of inhalation" has been changed to "I-131 concentration **> 3.85E-07 µCi/cc**" because the Iodine-131 field survey sample concentration and count rate threshold is based on I-131 dose conversion factors (DCFs) from EPA-400. The thresholds are based on a Thyroid-CDE Dose Rate of 500 mRem/hr for I-131. The NEI phrase "site boundary" has been changed to "the **PROTECTED AREA BOUNDARY**" because it is an easily determined location to obtain a field survey dose rate reading or to obtain a field sample. The Salem/Hope Creek site is situated on Artificial Island, bordered by the Delaware River on one side and marshy wetlands on the other sides. The area between the Protected Area and the site boundary (defined by the Minimum Exclusionary Boundary) is primarily wetlands and the river, both of which would be inaccessible to offsite field survey teams. Onsite survey teams dispatched inside the Protected Area would likely be the first to detect adverse radiological conditions at or beyond the site boundary.

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
AG1	Off-site dose resulting from an actual or IMMINENT release of gaseous radioactivity greater than 1000 mrem TEDE or 5000 mrem Thyroid CDE for the actual or projected duration of the release using actual meteorology. MODE: All	RG1	Offsite dose resulting from an actual or imminent release of gaseous radioactivity greater than 1,000 mRem TEDE or 5,000 mRem thyroid CDE for the actual or projected duration of the release MODE: All	Deleted the words "...using actual meteorology." The use of actual meteorology is only applicable to example EAL #2. Example EAL #1 is based on annual average meteorology. This is consistent with IC AS1.

NEI Ex.	NEI Example EAL Wording	SGS	SGS EAL Wording	Difference/Deviation Justification

EAL #		EAL #		
1	VALID reading on **ANY** of the following radiation monitors greater than the reading shown for 15 minutes or longer: (site specific monitor list and threshold values) The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time. If dose assessment results are available, declaration should be based on dose assessment instead of radiation monitor values. Do not delay declaration awaiting dose assessment results.	RG1.1	**VALID** gaseous monitor reading **> Table R-1** column "GE" **AND** Dose assessment results are NOT available **AND** **≥ 15 minutes** have elapsed (Note 1) Note 1: If dose assessment results are available, declaration should be based on dose assessment (EAL RG1.2) instead of gaseous monitor values. Do NOT delay declaration awaiting dose assessment results.' The Emergency Coordinator should NOT wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.	The NEI phrase "VALID reading on **ANY** of the following radiation monitors greater than the reading shown ..." has been replaced with "**VALID** gaseous monitor reading **> Table R-1** column "GE" ..." • The SGS radiation monitors that detect radioactivity effluent release to the environment are listed in Table R-1. • UE, Alert, SAE and GE thresholds for all SGS continuously monitored gaseous release pathways are listed in Table R-1 to consolidate the information in a single location and, thereby, simplify identification of the thresholds by the EAL-user. • The values shown in Table R-1 column "GE", consistent with the NEI bases, represent 100% of the EPA PAG for gaseous release. The condition "AND Dose assessment results are NOT available" has been added to the plant EAL to emphasize the importance dose assessment results and use of this EAL. The first and second sentences of the note have been reversed and "(EAL RG1.2)" has been added to the note to emphasize the importance of dose assessment results.
2	Dose assessment using actual meteorology indicates doses greater than 1000 mrem TEDE or 5000 mrem thyroid CDE at or beyond the site boundary.	RG1.2	Dose assessment using actual meteorology indicates TEDE 4-day dose **> 4.0E+03 mRem** or Thyroid CDE dose **> 2.0E+04 mRem** at or beyond the **MINIMUM EXCLUSION AREA (MEA)**	The NEI phrase "doses greater than 1000 mrem TEDE or 5000 mrem thyroid CDE" has been changed to "TEDE 4-day dose **> 4.0E+03 mRem** or Thyroid CDE dose **> 2.0E+04 mRem**" because the dose assessment output (from MIDAS) on the SSCL is reported at varying distances from the plant as a TEDE 4-Day dose. This TEDE 4-day dose assumes a 4 hr release duration. To obtain the

				approximate dose for a projected release condition of 1 hour, the TEDE 4-day dose value would need to be divided by 4. A TEDE 4-Day Dose > 4.0E+03 mRem correspond directly to a TEDE dose rate value of 1000 mRem/hr and exceeds the EPA Protective Actions Guides (PAGs). The Thyroid-CDE Dose > 2.0E+04 mRem correspond directly to an CDE dose rate value of 5000 mRem/hr and exceeds the EPA Protective Actions Guides (PAGs) which was established in consideration of the 1:5 ratio of the EPA PAG for TEDE and thyroid CDE. The NEI phrase "site boundary" has been replaced with "**MINIMUM EXCLUSION AREA (MEA)**." The MEA is the boundary used in the MIDAS dose assessment program that most closely approximates the site are boundary. For Salem the MEA is 0.79 miles.
3	VALID perimeter radiation monitoring system reading greater than 1000 mR/hr for 15 minutes or longer. [for sites having telemetered perimeter monitors]	N/A	N/A	Deleted NEI Example EAL #3 because the plant is not equipped with a perimeter radiation monitoring system. This threshold is properly addressed by the radiation monitors listed in Table R-1 and dose assessment capabilities.
4	Field survey results indicate closed window dose rates greater than 1000 mR/hr expected to continue for 60 minutes or longer; or analyses of field survey samples indicate thyroid CDE greater than 5000 mrem for one hour of inhalation, at or beyond site boundary.	RG1.3	Field survey results indicate closed window dose rates **> 1000 mRem/hr** expected to continue for **≥ 1 hr** at or beyond the **PROTECTED AREA BOUNDARY** **OR** Analyses of field survey samples indicate I-131 concentration **> 3.85E-06 µCi/cc** at or beyond the **PROTECTED AREA BOUNDARY**	Split the example into two logical conditions separated by the "OR" logical connector for usability. The NEI abbreviation "R" has been replaced with the plant abbreviation "Rem" to agree with units of measure given in the EPA PAGs. The NEI phrase "thyroid CDE greater than 5000 mrem for one hour of inhalation" has been changed to "I-131 concentration **> 3.85E-06 µCi/cc** or HP 260 probe reading **> 4.50E+03 CCPM**" because the Iodine-131 field survey sample concentration and count rate threshold is based on I-131 dose conversion factors (DCFs) from EPA-400. The thresholds are based on a Thyroid-CDE Dose Rate of 5000 mRem/hr for I-131. The NEI phrase "site boundary" has been changed to "the **PROTECTED AREA BOUNDARY**" because it is an easily determined location to obtain a field survey dose rate reading or to

				obtain a field sample. The Salem/Hope Creek site is situated on Artificial Island, bordered by the Delaware River on one side and marshy wetlands on the other sides. The area between the Protected Area and the site boundary (defined by the Minimum Exclusionary Boundary) is primarily wetlands and the river, both of which would be inaccessible to offsite field survey teams. Onsite survey teams dispatched inside the Protected Area would likely be the first to detect adverse radiological conditions at or beyond the site boundary.

Category C

Cold Shutdown / Refueling System Malfunction

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
CU1	RCS Leakage MODE: Cold Shutdown	CU3	Unplanned loss of RCS inventory MODE: 5 - Cold Shutdown	The IC has been changed from "RCS Leakage" to "Unplanned loss of RCS inventory" to align with NEI generic IC CU2. The example EALs of NEI CU1 manifest RCS leakage through loss of RCS inventory conditions. The intent of the two ICs is identical. This allows the SGS-related EAL to be numbered with the other loss of inventory based EALs CU2.2 and CU2.3 which are derived from generic IC CU2.

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	RCS leakage results in the inability to maintain or restore RPV level greater than (site specific low level RPS actuation setpoint) for 15 minutes or longer. [*BWR*] **Note:** The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.	N/A	N/A	The BWR portion of the NEI EAL has not been implemented because SGS is a PWR.

1	RCS leakage results in the inability to maintain or restore level within (site specific pressurizer or RCS/RPV level target band) for 15 minutes or longer. [*PWR*]	CU3.1	RCS leakage results in the inability to maintain or restore RCS level to **EITHER**: • Pressurizer Level **> 17%** (cold calibration value) • Within the target band established by procedure (when the level band is established below the pressurizer) **AND** **≥ 15 minutes** have elapsed (Note 3) Note 3: The Emergency Coordinator should NOT wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.	Reformatted for readability. The site-specific Pressurizer low level actuation setpoint (17%) is the specified SGS level. The phrase "established by procedure (when the level band is established below the pressurizer)" has been added to the SGS EAL for clarification. SGS operating procedures specify the appropriate RCS level range. The target band is not applicable if level is being maintained in the pressurizer. Reference to the NEI note is included in the EAL wording "(Note 3)." Numbering the note facilitates referencing in the EAL matrix.

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
CU2	UNPLANNED loss of RCS/RPV inventory MODE: Refueling	CU3	**UNPLANNED** loss of RCS inventory MODE: 6 - Refueling	The NEI acronym "RCS/RPV" has been replaced with "RCS" to use terminology commonly accepted at PWRs.

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	UNPLANNED RCS/RPV level drop as indicated by either of the following: • RCS/RPV water level drop below the RPV flange for 15 minutes or longer when the RCS/RPV level band is established above the RPV flange. • RCS/RPV water level drop below the RCS level band for 15 minutes or longer when the RCS/RPV level band is established below the RPV flange. **Note:** The Emergency Director should not wait until the applicable time has *elapsed, but should* declare the event as soon as it is determined that the condition will likely exceed the applicable time.	CU3.3	**UNPLANNED** RCS level drop below **EITHER** of the following: • **104 ft** (Reactor Vessel flange) • RCS level band (when the RCS level band is established below the Reactor Vessel flange) **AND** **≥ 15 minutes** have elapsed (Note 3) Note 3: The Emergency Coordinator should NOT wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.	The NEI acronym "RCS/RPV" has been replaced with "RCS" to use terminology commonly accepted at PWRs. Reformatted for readability. 104 ft is the elevation corresponding to the Reactor Vessel flange. Reference to the NEI note is included in the EAL wording "(Note 3)." Numbering the note facilitates referencing in the EAL matrix.

2	RCS/RPV level cannot be monitored with a loss of RCS/RPV inventory as indicated by an unexplained level rise in (site specific sump or tank).	CU3.2	RCS level CANNOT be monitored with a loss of RCS inventory as indicated by **ANY** unexplained RCS leakage indication, **Table C-1**	The NEI acronym "RCS/RPV" has been replaced with "RCS" to use terminology commonly accepted at PWRs. The NEI phrase "unexplained level rise in (site specific sump or tank)" has been changed to "**ANY** unexplained RCS leakage indication, **Table C-1**" to reduce EAL-user reading burden and thereby promote timely and accurate emergency classifications. Table C-1 lists the site-specific sumps and tank level conditions that could be indicative of a loss of inventory from the RCS.

Table C-1 RCS Leakage Indications

- Rise in Containment sump pump run frequency
- Aux Building sump level rise
- PRT level rise
- RWST level rise
- RCDT level rise
- Rise in RCS make-up rate
- Observation of RCS leakage that is **UNISOLABLE**

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
CU3	AC power capability to emergency busses reduced to a single power source for 15 minutes or longer such that any additional single failure would result in station blackout MODE: Cold Shutdown, Refueling	CU1	AC power capability to vital buses reduced to a single power source for 15 minutes or longer such that **ANY** additional single failure would result in complete loss of AC power to vital buses MODE:5 - Cold Shutdown, 6 - Refueling	"Vital buses" is equivalent to the NEI phrase "emergency buses." The term "station blackout" was replaced with "complete loss of AC power to vital buses" as this describes the intended condition leading to the Alert threshold in CA1.1. Station Blackout is not an operationally defined term for loss of all AC to vital buses.

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	a. AC power capability to (site specific emergency busses) reduced to a single power source for 15 minutes or longer **AND** b. Any additional single power source failure will result in station blackout. **Note:** The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.	CU1.1	Loss of 4KV Vital Bus Power Sources (Offsite and Onsite) which results in the availability of only **one** 4KV Vital Bus Power Source (Offsite or Onsite) **AND** **≥ 15 minutes** have elapsed (Note 3) Note 3: The Emergency Coordinator should NOT wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.	4KV vital buses are the SGS emergency buses. The NEI phrase "AC power capability to (site specific emergency busses) reduced to a single power source" has been changed to "Loss of 4KV Vital Bus Power Sources (Offsite and Onsite) which results in the availability of only one 4KV Vital Bus Power Source (Offsite or Onsite)" to reflect the specific SGS vital power configuration. The AND logic used in NEI 99-01 is improper as the second condition is not a separate condition of equal weight but rather a qualifier of the first. The threshold statement has been reworded to properly reflect the intent. Station Blackout is not an operationally defined term for loss of all AC to vital buses.

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
CU4	UNPLANNED loss of decay heat removal capability with irradiated fuel in the RPV MODE: Cold Shutdown, Refueling	CU4	**UNPLANNED** loss of decay heat removal capability with irradiated fuel in the Reactor Vessel MODE: 4 - Cold Shutdown, 5 - Refueling	The NEI acronym "RPV" has been changed to "Reactor Vessel" to use terminology commonly accepted at PWRs.

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	UNPLANNED event results in RCS temperature exceeding the Technical Specification cold shutdown temperature limit.	CU4.1	An **UNPLANNED** Loss of Decay Heat Removal functions **AND** RCS Temperature has risen to **> 200°F**	The NEI phrase "UNPLANNED event results in" has been changed to "An UNPLANNED Loss of Decay Heat Removal functions AND" for clarification. According to the NEI IC and basis discussion, the event of interest involves the loss of decay heat removal capability. 200°F is the SGS Technical Specification cold shutdown temperature limit and has been added for clarification. The NEI phrase "… exceeding the Technical Specification cold shutdown temperature limit" has been replaced with " has risen to **> 200°F**" for simplification. 200°F is universally understood to be the SGS Technical Specification cold shutdown temperature limit.
2	Loss of all RCS temperature and RCS/RPV level indication for 15 minutes or longer. **Note:** The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.	CU4.2	An **UNPLANNED** Loss of Decay Heat Removal functions **AND** Loss of **BOTH** of the following: • **All** RCS Temperature indication • **All** RCS level indication **AND** **≥ 15 minutes** have elapsed (Note 3)	The NEI acronym "RCS/RPV" has been replaced with "RCS" to use terminology commonly accepted at PWRs. The phrase ""An UNPLANNED Loss of Decay Heat Removal functions AND" has been added for clarification. According to the NEI IC and basis discussion, the event of interest involves the loss of decay heat removal capability. Reformatted the NEI EAL to improve readability.

			Note 3: The Emergency Coordinator should NOT wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.	

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
CU6	Loss of all On-site or Off-site communications capabilities MODE: Cold Shutdown, Refueling, Defueled	CU5	Loss of all onsite or offsite communications capabilities MODE: 5 - Cold Shutdown, 6 - Refueling, D - Defueled	None

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	Loss of all of the following on-site communication methods affecting the ability to perform routine operations: (site specific list of communications methods)	CU5.1	Loss of **all Table C-4** Onsite communication methods affecting the ability to perform routine operations **OR** Loss of **all Table C-4** Offsite communication methods affecting the ability to perform offsite notifications	CU5.1 implements Example EALs #1 and #2. These were combined for improved usability. The NEI example EALs specify site-specific lists of onsite and offsite communications methods. The SGS EAL lists these methods in Table C-4 for simplification.
2	Loss of all of the following off-site communication methods affecting the ability to perform offsite notifications: (site specific list of communications methods)			

Table C-4 Communications Systems		
System	**Onsite**	**Offsite**
Direct Inward Dial System (DID)	X	X
Station Page System (Gaitronics)	X	
Station Radio System	X	
Nuclear Emergency Telephone System (NETS)		X
Centrex Phone System (ESSX)		X
NRC (ENS)		X

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
CU7	Loss of required DC power for 15 minutes or longer MODE: Cold Shutdown, Refueling	CU2	Loss of required DC power for 15 minutes or longer MODE: 5 - Cold Shutdown, 6 - Refueling	None

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	Less than (site specific bus voltage indication) on required (site specific Vital DC busses) for 15 minutes or longer. **Note:** The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.	CU2.1	**< 114 VDC** bus voltage indications on **All** 125 VDC vital buses for **≥ 15 minutes** (Note 3) **OR** **< 25 VDC** bus voltage indications on **both** 28 VDC vital buses for **≥ 15 minutes** (Note 3) **AND** loss of control of Safety Related Equipment from the Control Room has been confirmed Note 3: The Emergency Coordinator should NOT wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.	114 VDC for the 125 VDC vital buses and 25 VDC for the 28 VDC vital buses are the site-specific bus voltages. The minimum voltages for the 125 VDC vital buses vary from 112.3 VDC to 113.9 VDC and have been rounded to 114 VDC for all buses for readability on Control Room instrumentation. The minimum voltages for the 28 VDC vital buses vary from 24.8 VDC to 25 VDC and have been rounded to 25 VDC for both buses for readability on Control Room instrumentation. 125 VDC vital buses 1A(2A), 1B(2B) and 1C(2C) and 28 VDC vital buses 1A(2A) and 1B(2B) are the site-specific vital DC buses. The 28 VDC system is required to operate pushbutton controls in the Control Room. It thus provides control power for remote operation of switchgear, annunciators, vital instrument buses, communications to auxiliary control system relay cabinets for manual control of ESF equipment, non-safety related equipment, and RP4 Status Board indications. The NEI term "required" has been replaced with "All" (for 125 VDC vital buses) and "both" for 28 VDC vital buses. All vital DC buses can be cross connected so that required DC power can be provided with no more than one bus. Since the minimum required DC buses is one bus, the EAL threshold is met when the minimum bus voltage on all DC buses occurs for 15 minutes or longer. [SGS to review and edit this justification].Need Ops Review – Paul Williams Reference to the NEI note is included in the EAL wording "(Note 3)." Numbering the note facilitates referencing in the EAL matrix.

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
CU8	Inadvertent criticality MODE: Cold Shutdown, Refueling	CU6	Inadvertent criticality MODE: 5 - Cold Shutdown, 6 - Refueling	None

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	UNPLANNED sustained positive period observed on nuclear instrumentation. (BWR)	N/A	N/A	NEI BWR Example EAL #1 has not been implemented because it applies only to BWR plants. SGS is a PWR.
1	UNPLANNED sustained positive startup rate observed on nuclear instrumentation. (PWR)	CU6.1	**UNPLANNED** sustained positive startup rate observed on nuclear instrumentation	None

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
CA1	Loss of RCS/RPV inventory MODE: Cold Shutdown, Refueling	CA3	Loss of RCS inventory MODE: 5 - Cold Shutdown, 6 - Refueling	The NEI acronym "RCS/RPV" has been replaced with "RCS" to use terminology commonly accepted at PWRs.

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	Loss of RCS/RPV inventory as indicated by level less than (site specific level). [*Low-Low ECCS actuation setpoint / Level 2 (BWR)*] [*Bottom ID of the RCS loop (PWR)*]	CA3.1	RCS level **< 97.5 ft**	The NEI acronym "RCS/RPV" has been replaced with "RCS" to use terminology commonly accepted at PWRs. The NEI phrase "Loss of RCS/RPV inventory as indicated by..." has been deleted because it is obvious from the threshold level that inventory in the RCS has been lost. This change has been made to reduce EAL-user reading burden and thereby promote timely and accurate emergency classifications. SGS is a PWR and is not equipped with the Low-Low ECCS Actuation setpoint/Level 2. The centerline level of the RCS loop hot leg is at approximately 97 ft and the inside diameter of the hot leg penetration is 29 in. The bottom ID would be 97 ft – 29/2 in. or 95 ft 9.5 in. Although NEI specifies a level for this threshold that is equal to the bottom of the RCS loop hot leg penetration, the SGS level indication capability does not support detection of a threshold level that low. RVLIS is capable of monitoring level to 97.3 ft so a setpoint of 97.5 ft has been selected. Local indication is also available to monitor this level.
2	RCS/RPV level cannot be monitored for 15 minutes or longer with a loss of RCS/RPV inventory as indicated by an unexplained level rise in (site specific sump or tank). **Note:** The Emergency Director should not wait until the	CA3.2	RCS level CANNOT be monitored for **≥ 15 minutes** with a loss of RCS inventory as indicated by **ANY** unexplained RCS leakage indication, **Table C-1** (Note 3) Note 3: The Emergency Coordinator should	The NEI acronym "RCS/RPV" has been replaced with "RCS" to use terminology commonly accepted at PWRs. Table C-1 lists the site-specific sumps and tank level conditions that could be indicative of a loss of inventory from the RCS.

	applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.		NOT wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.	

Table C-1 RCS Leakage Indications
• Rise in Containment sump pump run frequency • Aux Building sump level rise • PRT level rise • RWST level rise • RCDT level rise • Rise in RCS make-up rate • Observation of RCS leakage that is **UNISOLABLE**

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
CA3	Loss of all Off-site and all On-Site AC power to emergency busses for 15 minutes or longer. MODE: Cold Shutdown, Refueling, Defueled	CA1	Loss of all offsite and all onsite AC power to vital buses for 15 minutes or longer MODE: 5 - Cold Shutdown, 6 - Refueling, D - Defueled	"Vital buses" is equivalent to the NEI phrase "emergency buses."

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	Loss of all Off-Site and all On-Site AC Power to (site specific emergency busses) for 15 minutes or longer. **Note:** The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.	CA1.1	Loss of **all** Power (Onsite and Offsite) to **all** 4KV Vital Buses **AND** **≥ 15 minutes** have elapsed (Note 3) Note 3: The Emergency Coordinator should NOT wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.	The NEI phrase "Loss of all off-site and all on-site AC power" has been changed to "Loss of **all** Power (Onsite and Offsite)" for simplification. 4KV vital buses are the SGS emergency buses.

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
CA4	Inability to maintain plant in cold shutdown. MODE: Cold Shutdown, Refueling	CA4	Inability to maintain plant in cold shutdown MODE: 5 - Cold Shutdown, 6 - Refueling	None

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	An UNPLANNED event results in RCS temperature greater than (site specific Technical Specification cold shutdown temperature limit) for greater than the specified duration on table.	CA4.1	An **UNPLANNED** event results in RCS temperature **> 200°F** for **> Table C-3** duration **OR** An **UNPLANNED** event results in RCS pressure increase **> 10 psi** due to a loss of RCS cooling (this portion of the EAL does NOT apply in Solid Plant conditions)	NEI Example EALs #1 and #2 have been implemented in one EAL for simplification and to help ensure proper escalation from EALs CU4.1 and CU4.2. The NEI phrase "... greater than (site specific Technical Specification cold shutdown temperature limit)... " has been replaced with "> 200°F." 200°F is the SGS Technical Specification cold shutdown temperature limit. NEI example table has been represented in Table C-3. SGS is a PWR; therefore all PWR requirements (reduced inventory) have been implemented. A ten-psi RCS pressure increase is readable in the Control Room on 1(2)PI-403, SPDS Point U1(2)PT0403S, and P250 Computer Point P0499A. PI-403 has a range of 0 - 600 psig. One-half of the minimum 20 psi scale division is 10 psi.
2	An UNPLANNED event results in RCS pressure increase greater than 10 psi due to a loss of RCS cooling. (PWR-This EAL does not apply in Solid Plant conditions.)			

NEI Example Table:

Table: RCS Reheat Duration Thresholds		
RCS	**Containment Closure**	**Duration**
Intact (but not RCS Reduced Inventory [PWR])	N/A	60 minutes*
Not intact or RCS Reduced Inventory *(PWR)*	Established	20 minutes*
	Not Established	0 minutes
* If an RCS heat removal system is in operation within this time frame and RCS temperature is being reduced, the EAL is not applicable.		

SGS Table:

Table C-3 RCS Heatup Duration Thresholds		
RCS Integrity	**CONTAINMENT CLOSURE**	**Duration Threshold**
Intact **AND** NOT in reduced inventory status	NOT Applicable	60 minutes **
NOT Intact **OR** RCS is in a reduced inventory status	Established	20 minutes **
	NOT Established	0 minutes
** *IF a Decay Heat Removal System is placed in operation within the duration threshold and RCS* Temperature is lowering, THEN this EAL is NOT Applicable		

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
CS1	Loss of RCS/RPV inventory affecting core decay heat removal capability. MODE: Cold Shutdown, Refueling	CS3	Loss of RCS inventory affecting core decay heat removal capability MODE: 5 - Cold Shutdown, 6 - Refueling	The NEI acronym "RCS/RPV" has been replaced with "RCS" to use terminology commonly accepted at PWRs.

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	1. With CONTAINMENT CLOSURE not established, RCS/RPV level less than (site specific level). [*6" below the bottom ID of the RCS loop (PWR)*] [6" below the low-low ECCS actuation setpoint (BWR)]	N/A	N/A	The centerline level of the RCS loop hot leg is at approximately 97 ft and six inches below the bottom ID would be 97 ft – 29/2 in. – 6 in. or 95 ft 3.5 in. The SGS level indication capability does not support detection of a threshold level that low; thus, RCS level cannot be monitored and only Example EAL #3 can be implemented for this IC. This is consistent with the generic bases which recognizes that this EAL would not be implemented by those plants without adequate RCS level monitoring capability.
2	2. With CONTAINMENT CLOSURE established, RCS/RPV level less than (site specific level for TOAF).	N/A	N/A	TOAF is at 92 ft 9.5 in. elevation. The SGS level indication capability does not support detection of a threshold level that low; thus, RCS level cannot be monitored and only Example EAL #3 can be implemented for this IC. This is consistent with the generic bases which recognizes that this EAL would not be implemented by those plants without adequate RCS level monitoring capability.
3	RCS/RPV level cannot be monitored for 30 minutes or longer with a loss of RCS/RPV inventory as indicated by **ANY** of the following: • (Site specific radiation monitor) reading greater than (site specific value).	CS3.2	RCS level CANNOT be monitored for **≥ 30 minutes** with a loss of RCS inventory as indicated by **ANY** of the following (Note 3): • R44A **> 5 R/hr** • R10B **> 3500 mR**/hr	The NEI acronym "RCS/RPV" has been replaced with "RCS" to use terminology commonly accepted at PWRs. Radiation monitors R44A, R10B and R2 detect Containment dose rate. PSEG Calculation #ES-50-015 documents the basis for using these monitors to indicate the possibility of core uncovery. The NEI phrase "UNPLANNED level rise in (site specific sump or tank)" has been changed to "**ANY** unexplained RCS leakage indication, **Table C-1**" to reduce EAL-user reading burden and

	• Erratic Source Range Monitor Indication. • UNPLANNED level rise in (site specific sump or tank). **Note:** The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.		• R2 **> 104 mR/hr** • Erratic Source Range Monitor indication • **ANY** unexplained RCS leakage indication, **Table C-1** Note 3: The Emergency Coordinator should NOT wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.	thereby promote timely and accurate emergency classifications. Table C-1 lists the site-specific sumps and tank level conditions that could be indicative of a loss of inventory from the RCS. Reference to the NEI note is included in the EAL wording "(Note 3)." Numbering the note facilitates referencing in the EAL matrix.

Table C-1 RCS Leakage Indications
• Rise in Containment sump pump run frequency • Aux Building sump level rise • PRT level rise • RWST level rise • RCDT level rise • Rise in RCS make-up rate • Observation of RCS leakage that is **UNISOLABLE**

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
CG1	Loss of RCS/RPV inventory affecting fuel clad integrity with containment challenged MODE: Cold Shutdown, Refueling	CG3	Loss of RCS inventory affecting fuel clad integrity with Containment challenged MODE: 5 - Cold Shutdown, 6 - Refueling	The NEI acronym "RCS/RPV" has been replaced with "RCS" to use terminology commonly accepted at PWRs.

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	a. RCS/RPV level less than (site specific level for TOAF) for 30 minutes or longer. **AND** b. **ANY** containment challenge indication (see Table): **Table: Containment Challenge Indications** • CONTAINMENT CLOSURE not established. • (Site specific explosive mixture) inside containment. • UNPLANNED rise in containment pressure • Secondary containment radiation monitor reading above (site specific value). [*BWR only*] **Note:** The Emergency Director should not wait until the applicable time has elapsed, but should	N/A	N/A	TOAF is at 92 ft 9.5 in. elevation. The SGS level indication capability does not support detection of a threshold level that low; thus, RCS level cannot be monitored and only Example EAL #2 can be implemented for this IC. This is consistent with the generic bases which recognizes that this EAL would not be implemented by those plants without adequate RCS level monitoring capability.

	declare the event as soon as it is determined that the condition will likely exceed the applicable time.			
2	a. RCS/RPV level cannot be monitored with core uncovery indicated by **ANY** of the following for 30 minutes or longer. • (Site specific radiation monitor) reading greater than (site specific setpoint). • Erratic source range monitor indication • UNPLANNED level rise in (site specific sump or tank). • *[Other site specific indications]* **AND** b. **ANY** containment challenge indication (see Table): **Table: Containment Challenge Indications** • CONTAINMENT CLOSURE not established. • (Site specific explosive mixture) inside containment. • UNPLANNED rise in containment pressure • Secondary containment radiation monitor reading above (site specific value). *[BWR only]*	CG3.2	RCS level CANNOT be monitored for **≥ 30 minutes** with core uncovery indicated by **ANY** of the following (Note 3): • R44A **> 5 R/hr** • R10B **> 3500 mR/**hr • R2 **> 104 mR/hr** • Erratic Source Range Monitor indication • **ANY** unexplained RCS leakage indication, **Table C-1** **AND** **ANY** Containment Challenge indication, **Table C-2** Note 3: The Emergency Coordinator should NOT wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.	The NEI acronym "RCS/RPV" has been replaced with "RCS" to use terminology commonly accepted at PWRs. Radiation monitors R44A, R10B and R2 detect Containment dose rate. PSEG Calculation #ES-50-015 documents the basis for using these monitors to indicate the possibility of core uncovery. The NEI phrase "UNPLANNED level rise in (site specific sump or tank)" has been changed to "**ANY** unexplained RCS leakage indication, **Table C-1**" to reduce EAL-user reading burden and thereby promote timely and accurate emergency classifications. Table C-1 lists the site-specific sumps and tank level conditions that could be indicative of a loss of inventory from the RCS. Table C-2 lists the Containment Challenge indications. Reference to the NEI note is included in the EAL wording "(Note 3)." Numbering the note facilitates referencing in the EAL matrix. > 4% hydrogen is the site-specific explosive mixture inside Containment. The NEI phrase "Secondary Containment radiation monitors above {site-specific} value (BWR only)" has been deleted because SGS is a PWR.

	Note: The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.			

Table C-1 RCS Leakage Indications
• Rise in Containment sump pump run frequency • Aux Building sump level rise • PRT level rise • RWST level rise • RCDT level rise • Rise in RCS make-up rate • Observation of RCS leakage that is **UNISOLABLE**

Table C-2 Containment Challenge Indications
• **CONTAINMENT CLOSURE** NOT established • Indications of **> 4% H_2** inside Containment • **UNPLANNED** rise in Containment pressure

Category D

Permanently Defueled Station Malfunction

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
D-AU1 D-AU2 D-SU1 D-HU1 D-HU2 D-HU3 D-AA1 D-AA2 D-HA1 D-HA2	Recognition Category D Permanently Defueled Station Malfunction	N/A	N/A	NEI Recognition Category D ICs and EALs are applicable only to permanently defueled stations. SGS is not a defueled station.

Category E

Events Related to Independent Spent Fuel Storage Installations

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
E-HU1	Damage to a loaded cask CONFINEMENT BOUNDARY MODE: N/A	EU1	Damage to a loaded cask **CONFINEMENT BOUNDARY** MODE: Mode Not Applicable	None

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	Damage to a loaded cask CONFINEMENT BOUNDARY.	EU1.1	Damage to a Multi Purpose Canister (MPC) **CONFINEMENT BOUNDARY** as indicated by on-contact radiation readings **≥ 600 mR/hr** (gamma + neutron) on the surface of the spent fuel cask, excluding the air vents, OR **≥ 60 mR/hr** (gamma + neutron) on the top of the spent fuel cask while in transit to the **ISFSI**	This EAL is only applicable for a Salem spent fuel cask that is in transit to the ISFSI. After the spent fuel cask is in place at the ISFSI, any further conditions that could adversely impact the ISFSI or an individual cask from either Salem or Hope Creek would be assessed and classified as needed by the Hope Creek Shift Manager (SM) per Hope Creek EAL EU1.1. The NEI phrase "loaded CONFINEMENT BOUNDARY" has been changed to "Damage to a Multi Purpose Canister (MPC) **CONFINEMENT BOUNDARY** as indicated by on-contact radiation readings **≥ 600 mR/hr** (gamma + neutron) on the surface of the spent fuel cask, excluding the air vents, OR **≥ 60 mR/hr** (gamma + neutron) on the top of the spent fuel cask while in transit to the **ISFSI**." As provided in the Holtec HI-STORM 100 System Certificate of Compliance (CoC), Appendix A (Technical Specifications), Section 5.7.4 contains radiation values for the cask that should not be exceeded. Under Amendment #5, the highest allowable radiation level on contact with the HI-STORM 100 cask body is 300 mR/hr on the side of the cask and 30 mR/hr on the top of the cask. Keeping in line with NEI guidance that a UE is warranted for radiation conditions at a level of twice the Technical Specification value, **600 mR/hr** and **60 mR/hr** are being used as the EAL threshold radiation levels.

				The threshold values are sufficiently above nominal radiation levels of the **CONFINEMENT BOUNDARY** that radiation levels above this EAL threshold would indicate significant damage to the **CONFINEMENT BOUNDARY**. No releases of radioactive material requiring offsite response or monitoring are expected because the seal-welded spent fuel canister (part of the **CONFINEMENT BOUNDARY**) is designed to remain intact under all normal, off-normal, and credible accident conditions of onsite transport and storage at the ISFSI, according to Holtec licensing documents. Postulated problems associated with the dry cask storage system include those caused by natural phenomena or accidents caused by human error/equipment malfunctions which affect the storage system. Generally speaking, the limiting impacts to the system include loss of shielding capability and loss of fuel canister integrity. The loss of shielding would result in higher direct radiation to the environment, while the loss of fuel canister integrity results in a release of radioactive materials from the Multi-Purpose Canister (MPC) within the cask to the environment. However, the particular dry storage system used at the PSEG Nuclear ISFSI is a robust seal-welded, canister-based system that is designed to remain leak-tight under all normal, off-normal and postulated accident conditions. Therefore, effluent release from the storage system is not a credible condition. In addition, because the amount of radioactive material inside the dry storage system is fixed, the source term never increases over time and, in fact, decreases over time due to radioactive decay. The effect on cask shielding effectiveness under off-normal and accident conditions is evaluated in Chapter 11 of the HI-STORM FSAR. Only one event resulted in a slight loss of the cask shielding effectiveness that was caused by the postulated accident conditions evaluated for a fire. A very small percentage of the cask exterior concrete was estimated to be degraded, which did not result in any significant projected increase in dose rates. No release of radioactive material from the MPC is projected for any off-normal or accident event.

Category F

Fission Product Barrier Degradation

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
FU1	ANY Loss or ANY Potential Loss of Containment MODE: Power Operation, Hot Standby, Startup, Hot Shutdown	None	**ANY** loss or **ANY** potential loss of Containment MODE: 1 - Power Operations, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown	See discussion of point system in Table 4.

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	ANY Loss or ANY Potential Loss of Containment	None	**ANY** loss or **ANY** potential loss of Containment	See discussion of point system in Table 4.

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
FA1	ANY Loss or ANY Potential Loss of EITHER Fuel Clad OR RCS MODE: Power Operation, Hot Standby, Startup, Hot Shutdown	None	**ANY** loss or **ANY** potential loss of either Fuel Clad or RCS MODE: 1 - Power Operations, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown	See discussion of point system in Table 4.

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	ANY Loss or ANY Potential Loss of EITHER Fuel Clad OR RCS	None	**ANY** loss or **ANY** potential loss of either Fuel Clad or RCS	See discussion of point system in Table 4.

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
FS1	Loss or Potential Loss of ANY	None	Loss or potential loss of **ANY** two	See discussion of point system in Table 4.

	Two Barriers MODE: Power Operation, Hot Standby, Startup, Hot Shutdown		barriers MODE: 1 - Power Operations, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown	

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	Loss or Potential Loss of ANY Two Barriers	None	Loss or potential loss of **ANY** two barriers **OR** Potential loss of 2 barriers with the loss of the 3rd barrier	The condition "OR Potential loss of 2 barriers with the loss of the 3rd barrier" has been added for clarification. See discussion of point system in Table 4.

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
FG1	Loss of ANY Two Barriers AND Loss or Potential Loss of Third Barrier MODE: Power Operation, Hot Standby, Startup, Hot Shutdown	None	Loss of **ANY** two barriers **AND** loss or potential loss of third barrier MODE: 1 - Power Operations, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown	See discussion of point system in Table 4.

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	Loss of ANY Two Barriers AND Loss or Potential Loss of Third Barrier	FG1.1	Loss of **ANY** two barriers **AND** Loss or potential loss of third barrier	See discussion of point system in Table 4.

Table 4 – Classification of Fission Product Barriers with the Point System

A point system is used to determine the Emergency Classification Level based on the Fission Product Barrier Table. Each Fission Product Barrier Loss and Potential Loss threshold is assigned a point value as noted below.

Points	Barrier Degradation
5	Fuel Clad Loss RCS Loss
4	Fuel Clad Potential Loss RCS Potential Loss
3	Containment Loss
2	Containment Potential Loss

Classification instructions:

1. Review all columns of the Fission Product Barrier Table and identify which need further review.
2. For each of the three barriers, determine the EAL with the highest point value. No more than one EAL should be selected for each barrier.
3. Add the point values for the three barriers.
4. Classify based on the point value sum as follows:

If the sum is:	Classify as:	EAL	ECG Att#
2, 3	UNUSUAL EVENT	**ANY** loss or **ANY** potential loss of Containment	1
4, 5	ALERT	**ANY** loss or **ANY** potential loss of either Fuel Clad or RCS	2
6 - 11	SITE AREA EMERGENCY	Loss or potential loss of **ANY** two barriers **OR** Potential loss of 2 barriers with the loss of the 3rd	3

		barrier	
12, 13	GENERAL EMERGENCY	Loss of **ANY** two barriers **AND** Loss or potential loss of third barrier	**4**

5. Implement the appropriate ECG Attachment.
6. Continue to review the Fission Product Barrier Table for changes that could result in emergency escalation or de-escalation

Salem – Fission Product Barrier Table

	Fuel Clad Barrier		RCS Barrier		Containment Barrier	
	Potential Loss (4 pts)	**Loss (5 pts)**	**Potential Loss (4 pts)**	**Loss (5 pts)**	**Potential Loss (2 pt)**	**Loss (3 pts)**
CFSTs	**FB1-P** CFST **Core Cooling** *PURPLE path exists* **FB2-P** CFST **Heat Sink** RED path exists due to actual loss of secondary heat sink and heat sink is required	**FB1-L** CFST **Core Cooling** *RED path exists*	**RB1-P** CFST **Thermal Shock** *RED path exists* **RB2-P** CFST **Heat Sink** RED path exists due to actual loss of secondary heat sink and heat sink is required	none	**CB1-P** CFST **Containment** *RED path exists* **CB2-P** CFST **Core Cooling** RED path exists **AND** Restoration procedure EOP-FRCC-1 NOT effective within **15 minutes**	none
Core Exit TCs	**FB3-P** 5 or more CETs **> 700°F**	**FB2-L** 5 or more CETs **> 1200°F**	none	none	**CB3-P** 5 or more CETs **> 1200°F** **AND** Restoration procedure EOP-FRCC-1 NOT effective within **15 minutes** **CB4-P** All of the following: • 5 or more CETs **> 700°F** • RVLIS **< Table F-1** thresholds • Restoration procedure EOP-FRCC-1 NOT effective within **15 minutes**	none

Salem – Fission Product Barrier Table

	Fuel Clad Barrier		RCS Barrier		Containment Barrier	
	Potential Loss (4 pts)	**Loss (5 pts)**	**Potential Loss (4 pts)**	**Loss (5 pts)**	**Potential Loss (2 pt)**	**Loss (3 pts)**
Radiation	none	**FB3-L** Containment radiation monitor 1(2)R44A or 1(2)R44B reading **> 282 R/hr**	none	**RB1-L** **ANY** of the following Containment radiation monitor readings: • 1(2)R2 **> 1000 mR/hr** • 1(2)R44A **> 10 R/hr** • 1(2)R44B **> 10 R/hr**	**CB5-P** Containment radiation monitor 1(2)R44A or 1(2)R44B reading **> 2000 R/hr**	none
Inventory	**FB4-P** RVLIS **< Table F-1** thresholds **Table F-1 RVLIS Thresholds** RVLIS / RCPs Full Range: 39% → Norm Dynamic Range: 44% → 4; 30% → 3; 20% → 2; 13% → 1	none	**RB3-P** One Centrifugal Charging Pump CANNOT maintain PZR level **> 17%** as a result of RCS leakage	**RB2-L** Subcooling **≤ 0°F** (as a result of RCS leakage)	**CB6-P** Containment pressure **> 47 psig** and rising	**CB1-L** A Containment pressure rise followed by a rapid unexplained drop in Containment pressure
					CB7-P Indications of **> 4%** H_2 inside Containment	**CB2-L** Containment pressure or sump level response NOT consistent with LOCA conditions
				RB3-L SGTR requiring ECCS (SI) Actuation	**CB8-P** Containment pressure **> 15 psig** **AND** **EITHER** of the following: • NO Containment Spray Train in service **AND** **< 5** CFCUs running in low speed • One Containment Spray Train in service **AND** **< 3** CFCUs running in low speed	**CB3-L** **RUPTURED** SG that is also **FAULTED** outside of Containment
						CB4-L Primary-to-secondary leakrate **> 25 gpm** **AND** **UNISOLABLE** steam release from affected SG to the environment

Salem – Fission Product Barrier Table

	Fuel Clad Barrier		RCS Barrier		Containment Barrier	
	Potential Loss (4 pts)	**Loss (5 pts)**	**Potential Loss (4 pts)**	**Loss (5 pts)**	**Potential Loss (2 pt)**	**Loss (3 pts)**
Other	none	**FB4-L** Coolant activity **> 300 µCi/gm** dose equivalent I-131	none	Note 8: A direct downstream release is a pathway from the Containment to any environment outside the Containment when Containment or system isolation is required due to: a safety injection signal, Containment pressure greater than 4 psig, or a **VALID** containment ventilation isolation signal and the pathway cannot be isolated from the Control Room. ↘	none	**CB5-L** Failure of all valves in **ANY one** line to close **AND** Direct downstream pathway to the environment exists after Containment isolation signal (Note 8)
Judgment	**FB5-P** **ANY** condition in the opinion of the Emergency Coordinator that indicates potential loss of the Fuel Clad barrier	**FB5-L** **ANY** condition in the opinion of the Emergency Coordinator that indicates loss of the Fuel Clad barrier	**RB4-P** **ANY** condition in the opinion of the Emergency Coordinator that indicates potential loss of the RCS barrier	**RB4-L** **ANY** condition in the opinion of the Emergency Coordinator that indicates loss of the RCS barrier	**CB9-P** **ANY** condition in the opinion of the Emergency Coordinator that indicates potential loss of the Containment barrier	**CB6-L** **ANY** condition in the opinion of the Emergency Coordinator that indicates loss of the Containment barrier

Fuel Clad Fission Product Barrier Degradation Thresholds

NEI FPB#	NEI IC Wording	SGS FPB #(s)	SGS FPB Wording	Difference/Deviation Justification
FC Loss 1	**Critical Safety Function Status** A. Core-Cooling Red Entry Conditions Met.	FB1-L	CFST **Core Cooling RED** path exists	The abbreviation "CFST" means Critical Safety Function Status Tree and has been added for brevity and to improve clarity. The NEI phrase "Core-Cooling Red" has been changed to "Core Cooling RED" (hyphen removed). The NEI phrase "Entry Conditions Met" has been changed to "path exists" for consistency with terminology used by SGS operators when using the EOPs.
FC Loss 2	**Primary Coolant Activity Level** A. Coolant activity greater than (site specific value).	FB4-L	Coolant activity **> 300 µCi/gm** Dose Equivalent I-131	The site specific value of 300 µCi/gm Dose Equivalent Iodine-131 (DEI-131) is based on calculation by Nuclear Fuels Group file title DS1.6-0098 "Verification of Emergency Action Levels for Event Classification" date 1/26/95 and corresponds to approximately 2.8% fuel clad damage.
FC Loss 3	**Core Exit Thermocouple Readings** A. Core exit thermocouples reading greater than (site specific degree F).	FB2-L	5 or more CETs **> 1200°F**	The EAL threshold of 5 or more CETs > 1200°F is equivalent to CFST Core Cooling RED.
FC Loss 4	**Reactor Vessel Water Level** Not Applicable	N/A		
FC Loss 5	**Not Applicable** Not Applicable	N/A		
FC Loss 6	**Containment Radiation Monitoring** A. Containment radiation monitor reading greater than (site specific value).	FB3-L	Containment radiation monitor 1(2)R44A or 1(2)R44B reading **> 300 R/hr**	Per calculation by Nuclear Fuels Group file title DS1.6-0098 "Verification of Emergency Action Levels for Event Classification" date 1/26/95, a reading of 282 R/hr (rounded to 300 R/hr for readability) on Containment High Range monitor 1(2)R44A or 1(2)R44B is indicative of fuel clad damage equivalent to the dispersal of reactor coolant with 300 µCi/gm dispersed into the Containment atmosphere.

NEI FPB#	NEI IC Wording	SGS FPB #(s)	SGS FPB Wording	Difference/Deviation Justification
FC Loss 7	**Other Site-Specific Indications** A. (Site-specific) as applicable	N/A	None	
FC Loss 8	**Emergency Director Judgment** A. Any condition in the opinion of the Emergency Director that indicates Loss of the Fuel Clad Barrier.	FB5-L	**ANY** condition in the opinion of the Emergency Coordinator that indicates loss of the Fuel Clad barrier	None
FC P-Loss 1	**Critical Safety Function Status** A. Core Cooling-Orange Entry Conditions Met. **OR** B. Heat Sink-Red Entry	FB1-P	CFST **Core Cooling PURPLE** path exists	The abbreviation "CFST" means Critical Safety Function Status Tree and has been added for brevity and to improve clarity. "PURPLE" is the SGS equivalent of the NEI "Orange" CFST color. The NEI phrase "Entry Conditions Met" has been changed to "path exists" for consistency with terminology used by SGS operators when using the EOPs.

NEI FPB#	NEI IC Wording	SGS FPB #(s)	SGS FPB Wording	Difference/Deviation Justification
	Conditions Met.	FB2-P	CFST **Heat Sink RED** path exists due to actual loss of secondary heat sink and heat sink is required	The abbreviation "CFST" means Critical Safety Function Status Tree and has been added for brevity and to improve clarity. The NEI phrase "Entry Conditions Met" has been changed to "path exists" for consistency with terminology used by SGS operators when using the EOPs. The phrase "due to actual loss of secondary heat sink and heat sink is required" has been added to avoid unnecessary classification when the EOP network intentionally places the operator in a Heat Sink-Red condition. 1-EOP-FRHS-1, Response to Loss of Secondary Heat Sink, Step 1 specifically directs the operator to exit this flowchart if total AFW flow less than 22E04 lb/hr due to operator actions. During the performance of certain procedures, it is possible that the SG level is below the narrow range and the total feed flow is throttled to less than the minimum AFW flow requirement. If the feed flow is reduced due to operator action to minimize feed flow and the capability of providing the minimum feed flow is available (i.e., pumps and valves in the Feedwater System are capable of being used if necessary), the functional restoration flowchart is not to be performed. The phrase "and heat sink is required" implements the NEI 99-01 basis statement.
FC P-Loss 2	**Primary Coolant Activity Level** Not Applicable	N/A		
FC P-Loss 3	**Core Exit Thermocouple Readings** A.. Core exit thermocouples reading greater than (site specific degree F).	FB3-P	5 or more CETs **> 700°F**	The EAL threshold of 5 or more CETs > 700°F is used in CFST Core Cooling PURPLE path and represents a loss of subcooling.

NEI FPB#	NEI IC Wording	SGS FPB #(s)	SGS FPB Wording	Difference/Deviation Justification
FC P-Loss 4	**Reactor Vessel Water Level** A. RCS/RPV level less than (site specific level for TOAF).	FB4-P	RVLIS **< Table F-1** thresholds	The NEI phrase "RCS/RPV" has been replaced with "RVLIS" to use terminology consistent with the CFSTs. TOAF is indicated by RVLIS. The SGS-specific RCS/RPV level thresholds given in Table F-1 reflect the wording used for this condition in the SGS CFST Core Cooling PURPLE path.
FC P-Loss 5	**Not Applicable** Not Applicable	N/A		
FC P-Loss 6	**Containment Radiation Monitoring** Not Applicable	N/A		
FC P-Loss 7	**Other Site-Specific Indications** A. (Site-specific) as applicable	N/A	None	
FC P-Loss 8	**Emergency Director Judgment** A. Any condition in the opinion of the Emergency Director that indicates Potential Loss of the Fuel Clad Barrier.	FB5-P	**ANY** condition in the opinion of the Emergency Coordinator that indicates potential loss of the Fuel Clad barrier	None

Table F-1 RVLIS Thresholds		
RVLIS		**RCPs**
Full Range	39%	None
Dynamic Range	44%	4
	30%	3
	20%	2
	13%	1

RCS Fission Product Barrier Degradation Thresholds

NEI FPB#	NEI IC Wording	SGS FPB #(s)	SGS FPB Wording	Difference/Deviation Justification
RCS Loss 1	**Critical Safety Function Status** Not Applicable	N/A		
RCS Loss 2	**RCS Leak Rate** A. RCS leak rate greater than available makeup capacity as indicated by a loss of RCS subcooling.	RB2-L	Subcooling ≤ **0°F** (as a result of RCS leakage)	The NEI phrase "RCS leak rate..." has been replaced with "(as a result of RCS leakage)" for simplification. The NEI phrase "...greater than available makeup capacity as indicated by a loss of..." has been deleted. As inferred in the NEI basis for this RCS barrier loss, it is evident from the context of the subcooling threshold that the RCS leakage exceeds the capacity of available makeup. If subcooling is lost (i.e., less than or equal to 0°F), it is clear that its cause has been insufficient makeup capacity. The phrase is therefore unnecessary.
RCS Loss 3	**Not Applicable** Not Applicable	N/A		
RCS Loss 4	**SG Tube Rupture** A. RUPTURED SG results in an ECCS (SI) actuation.	RB3-L	SGTR requiring ECCS (SI) Actuation	The NEI phrase "RUPTURED SG" has been replaced with "SGTR" for simplification. The phrase "results in an ECCS (SI) actuation" has been changed to "requiring ECCS (SI) Actuation" for simplification.
RCS Loss 5	**Not Applicable** Not Applicable	N/A	N/A	None

NEI FPB#	NEI IC Wording	SGS FPB #(s)	SGS FPB Wording	Difference/Deviation Justification
RCS Loss 6	**Containment Radiation Monitoring** A. Containment radiation monitor reading greater than (site specific value).	RB1-L	**ANY** of the following Containment radiation monitor readings: • 1(2)R2 **> 1000 mR/hr** • 1(2)R44A **> 10 R/hr** • 1(2)R44B **> 10 R/hr**	The phrase "Any of the following" introduces this RCS Loss because there are more than two Containment radiation monitors capable of indicating the threshold setpoint. Per calculation by Nuclear Fuels Group file title DS1.6-0098 "Verification of Emergency Action Levels for Event Classification" date 1/26/95, a reading of approximately 1 R/hr on Containment Rad Monitor 1(2R2), Containment High Range monitors 1(2)R44A and 1(2)R44B is indicative of the instantaneous release and dispersal of the reactor coolant noble gas and iodine inventory associated with Technical Specifications concentrations into the Containment atmosphere. 130' Containment Area Rad Monitor 1(2)R2 has an instrument scale range of 0.1 mR/hr to 10 R/hr and, therefore, offers the preferred method of assessing this RCS barrier Loss. Containment High Range 1(2)R44 monitors have log scales with major increments in R/hr and are extremely inaccurate at this low value. Due to such readability limitations, the threshold value for these monitors has been increased to 10 R/hr, which is the first readable demarcation on the instrument scales.
RCS Loss 7	**Other Site-Specific Indications** A. (Site-specific) as applicable	N/A	None	
RCS Loss 8	**Emergency Director Judgment** A. Any condition in the opinion of the Emergency Director that indicates Loss of the RCS Barrier.	RB4-L	**ANY** condition in the opinion of the Emergency Coordinator that indicates loss of the RCS barrier	None

NEI FPB#	NEI IC Wording	SGS FPB #(s)	SGS FPB Wording	Difference/Deviation Justification
RCS P-Loss 1	**Critical Safety Function Status** A. RCS Integrity-Red Entry Conditions Met. **OR** B. Heat Sink-Red Entry Conditions Met.	RB1-P	CFST **Thermal Shock RED** path exists	The abbreviation "CFST" means Critical Safety Function Status Tree and has been added for brevity and to improve clarity. The phrase "Thermal Shock" is the equivalent of the NEI phrase "RCS Integrity." The NEI phrase "Entry Conditions Met" has been changed to "path exists" for consistency with terminology used by SGS operators when using the EOPs.
		RB2-P	CFST **Heat Sink RED** entry conditions met due to actual loss of secondary heat sink and heat sink is required	The abbreviation "CFST" means Critical Safety Function Status Tree and has been added for brevity and to improve clarity. The NEI phrase "Entry Conditions Met" has been changed to "path exists" for consistency with terminology used by SGS operators when using the EOPs. The phrase "due to actual loss of secondary heat sink and heat sink is required" has been added to avoid unnecessary classification when the EOP network intentionally places the operator in a Heat Sink-Red condition. 1-EOP-FRHS-1, Response to Loss of Secondary Heat Sink, Step 1 specifically directs the operator to exit this flowchart if total AFW flow less than 22E04 lb/hr due to operator actions. During the performance of certain procedures, it is possible that the SG level is below the narrow range and the total feed flow is throttled to less than the minimum AFW flow requirement. If the feed flow is reduced due to operator action to minimize feed flow and the capability of providing the minimum feed flow is available (i.e., pumps and valves in the Feedwater System are capable of being used if necessary), the functional restoration flowchart is not to be performed. The phrase "and heat sink is required" implements the NEI 99-01 basis statement.

NEI FPB#	NEI IC Wording	SGS FPB #(s)	SGS FPB Wording	Difference/Deviation Justification
RCS P-Loss 2	**RCS Leak Rate** A. RCS leak rate indicated greater than (site specific capacity of one charging pump in the normal charging mode) with Letdown isolated.	RB3-P	**One** Centrifugal Charging Pump CANNOT maintain PZR level **> 17%** as a result of RCS leakage	The NEI phrase "RCS leak rate indicated greater than...with Letdown isolated" has been changed to "One Centrifugal Charging Pump CANNOT maintain PZR level **> 17%** as a result of RCS leakage." Significant leakage from the RCS requires implementation of OP-AB.RC-0001(Q), Reactor Coolant System Leak. Actions required by this procedure specify the use of one Centrifugal Charging Pump, discharging to the charging header, and Letdown reduced to a minimum. If RCS leakage results in an inability to maintain the specified Pressurizer (PZR) level with a normal charging lineup and minimum Letdown flow using one Centrifugal Charging Pump, an RCS inventory loss is occurring that would require initiation of Reactor Trip and Safety Injection (SI) and entry into EOP-TRIP-1, Reactor Trip or Safety Injection. This RCS Potential Loss assumes that any event that would result in significant RCS mass loss will require at least an Alert emergency classification. When PZR level drops to 17%, Letdown isolates and pressurizer heaters are deenergized.
RCS P-Loss 3	**Not Applicable** Not Applicable	N/A		
RCS P-Loss 4	**SG Tube Rupture** Not Applicable	N/A		
RCS P-Loss 5	**Not Applicable** Not Applicable	N/A		
RCS P-Loss 6	**Containment Radiation Monitoring** Not Applicable	N/A		
RCS P-Loss 7	**Other Site-Specific Indications** A. (Site-specific) as applicable	N/A	None	

NEI FPB#	NEI IC Wording	SGS FPB #(s)	SGS FPB Wording	Difference/Deviation Justification
RCS P-Loss 8	**Emergency Director Judgment** A. Any condition in the opinion of the Emergency Director that indicates Potential Loss of the RCS Barrier.	RB4-P	**ANY** condition in the opinion of the Emergency Coordinator that indicates potential loss of the RCS barrier	None

Containment Fission Product Barrier Degradation Thresholds

NEI FPB#	NEI IC Wording	SGS FPB #(s)	SGS FPB Wording	Difference/Deviation Justification
CNTMT Loss 1	**Critical Safety Function Status** Not Applicable	N/A		
CNTMT Loss 2	**Containment Pressure** A. A containment pressure rise followed by a rapid unexplained drop in containment pressure. **OR** B. Containment pressure or sump level response not consistent with LOCA conditions.	CB1-L	A Containment pressure rise followed by a rapid unexplained drop in Containment pressure	The NEI threshold has been divided into two SGS thresholds to improve clarity.
		CB2-L	Containment pressure or sump level response NOT consistent with LOCA conditions	The NEI threshold has been divided into two SGS thresholds to improve clarity.
CNTMT Loss 3	**Core Exit Thermocouple Readings** Not applicable	N/A		
CNTMT Loss 4	**SG Secondary Side Release with P-to-S Leakage** A. RUPTURED SG is also FAULTED outside of containment. **OR**	CB3-L	**RUPTURED** SG that is also **FAULTED** outside of Containment	The NEI threshold has been divided into two SGS thresholds to improve clarity. The term "that" has been added to improve readability.

NEI FPB#	NEI IC Wording	SGS FPB #(s)	SGS FPB Wording	Difference/Deviation Justification
	B. a. Primary-to-Secondary leakrate greater than 10 gpm. **AND** b. UNISOLABLE steam release from affected SG to the environment.	CB4-L	Primary-to-secondary leakrate > **25 gpm** **AND** **UNISOLABLE** steam release from affected SG to the environment	The NEI threshold has been divided into two SGS thresholds to improve clarity.
CNTMT Loss 5	**Containment Isolation Failure or Bypass** A. a. Failure of all valves in any one line to close. **AND** b. Direct downstream pathway to the environment exists after containment isolation signal.	CB5-L	Failure of **ALL** valves in **ANY one** line to close **AND** Direct downstream pathway to the environment exists after Containment isolation signal (Note 8) Note 8: A direct release is a pathway from the Containment to any environment outside the Containment when Containment or system isolation is required due to: a safety injection signal, Containment pressure greater than 4 psig, or a **VALID** Containment ventilation isolation signal and the pathway cannot be isolated from the Control Room.	Note 8 has been added to the SGS threshold for clarification.

NEI FPB#	NEI IC Wording	SGS FPB #(s)	SGS FPB Wording	Difference/Deviation Justification
CNTMT Loss 6	**Containment Radiation Monitoring** Not Applicable	N/A		
CNTMT Loss 7	**Other Site-Specific Indications** A. (Site-specific) as applicable	N/A	None	
CNTMT Loss 8	**Emergency Director Judgment** A. Any condition in the opinion of the Emergency Director that indicates Loss of the Containment Barrier.	CB6-L	**ANY** condition in the opinion of the Emergency Coordinator that indicates loss of the Containment barrier	None
CNTMT P-Loss 1	**Critical Safety Function Status** A. Containment-Red Entry Conditions Met.	CB1-P	CFST **Containment RED** path exists	The abbreviation "CFST" means Critical Safety Function Status Tree and has been added for brevity and to improve clarity. The NEI phrase "Entry Conditions Met" has been changed to "path exists" for consistency with terminology used by SGS operators when using the EOPs.
CNTMT P-Loss 2	**Containment Pressure** A. Containment pressure greater than (site specific value) and rising. **OR** B. Explosive mixture exists inside containment.	CB6-P	Containment pressure **> 47 psig** and rising	The NEI threshold has been divided into three SGS thresholds to improve clarity. The Containment pressure setpoint (47 psig is the Containment internal design pressure) ensures that Containment leakage does not exceed design basis limits and is consistent with the setpoint value used in CFST Containment RED.

NEI FPB#	NEI IC Wording	SGS FPB #(s)	SGS FPB Wording	Difference/Deviation Justification
	OR C. a. Pressure greater than containment depressurization actuation setpoint. **AND** b. Less than one full train of depressurization equipment operating.	CB7-P	Indications of **> 4%** H_2 inside Containment	The NEI threshold has been divided into three SGS thresholds to improve clarity. Containment hydrogen concentration of 4% is the minimum concentration associated with an explosive mixture. The threshold has been reworded to agree with the explosive mixture Containment Challenge condition of EAL CG3.1.
		CB8-P	Containment pressure **> 15 psig** **AND** **EITHER** of the following: • NO Containment Spray Train in service **AND** **< 5** CFCUs running in low speed • One Containment Spray Train in service **AND** **< 3** CFCUs running in low speed	The NEI threshold has been divided into three SGS thresholds to improve clarity. The word "Containment" has been added to the plant threshold for clarification. The Containment pressure setpoint (15 psig) is the Containment depressurization actuation setpoint. The combination of Containment spray subsystems and Containment Fan Coil Units that constitute one full train of depressurization equipment has been specified for clarification.
CNTMT P-Loss 3	**Core Exit Thermocouple Readings** A. a. Core exit thermocouples in excess of (site specific) ° F. AND b. Restoration procedures not effective within 15	CB3-P	5 or more CETs **> 1200°F** **AND** Restoration procedure 1(2)-EOP-FRCC-1 NOT effective within **15 minutes**	The NEI threshold has been divided into two SGS thresholds to improve clarity. "CETs" is the SGS equivalent of NEI "Core exit thermocouples." EOP-FRCC-1, Response to Inadequate Core Cooling, is the SGS functional restoration procedure associated with this condition.

NEI FPB#	NEI IC Wording	SGS FPB #(s)	SGS FPB Wording	Difference/Deviation Justification
	minutes. OR B. a Core exit thermocouples in excess of (site-specific) F. AND b. Reactor vessel level below (site specific level). AND c. Restoration procedures not effective within 15 minutes.	CB4-P	**ALL** of the following: • 5 or more CETs **> 700°F** • RVLIS **< Table F-1** thresholds • Restoration procedure EOP-FRCC-1 NOT effective within **15 minutes**	The NEI threshold has been divided into two SGS thresholds to improve clarity. "CETs" is the SGS equivalent of NEI "Core exit thermocouples." 700°F is the SGS specific temperature corresponding to Core Cooling Critical Safety Function Status Tree (CFST) RED or PURPLE. The SGS-specific Reactor Vessel level thresholds corresponding to core uncovery are given in Table F-1 and reflect the wording used for this condition in the SGS CFST Core Cooling PURPLE path. EOP-FRCC-1, Response to Inadequate Core Cooling, is the SGS functional restoration procedure associated with this condition.
CNTMT P-Loss 4	**SG Secondary Side Release with P-to-S Leakage** Not applicable	N/A		
CNTMT P-Loss 5	**Containment Isolation Failure or Bypass** Not Applicable	N/A		
CNTMT P-Loss 6	**Containment Radiation Monitoring** A. Containment radiation monitor reading greater than (site specific value).	CB5-P	Containment radiation monitor 1(2)R44A or 1(2)R44B reading **> 2000 R/hr**	Per calculation by Nuclear Fuels Group file title DS1.6-0098 "Verification of Emergency Action Levels for Event Classification" date 1/26/95, a reading of 2000 R/hr on Containment High Range monitor 1(2)R44A or 1(2)R44B is indicative of 20% fuel clad damage.

NEI FPB#	NEI IC Wording	SGS FPB #(s)	SGS FPB Wording	Difference/Deviation Justification
CNTMT P-Loss 7	**Other Site-Specific Indications** A. (Site-specific) as applicable	CB2-P	CFST **Core Cooling RED** path exists **AND** Restoration procedure EOP-FRCC-1 NOT effective within **15 minutes**	This "other" Containment Barrier potential loss has been added for clarification. Containment Barrier potential losses CB3-P and CB4P prescribe the conditions indicative of a CFST Core Cooling RED path and restoration procedures not effective.
CNTMT P-Loss 8	**Emergency Director Judgment** A. Any condition in the opinion of the Emergency Director that indicates Potential Loss of the Containment Barrier.	CB9-P	**ANY** condition in the opinion of the Emergency Coordinator that indicates potential loss of the Containment barrier	None

Category H

Hazards and Other Conditions Affecting Plant Safety

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
HU1	Natural or destructive phenomena affecting the PROTECTED AREA MODE: All	HU1	Natural or destructive phenomena affecting the **PROTECTED AREA** MODE: All	None

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	Seismic event identified by **ANY** 2 of the following: • Seismic event confirmed by (site specific indication or method)) • Earthquake felt in plant • National Earthquake Center	HU1.1	Seismic event identified by **ANY** two of the following: • Earthquake felt in plant by Control Room Operators • SMA-3 Event Indicator (flag) white • National Earthquake Information Center (NEIC) (Note 4) Note 4: The NEIC can be contacted by calling (303) 273-8500. Select option #1 and inform the analyst you wish to confirm recent seismic activity in the vicinity of Salem/Hope Creek Generating Station. Provide the analyst with the following coordinates: 39° 27' 46" (39.465°) north latitude, 75° 32' 08" (75.537°) west longitude.	The phrase "by Control Room Operators" has been added for clarification. The NEI basis defines a felt earthquake as one having been "recognized as an earthquake based on a consensus of control room operators on duty at the time." SMA-3 flag is the SGS specific method of confirming a felt earthquake. The NEI phrase "National Earthquake Center" has been changed to "National Earthquake Information Center (NEIC)" to reflect the proper title of this organization. Note 4 provides guidance for contacting the NEIC and obtaining confirmation of seismic activity at the SGS/SGS site.
2	Tornado striking within PROTECTED AREA boundary or high winds greater than (site specific mph).	HU1.2	Tornado TOUCHING DOWN within the **PROTECTED AREA** **OR** Average Wind Speeds **> 95 MPH** from **ANY** elevation of the Met Tower	The NEI term "striking" has been changed to "TOUCHING DOWN" for clarification and consistency with the NEI basis definition of "striking." The design wind velocities are 108 mph (including a gust factor of approximately 1.3) at 30 feet above ground for Seismic Category I structures. However, wind speed

				indication is limited to 100 mph in the Control Room so the wind speed threshold has been capped at 95 mph to provide margin to the upper limit of the indicated range. The phrase "Average Wind Speeds...from **ANY** elevation of the Met Tower" has been added to clarify the sources from which wind speed information may be obtained. The SPDS display provides wind speed readings on a 15-minute average.
3	Internal flooding that has the potential to affect safety related equipment required by Technical Specifications for the current operating mode in **ANY** of the following areas: (site specific area list)	HU1.4	Internal **Flooding** that has the potential to affect safe shutdown systems or components required by Technical Specifications for the current operating mode in **ANY Table H-1** plant structure	The SGS (site-specific) areas of the plant are listed in Table H-1.
4	Turbine failure resulting in casing penetration or damage to turbine or generator seals	HU1.3	Main Turbine rotating component failures resulting in **EITHER** of the following: • Main Turbine casing penetration • Main Turbine or Generator Seal Damage	The NEI phrase "Turbine" has been changed to "Main Turbine" for clarification. The NEI term "failure" has been expanded to "Main Turbine rotating component failures" for consistency with the NEI basis that discusses the concerns associated with main turbine rotor failures.
5	(Site specific occurrences affecting the PROTECTED AREA)	HU1.5	River level **> 99.5'** **OR** River level **< 80.0'**	River level greater than 99.5' (+10.5' MSL) is indication of impending site flood conditions. River level < 80.0' (-9.0'MSL) is indication of approaching loss of the Ultimate Heat Sink.

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

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
HU2	FIRE within the PROTECTED AREA not extinguished within 15 minutes of detection or EXPLOSION within the PROTECTED AREA. MODE: All	HU2	**FIRE** within the **PROTECTED AREA** not extinguished within **15 minutes** of detection or **EXPLOSION** within the **PROTECTED AREA** MODE: All	None

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	FIRE not extinguished within 15 minutes of control room notification or verification of a control room FIRE alarm in **ANY** of the following areas: (Site-specific area list) **Note:** The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the duration has exceeded, or will likely exceed, the applicable time.	HU2.1	**FIRE** NOT extinguished within **15 minutes** of **EITHER** of the following: • Control Room notification/report of a **FIRE** • Verified **FIRE** detection system alarm/actuation **AND** **FIRE** is located in the Turbine Building or **ANY Table H-1** plant structure (Note 3) Note 3: The Emergency Coordinator should NOT wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.	The NEI phrase "control room notification or verification of a control room FIRE alarm" has been reformatted with minor wording changes for clarification The NEI bases has been modified to better define when the 15-minute EAL Assessment clock starts for (1) cases that include the receipt of nearby independent fire alarms and (2) cases that involve only a single alarm where on-scene fire confirmation would be the threshold used to start the 15-minute EAL assessment clock. **This is a potential deviation from NEI 99-01 Revision 5.** The phrase "...the Turbine Building or **ANY Table H-1**..." has been added for consistency with the NEI basis that indicates the EAL applies to fires in vital areas or areas immediately adjacent to vital areas or other significant buildings or areas. Table H-1 lists plant structures containing safe shutdown systems or components. These are vital areas and areas immediately adjacent to vital areas and other significant buildings and areas.

2	EXPLOSION within the PROTECTED AREA.	HU2.2	**EXPLOSION** within the **PROTECTED AREA**	None

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

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
HU3	Release of toxic, corrosive, asphyxiant, or flammable gases deemed detrimental to NORMAL PLANT OPERATIONS MODE: All	HU3	Release of toxic, corrosive, asphyxiant or flammable gases deemed detrimental to **NORMAL PLANT OPERATIONS** MODE: All	None

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	Toxic, corrosive, asphyxiant or flammable gases in amounts that have or could adversely affect NORMAL PLANT OPERATIONS	HU3.1	Release of toxic, corrosive, asphyxiant or flammable gas in amounts (excluding small or incidental releases) that have or could adversely affect **NORMAL PLANT OPERATIONS**	The phrase "(excluding small or incidental releases)" has been added to the SGS EAL for clarification consistent with the EAL basis . The NEI basis for this EAL states: "This would preclude small or incidental releases, or releases that do not impact structures needed for plant operation."
2	Report by Local, County or State Officials for evacuation or sheltering of site personnel based on an offsite event	HU3.2	Notification by Local, County, or State Officials for evacuation or sheltering of site personnel based on an **off-site gas release event** that includes toxic, corrosive, asphyxiant, or flammable gas	The NEI term "Report" has been replaced with "Notification" for consistency with use of the term "Notification" in EALs HU4.1 and HA4.1. The NEI phrase "offsite event" has been replaced with "**off-site gas release event** that includes toxic, corrosive, asphyxiant, or flammable gas" to clarify the type of events intended to be classified under this EAL by the NEI IC wording and NEI basis discussion.

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
HU4	Confirmed SECURITY CONDITION or threat which indicates a potential degradation in the level of safety of the plant MODE: All	HU4	Confirmed **SECURITY CONDITION** or threat which indicates a potential degradation in the level of safety of the plant MODE: All	None

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	A SECURITY CONDITION that does NOT involve a HOSTILE ACTION as reported by the (site specific security shift supervision)	HU4.1	A **SECURITY CONDITION** that does NOT involve a **HOSTILE ACTION** as reported by the Security Operations Supervisor or designee (Note 8) **OR** Receipt of a **CREDIBLE/ACTUAL THREAT** to Salem or Hope Creek station – (determined by security in accordance with SY-AA-101-132, "Threat Assessment") (Note 8) **OR** A **VALIDATED** notification from NRC providing information of a Salem/Hope Creek **AIRCRAFT** threat (Note 8) NOTE 9: Shift Manager (SM) should implement the Prompt Actions of NC.EP-EP.ZZ-0102, EC Response, Attachment 10, prior to classification of a	The NEI Example EALs have been combined in one plant EAL. The "Security Shift Supervision" is the Security Operations Supervisor or designee. The NEI phrase "A credible…security threat notification" has been changed to "Receipt of a **CREDIBLE/ACTUAL THREAT**… – (determined by security in accordance with SY-AA-101-132, "Threat Assessment")" for clarification. Threats are evaluated by security per Threat Assessment, SY-AA-101-132. Changed the NEI phrase "site specific" to "Salem or Hope Creek station" to clarify the intent of the EAL as described in the NEI basis. Added the phrase "Salem/Hope Creek" to the third threshold to clarify the intent of the EAL as described in the NEI basis and for consistency with the use of "site-specific" in the second NEI Example EAL. Added Note 8 to provide guidance to implement immediate security based response actions prior to declaring the security based emergency and to obtain critical information of the nature of the security event.
2	A credible site specific security threat notification			
3	A validated notification from NRC providing information of an aircraft threat			

			security emergency. Key Information to obtain from Security Supervision upon SM notification of a security event: • Determination if the security event is a **HOSTILE ACTION** or **SECURITY CONDITION** • If a **HOSTILE ACTION**, is location the **OCA** or **PA**?	

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
HU5	Other conditions exist which in the judgment of the Emergency *Director warrant declaration of a* NOUE MODE: All	HU6	Other conditions exist which in the judgment of the Emergency *Coordinator warrant declaration* of an UNUSUAL EVENT MODE: All	The NEI abbreviation "NOUE" has been changed to "UNUSUAL EVENT" for consistency with other EAL terminology associated with the titles of emergency classification levels.

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring off-site response or monitoring are expected unless further degradation of safety systems occurs.	HU6.1	Other conditions exist which in the judgment of the Emergency Coordinator indicate that events are in progress or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. NO releases of radioactive material requiring off-site response or monitoring are expected unless further degradation of safety systems occurs	None

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
HA1	Natural or destructive phenomena affecting VITAL AREAS MODE: All	HA1	Natural or destructive phenomena affecting vital areas MODE: All	None

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	a. Seismic event greater than Operating Basis Earthquake (OBE) as indicated by (site specific seismic instrumentation) reading (site specific OBE limit). **AND** b. Earthquake confirmed by **ANY** of the following: • Earthquake felt in plant • National Earthquake Center • Control Room indication of degraded performance of systems required for the safe shutdown of the plant.	HA1.1	Actuation of the Hope Creek OBE Seismic Switch **(> 0.1g)** has occurred as verified by the Hope Creek Shift Manager **AND** Earthquake confirmed by **ANY** of the following: • Earthquake felt in plant by Control Room Operators • National Earthquake Information Center (NEIC) (Note 4) • Control Room indication of **DEGRADED PERFORMANCE** of safe shutdown systems Note 4: The NEIC can be contacted by calling (303) 273-8500. Select option #1 and inform the analyst you wish to confirm recent seismic activity in the vicinity of Salem/Hope Creek	The SGS seismic instrumentation does not provide real-time indication of exceeding the OBE seismic threshold. SGS must rely on notification from Hope Creek which has real-time indications of the OBE seismic trigger being actuated. See HCGS EAL HA1.1. The phrase "by Control Room Operators" has been added for clarification. The NEI basis for IC HU1 defines a felt earthquake as one having been "recognized as an earthquake based on a consensus of control room operators on duty at the time." The NEI phrase "National Earthquake Center" has been changed to "National Earthquake Information Center (NEIC)" to reflect the proper title of this agency. The NEI phrase "systems required for safe shutdown of the plant" has been changed to "safe shutdown systems." Note 4 provides guidance for contacting the NEIC and obtaining confirmation of seismic activity at the SGS/SGS site.

			Generating Station. Provide the analyst with the following coordinates: 39° 27' 46" (39.465°) north latitude, 75° 32' 08" (75.537°) west longitude.	
2	Tornado striking or high winds greater than (site specific mph) resulting in VISIBLE DAMAGE to **ANY** of the following structures containing safety systems or components **OR** control room indication of degraded performance of those safety systems: (site specific structure list)	HA1.2	Tornado TOUCHING DOWN within the **PROTECTED AREA** **OR** Average Wind Speeds **> 95 MPH** from **ANY** elevation of the Met Tower **AND** Resulting in **EITHER** of the following: • Control Room indication of **DEGRADED PERFORMANCE** of a Safety System • **VISIBLE DAMAGE** to **ANY** of the **plant** structures in **Table H-1**	The NEI term "striking" has been changed to "TOUCHING DOWN" for clarification and consistency with the NEI basis definition of "striking." The design wind velocities are 108 mph (including a gust factor of approximately 1.3) at 30 feet above ground for Seismic Category I structures. However, wind speed indication is limited to 100 mph in the Control Room so the wind speed threshold has been capped at 95 mph to provide margin to the upper limit of the indicated range. The phrase "Average Wind Speeds...from **ANY** elevation of the Met Tower" has been added to clarify the sources from which wind speed information may be obtained. The SPDS display provides wind speed readings on a 15-minute average. Table H-1 contains the site specific structure list. The NEI phrase "those safety systems" has been changed to "a Safety System" because it is clear from the introductory phrase "Resulting in..." that the degraded performance applies only to a safety system affected by the tornado or high winds.
3	Internal flooding in **ANY** of the following areas resulting in an electrical shock hazard that precludes access to operate or monitor safety equipment **OR** control room indication of degraded performance of those safety systems: (site specific area list)	HA1.4	Internal **Flooding** in **ANY Table H-1** plant structure **AND** The **Flooding** is of a magnitude that results in **EITHER** of the following: • Indication of **DEGRADED PERFORMANCE** of a **Safety System** within a **Table H-1** Structure.	The SGS (site-specific) areas of the plant are listed in Table H-1. The NEI phrase "resulting in" has been changed to "**AND** The **Flooding** is of a magnitude that results in **EITHER** of the following" for clarification. The NEI phrase "an electrical shock hazard" has been changed to "An Industrial Safety Hazard (Electrical Shock, High Temp, etc.)" for clarification and consistency with the NEI basis that explicitly cites electrical shock as only one of many possible industrial safety hazards that could preclude personnel access to operate or monitor equipment.

			• An Industrial Safety Hazard (Electrical Shock, High Temp, etc.) resulting in access restrictions to operate or monitor **Safety System** equipment.	The NEI phrase "those safety systems" has been changed to "**Safety System** equipment" because it is clear from the introductory phrase "The Flooding is of a magnitude that results in..." that the degraded performance applies only to safety system equipment affected by flooding.
4	Turbine failure-generated PROJECTILES resulting in VISIBLE DAMAGE to or penetration of **ANY** of the following structures containing safety systems or components **OR** control room indication of degraded performance of those safety systems: (site specific structure list)	HA1.3	Turbine failure-generated **PROJECTILES** resulting in **EITHER** of the following: • **VISIBLE DAMAGE** to or penetration of **ANY Table H-1** plant structures • Control Room indication of **DEGRADED PERFORMANCE** of safe shutdown systems	Added "...**ANY Table H-1** plant structures" to be consistent with the generic NEI 99-01 bases that the EAL is intended to address visible damage to structures/equipment "containing functions and systems required for safe shutdown." Table H-1 is titled "Plant Structures Containing Safe Shutdown Systems or Components." The NEI phrase "those safety systems" has been changed to "safe shutdown systems" to be consistent with the NEI bases intent. It is clear from the introductory phrase "...resulting in **EITHER**..." that the safety systems of concern are those affected by the projectiles.
5	Vehicle crash resulting in VISIBLE DAMAGE to ANY of the following structures containing safety systems or components OR control room indication of degraded performance of those safety systems: (site specific structure list)	HA1.6	Vehicle Crash or **PROJECTILE** Impact with or within **ANY Table H-1** Structure **AND** The Vehicle Crash or **PROJECTILE** Impact results in **EITHER** of the following: • Control Room indication of **DEGRADED PERFORMANCE** of a **Safety System** within **Table H-1** Structure • **VISIBLE DAMAGE** to **ANY** of the **plant** structures in **Table H-1**	The phrase "or PROJECTILE Impact" has been added to the vehicle crash threshold as a "site specific occurrence" allowed by NEI Example EAL #6. Projectiles could be generated from events such as a boat explosion in the river, a compressed gas cylinder ejected during a vehicle crash, objects jettisoned from aircraft, a tornado touching down outside the protected area, etc. Table H-1 contains the site specific structure list. The NEI phrase "those safety systems" has been changed to "a **Safety System**" to be consistent with the NEI bases intent. It is clear from the introductory phrase "...results in **EITHER**..." that the safety systems of concern are those affected by the vehicle crash or projectile.
6	(Site specific occurrences) resulting in VISIBLE DAMAGE to **ANY** of the following structures containing safety systems or components **OR** control room indication of degraded performance of those safety systems: (site specific structure list)			

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

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
HA2	FIRE or EXPLOSION affecting the operability of plant safety systems required to establish or maintain safe shutdown MODE: All	HA2	**FIRE** or **EXPLOSION** in a **VITAL AREA** affecting the operability of plant safety systems required to establish or maintain safe shutdown MODE: All	The phrase "in a **VITAL AREA**" has been added to the SGS IC because safety systems required to establish or maintain safe shutdown are located in vital areas.

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	FIRE or EXPLOSION resulting in VISIBLE DAMAGE to **ANY** of the following structures containing safety systems or components **OR** control room indication of degraded performance of those safety systems: (site specific structure list)	HA2.1	**FIRE** in **ANY Table H-1** plant structure affecting the operability of plant safety systems required to establish or maintain safe shutdown **AND** **≥ 15 minutes** have elapsed (Note 3) Note 3: The Emergency Coordinator should NOT wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.	The NEI EAL wording has been changed to agree with the IC wording which expresses concern for the operability of safety systems instead of visible damage or degraded performance. The duration of a fire has been increased to 15 minutes or more for consistency with EAL HU2.1 in which a fire extinguished within 15 minutes is not detrimental and does not require emergency classification. Vital Areas of concern during a fire or explosion are listed in Table H-1 plant structures. Note 3 has been added for consistency with other EALs that specify a timing duration.
		HA2.2	**EXPLOSION** in **ANY Table H-1** plant structure affecting the operability of plant safety systems required to establish or maintain safe shutdown	The example EAL has been broken into two separate EALs addressing fire and explosions consistent with the HU2.1 and HU2.2 thresholds. The NEI EAL wording has been changed to agree with the IC wording which expresses concern for the operability of safety systems instead of visible damage or degraded performance.

				Vital Areas of concern during a fire or explosion are listed in Table H-1 plant structures.

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

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
HA3	Access to a vital area is prohibited due to toxic, corrosive, asphyxiant or flammable gases which jeopardize operation of operable equipment required to maintain safe operations or safely shutdown the reactor MODE: All	HA3	Access to a **VITAL AREA** is prohibited due to toxic, corrosive, asphyxiant or flammable gases which jeopardize operation of operable equipment required to maintain safe operations or safely shut down the reactor MODE: All	None

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	Access to a VITAL AREA is prohibited due to toxic, corrosive, asphyxiant or flammable gases which jeopardize operation of systems required to maintain safe operations or safely shutdown the reactor. Note: If the equipment in the stated area was already inoperable, or out of service, before the event occurred, then this EAL should not be declared as it will have no adverse impact on the ability of the plant to safely operate or safely shutdown beyond that already allowed by Technical Specifications at the time of the event.	HA3.1	Access to **ANY Table H-1** plant structure is prohibited due to toxic, corrosive, asphyxiant, or flammable gases which jeopardize operation of systems required to maintain safe operations or safely shut down the reactor (Note 5) Note 5: If the equipment in the stated area was already inoperable, or out of service, before the event occurred, then this EAL should NOT be declared as it will have NO adverse impact on the ability of the plant to safely operate or safely shut down beyond that already allowed by Technical Specifications	Table H-1 provides the site-specific list of structures containing equipment necessary for safe shutdown. The NEI phrase "a VITAL AREA" has been replaced with "**ANY Table H-1** plant structure" for consistency with other Hazards EALs.

			at the time of the event.	

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
HA4	HOSTILE ACTION within the OWNER CONTROLLED AREA or airborne attack threat MODE: All	HA4	**HOSTILE ACTION** within the **OWNER CONTROLLED AREA** or airborne attack threat	None

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	A HOSTILE ACTION is occurring or has occurred within the OWNER CONTROLED AREA as reported by the (site specific security shift supervision).	HA4.1	A **HOSTILE ACTION** is occurring or has occurred within the **OCA** as reported by the Security Operations Supervisor or designee (Note 8) **OR** A **VALIDATED** notification from NRC of a **AIRLINER** attack threat **< 30 minutes** away from Salem/Hope Creek (Note 8) NOTE 9: Shift Manager (SM) should implement the Prompt Actions of NC.EP-EP.ZZ-0102, EC Response, Attachment 10, prior to classification of a security emergency. Key Information to obtain from Security Supervision upon SM notification of a security event: • Determination if the security event is a **HOSTILE ACTION** or **SECURITY CONDITION** • If a **HOSTILE ACTION**, is location the **OCA** or **PA**?	Example EALs #1 and #2 have been combined into a single EAL for usability. The "Security Shift Supervision" is the Security Operations Supervisor or designee. The NEI phrase "of the site" has been changed to "away from Salem/Hope Creek" to clarify the intent of the EAL as described in the NEI basis. Added Note 8 to provide guidance to implement immediate security based response actions prior to declaring the security based emergency and to obtain critical information of the nature of the security event.
2	A validated notification from NRC of an airliner attack threat within 30 minutes of the site			

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
HA5	Control room evacuation has been initiated MODE: All	HA5	Control Room evacuation has been initiated MODE: All	None

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	(Site-specific procedure) requires control room evacuation.	HA5.1	Control Room evacuation has been initiated	Reference to plant procedures has been eliminated. The intent of the EAL is that an evacuation of the Control Room has begun for any reason. This change is addressed in NEI/NRC FAQ #28.

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
HA6	Other conditions exist which in the judgment of the Emergency Director warrant declaration of an Alert MODE: All	HA6	Other conditions exist which in the judgment of the Emergency Coordinator warrant declaration of an ALERT MODE: All	None

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of HOSTILE ACTION. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.	HA6.1	Other conditions exist which in the judgment of the Emergency Coordinator indicate that events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of **Hostile Action**. **ANY** releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels	None

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
HS2	Control room evacuation has been initiated and plant control cannot be established MODE: All	HS5	Control Room evacuation has been initiated and plant control CANNOT be established MODE: All	None

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	a. Control room evacuation has been initiated. **AND** b. Control of the plant cannot be established within (site specific minutes).	HS5.1	Control Room evacuation has been initiated **AND** Control of the plant CANNOT be established within **15 minutes** (Note 3) Note 3: The Emergency Coordinator should NOT wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.	15 minutes is the site-specific interval to establish plant control following Control Room evacuation. Reference to Note 3 has been added to the SGS EAL for consistency with other NEI EALs with a timing component.

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
HS3	Other conditions exist which in the judgment of the Emergency Director warrant declaration of a Site Area Emergency MODE: All	HS6	Other conditions exist which in the judgment of the Emergency Coordinator warrant declaration of a SITE AREA EMERGENCY MODE: All	None

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve actual or likely major failures of plant functions needed for protection of the public or HOSTILE ACTION that results in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to the likely failure of or; (2) that prevent effective access to equipment needed for the protection of the public. Any releases are not expected to result in exposure levels which exceed EPA Protective Action Guideline exposure levels beyond the site boundary	HS6.1	Other conditions exist which in the judgment of the Emergency Coordinator indicate that events are in progress or have occurred which involve actual or likely major failures of plant functions needed for protection of the public or **HOSTILE ACTION** that results in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to the likely failure of or; (2) that prevent effective access to equipment needed for the protection of the public. **ANY** releases are NOT expected to result in exposure levels which exceed EPA Protective Action Guideline exposure levels beyond the site boundary	None

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
HS4	HOSTILE ACTION within the PROTECTED AREA MODE: All	HS4	**HOSTILE ACTION** within the **PROTECTED AREA** MODE: All	None

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	A HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA as reported by the (site security shift supervision).	HS4.1	A **HOSTILE ACTION** is occurring or has occurred within the **PROTECTED AREA** as reported by the Security Operations Supervisor or designee (Note 8) NOTE 9: Shift Manager (SM) should implement the Prompt Actions of NC.EP-EP.ZZ-0102, EC Response, Attachment 10, prior to classification of a security emergency. Key Information to obtain from Security Supervision upon SM notification of a security event: • Determination if the security event is a **HOSTILE ACTION** or **SECURITY CONDITION** • If a **HOSTILE ACTION**, is location the **OCA** or **PA**?	The "Security Shift Supervision" is the Security Operations Supervisor or designee. Added Note 8 to provide guidance to implement immediate security based response actions prior to declaring the security based emergency and to obtain critical information of the nature of the security event.

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
HG1	HOSTILE ACTION resulting in loss of physical control of the facility MODE: All	HG4	**HOSTILE ACTION** resulting in loss of physical control of the facility MODE: All	None

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	A HOSTILE ACTION has occurred such that plant personnel are unable to operate equipment required to maintain safety functions.	HG4.1	A **HOSTILE ACTION** has occurred such that plant personnel are unable to operate equipment required to maintain safety functions (i.e., reactivity control, RCS inventory, or secondary heat removal) at Salem or Hope Creek (Note 8) **OR** A **HOSTILE ACTION** has caused failure of Spent Fuel Cooling Systems and **IMMINENT** fuel damage is likely at Salem or Hope Creek (Note 8) NOTE 9: Shift Manager (SM) should implement the Prompt Actions of NC.EP-EP.ZZ-0102, EC Response, Attachment 10, prior to classification of a security emergency. Key Information to obtain from Security Supervision upon SM notification of a security event: • Determination if the security event is a **HOSTILE ACTION** or **SECURITY CONDITION**	The parenthetical examples of safety functions have been added the SGS EAL to clarify the intent of the EAL as discussed in the NEI basis. The NEI phrase "...for a freshly off-loaded reactor core in pool" has been deleted. This phrase is not a defined condition for SGS nor is there any relevant guidance for defining such a phrase. The threshold as proposed would require a General Emergency declaration for any hostile action resulting in a loss of spent fuel cooling leading to imminent fuel damage, regardless of the amount of time the fuel has been off-loaded. This change is addressed in NEI/NRC FAQ #29. The phrase "at Salem or Hope Creek" has been added to the two conditions of this EAL for clarification. Added Note 8 to provide guidance to implement immediate security based response actions prior to declaring the security based emergency and to obtain critical information of the nature of the security event.
2	A HOSTILE ACTION has caused failure of Spent Fuel Cooling Systems and IMMINENT fuel damage is likely for a freshly off-loaded reactor core in pool.			

			• If a **HOSTILE ACTION**, is location the **OCA** or **PA**?	

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
HG2	Other conditions exist which in the judgment of the Emergency Director warrant declaration of a General Emergency MODE: All	HG6	Other conditions exist which in the judgment of the Emergency Coordinator warrant declaration of GENERAL EMERGENCY MODE: All	None

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve actual or IMMINENT substantial core degradation or melting with potential for loss of containment integrity or HOSTILE ACTION that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels off-site for more than the immediate site area.	HG6.1	Other conditions exist which in the judgment of the Emergency Coordinator indicate that events are in progress or have occurred which involve actual or **IMMINENT** substantial core degradation or melting with potential for loss of containment integrity or **HOSTILE ACTION** that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels off-site for more than the immediate site area	None

Category S

System Malfunction

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
SU1	Loss of all Off-site AC power to emergency busses for 15 minutes or longer. MODE: Power Operation, Startup, Hot Standby, Hot Shutdown	SU1	Loss of all offsite AC power to vital buses for 15 minutes or longer MODE: 1 - Power Operations, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown	"Vital buses" is equivalent to the NEI phrase "emergency buses."

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	Loss of all off-site AC power to (site specific emergency busses) for 15 minutes or longer. **Note:** The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.	SU1.1	Loss of **all** Offsite AC power to **all** 4KV Vital Buses **AND** **≥ 15 minutes** have elapsed (Note 3) Note 3: The Emergency Coordinator should NOT wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.	4KV vital buses are the SGS emergency buses.

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
SU2	Inability to reach required shutdown within Technical Specification limits MODE: Power Operation, Startup, Hot Standby, Hot Shutdown	SU4	Inability to reach required shutdown within Technical Specification limits MODE: 1 - Power Operations, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown	None

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	Plant is not brought to required operating mode within Technical Specifications LCO Action Statement Time.	SU4.1	Plant is NOT brought to required operating mode within Technical Specifications LCO action statement time	None

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
SU3	UNPLANNED loss of safety system annunciation or indication in the control room for 15 minutes or longer. MODE: Power Operation, Startup, Hot Standby, Hot Shutdown	SU5	**UNPLANNED** loss of safety system annunciation or indication in the Control Room for 15 minutes or longer MODE: 1 - Power Operations, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown	None

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	1. UNPLANNED Loss of greater than approximately 75% of the following for 15 minutes or longer: a. (Site specific control room safety system annunciation) **OR** b. (Site specific control room safety system indication) **Note:** The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.	SU5.1	**UNPLANNED** loss of **> approximately 75%** of Control Room Overhead Annunciators for **≥ 15 minutes** (Note 3) **OR** **UNPLANNED** loss of **> approximately 75%** of Control Room Indications associated with the following safety functions for **≥ 15 minutes** (Note 3): • Reactivity Control • RCS Inventory • Decay Heat Removal • Fission Product Barriers Note 3: The Emergency Coordinator should NOT wait until the applicable time has elapsed, but should declare the event	Parts a and b of the NEI example EAL have been introduced with the phrase "**UNPLANNED** loss of..." for clarification. "Control Room Overhead Annunciators" are the NEI "Site specific control room safety system annunciation." Each Overhead Annunciator panel displays multiple annunciators associated with safety systems. Control Room indicators associated with the listed safety functions are the NEI "Site specific control room safety system indication." SGS safety systems are designed to fulfill one or more of these safety functions.

			as soon as it is determined that the condition will likely exceed the applicable time.	

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
SU4	Fuel Clad degradation MODE: Power Operation, Startup, Hot Standby, Hot Shutdown	SU7	Fuel clad degradation MODE: 1 - Power Operations, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown	None

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	(Site specific radiation monitor readings indicating fuel clad degradation greater than Technical Specification allowable limits.)	SU7.1	**VALID** Letdown Line Monitor readings indicating fuel clad degradation greater than **EITHER** of the following Technical Specification allowable limits: • 1R31A in **warning** • 2R31 in **alarm**	Letdown Line Monitors serve as a failed fuel detector by monitoring gamma levels in the reactor coolant letdown line. Unit 1 (1R31A) letdown line monitor is a gross iodine monitor. The Unit 2 (2R31) letdown line monitor is an ion chamber which measures letdown line activity. The Letdown Line Monitor "warning" setpoints are set at 50% of the "alarm" setpoints. 1R31A "alarm" setpoint is based on 1% failed fuel. 2R31 "alarm" setpoint is based on 0.1% failed fuel. Technical specification coolant activity level is approximately equivalent to 0.1% failed fuel. To associate the Letdown Line Monitor readings with Technical Specification coolant activity levels, the "alarm" setpoint has been selected for 2R31. To use a readily identifiable setpoint for 1R31A that approximates Technical Specification allowable limits, the "warning" setpoint has been selected.
2	(Site specific coolant sample activity value indicating fuel clad degradation greater than Technical Specification allowable limits.)	SU7.2	Reactor coolant activity (Dose Equivalent Iodine) exceeds limits of Technical Specification Figure 3.4-1	The specified reactor coolant activity is given in SGS Technical Specifications 3.4.8 (Unit 1) and 3.4.9 (Unit 2) Figure 3.4-1 for transient iodine spiking.

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
SU5	RCS leakage MODE: Power Operation, Startup, Hot Standby, Hot Shutdown	SU8	RCS leakage MODE: 1 - Power Operations, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown	None

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	Unidentified or pressure boundary leakage greater than 10 gpm	SU8.1	**UNIDENTIFIED LEAKAGE** or **PRESSURE BOUNDARY LEAKAGE > 10 gpm** (Note 6) **OR** **IDENTIFIED LEAKAGE > 25 gpm** (Note 6) Note 6: See the Fission Product Barrier Table for possible escalation above the UNUSUAL EVENT due to RCS Leakage	SU8.1 implements Example EALs #1 and #2. These were combined for improved usability. Note 6 has been added to remind the EAL-user to review the Fission Product Barrier Table for possible escalation to higher emergency classifications due to RCS leakage.
2	Identified leakage greater than 25 gpm			

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
SU6	Loss of all On-site or Off-site communications capabilities MODE: Power Operation, Startup, Hot Standby, Hot Shutdown	SU6	Loss of all onsite or offsite communications capabilities MODE: 1 - Power Operations, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown	None

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	Loss of all of the following on-site communication methods affecting the ability to perform routine operations. (site specific list of communications methods)	SU6.1	Loss of **all Table S-2** Onsite communication methods affecting the ability to perform routine operations **OR** Loss of **all Table S-2** Offsite communication methods affecting the ability to perform offsite notifications	SU6.1 implements Example EALs #1 and #2. These were combined for improved usability. The NEI example EALs specify site-specific lists of onsite and offsite communications methods. The SGS EAL lists these methods in Table S-2 for simplification.
2	Loss of all of the following off-site communication methods affecting the ability to perform offsite notifications. (site specific list of communications methods)			

Table S-2 Communications Systems		
System	**Onsite**	**Offsite**
Direct Inward Dial System (DID)	X	X
Station Page System (Gaitronics)	X	
Station Radio System	X	
Nuclear Emergency Telephone System (NETS)		X
Centrex Phone System (ESSX)		X
NRC (ENS)		X

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
SU8	Inadvertent criticality MODE: Hot Standby, Hot Shutdown	SU3	Inadvertent criticality MODE: 3 - Hot Standby, 4 - Hot Shutdown	None

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	UNPLANNED sustained positive period observed on nuclear instrumentation. [*BWR*]	N/A	N/A	NEI BWR Example EAL #1 has not been implemented because it applies only to BWR plants. SGS is a PWR.
1	UNPLANNED sustained positive startup rate observed on nuclear instrumentation. [*PWR*]	SU3.1	**UNPLANNED** sustained positive startup rate observed on nuclear instrumentation	None

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
SA2	Automatic Scram (Trip) fails to shutdown the reactor and the manual actions taken from the reactor control console are successful in shutting down the reactor MODE: Power Operation, Startup	SA3	Automatic trip fails to shut down the reactor and the manual actions taken from the reactor control console are successful in shutting down the reactor MODE: 1 - Power Operations, 2 - Startup	Scram is deleted to use terminology common to a PWR.

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	a. An automatic scram (trip) failed to shutdown the reactor. **AND** b. Manual actions taken at the reactor control console successfully shutdown the reactor as indicated by (site specific indications of plant shutdown).	SA3.1	An automatic trip failed to shut down the reactor **AND** Manual trip actions taken at the reactor control console (reactor trip switches, trip bkr bezels, supply breakers 1/2E6D and 1/2G6D) successfully shut down the reactor as indicated by reactor power **< 5%**	Scram is deleted to use terminology common to a PWR. The NEI phrase "Manual actions" has been changed to "Manual trip actions" for clarification. The phrase "(reactor trip switches, trip bkr bezels, supply breakers 1/2E6D and 1/2G6D)" has been added the meaning of the NEI phrase "Manual actions taken at the reactor control console." The specified controls are located in the Control Room at adjacent panels in the center control console. The operator immediately performs these actions, as necessary, in response to all reactor trips per 1(2)-EOP-TRIP-1. Following a successful reactor trip, a prompt drop in reactor power to subcriticality should occur. Site-specific indication of plant shutdown is reactor power less than 5% which equates to the criteria used to determine a valid CFST Shutdown Margin (Subcriticality) red path.

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
SA4	UNPLANNED Loss of safety system annunciation or indication in the control room with EITHER (1) a SIGNIFICANT TRANSIENT in progress, or (2) compensatory indicators unavailable. MODE: Power Operation, Startup, Hot Standby, Hot Shutdown	SA5	**UNPLANNED** loss of safety system annunciation or indication in the Control Room with either (1) a **SIGNIFICANT TRANSIENT** in progress, or (2) compensatory indicators unavailable MODE: 1 - Power Operations, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown	None

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	a. UNPLANNED Loss of greater than approximately 75% of the following for 15 minutes or longer: • (Site specific control room safety system annunciation) **OR** • (Site specific control room safety system indication) b. **EITHER** of the following: • A SIGNIFICANT TRANSIENT in progress • Compensatory indications are unavailable **Note:** The Emergency Director should not wait until the applicable time has	SA5.1	**UNPLANNED** loss of **> approximately 75%** of Control Room Overhead Annunciators for **≥ 15 minutes** (Note 3) **OR** **UNPLANNED** loss of **> approximately 75%** of Control Room Indications associated with the following safety functions for **≥ 15 minutes** (Note 3): • Reactivity Control • RCS Inventory • Decay Heat Removal • Fission Product Barriers **AND** **EITHER** of the following:	Parts a and b of the NEI example EAL have been introduced with the phrase "UNPLANNED loss of..." for clarification. "Control Room Overhead Annunciators" are the NEI "Site specific control room safety system annunciation." Each Overhead Annunciator panel displays multiple annunciators associated with safety systems. Control Room indicators associated with the listed safety functions are the NEI "Site specific control room safety system indication." SGS safety systems are designed to fulfill one or more of these safety functions. Table S-1 provides the list of events that constitute a "significant transient" as specified Table 4, above. The NEI term "unavailable" has been changed to "NOT available" for clarification. OP-AB.ANN-0001(Q) provides guidance for determining compensatory Control Room indications.

	elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.		• A **SIGNIFICANT TRANSIENT** is in progress, **Table S-1** • Compensatory indications are NOT available per OP-AB.ANN-0001(Q) Note 3: The Emergency Coordinator should NOT wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.	

Table S-1 SIGNIFICANT TRANSIENTS

- Automatic turbine runback **> 25%** thermal reactor power
- Electrical load rejection **> 25%** full electrical **load**
- Reactor Trip
- Safety Injection Activation

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
SA5	AC power capability to emergency busses reduced to a single power source for 15 minutes or longer such that any additional single failure would result in station blackout. MODE: Power Operation, Startup, Hot Standby, Hot Shutdown	SA1	AC power capability to vital buses reduced to a single power source for 15 minutes or longer such that any additional single failure would result in complete loss of AC power to vital buses MODE: 1 - Power Operations, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown	"Vital buses" is equivalent to the NEI phrase "emergency buses." The term "station blackout" was replaced with "complete loss of AC power to vital buses" as this describes the intended condition leading to the Alert threshold in CA1.1. Station Blackout is not an operationally defined term for loss of all AC to vital buses.

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	a. AC power capability to (site-specific emergency busses) reduced to a single power source for 15 minutes or longer. **AND** b. Any additional single power source failure will result in station blackout. **Note:** The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.	SA1.1	Loss of 4KV Vital Bus Power Sources (Offsite and Onsite) which results in the availability of only **one** 4KV Vital Bus Power Source (Offsite or Onsite) **AND** **≥ 15 minutes** have elapsed (Note 3) Note 3: The Emergency Coordinator should NOT wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.	4 KV vital buses are the SGS emergency buses. The NEI phrase "AC power capability to (site specific emergency busses) reduced to a single power source" has been changed to "Loss of 4KV Vital Bus Power Sources (Offsite and Onsite) which results in the availability of only one 4KV Vital Bus Power Source (Offsite or Onsite)" to reflect the specific SGS vital power configuration.]. The AND logic used in NEI 99-01 is improper as the second condition is not a separate condition of equal weight but rather a qualifier of the first. The threshold statement has been reworded to properly reflect the intent. Station Blackout is not an operationally defined term for loss of all AC to vital buses.

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
SS1	Loss of all Off-site and all On-Site AC power to emergency busses for 15 minutes or longer. MODE: Power Operation, Startup, Hot Standby, Hot Shutdown	SS1	Loss of all offsite power and all onsite AC power to vital buses for 15 minutes or longer MODE: 1 - Power Operations, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown	"Vital buses" is equivalent to the NEI phrase "emergency buses."

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	Loss of all Off-Site and all On-Site AC power to (site specific emergency busses) for 15 minutes or longer. **Note:** The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.	SS1.1	Loss of **all** Power (Onsite and Offsite) to **all** 4KV Vital Buses **AND** **≥ 15 minutes** have elapsed (Note 3) Note 3: The Emergency Coordinator should NOT wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.	The NEI phrase "Loss of all off-site and all on-site AC power" has been changed to "Loss of all Power (Onsite and Offsite)" for simplification. 4KV vital buses are the SGS emergency buses.

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
SS2	Automatic Scram (Trip) fails to shutdown the reactor and manual actions taken from the reactor control console are not successful in shutting down the reactor MODE: Power Operation, Startup	SS3	Automatic trip fails to shut down the reactor and manual actions taken from the reactor control console are not successful in shutting down the reactor 1 - Power Operations, 2 - Startup	Scram is deleted to use terminology common to a PWR.

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	a. An automatic scram (trip) failed to shutdown the reactor. **AND** b. Manual actions taken at the reactor control console do not shutdown the reactor as indicated by (site specific indications of reactor not shutdown).	SS3.1	An automatic trip failed to shut down the reactor **AND** Manual trip actions taken at the reactor control console (reactor trip switches, trip bkr bezels, supply breakers 1/2E6D and 1/2G6D) do NOT shut down the reactor as indicated by reactor power **≥ 5%**	Scram is deleted to use terminology common to a PWR. The NEI phrase "Manual actions" has been changed to "Manual trip actions" for clarification. Following a successful reactor trip, a prompt drop in reactor power to subcriticality should occur. Site-specific indication of plant shutdown is reactor power less than 5% which equates to the criteria used to determine a valid CFST Shutdown Margin (Subcriticality) red path.

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
SS3	Loss of all vital DC power for 15 minutes or longer MODE: Power Operation, Startup, Hot Standby, Hot Shutdown	SS2	Loss of all vital DC power for 15 minutes or longer MODE: 1 - Power Operations, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown	None

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	Less than (site specific bus voltage indication) on all (site specific Vital DC busses) for 15 minutes or longer. **Note:** The Emergency Director should not wait until the *applicable time* has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.	SS2.1	**< 114 VDC** bus voltage indications on **All** 125 VDC vital buses for **≥ 15 minutes** (Note 3) **OR** **< 25 VDC** bus voltage indications on **both** 28 VDC vital buses for **≥ 15 minutes** (Note 3) **AND** loss of control of Safety Related Equipment from the Control Room has been confirmed Note 3: The Emergency Coordinator should NOT wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.	114 VDC for the 125 VDC vital buses and 25 VDC for the 28 VDC vital buses are the site-specific bus voltages. The minimum voltages for the 125 VDC vital buses vary from 112.3 VDC to 113.9 VDC and have been rounded to 114 VDC for all buses for readability on Control Room instrumentation. The minimum voltages for the 28 VDC vital buses vary from 24.8 VDC to 25 VDC and have been rounded to 25 VDC for both buses for readability on Control Room instrumentation. 125 VDC vital buses 1A(2A), 1B(2B) and 1C(2C) and 28 VDC vital buses 1A(2A) and 1B(2B) are the site-specific vital DC buses. The 28 VDC system is required to operate pushbutton controls in the Control Room. It thus provides control power for remote operation of switchgear, annunciators, vital instrument buses, communications to auxiliary control system relay cabinets for manual control of ESF equipment, non-safety related equipment, and RP4 Status Board indications. Reference to the NEI note is included in the EAL wording "(Note 3)." Numbering the note facilitates referencing in the EAL matrix.

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
SS6	Inability to Monitor a SIGNIFICANT TRANSIENT in Progress MODE: Power Operation, Startup, Hot Standby, Hot Shutdown	SS5	Inability to monitor a **SIGNIFICANT TRANSIENT** in progress MODE: 1 - Power Operations, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown	None

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	a. Loss of greater than approximately 75% of the following for 15 minutes or longer: • (Site specific control room safety system annunciation) **OR** • Site specific control room safety system indication) **AND** b. A SIGNIFICANT TRANSIENT in progress **AND** c. Compensatory indications are unavailable **Note:** The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the	SS5.1	Loss of **> approximately 75%** of Control Room Overhead Annunciators for **≥ 15 minutes** (Note 3) **OR** Loss of **> approximately 75%** of Control Room Indications associated with the following safety functions for **≥ 15 minutes** (Note 3): • Reactivity Control • RCS Inventory • Decay Heat Removal • Fission Product Barriers **AND** A **SIGNIFICANT TRANSIENT** is in progress, **Table S-1** ***AND*** Compensatory indications are	Parts a and b of the NEI example EAL have been introduced with the phrase "UNPLANNED loss of..." for clarification. "Control Room Overhead Annunciators" are the NEI "Site specific control room safety system annunciation." Each Overhead Annunciator panel displays multiple annunciators associated with safety systems. Control Room indicators associated with the listed safety functions are the NEI "Site specific control room safety system indication." SGS safety systems are designed to fulfill one or more of these safety functions. Table S-1 provides the list of events that constitute a "significant transient" as specified Table 4, above. The NEI term "unavailable" has been changed to "NOT available" for clarification. OP-AB.ANN-0001(Q) provides guidance for determining compensatory Control Room indications.

	condition has exceeded, or will likely exceed, the applicable time.		NOT available per OP-AB.ANN-0001(Q) Note 3: The Emergency Coordinator should NOT wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.	

Table S-1 SIGNIFICANT TRANSIENTS

- Automatic turbine runback **> 25%** thermal reactor power
- Electrical load rejection **> 25%** full electrical **load**
- Reactor Trip
- Safety Injection Activation

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
SG1	Prolonged loss of all Off-site and all On-Site AC power to emergency busses. MODE: Power Operation, Startup, Hot Standby, Hot Shutdown	SG1	Prolonged loss of all offsite and all onsite AC power to vital buses MODE: 1 - Power Operations, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown	"Vital buses" is equivalent to the NEI phrase "emergency buses."

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	a. Loss of all off-site and all on-site AC power to (site specific emergency busses). **AND** b. **EITHER** of the following: • Restoration of at least one emergency bus in less than (site specific hours) is not likely. • (Site specific Indication of continuing degradation of core cooling based on Fission Product Barrier monitoring.)	SG1.1	Loss of **all** Power (Onsite and Offsite) to **all** 4KV Vital Buses **AND** **EITHER** of the following: • Restoration of at least **one** Vital Bus in **< 4 hrs** is NOT likely • CFST Core Cooling RED or PURPLE path exists	The NEI phrase "Loss of all off-site and all on-site AC power" has been changed to "Loss of **all** Power (Onsite and Offsite)" for simplification. 4KV vital buses are the SGS emergency buses. 4 are the "(site-specific)" hours for station blackout coping. The four-hour interval to restore AC power is based on the blackout coping analysis performed in conformance with 10 CFR 50.63 and Regulatory Guide 1.155. The NEI phrase "...(Site-Specific) Indication of continuing degradation of core cooling based on Fission Product Barrier monitoring" has been replaced with "CFST Core Cooling RED or PURPLE path exists" for clarification. This threshold represents the NEI conditions for degraded core cooling consistent with the corresponding fission product barrier Fuel Clad Loss and Potential Loss thresholds.

NEI IC#	NEI IC Wording	SGS IC#(s)	SGS IC Wording	Difference/Deviation Justification
SG2	Automatic Scram (Trip) and all manual actions fail to shutdown the reactor and indication of an extreme challenge to the ability to cool the core exists MODE: Power Operation, Startup	SG3	Automatic trip and all manual actions fail to shut down the reactor and indication of an extreme challenge to the ability to cool the core exists MODE: 1 - Power Operations, 2 - Startup	Scram is deleted to use terminology common to a PWR.

NEI Ex. EAL #	NEI Example EAL Wording	SGS EAL #	SGS EAL Wording	Difference/Deviation Justification
1	a. An automatic scram (trip) failed to shutdown the reactor. **AND** b. All manual actions do not shutdown the reactor as indicated by (site specific indications of reactor not shutdown). **AND** c. **EITHER** of the following exist or have occurred due to continued power generation: • (Site specific indication that core cooling is extremely challenged.) • (Site specific indication that heat removal is extremely challenged.)	SG3.1	An automatic trip failed to shut down the reactor **AND** **All** manual actions do NOT shut down the reactor as indicated by reactor power **≥ 5%** **AND** **EITHER** of the following: • CFST Core Cooling RED path exists • CFST Heat Sink RED path exists due to actual loss of secondary heat sink and heat sink is required	Scram is deleted to use terminology common to a PWR. The phrase "reactor power **≥ 5%**" has been added to clarify the conditions under which an automatic and manual reactor trip would be determined to be unsuccessful. Following a successful reactor trip, a prompt drop in reactor power to subcriticality should occur. Site-specific indication of plant shutdown is reactor power less than 5% which equates to the criteria used to determine a valid CFST Shutdown Margin (Subcriticality) red path. The NEI example EAL specifies site-specific indication that core cooling is extremely challenged and site-specific indication that heat removal is extremely challenged. To clarify the intent of the EAL, the SGS EAL includes the specific CFSTs that represent the NEI conditions (Core Cooling RED and Heat Sink RED entry conditions met). The NEI phrase "due to continued power generation" has been deleted because the reason core cooling or heat removal is extremely challenged in an ATWS event is immaterial. This change is being addressed in NEI/NRC FAQ #31. If the Heat Sink red path is due to a procedurally directed action, classification under this EAL is not required. EOP-FRSM-1 directs the operators to minimize feedwater flow to the steam generators in

				order to minimize cooldown and control reactivity. A heat sink red path is generated as a result of this operator action. However, actual loss of control of the heat sink does not occur due to these actions. In addition, the heat sink red path is precursor to a loss of core cooling and is backed up by the core cooling red path. Declaration of a General Emergency is not justified if the heat sink red path is a result of procedurally directed actions.