

Enclosure 3

Response to NEI 07-01 RAIs

#		RAI	Action
1		<p>The list of acronyms does not include ISFSI. Explain why this is not on the list as the document uses this acronym, or add this acronym to the list.</p>	<p>Independent Spent Fuel Storage Installation (ISFSI) was not included in NEI 07-01 because ISFSI is not part of the Design Control Document for passive plants. However, to parallel the structure of NEI 99-01, as requested by the NRC staff, ISFSI was added to the acronym list in NEI 07-01.</p>
2		<p>In your response to RAI 3c you state that the ODCM has not been developed. However, it appears that it has been developed. Please explain your response in more detail.</p>	<p>The ODCM template had not been finalized at the time that the response to RAI 3c was developed. The NRC-endorsed version of NEI 07-09A, "Generic FSAR Template Guidance for Offsite Dose Calculation Manual (ODCM) Program Description," has since been issued to the industry and is now used, as appropriate, in the NEI 07-01 developer notes.</p> <p>The Developer Notes for Thresholds #1 and #2 for AU1 and AA1 were revised to reference ODCM Sections 6.2.2 and 6.3.2, respectively, for these values.</p>

#		RAI	Action
3		<p>In Section 1.1 you state that EAL SA4 and EAL SA6 are considered templates for digital I&C EALs.</p> <ul style="list-style-type: none"> • The staff believes this to correctly be EAL SA4 and EAL SS6. • Explain why loss of indication and control is not a concern during cold, refueling, or defueled operating modes and why a subsequent cold equivalent EAL is not developed for SA4 and SS6. 	<p>Reference to SA6 has been changed to SS6 in Section 1.1.</p> <p>Digital I&C IC/EALs are not necessary when the plant is in Cold Shutdown Mode, Refueling Mode, or Defueled because the unit is in a fully shutdown and stable condition. The failure mechanism for loss of indication for both a digital or non-digital indication and monitoring system is loss of DC power which is addressed by CU7, Unplanned Loss of Required DC Power for 15 minutes or longer. Should an event occur that results in the inability to maintain the plant in Cold Shutdown then an alert would be declared based on CA4, Inability to Maintain Plant in Cold Shutdown.</p>
4		<p>Since CSF monitoring is used in several EAL thresholds, explain why you removed CSF discussion from HS2 and HG1.</p>	<p>As discussed in response to the previous RAIs provided by the NRC staff, the critical safety function (CSF) discussion was removed from the Basis of HS2 and HG1. Please refer to NEI's previous responses to RAIs 28.2 and 29.1. Essentially, the CSF discussion was removed because it was found to be confusing and the discussion provided no value for the end-user relative to these ICs.</p>
5		<p>In Section 3.3, 6th paragraph, you reference ECCS. Explain why a document intended to be used by passive designs is referencing ECCS.</p>	<p>Upon further review, NEI determined that the ECCS reference in Section 3.3, 5th paragraph was unnecessary and was removed.</p> <p>Additional usage of ECCS was identified in the Basis for Initiating Condition CU2. The ESBWR design uses ECCS in Technical Specifications and the Design Control Document. Accordingly, ECCS was added to the acronym list.</p>

#	RAI	Action
6	In Section 3.3, 8 th paragraph, you make a general statement stating, in part, "...a large portion of the containment's exterior cannot be monitored for leakage by radiation monitors." Since the AP1000 is a certified design, and the ESBWR is close to being certified, why isn't this paragraph more specific for these designs?	The statement identified in the RAI was in Section 3.3, Paragraph 7, last sentence. Since this statement adds no value to the discussion relative to the passive plant design, the statement was deleted.
7	Section 3.8 is incorrect, this is not the staffs position on EALs. The correct position can be found in NEI 99-01 R5, section 3.8. It appears that you referenced a version of NEI 99-01 Revision 5 in draft form and not the endorsed version.	NEI believes that the correct reference is found in NEI 99-01 R5, section 3.9. Section 3.9 has been placed in NEI 07-01, Section 3.8. Some wording changes have been made to reflect AP1000 specific design. The next to last paragraph has been added to reflect ESBWR specific design. The last paragraph has been added to discuss the use of the new developer section.
8	Section 3.9 and Section 5.3 must include the guidance related to classifications at multi-unit stations (see NEI 99-01 R5 Section 3.10 and Section 5.3).	Guidance regarding multi-unit stations was added to Sections 3.9 and 5.3. Wording was modified to reflect that passive reactor design does not incorporate shared safety systems or functions.
9	Section 5.3, the entire 1 st paragraph should be deleted. This document is specifically intended for only AP1000 and ESBWR licensees, and each are using the design-centered approach. This document is to be implemented exactly as stated unless a particular IC provides a developer note providing some direction for a site specific entry.	Section 5.3, 1 st paragraph was modified to clarify that NEI 07-01 guidance is intended to be applied with <u>no deviations</u> .

#	RAI	Action
10	<p>Section 5.4, Definitions:</p> <ol style="list-style-type: none"> 1. Containment closure (AP1000) - make more specific as this is a standard design. 2. Explosion - Use standard definition from NEI 99-01 R5. 3. Affecting safe shutdown - Use standard definition from NEI 99-01 R5. 4. Bomb - Use standard definition from NEI 99-01 R5. 5. Civil disturbance - Use standard definition from NEI 99-01 R5. 6. Confinement boundary - Use standard definition from NEI 99-01 R5. 7. Extortion - Use standard definition from NEI 99-01 R5. 8. Sabotage - Use standard definition from NEI 99-01 R5. 9. Strike action - Use standard definition from NEI 99-01 R5. 	<p>“Affecting safe shutdown” is not a term used in the ESBWR DCD and therefore should not be defined in NEI 07-01.</p> <p>In order to be more parallel to NEI 99-01, item 1, 2, and 6 terms and their definitions were added to NEI 07-01.</p> <p>Items 3, 4, 5, 7, 8, & 9 do not appear in the document. The statement that precedes the definitions states the following: “<i>In the IC/EALs, selected words have been set in all capital letters. These words are defined terms having specific meanings as they relate to this document.</i>”</p> <p>Since the words do not appear, the definitions have not been included. Not including the definitions will help ensure future consistency between the Security Plan and Emergency Plans should subsequent definition changes be made to these terms.</p>
11	<p>Defueled EALs: If you want defueled EALs in revision 0 of this document, then they need to align with their "fueled" equivalents. However, the staff does not consider defueled EALs to be critical to revision 0 of this document and suggests removing them. However, if they are removed, a note needs to be incorporated in the front section to remind licensees that a future revision will become necessary if sites using these designs ever decides to defuel.</p>	<p>Defueled EALs were added in response to previous NRC staff RAIs. Upon further review, NEI has determined that Defueled EALs are not appropriate for passive plants at this time. Accordingly, Defueled EALs were removed. A note was added to Executive Summary acknowledging that when appropriate, a set of EALs for the permanently defueled units must be developed.</p>

#		RAI	Action
12	AU1	<ol style="list-style-type: none"> 1. The format of the EALs is inconsistent (position) and may cause confusion, particularly between AP1000 and ESBWR thresholds. 2. Since these are standard designs, EALs #4 and #5 either need to be more specific or need to be removed depending on whether these designs intend to have a perimeter radiation monitoring system or automatic real time dose assessment capability. 3. The developer note for thresholds #1 and #2 needs to be clearer, i.e., what ODCM setpoint, based on what, etc. 4. The developer note for threshold #5 needs to be clearer, i.e., calculated how, based on what, etc. 5. Why is there no developer note for threshold #3? 	<ol style="list-style-type: none"> 1. Formatting in AU1 was corrected. 2. For Threshold #4, a perimeter monitoring system is not included in the design for either the AP1000 and ESBWR nor are there design requirements for automatic real-time dose assessment suggested in Threshold #5. However, some States require the site include a perimeter monitoring system. For sites proposed for those States or for sites that have existing reactors with a perimeter monitoring system, this Threshold will be required. Similarly, some sites with existing reactors may have automatic real-time dose assessment, which could be installed for a new passive reactor. For such sites, this Threshold will be required. Developer notes addressing Thresholds #4 and #5 are provided. 3. The Developer Note for Thresholds #1 and #2 was clarified to refer to ODCM Sections 6.2.2 and 6.3.2 for the radiation monitor setpoints. 4. The EAL and developer note have been clarified and a calculation basis added. 5. A Developer Note for Threshold #3 is now provided.
13	AU2	<ol style="list-style-type: none"> 1. Add "any of the following" to the end of threshold #1a and #1b. 2. Why is there no developer note for threshold #1 b (AP1000)? 3. Explain how the list of instrumentation for threshold #1 b (ESBWR) can be correct when the same equipment IDs have different equipment names, e.g., Refueling Floor Area #1, EL 34000 (Reactor Building) and Spent Fuel Floor, EL 4650 (Fuel Building) both have the same equipment ID (D21-ARM-RMS-01). 	<ol style="list-style-type: none"> 1. The phrase, "any of the following," was added to Thresholds #1.a and 1.b. 2. Threshold #1.b (AP1000) was modified so that a Developer Note is no longer required. 3. Upon further review by NEI, instrument numbers were removed and a Developer Note was added for Threshold #1.b (ESBWR).

#		RAI	Action
14	AA1	<ol style="list-style-type: none"> 1. Explain why you changed the time in thresholds #1 and #2 to 60-minutes when NEI 99-01 R5 uses 15-minutes and thresholds #3, #4, and #5 still use 15-minutes. In addition, the IC states 15 minutes. 2. Since these are standard designs, EALs #4 and #5 either need to be more specific or need to be removed depending on whether these designs intend to have a perimeter radiation monitoring system or automatic real time dose assessment capability. 3. The developer note for thresholds #1 and #2 needs to be clearer, i.e., what ODCM setpoint, based on what, etc. In addition, the developer note is too open ended and must be more specific. 4. The developer note for threshold #5 needs to be clearer, i.e., calculated how, based on what, etc. 5. Why is there no developer note for threshold #3? 	<ol style="list-style-type: none"> 1. Thresholds #1 and #2 were changed to 15 minutes for consistency with NEI 99-01. 2. See response to RAI 12.2, above. 3. The Developer Note for Thresholds #1 and #2 was clarified to refer to ODCM Sections 6.2.2 and 6.3.2 for liquid and gaseous effluent monitors, respectively. 4. The EAL and developer note have been clarified and a calculation basis added. 5. Developer Note for Threshold #3 is now provided.
15	AA2	<ol style="list-style-type: none"> 1. Add "any of the following" to the end of threshold #1. 2. The format of the EALs is inconsistent (position) and may cause confusion, particularly between AP1000 and ESBWR thresholds. 3. Where is the developer note for threshold #2 (AP1000)? 4. Explain how the list of instrumentation for threshold #1 b (ESBWR) can be correct when the same equipment IDs have different equipment names, e.g., Refueling Floor Area #1, EL 34000 (Reactor Building) and Spent Fuel Floor, EL 4650 (Fuel Building) both have the same equipment ID (D21-ARM-RMS-01). 	<ol style="list-style-type: none"> 1. The phrase, "any of the following," was added to Threshold #1. 2. Formatting in AA2 was corrected. 3. Developer Note for Threshold #2 is now provided. 4. Upon further review by NEI, instrument numbers were removed and a Developer Note was added for Threshold #2 (ESBWR).

#		RAI	Action
16	AA3	<ol style="list-style-type: none"> 1. Explain why the TSC is on the list for the AP1000 2. Explain why the TSC and SAS is on the list for the ESBWR. 3. Explain why no equipment IDs were provided for the ESBWR and why no basis information seems to be applicable to the ESBWR. 4. The format of the EALs is inconsistent (position) and may cause confusion, particularly between AP1000 and ESBWR thresholds. 	<ol style="list-style-type: none"> 1. Upon further consideration, TSC was removed from Threshold #1 (AP1000). 2. Upon further consideration, TSC and SAS were removed from Threshold #1 (ESBWR). 3. “[Site specific]” added to Threshold #1 (ESBWR) and a Developer Note was added. With the exception of the last paragraph, the Basis is applicable to both AP1000 and ESBWR. The last paragraph of the Basis is only applicable to the AP1000 design. The 15 mrem/hr comes from NUREG-0737, II.B.2. 4. Formatting in AA3 was corrected.
17	AS1	<ol style="list-style-type: none"> 1. The format of the EALs is inconsistent (position) and may cause confusion, particularly between AP1000 and ESBWR thresholds. 2. Since these are standard designs, EALs #3 either needs to be more specific or needs to be removed depending on - whether these designs intend to have a perimeter radiation monitoring system. 3. The developer notes need to be more specific so that it is clear as to what the values are to be and how they are determined. 	<ol style="list-style-type: none"> 1. Formatting in AS1 was corrected. 2. See response to RAI 12.2, above. 3. The developer note has been clarified.
18	AG1	<ol style="list-style-type: none"> 1. The format of the EALs is inconsistent (position) and may cause confusion, particularly between AP1000 and ESBWR thresholds. 2. Since these are standard designs, EALs #3 either needs to be more specific or needs to be removed depending on whether these designs intend to have a perimeter radiation monitoring system. 3. The developer notes need to be more specific so that it is clear as to what the values are to be and how they are determined. 	<ol style="list-style-type: none"> 1. Formatting in AG1 was corrected. 2. See response to RAI 12.2, above. 3. Developer Note has been clarified.

#		RAI	Action
19	CU2	Where is the developer note for threshold #2 (ESBWR)?	A Developer Note for Threshold #2 (ESBWR) was added to specify the equipment to be used.
20	CU4	The developer note needs to be more specific so that it is clear as to what the instruments are that we are looking to be listed here.	The Developer Note for Threshold #1 (ESBWR) now specifies the required instruments.
21	CU6 SU6	<p>1. As these are standard designs, why aren't the communication systems known? If you do not know, why list any?</p> <p>2. The developer note for threshold #1 should be more specific, i.e., the communication systems listed must be capable of doing all of the following: communication to/from MCR and plant, communication to/from TSC and plant, and communication to/from MCR and TSC. The systems listed need to also be routinely used or periodically tested.</p> <p>3. The developer note for threshold #2 should be more specific, i.e., the communication systems listed must be capable of doing all of the following: communication to/from the site and offsite response organization(s), communication to/from the site and the NRC. The systems listed need to also be routinely used or periodically tested.</p>	<p>1. "[Site specific]" was deleted from Threshold #1.</p> <p>2. Because "[Site specific]" was deleted from Threshold 1, a Developer Note is no longer needed.</p> <p>3. As discussed, the Developer Note for Threshold #1 is no longer needed. The Developer Note for Threshold #2 was clarified to indicate that off-site communications using dedicate phone systems are included in the Threshold if the dedicated phone systems are used for performing required off-site notifications.</p>
22	CA1	The developer note for threshold #2 (ESBWR) asks to fill in the site specific instrument, but threshold #2 (ESBWR) does not have a site specific entry. Discuss this apparent discrepancy.	"[Site specific]" was added to Threshold #2 (ESBWR).
23	CA4	<p>1. The developer note needs to be more specific so that it is clear as to what the instruments are that we are looking to be listed here.</p> <p>2. Basis, 5th paragraph: These are standard designs, why isn't this known? Need to be design specific.</p>	<p>1. The Developer Note for Threshold #1 (ESBWR) now provides more specific information regarding instruments for temperature indication.</p> <p>2. Basis has been revised to reflect standard design.</p>

#		RAI	Action
24	CS1	<p>1. AP1000 threshold #2: How do you differentiate between 'offscale low' and instrument failure? EAL thresholds need to be operationally significant (alarms, actuations, etc.) or within the calibrated range of available instrumentation as much as possible.</p> <p>2. The developer notes need to be more specific so that it is clear as to what the instruments, and values, are that we are looking to be listed here.</p>	<p>1. Threshold #2 (AP1000) was changed to provide a value of "less than 0.5%" rather than "offscale low."</p> <p>2. Developer Notes for Threshold #3 for both the AP1000 and ESBWR were changed to provide more specific information regarding instrumentation.</p>
25	CG1	<p>1. AP1000 threshold #1 b: How do you differentiate between 'offscale low' and instrument failure? EAL thresholds need to be operationally significant (alarms, actuations, etc.) or within the calibrated range of available instrumentation as much as possible.</p> <p>2. The developer notes need to be more specific so that it is clear as to what the instruments, and values, are that we are looking to be listed here.</p>	<p>1. Threshold #2 (AP1000) was changed to provide a value of "less than 0.5%" rather than "offscale low."</p> <p>2. Notes for Threshold #1.a and #1.b (ESBWR) were changed to provide more specific information regarding instrumentation.</p>
26	E-HU1	<p>Add a statement in the basis stating that EALs HU4 and HA4 will bound security events at the ISFSI.</p>	<p>A statement was added to the Basis.</p>

#		RAI	Action
27	FB MATRIX (ESBWR)	<ol style="list-style-type: none"> 1. Remove the note from the first page related to the logic flow diagram. 2. FC Barrier - Loss 1 A: Why is this in brackets? If it needs to be developed, then where is the developer note? However, it seems like this would be a known value, please explain as to why this needs to be left to the site to determine. 3. FC Barrier - PL 2A and RCS Barrier - Loss 2A: Add "...or cannot be determined." 4. PC Barrier - PL 1A and PL 1B: Why is this in brackets? If it needs to be developed, then where is the developer note? However, it seems like this would be a known value, please explain as to why this needs to be left to the site to determine. 5. FC Barrier, RCS Barrier, and PC Barrier - 4A: Why is this in brackets? If it needs to be developed, then where is the developer note? However, it seems like this would be a known value, please explain as to why this needs to be left to the site to determine. 6. FC Barrier, RCS Barrier, and PC Barrier- 5A and 5B: As these are standard designs, why isn't this known? The value for FC Loss 5A should be known, or a detailed developer note provided. Also, there needs to be 'other' barrier criteria applicable to each design or an exhaustive discussion as to why they could not be developed. 	<ol style="list-style-type: none"> 1. The Note in the logic diagram following Table 5-F-1 was removed. 2. Brackets were removed from Fuel Clad Barrier, Loss 1.A. 3. Fuel Clad Barrier Loss 2.A and RCS Barrier Loss 2.A were changed to include "or cannot be determined," as suggested. 4. Brackets were removed from Primary Containment Barrier Potential Loss 1.A and B. 5. Bracketed information in Fuel Clad Barrier Potential Loss 4.A, RCS Barrier Potential Loss 4.A, and Primary Containment Barrier 4.A were replaced by "[Site specific]." Developer Notes were added. Please note that the reading is "[Site specific]" because the detailed design (location of the sensor) has not yet been completed. 6. For the ESBWR, Table 5-F-2 under the Fuel Clad Barrier Threshold Value 5, "Other [Site specific] Indications" only provides a Threshold Value under Loss 5.A; no 5.B is provided. As suggested in the NRC staff's RAI, there are no EALs for "5A and 5B" under Fuel Clad Barrier Potential Loss 5.A, RCS Barrier Loss or Potential Loss, and Primary Containment Barrier Loss and Potential Loss; these are all reserved for "[Site specific] as applicable" and discussed in the appropriate Developer Note. <p>With regard to the Fuel Clad Barrier Loss 5.A, the settings for the MSL Radiation Monitor and the Drywell Fission Product Monitor have not been determined. Descriptions of these monitors are provided in subsections 11.5.3.2.15 and 5.2.5.2.1 of the ESBWR DCD.</p>

#		RAI	Action
28	FB MATRIX (AP1000)	<ol style="list-style-type: none"> 1. FC Barrier - PL 1 A: How do you differentiate between 'offscale low' and instrument failure? EAL thresholds need to be operationally significant (alarms, actuations, etc.) or within the calibrated range of available instrumentation as much as possible. 2. RCS Barrier- Loss 6A: No developer note provided. 3. RCS Barrier - Loss 2A, PL 2A: No developer notes provided. 4. FC Barrier - Loss 3A and PL 3A: What is greater? Need to add "Core exit thermocouples..." as it is stated in PC Barrier PL3A. 5. PC Barrier - PL 3A: Where is the rest of the criteria? Expected to see the 3-part criteria "...core exit thermocouples greater than 700 F and level less" From NEI 99-01 R5. Please explain. 	<ol style="list-style-type: none"> 1. This RAI should refer to Fuel Clad Barrier Potential Loss 4.A. Consistent with the approach taken for CS1 and CG1, the value EAL was changed to provide a value of "less than 0.5%" rather than "offscale low." The basis was revised. 2. A Developer Note for RCS Barrier Loss 6.A was added to the Basis. 3. A Developer Note for RCS Barrier Loss 2.A and Potential Loss 2.A was added to the Basis. 4. "Core exit thermocouples" was added to Fuel Clad Barrier Loss 3.A and Potential Loss 3.A. 5. Primary Containment Potential Loss 3.A has been changed to Core exit thermocouples greater than 700°F AND Restoration procedures not effective within 15 minutes. Also, see the revision of the Basis for this Threshold.
29	HU1	<ol style="list-style-type: none"> 1. Please explain why there is not a separate AP1000 and ESBWR section. 2. Why is there parenthetical information in threshold #2 and does this information require developer note(s)? 	<ol style="list-style-type: none"> 1. AP1000 and ESBWR EALs were separated. 2. Brackets removed from 145 in Threshold #2 (AP1000).
30	HU3	Add corrosive and asphyxiant to the 1 st sentence of the basis.	Corrosive and asphyxiant were added to the first sentence of the Basis.

#		RAI	Action
31	HA1	<ol style="list-style-type: none"> 1. Please explain why there is not a separate AP1000 and ESBWR section. 2. Why is there parenthetical information in threshold #2 and does this information require developer note(s)? 3. For threshold #1: Is this all available in the MCR? Also change 'either'¹ to 'any of the following'. 4. List of areas in Threshold #2 and #5 is inconsistent with the list provided in HU2. Staff believes that the list in HU2 is accurate and appropriate for this EAL. 5. The basis, 1st sentence, excludes a seismic event. The vehicle crash threshold is also an exclusion for this statement. 	<ol style="list-style-type: none"> 1. AP1000 and ESBWR EALs were separated. 2. Brackets were removed from 145 in Threshold #2. 3. In Threshold #1 for both the AP1000 and ESBWR, “any of the following” was substituted for “either.” With regard to Control Room indication, for Threshold #1 (AP1000), the Threshold indicated correctly refers to the “time history analyzer initiation” (i.e., Control Room alarm). For (ESBWR), Section 3.7.4 of the DCD states that there will be a seismic trigger alarm in the Control Room. 4. For Threshold #2 and Threshold #4 (previously Threshold #5) (AP1000, there are no components in the Annex Building, Turbine Building or Radwaste building that contain safety systems or components that can be damaged by a tornado or vehicle crash. The list of areas in HA1 Threshold #2 and Threshold #5 (ESBWR) are the same as the list in HU2 except for the Turbine and Radwaste Building, which is not in a VITAL AREA; HU2 applies in the PROTECTED AREA and HA1 applies to VITAL AREAs. 5. The seismic event exception was removed from the basis. NEI did not identify any part of the Basis for HA1 excluding the vehicle crash as suggested in the RAI.
32	HA2	<p>List of areas in Threshold #1 is inconsistent with the list provided in HU2. Staff believes that the list in HU2 is accurate and appropriate for this EAL.</p>	<p>AP1000: There are no components in the Annex Building, Turbine Building or Radwaste building that contain safety systems or components that can be damaged by a tornado.</p> <p>ESBWR: HU2 is within the protected area boundary. HA2 is structures containing safety systems.</p>

#		RAI	Action												
33	SU4	<p>1. Add 'safe/stable shutdown' to the operating mode applicability or explain why not.</p> <p>2. AP1000 threshold #2: Why aren't these values listed on the FB Matrix?</p> <p>3. ESBWR: The developer notes need to be more specific so that it is clear as to what values are that we are looking to be listed here, i.e., where this value can be found (TS), how it is determined (ODAM), etc.</p> <p>4. ESBWR: There is a good discussion for the basis for the AP1000 thresholds but nothing for the ESBWR. Support the thresholds with appropriate basis information for the ESBWR design.</p>	<p>1. "Safe/Stable Shutdown" was added to the IC Operating Mode Applicability.</p> <p>2. For the AP1000, the following table is provided to help clarify the reason for the values, in micro Curies per gram, in both EAL Thresholds:</p> <table border="1" data-bbox="1226 412 1892 524"> <thead> <tr> <th></th> <th>I-131</th> <th>Xe-133</th> <th>Reason</th> </tr> </thead> <tbody> <tr> <td>SU4</td> <td>60</td> <td>280</td> <td>spike</td> </tr> <tr> <td>FPB</td> <td>300</td> <td>280</td> <td>above spike</td> </tr> </tbody> </table> <p>The value of 280 micro Curies per gram in the FPB Table is an instantaneous value. The value in SU4 of 280 micro Curies per gram is for more than 6 hours from sampling and analysis and therefore measuring a different phenomena. The Basis reflects this.</p> <p>3. Specific criteria to was added to Threshold #2 (ESBWR) therefore no Developer Note is required.</p> <p>4. Basis information was added for the ESBWR.</p>		I-131	Xe-133	Reason	SU4	60	280	spike	FPB	300	280	above spike
	I-131	Xe-133	Reason												
SU4	60	280	spike												
FPB	300	280	above spike												
34	SU5	Verify that the leakage rates proposed for the ESBWR are valid for this design and the proposed Tech Specs.	<p>The Basis states that Threshold #1 is based on 10 times the Technical Specification limit for unidentified leakage. For the ESBWR, the limit for unidentified leakage is 5 gpm as provided in Tech. Spec. 3.4.2. For identified leakage, the Basis states that Threshold #2 is based on 2.5 times the identified leakage, which, for the ESBWR, is the total leakage limit of 30 gpm provided in Tech. Spec. 3.4.2.</p>												
35	SU8	Explain why this is different than CU8.	<p>In CU8, Threshold #1 (AP1000), "on nuclear instrumentation" was added. SU8 and CU8 are now consistent.</p> <p>SU8, Threshold #1 (ESBWR) was changed so SU8 and CU8 now use same terms.</p>												

#		RAI	Action
36	SA2	<ol style="list-style-type: none"> 1. Since these are standard designs, explain why the actual name of the 'reactor control console' is not listed in this EAL. 2. ESBWR threshold #1 b: you state "... as indicated by less than...", less than what? 	<ol style="list-style-type: none"> 1. Threshold #1.b was changed to provide the actual name(s) used for the designs. 2. Threshold #2 (ESBWR) was changed to "less than APRM ATWS Permissive met."
37	SA4	<ol style="list-style-type: none"> 1. The developer note seems to be already fully expressed and defined and should be developed into the actual basis information, i.e., no EAL development should be necessary. 2. Add a comma between the operating modes hot standby/safe shutdown and safe/stable shutdown. 	<ol style="list-style-type: none"> 1. Developer information was incorporated into the Basis. 2. A comma was added.
38	SS2	<ol style="list-style-type: none"> 1. Since these are standard designs, explain why the actual name of the 'reactor control console' is not listed in this EAL. 2. ESBWR threshold #1 b: you state "...as indicated by greater than...", as indicated by what? 3. Where is the information related to the gross failure of RPS? 4. AP1000 threshold 1: Explain why 1 .OE-8 amps is in brackets. 	<ol style="list-style-type: none"> 1. See response to RAI 36.1. 2. Threshold #1 (ESBWR) was changed to "less than APRM ATWS Permissive met. 3. Information about the gross failure of the RPS was added to the Basis. 4. In Threshold #1 (AP1000), "1.0E-8 amps" was replaced by "[Site specific]" and a Developer Note was added. This change was also made to Threshold #1b (AP1000) in SA2. A Developer Note was also added to SA2.
39	SS6	<ol style="list-style-type: none"> 1. Staff suggests the addition of a 15-min or greater statement to the EAL. 2. The developer notes seem to be already fully expressed and defined and should be developed into the actual basis information, i.e., no EAL development should be necessary. 	<ol style="list-style-type: none"> 1. Threshold #1 was changed to Add 15 minutes as suggested. 2. See response to RAI 37.1

#		RAI	Action
40	CU3	<ol style="list-style-type: none"> 1. Enclosure 2 of your response states that CA4 is the escalation EAL for CU3. Explain the discrepancy with the basis for CU3 which states that CA3 is the escalation EAL. 2. Explain further, why are busses other than the UPS busses focused on? Specifically, UPS power is required, which is part of the on-site AC power system. 3. The Basis section states "There are no safety-related functions with respect to off-site or on-site AC power...." Explain why this is accurate in that the 120V Vital AC power system is safety-related. 4. [ESBWR] Explain what busses 1000A3 and 1000B3 are as the DCD only has them as A3 and B3. Where did the 1000 come from? 5. [ESBWR] Explain why DCD Tier 2, Section 8.3.1.1.3 is not referenced. 	<ol style="list-style-type: none"> 1. The escalation statement was removed from the CU3 Basis. 2. Electrical EALs focus on the Safety Related DC Battery Busses. UPS power, which is part of the on-site AC power system, is powered from the battery busses through inverters. If there is power on the DC buss, there is power on the UPS buss. 3. The Basis for CU3 accurately states that the "both the normal off-site and standby on-site AC power systems are non-Class 1E. The Basis states further, "All safety-related functions associated with the unit in cold shutdown and refueling are provided by the safety-related on-site Class 1E DC power systems." 4. Threshold #1 (ESBWR) was revised to correct buss references. 1000 has been removed from the EAL to be consistent with the reference documents. 5. The ESBWR DCD section 8.3.1.1.3 is a reference to 120V AC Uninterruptable Power Supply. This EAL focuses on the DC Battery Busses. No change made to the template.

#		RAI	Action
41	CU7	<ol style="list-style-type: none"> 1. For the ESBWR, threshold #1: Explain how the EAL will work when 1b states "...15 minutes from the time of loss..." and 1a states "...based on bus voltage less than 210 V for 15 minutes or longer." Of concern is the logic flow as it appears threshold 1a and 1b will occur at the same time. Please explain. 2. For the AP1000: The developer note needs to be more specific so that it is clear as to what the alarms are that we are looking to be listed here. In addition, as this is a certified design, and we are using the design centered approach, explain why these alarms are not known. 3. Explain why defueled is not an operating mode applicable for this EAL. 4. Explain why an escalation EAL (Alert) is not appropriate for loss of DC conditions that continue. 5. Explain why the term "unplanned" is appropriate for this EAL, particularly when it is the only AC/DC related EAL that uses this term. 6. Explain, in more detail, why this IC should not be at the Alert level. 7. Explain, in more detail, why this IC is not worded the same as SS3 as it appears to be the cold equivalent of that EAL. 8. Explain the basis for your statement that the voltage value incorporates a margin significantly longer than the allowed 15 minutes of operation before the onset of inability to operate those loads. Particularly when battery life is determined by load, time, and charge. 	<ol style="list-style-type: none"> 1. 15 minutes was removed from Threshold #1 (ESBWR). 2. Further definition of alarms referred to in Threshold #1.a (AP1000) will continue through design finalization. The existing Developer Note, along with detail in the Threshold, provides adequate information to the developer to determine final site specific alarm name. 3. Consistent with NEI 99-01 CU7, Defueled is not an Operating Mode. 4. Escalation is already discussed in the second paragraph of the Basis for CU7; escalation is via CA4. 5. Deleted "unplanned" from the IC. 6. Emergency classification is consistent with NEI 99-01, Rev. 5, CU7. 7. CU7 and SS3 have been revised and now do read the same. 8. With respect to the statement concerning the load value margin, design load studies show that as long as the DC Switchboards provide 210V, the necessary minimum safety loads required can be started and powered as designed and can be operated for many hours.

#		RAI	Action
42	CA3	<p>Explain further, why are busses other than the UPS busses focused on? In addition, you list the PIP busses in all the other EALs but not in this one, explain or correct the inconsistency.</p>	<p>CA3 was added to NEI 07-01 in a response to RAI #7 contained in NRC letter to NEI dated October 30th, 2008. NRC's stated concern was a loss of active decay heat removal systems with the plant in cold shutdown, not UPS busses. As noted in response to RAI 40.3, above, all safety-related functions associated with the unit in cold shutdown and refueling are provided by the safety-related on-site Class 1E DC power systems. As noted in response to RAI 40.1, UPS power is powered from the battery busses through inverters. If there is power on the DC buss, there is power on the UPS buss.</p> <p>PIP Busses were added to Threshold #1 (ESBWR).</p>
43	SU1	<ol style="list-style-type: none"> 1. Explain further, why are busses other than the UPS busses focused on? 2. The busses are in brackets which imply they are subject to change. If these are the busses to use, then remove the brackets to ensure there is no misunderstanding. If these busses may change, provide detailed developer notes. 3. The Basis section states "There are no safety-related functions with respect to off-site or on-site AC power...." Explain why this is accurate in that the 120V Vital AC power system is safety-related. 4. [ESBWR] Explain what busses 1000A3 and 1000B3 are as the DCD only has them as A3 and B3. Where did the 1000 come from? 5. [ESBWR] Explain why DCD Tier 2, Section 8.3.1.1.3 is not referenced. 	<ol style="list-style-type: none"> 1. See response to RAI 40.2, above. 2. Brackets were removed. 3. See response to RAI 40.3, above. 4. Threshold #1 (ESBWR) was changed to remove "1000" from the buss designations. 5. See response to RAI 40.5, above.

#		RAI	Action
44	SA1	<ol style="list-style-type: none"> 1. Explain further, why are busses other than the UPS busses focused on? 2. The busses are in brackets which imply they are subject to change. If these are the busses to use, then remove the brackets to ensure there is no misunderstanding. If these busses may change, provide detailed developer notes. 3. The Basis section states "There are no safety-related functions with respect to off-site or on-site AC power...." Explain why this is accurate in that the 120V Vital AC power system is safety-related. 4. [ESBWR] Explain what busses 1000A3 and 1000B3 are as the DCD only has them as A3 and B3. Where did the 1000 come from? 5. [ESBWR] Explain why DCD Tier 2, Section 8.3.1.1.3 is not referenced. 	<ol style="list-style-type: none"> 1. See response to RAI 40.2, above. 2. Brackets were removed. 3. See response to RAI 40.3, above. 4. Threshold #1 (ESBWR) was changed to remove "1000" from the buss designations. 5. See response to RAI 40.5, above.

#		RAI	Action
45	SS1	<ol style="list-style-type: none"> 1. Explain further, why are busses other than the UPS busses focused on? 2. The busses are in brackets which imply they are subject to change. If these are the busses to use, then remove the brackets to ensure there is no misunderstanding. If these busses may change, provide detailed developer notes. 3. The Basis section states, "There are no safety-related functions with respect to off-site or on-site AC power...." Explain why this is accurate in that the 120V Vital AC power system is safety-related. 4. [ESBWR] Explain what busses 1000A3 and 1000B3 are as the DCD only has them as A3 and B3. Where did the 1000 come from? 5. [ESBWR] Explain why DCD Tier 2, Section 8.3.1.1.3 is not referenced. 	<ol style="list-style-type: none"> 1. See response to RAI 40.2, above. 2. Brackets were removed. 3. See response to RAI 40.3, above 4. Threshold #1 (ESBWR) was changed to remove "1000" from the buss designations. 5. See response to RAI 40.5, above.

#		RAI	Action
46	SS3	<ol style="list-style-type: none"> 1. For the AP1000: The developer note needs to be more specific so that it is clear as to what the alarms are that we are looking to be listed here. In addition, as this is a certified design, and we are using the design centered approach, explain why these alarms are not known. 2. Explain, in more detail, why this IC is not worded the same as CU7 as it appears to be the hot equivalent of that EAL. 3. Explain the basis for your statement that the voltage value incorporates a margin significantly longer than the allowed 15 minutes of operation before the onset of inability to operate those loads. Particularly when battery life is determined by load, time, and charge. 	<ol style="list-style-type: none"> 1. In Threshold #1 (AP1000), buss voltage was added and alarms added. A Developer Note is not required. 2. CU7 and SS3 have been revised and now do read the same. 3. With respect to the statement concerning the load value margin, design load studies show that as long as the DC Switchboards provide 210V, the necessary minimum safety loads required can be started and powered as designed and can be operated for many hours.