US-APWR DCD Tier 1 Enhancement Project

Thursday 2/17/11 Handout 1

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US-APWR DCD Tier 1 Enhancement Effort

The Tier 1 enhancement effort is being performed by a team of MHI/MNES, Luminant, and Dominion personnel. The effort was initiated in June 2010 with the objective of improving the overall quality of Tier 1 and in particular, the inspectability of ITAAC. The proposed Tier 1 changes will facilitate the NRC's review and approval of the DCD and the completion, inspection, and closure of ITAAC. The changes will minimize potential impacts on construction and operations.

The team's Tier 1 review criteria were based on NRC guidance (e.g., SRP 14.3 and RIS 2008-05, Revision 1), recent industry experience from other Design Centers, and engineering judgment. The review resulted in the addition and deletion of ITAAC, the revision of Design Description information to provide an appropriate level of content in a standard format directly incorporating the ITAAC Design Commitments, and various other changes that improve ITAAC clarity and inspectability.

A redline/strikeout version of each Tier 1 section was prepared to identify the proposed changes. A "Basis" document was also prepared for each section, which provides an explanation, or basis for the proposed changes. The Basis documents identify RAI responses altered by the proposed Tier 1 changes. The review team used a consistent methodology in the preparation of the redline/strikeout and Basis documents, including standardized explanations for certain changes.

The redline/strikeout version for each Tier 1 section includes alpha-numeric right margin annotations (RMAs) for the proposed Design Description changes (see Figure 1). Proposed ITAAC changes are referenced by the ITAAC table row number (see Figure 2). An explanation of the changes represented by each RMA or ITAAC table row number is provided in the Basis document by the corresponding item or row numbers (see Figure 3).

Note that these are enhancements and contain no design changes.

Figure 1: Example Design Description Markup

2.5.4 Information Systems Important to Safety

2.5.4.1 Design Description

The PSMS and PCMS provide plant operators with the information systems important to safety for: (1) assessing plant conditions and safety system performance, and making decisions related to plant responses to abnormal events; and (2) preplanned manual operator actions related to accident mitigation. The information systems important to safety also provide the necessary information from which appropriate actions can be taken to mitigate the consequences of the AOOs.

The information important to safety includes the following:

- Post accident monitoring (PAM)
- Bypassed and inoperable status indication (BISI)
- Plant annunciators (alarms)
- Safety parameter displays system (SPDS)
- Information and control for credited manual operator actions

~~The necessary information important to safety is available for the display at the following facilities:~~

- ~~Main control room (MCR)~~
- ~~Remote shutdown room (RSR)~~
- ~~Technical support center (TSC)~~
- ~~Emergency operations facility (EOF)~~

~~Controls for credited manual operator actions are available in the MCR.~~

~~Figure 2.5.4-1 shows the configuration of the PSMS and PCMS for implementation of the information systems important to safety. The PSMS redundancy, independence, testability, qualification, quality and life cycle descriptions of Subsection 2.5.1 are also applicable to the information systems important to safety within the PSMS. The PCMS redundancy, qualification and quality descriptions applicable to the information systems important to safety are as described in Subsection 2.5.5.~~

The PAM variables are identified in Table 2.5.4-1, and the alarms for the credited manual actions are identified in Table 2.5.4-3.

1. PAM variables as identified in Table 2.5.4-1, BISI, SPDS information, and plant alarms for credited manual actions as identified in Table 2.5.4-3, for information systems important to safety, are provided on safety and non-safety HSI equipment at the MCR, RSR, TSC, and EOF, as shown in Figure 2.5.4-1.

2. Deleted.

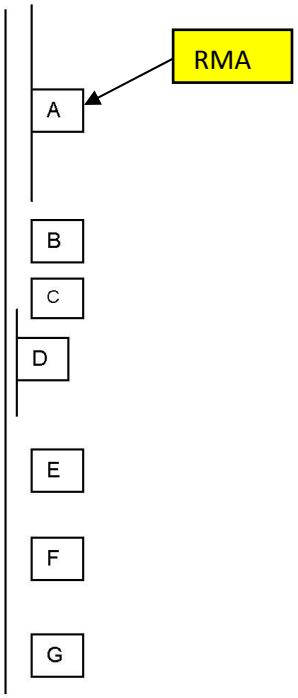
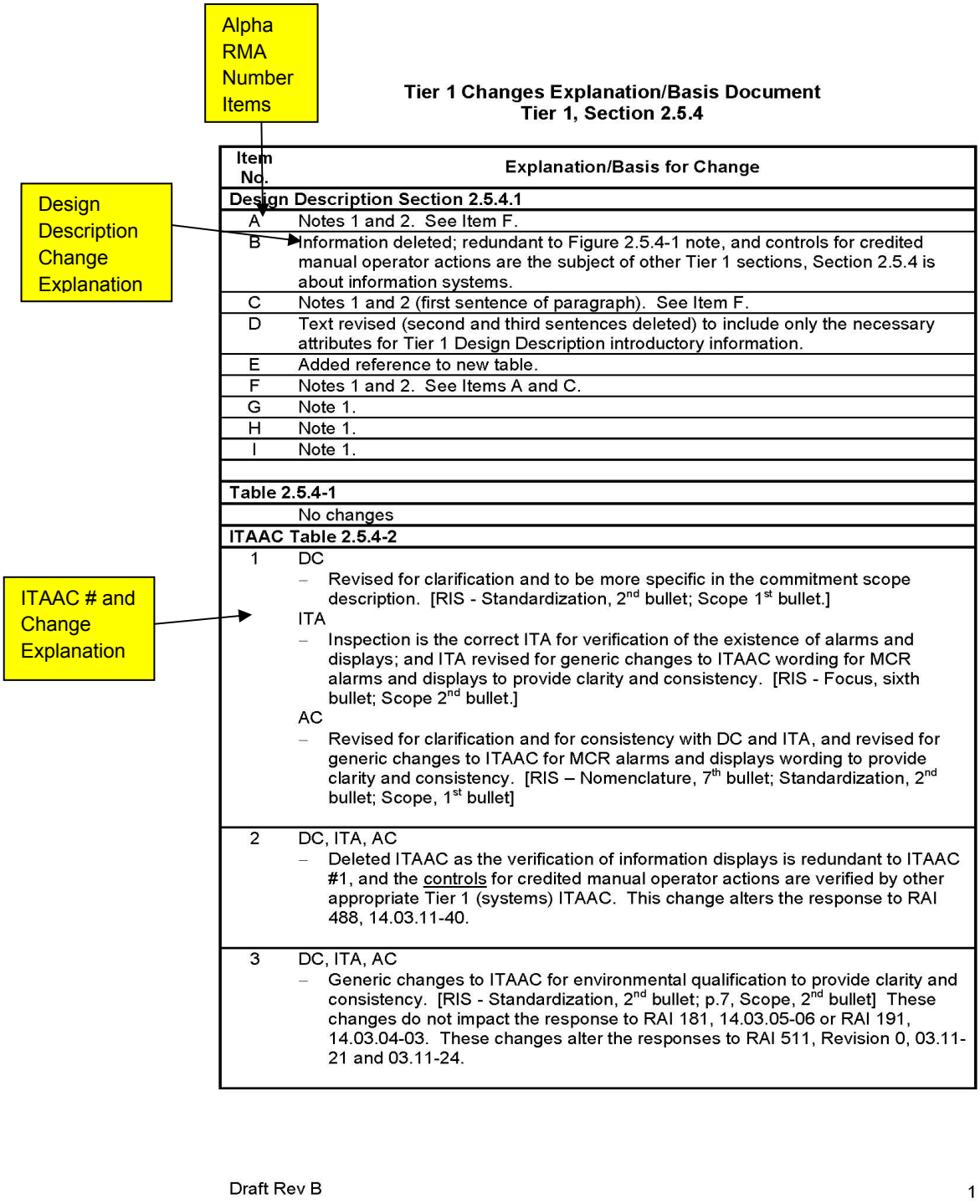


Figure 2: Example ITAAC Table Markup

Table 2.5.4-2 Information Systems Important to Safety Inspections, Tests, Analyses, and Acceptance Criteria

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
1. PAM variables as identified in Table 2.5.4-1, BISI, SPDS information, and plant alarms for credited manual actions as identified in Table 2.5.4-3, for information systems important to safety, are provided on safety and non-safety HSI equipment at the MCR, RSR, TSC, and EOF, as shown in Figure 2.5.4-1. ~~Information systems important to safety (PAM, BISI, alarms, SPDS) are appropriately displayed and alarmed in the MCR, RSR, TSC and EOF, as appropriate.~~	1. An inspection ~~A test~~ will be performed of the MCR, RSR, TSC and EOF facilities ~~to demonstrate alarm, display and control capabilities~~ for retrievability of alarms and displays for information systems important to safety.	1. Displays for PAM variables identified in Table 2.5.4-1, BISI, SPDS, and plant alarms for credited manual actions as identified in Table 2.5.4-3, for information systems important to safety, can be retrieved on non-safety HSI equipment~~The as-built information systems important to safety (PAM, BISI, alarms, SPDS) are appropriately displayed and alarmed~~ in the as-built MCR, RSR, TSC and EOF, ~~as appropriate~~ as shown in Figure 2.5.4-1. Displays for PAM variables as identified in Table 2.5.4-1 and alarms for credited manual actions as identified in Table 2.5.4-3, for information systems important to safety, can be retrieved on safety HSI equipment in the as-built MCR and RSR, as shown in Figure 2.5.4-1.
2. Deleted. ~~Information and controls for credited manual operator actions are provided in the MCR.~~	2. Deleted. ~~A test of the as-built PSMS and PCMS will be performed.~~	2. Deleted. ~~The information and controls for credited manual operator actions are provided in the as-built MCR.~~
3. The field instrumentation for the PAM variables identified in Table 2.5.4-1 ~~as being~~ that is ~~qualified for~~ subjected to a harsh environment ~~is designed to~~ can withstand the environmental conditions that would exist before, during, and following a design basis ~~event~~ accident without loss of safety function for the time required to perform the safety function.	3.i Type tests, ~~and/or analyses,~~ or a combination of type tests and analyses using the design environmental conditions, or under conditions which bound the design environmental conditions, will be performed on the field instrumentation for the PAM variables identified in Table 2.5.4-1 ~~located in a~~ that is subjected to a harsh environment.	3.i A report exists and ~~The results of the type tests, and/or analyses~~ concludes that the field instrumentation for the PAM variables identified in Table 2.5.4-1 ~~as being~~ that is subjected to ~~qualified for~~ a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident~~event~~ without loss of safety function for the time required to perform the safety function.

Figure 3: Example Basis Document



Tier 1 Changes Explanation/Basis Document
Tier 1, Section 2.5.4

Item No.	Explanation/Basis for Change
Design Description Section 2.5.4.1	
A	Notes 1 and 2. See Item F.
B	Information deleted; redundant to Figure 2.5.4-1 note, and controls for credited manual operator actions are the subject of other Tier 1 sections, Section 2.5.4 is about information systems.
C	Notes 1 and 2 (first sentence of paragraph). See Item F.
D	Text revised (second and third sentences deleted) to include only the necessary attributes for Tier 1 Design Description introductory information.
E	Added reference to new table.
F	Notes 1 and 2. See Items A and C.
G	Note 1.
H	Note 1.
I	Note 1.
Table 2.5.4-1	
	No changes
ITAAC Table 2.5.4-2	
1	DC – Revised for clarification and to be more specific in the commitment scope description. [RIS - Standardization, 2nd bullet; Scope 1st bullet.] ITA – Inspection is the correct ITA for verification of the existence of alarms and displays; and ITA revised for generic changes to ITAAC wording for MCR alarms and displays to provide clarity and consistency. [RIS - Focus, sixth bullet; Scope 2nd bullet.] AC – Revised for clarification and for consistency with DC and ITA, and revised for generic changes to ITAAC for MCR alarms and displays wording to provide clarity and consistency. [RIS – Nomenclature, 7th bullet; Standardization, 2nd bullet; Scope, 1st bullet]
2	DC, ITA, AC – Deleted ITAAC as the verification of information displays is redundant to ITAAC #1, and the controls for credited manual operator actions are verified by other appropriate Tier 1 (systems) ITAAC. This change alters the response to RAI 488, 14.03.11-40.
3	DC, ITA, AC – Generic changes to ITAAC for environmental qualification to provide clarity and consistency. [RIS - Standardization, 2nd bullet; p.7, Scope, 2nd bullet] These changes do not impact the response to RAI 181, 14.03.05-06 or RAI 191, 14.03.04-03. These changes alter the responses to RAI 511, Revision 0, 03.11-21 and 03.11-24.

Draft Rev B 1

Note 1: Revised to provide consistency between the Design Description (DD) and the Design Commitment (DC) in the ITAAC table. Revised text to include only the necessary attributes for ITAAC.

Note 2: Text relocated within the DD section to align with the sequence and numbering of the corresponding DC in the ITAAC table.

APWR DCD Tier 1 Improvement Effort
Bases for "Generic" ITAAC Changes

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"Generic" System Functional Arrangement ITAAC			
	Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
"Generic" Wording (yellow highlight identifies generic wording)	1. The functional arrangement of the ac electric power systems is as described in the Design Description of Subsection 2.6.1.1 and as shown in Figure 2.6.1-1.	1. Inspection of the as-built ac electric power systems will be performed.	1. The as-built ac electric power systems conform to the functional arrangement as described in the Design Description of Subsection 2.6.1.1 and as shown in Figure 2.6.1-1.
Example Text Changes **ITAAC 2.6.1 #1**	1. The functional arrangement of the ac electric power systems is as described in the Design Description of ~~this~~ Subsection 2.6.1.1 and as shown in Figure 2.6.1-1.	1. ~~An i~~Inspection of the as-built ac electric power systems will be performed.	1. The as-built ac electric power systems conform to the functional arrangement as described in the Design Description of ~~this~~ Subsection 2.6.1.1 and as shown in Figure 2.6.1-1.
Basis	• Editorial changes are made for clarity and consistency. Tables and figures are included in the DC and AC as needed.		
ITAAC That Use This Generic Wording	2.4.1 #3; 2.4.2 #2; 2.4.3 #1; 2.4.4 #1.a; 2.4.5 #1.a; 2.4.6 #1; 2.5.1 #1; 2.5.1 #2, 2.5.1 #3; 2.5.2 #6; 2.5.3 #1a; 2.5.5 #1; 2.5.6 #1; 2.6.1 #1; 2.6.2 #1; 2.6.3 #1; 2.6.4 #1; 2.6.4 #19; 2.6.5 #1; 2.6.5 #11; 2.6.6 #2; 2.7.1.1 #1; 2.7.1.2 #1.a; 2.7.1.6 #1; 2.7.1.9 #1.a; 2.7.1.10 #1; 2.7.1.11 #1.a; 2.7.2 #1; 2.7.3.1 #1.a; 2.7.3.3 #1.a; 2.7.3.5 #1.a; 2.7.3.6 #1; 2.7.4.1 #1; 2.7.4.2 #1; 2.7.4.3 #1; 2.7.5.1 #1.a; 2.7.5.2 #1.a; 2.7.5.3 #1; 2.7.5.4 #1; 2.7.6.1 #2; 2.7.6.2 #2; 2.7.6.3 #1; 2.7.6.4 #1; 2.7.6.5 #1; 2.7.6.6 #1; 2.7.6.7 #1; 2.7.6.8 #1; 2.7.6.9 #1; 2.7.6.10 #1; 2.7.6.13 #1; 2.11.1 #3; 2.11.2 #1; 2.11.3 #1.a; 2.11.4 #1		

"Generic" Seismic Category I Equipment ITAAC			
	Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
"Generic" Wording (yellow highlight identifies generic wording)	6.a The seismic Category I Class 1E ac electrical power system equipment, identified in Table 2.6.1-1, can withstand seismic design basis loads without loss of safety function.	6.a.i Inspections will be performed to verify that the seismic Category I as-built Class 1E ac electrical power system equipment identified in Table 2.6.1-1, is located in a seismic Category I structure.	6.a.i The seismic Category I as-built Class 1E ac electric power system equipment, identified in Table 2.6.1-1, is located in a seismic Category I structure.
Example Text Changes **ITAAC 2.6.1 #6.a.i**	6.a The seismic Category I ~~Each of the four divisions of the~~ Class 1E ac~~AC~~ electrical power system equipment, identified in Table 2.6.1-1, can~~is designed to~~ withstand seismic design basis loads without loss of safety function.	6.a.i Inspections will be performed to verify that the seismic Category I as-built Class 1E ac electrical power system equipment identified in Table 2.6.1-1, is located in a seismic Category I structure~~the reactor building~~.	6.a.i The seismic Category I~~Each of the four divisions of the~~ as-built Class 1E ac~~AC~~ electric power system equipment, identified in Table 2.6.1-1, is located in a seismic Category I structure~~the reactor building~~.
Basis	• The DC, ITA, and AC are modified to add the clarifying text "seismic Category I" to clearly identify the equipment that is within the scope of the ITAAC. A reference to a table is provided, where needed. [RIS 2008-05, "Standardization and Consistency," 2nd bullet]. • The DC is modified to replace "is designed to withstand" with "can withstand." The intent of the ITAAC is to verify that the as-built equipment meets the design requirements [RIS 2008-05, "Focus, Logic, and Practicality," 5th and 6th bullets]. • The ITA and AC are modified to replace "reactor building" or similar wording with "seismic Category I structure" in order to create a generic ITAAC template [RIS 2008-05, "Nomenclature and Language," 3rd bullet].		

"Generic" Seismic Category I Equipment ITAAC			
	Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
	• This wording is similar to corresponding ITAAC previously presented in one or more DCDs for other technologies.		
ITAAC That Use This Generic Wording	2.4.1 #8; 2.4.2 #7; 2.4.4 #5; 2.4.5 #5; 2.4.6 #5; 2.5.1 #5; 2.6.1 #6; 2.6.2 #17; 2.6.2 #2; 2.6.3 #3; 2.6.4 #6; 2.6.4 #8; 2.6.6#5; 2.6.8 #2; 2.7.1.2 #5; 2.7.1.9 #5; 2.7.1.10 #5; 2.7.1.11 #5; 2.7.3.1 #5; 2.7.3.3 #5; 2.7.3.5 #5; 2.7.5.1 #2; 2.7.5.2 #2; 2.7.5.4 #2; 2.7.6.3 #5; 2.7.6.4 #2; 2.7.6.6 #2; 2.7.6.13 #2; 2.7.6.7 #5; 2.7.6.8 #4; 2.11.2 #5; 2.11.3 #5		

"Generic" Seismic Category I Equipment ITAAC *(Continued)*			
	Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
"Generic" Wording (yellow highlight identifies generic wording)	6.a The seismic Category I Class 1E ac electrical power system equipment, identified in Table 2.6.1-1, can withstand seismic design basis loads without loss of safety function.	6.a.ii Type tests, analysis or a combination of type tests and analyses of seismic Category I Class 1E ac electrical power system equipment identified in Table 2.6.1-1, will be performed using analytical assumptions, or will be performed under conditions, which bound the seismic design basis requirements.	6.a.ii A report exists and concludes that the seismic Category I Class 1E ac electric power system equipment identified in Table 2.6.1-1, can withstand seismic design basis loads without loss of safety function.
Example Text Changes **ITAAC 2.6.1 #6.a.ii**	6.a The seismic Category I ~~Each of the four divisions of the~~ Class 1E ac~~AC~~ electrical power system equipment, identified in Table 2.6.1-1, can~~is designed to~~ withstand seismic design basis loads without loss of safety function.	6.a.ii Type tests, analysis or a combination of type tests and ~~and/or~~ analyses of ~~the~~ seismic Category I Class 1E ac electrical power system equipment identified in Table 2.6.1-1, will be performed using analytical assumptions, or will be performed under conditions, which bound the seismic design basis requirements.	6.a.ii A report exists and concludes ~~The results of the type tests and/ior analyses conclude~~ that the seismic Category I ~~each of the four divisions of the as-built~~ Class 1E ac~~AC~~ electric power system equipment identified in Table 2.6.1-1, can withstand seismic design basis loads without loss of safety function.

"Generic" Seismic Category I Equipment ITAAC *(Continued)*			
	Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
Basis	• The ITA is modified to identify that "type tests," "analysis," or a combination of these is acceptable [RIS 2008-05, "ITAAC Nomenclature and Language," 4th bullet]. "And/or" is also deleted [RIS 2008-05, "Nomenclature and Language," 4th bullet]. • The ITA is modified to clarify the conditions that apply to the type tests and analyses. This wording is consistent with corresponding ITAAC in the ESBWR DCD. • The AC is modified to add the phrase "a report exists and concludes" for consistency with the analysis identified in the ITA [RIS 2008-05, "Focus, Logic, Practicality," 7th bullet]. This wording is consistent with corresponding ITAAC in the AP1000 DCD.		
ITAAC That Use This Generic Wording	2.4.1 #8; 2.4.2 #7; 2.4.4 #5; 2.4.5 #5; 2.4.6 #5; 2.5.1 #5; 2.6.1 #6; 2.6.2 #17; 2.6.2 #2; 2.6.3 #3; 2.6.4 #6; 2.6.4 #8; 2.6.6#5; 2.6.8 #2; 2.7.1.2 #5; 2.7.1.9 #5; 2.7.1.10 #5; 2.7.1.11 #5; 2.7.3.1 #5; 2.7.3.3 #5; 2.7.3.5 #5; 2.7.5.1 #2; 2.7.5.2 #2; 2.7.5.4 #2; 2.7.6.3 #5; 2.7.6.4 #2; 2.7.6.6 #2; 2.7.6.13 #2; 2.7.6.7 #5; 2.7.6.8 #4; 2.11.2 #5; 2.11.3 #5		

"Generic" Seismic Category I Equipment ITAAC *(Continued)*			
	Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
"Generic" Wording (yellow highlight identifies generic wording)	6.a The seismic Category I Class 1E ac electrical power system equipment, identified in Table 2.6.1-1, can withstand seismic design basis loads without loss of safety function.	6.a.iii Inspection and analysis will be performed to verify that the as-built seismic Category I Class 1E ac electrical power system equipment identified in Table 2.6.1-1, including anchorages, is seismically bounded by the tested or analyzed conditions.	6.a.iii A report exists and concludes that the as-built seismic Category I Class 1E ac electric power system equipment identified in Table 2.6.1-1, including anchorages, is seismically bounded by the tested or analyzed conditions.
Example Text Changes **ITAAC 2.6.1 #6.a.iii**	6.a The seismic Category I ~~Each of the four divisions of the~~ Class 1E ac~~AC~~ electrical power system equipment, identified in Table 2.6.1-1, can~~is designed to~~ withstand seismic design basis loads without loss of safety function.	6.a.iii. Inspection and analysis will be performed to verify that ~~on~~ the as-built seismic Category I Class 1E ac electrical power system equipment identified in Table 2.6.1-1, including anchorages, is seismically bounded by the tested or analyzed conditions.	6.a.iii A report exists and concludes that~~Each of the four divisions of~~ the as-built seismic Category I Class 1E ac~~AC~~ electric power system equipment identified in Table 2.6.1-1, including anchorages, is seismically bounded by the tested or analyzed conditions.
Basis	• The ITA is modified to add "analysis" to recognize that inspection alone is not sufficient to verify the as-built equipment is bounded by the tested or analyzed condition [RIS 2008-05, "Focus, Logic, Practicality," 6th and 7th bullets]. • The ITA is modified to clarify the conditions that apply to the type tests and analyses. This wording is		

"Generic" Seismic Category I Equipment ITAAC *(Continued)*			
	Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
	consistent with corresponding ITAAC in the ESBWR DCD. • The AC is modified to add "a report exists and concludes" for consistency with the analysis identified in the ITA [RIS 2008-05, "Focus, Logic, Practicality," 7th bullet]. This wording is consistent with corresponding ITAAC in the AP1000 DCD.		
ITAAC That Use This Generic Wording	2.4.1 #8; 2.4.2 #7; 2.4.4 #5; 2.4.5 #5; 2.4.6 #5; 2.5.1 #5; 2.6.1 #6; 2.6.2 #17; 2.6.2 #2; 2.6.3 #3; 2.6.4 #6; 2.6.4 #8; 2.6.6#5; 2.6.8 #2; 2.7.1.2 #5; 2.7.1.9 #5; 2.7.1.10 #5; 2.7.1.11 #5; 2.7.3.1 #5; 2.7.3.3 #5; 2.7.3.5 #5; 2.7.5.1 #2; 2.7.5.2 #2; 2.7.5.4 #2; 2.7.6.3 #5; 2.7.6.4 #2; 2.7.6.6 #2; 2.7.6.13 #2; 2.7.6.7 #5; 2.7.6.8 #4; 2.11.2 #5; 2.11.3 #5		

"Generic" Seismic Category I Piping ITAAC			
	Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
"Generic" Wording (yellow highlight identifies generic wording)	8. The seismic Category I piping, including supports, identified in Table 2.4.2-3 can withstand seismic design basis loads without a loss of its safety function.	8.i Inspections will be performed to verify that the as-built seismic Category I piping, including supports, identified in Table 2.4.2-3 is supported by a seismic Category I structure(s).	8.i The as-built seismic Category I piping, including supports, identified in Table 2.4.2-3 is supported by a seismic Category I structure(s).
Example Text Changes **ITAAC 2.4.2 #8.i**	8.~~i~~ ~~Each of t~~The seismic Category I piping, including supports, identified in Table 2.4.2-3 can~~is designed to~~ withstand ~~combined normal and~~ seismic design basis loads without a loss of its safety function.	8.i Inspections will be performed to verify that the as-built seismic Category I piping, including supports, identified in Table 2.4.2-3 is ~~are~~supported by a seismic Category I structure(s).	8.i ~~Report(s) document that each of t~~The as-built seismic Category I piping, including supports, identified in Table 2.4.2-3 is supported by a seismic Category I structure(s).
Basis	• The DC is modified to replace "is designed to withstand" with "can withstand." The intent of the ITAAC is to verify that the as-built equipment meets the design requirements [RIS 2008-05, "Focus, Logic, and Practicality," 5th and 6th bullets]. • The AC is modified for consistency to delete identification of reports. Reports are identified in the AC primarily to document analyses. • The DC is modified to delete "combined normal and" for consistency with the Generic Seismic Category I equipment ITAAC. • This wording is similar to corresponding ITAAC previously presented in one or more DCDs for other technologies.		
ITAAC That Use This Generic Wording	2.4.2, #8; 2.4.4 #5; 2.4.5 #5; 2.4.6 #5; 2.6.4 #8; 2.7.1.2 #5; 2.7.1.9 #5; 2.7.1.10 #5; 2.7.1.11 #5; 2.7.3.1 #5; 2.7.3.3 #5; 2.7.3.5 #5; 2.7.6.3 #6; 2.7.6.7 #5; 2.11.2 #5; 2.11.3 #5		

"Generic" Seismic Category I Piping ITAAC *(Continued)*			
	Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
"Generic" Wording (yellow highlight identifies generic wording)	8. The seismic Category I piping, including supports, identified in Table 2.4.2-3 can withstand seismic design basis loads without a loss of its safety function.	8.ii Inspections and analyses will be performed to verify that the as-built seismic Category I piping, including supports, identified in Table 2.4.2-3 can withstand seismic design basis loads without a loss of its safety function.	8.ii A report exists and concludes that the as-built seismic Category I piping, including supports, identified in Table 2.4.2-3 can withstand seismic design basis loads without a loss of its safety function.
Example Text Changes **ITAAC 2.4.2 #8.ii**	8.~~i~~ ~~Each of t~~The seismic Category I piping, including supports, identified in Table 2.4.2-3 can~~is designed to~~ withstand ~~combined normal and~~ seismic design basis loads without a loss of its safety function.	8.ii Inspections and analyses will be performed to verify ~~for the existence of a report verifying~~ that the as-built seismic Category I piping, including supports, identified in Table 2.4.2-3 can withstand ~~combined normal and~~ seismic design basis loads without a loss of its safety function.	8.ii A report exists and concludes that ~~each of~~ the as-built seismic Category I piping, including supports, identified in Table 2.4.2-3 can withstand ~~combined normal and~~ seismic design basis loads without a loss of its safety function.
Basis	• The ITA is modified to add "analyses" to recognize that inspection alone is not sufficient to verify the as-built equipment is bounded by the tested or analyzed condition [RIS 2008-05, "Focus, Logic, Practicality," 6th and 7th bullets]. Also deleted the wording "inspect for the existence of a report" [RIS 2008-05, ""Focus, Logic, Practicality," 6th bullet.] • The DC is modified to delete "combined normal and" for consistency with the Generic Seismic Category I equipment ITAAC. • This wording is similar to corresponding ITAAC previously presented in one or more DCDs for other technologies.		

"Generic" Seismic Category I Piping ITAAC *(Continued)*			
	Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
ITAAC That Use This Generic Wording	2.4.2, #8; 2.4.4 #5; 2.4.5 #5; 2.4.6 #5; 2.6.4 #8; 2.7.1.2 #5; 2.7.1.9 #5; 2.7.1.10 #5; 2.7.1.11 #5; 2.7.3.1 #5; 2.7.3.3 #5; 2.7.3.5 #5; 2.7.6.3 #6; 2.7.6.7 #5; 2.11.2 #5; 2.11.3 #5		

"Generic" ASME Components and Piping ITAAC			
	Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
"Generic" Wording (yellow highlight identifies generic wording)	26.a.i The ASME Code Section III components of the EPS support systems, identified in Table 2.6.4-2, are fabricated, installed, and inspected in accordance with ASME Code Section III requirements.	26.a.i Inspection of the as-built ASME Code Section III components of the EPS support systems, identified in Table 2.6.4-2, will be performed.	26.a.i The ASME Code Section III data report(s) (certified, when required by ASME Code) and inspection reports (including N-5 Data Reports where applicable) exist and conclude that the as-built ASME Code Section III components of the EPS support systems, identified in Table 2.6.4-2, are fabricated, installed, and inspected in accordance with ASME Code Section III requirements.
Example Text Changes **ITAAC 2.6.4 #26.a.i**	26.a.i The ASME Code Section III components of the EPS support systems, identified in Table 2.6.4-2, are fabricated, installed, and inspected in accordance with ASME Code Section III requirements.	26.a.i ~~An i~~Inspection of the as-built ASME Code Section III components of the EPS support systems, identified in Table 2.6.4-2, will be performed.	26.a.i The ASME Code Section III data report(s) (certified, when required by ASME Code) and inspection reports (including N-5 Data Reports where applicable) exist and

"Generic" ASME Components and Piping ITAAC			
	Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
			conclude that the as-built ASME Code Section III components of the EPS support systems, identified in Table 2.6.4-2, are fabricated, installed, and inspected in accordance with ASME Code Section III requirements.
Basis	• The DC, ITA, and AC are modified to include a reference to a specific list of equipment, as needed [RIS 2008-05, "Standardization," 2nd bullet]. This wording is similar to corresponding ITAAC in the ESBWR DCD.		
ITAAC That Use This Generic Wording	Components 2.4.1 #5; 2.4.2 #4; 2.4.4 #2; 2.4.5 #2; 2.4.6 #2; 2.6.4 #26; 2.7.1.2 #2; 2.7.1.9 #2; 2.7.1.10 #2; 2.7.1.11 #2; 2.7.3.1 #2; 2.7.3.3 #2; 2.7.3.5 #2; 2.7.6.3 #2; 2.7.6.7 #2; 2.7.6.8 #6; 2.11.2 #2; 2.11.3 #2 Piping 2.4.2 #4; 2.4.4 #2; 2.4.5 #2; 2.4.6 #2; 2.6.4 #26; 2.7.1.2 #2; 2.7.1.9 #2; 2.7.1.10 #2; 2.7.1.11 #2; 2.7.3.1 #2; 2.7.3.3 #2; 2.7.3.5 #2; 2.7.6.3 #2; 2.7.6.7 #2; 2.11.2 #2; 2.11.3 #2		

"Generic" ASME Components and Piping ITAAC *(Continued)*			
	Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
"Generic" Wording (yellow highlight identifies generic wording)	26.a.ii The ASME Code Section III components of the EPS support systems, identified in Table 2.6.4-2, are reconciled with the design requirements.	26.a.ii A reconciliation analysis of the components identified in Table 2.6.4-2 using as-designed and as-built information and ASME Code Section III design report(s) (NCA-3550) will be performed.	26.a.ii The ASME Code Section III design report(s) (certified, when required by ASME Code) exist and conclude that design reconciliation has been completed in accordance with ASME Code, for the as-built ASME Code Section III components of the EPS support systems identified in Table 2.6.4-2. The report documents the results of the reconciliation analysis.
Example Text Changes **ITAAC 2.6.4 #26.a.ii**	26.a.ii The ASME Code Section III components of the EPS support systems, identified in Table 2.6.4-2, are reconciled with the design requirements.	26.a.ii A reconciliation analysis of the components identified in Table 2.6.4-2 using as-designed and as-built information and ASME Code Section III design report(s) (NCA-3550) will be performed.	26.a.ii The ASME Code Section III design report(s) (certified, when required by ASME Code) exist and conclude that design reconciliation has been completed in accordance with ASME

"Generic" ASME Components and Piping ITAAC *(Continued)*			
	Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
			Code, for the as-built ASME Code Section III components of the EPS support systems identified in Table 2.6.4-2 ~~are reconciled with the design requirements~~. The report documents the results of the reconciliation analysis.
Basis	• The DC, ITA, and AC are modified to reference a specific list of equipment, as needed [RIS 2008-05, "Standardization," 2nd bullet]. • The AC is modified to clarify that design reconciliation will be performed in accordance with what the ASME Code requires. This wording is similar to corresponding ITAAC in the ESBWR DCD.		
ITAAC That Use This Generic Wording	Components 2.4.1 #5; 2.4.2 #4; 2.4.4 #2; 2.4.5 #2; 2.4.6 #2; 2.6.4 #26; 2.7.1.2 #2; 2.7.1.9 #2; 2.7.1.10 #2; 2.7.1.11 #2; 2.7.3.1 #2; 2.7.3.3 #2; 2.7.3.5 #2; 2.7.6.3 #2; 2.7.6.7 #2; 2.7.6.8 #6; 2.11.2 #2; 2.11.3 #2 Piping 2.4.2 #4; 2.4.4 #2; 2.4.5 #2; 2.4.6 #2; 2.6.4 #26; 2.7.1.2 #2; 2.7.1.9 #2; 2.7.1.10 #2; 2.7.1.11 #2; 2.7.3.1 #2; 2.7.3.3 #2; 2.7.3.5 #2; 2.7.6.3 #2; 2.7.6.7 #2; 2.11.2 #2; 2.11.3 #2		

"Generic" ASME Pressure Boundary Welds ITAAC					
	Design Commitment		**Inspections, Tests, Analyses**	**Acceptance Criteria**	
"Generic" Wording (yellow highlight identifies generic wording)	27.a	Pressure boundary welds in ASME Code Section III components, identified in Table 2.6.4-2, meet ASME Code Section III requirements for non-destructive examination of welds.	27.a Inspection of the as-built pressure boundary welds in ASME Code Section III components identified in Table 2.6.4-2, will be performed in accordance with the ASME Code Section III.	27.a	The ASME Code Section III code reports exist and conclude that the ASME Code Section III requirements are met for non-destructive examination of the as-built pressure boundary welds in ASME Code Section III components identified in Table 2.6.4-2.
Example Text Changes **ITAAC 2.6.4 #27.a**	27.a	Pressure boundary welds in ASME Code Section III components, identified in Table 2.6.4-2, meet ASME Code Section III requirements for non-destructive examination of welds.	27.a Inspection~~s~~ of the as-built pressure boundary welds in ASME Code Section III components identified in Table 2.6.4-2, will be performed in accordance with the ASME Code Section III.	27.a	The ASME Code Section III code reports exist and conclude that the ASME Code Section III requirements are met for non-destructive examination of the as-built pressure boundary welds in ASME Code Section III components identified in Table 2.6.4-2.
Basis	• The DC, ITA, and AC are modified to reference a specific list of equipment, as needed, and editorial clarification to the ITA and AC [RIS 2008-05, "Standardization," 2nd bullet].				

"Generic" ASME Pressure Boundary Welds ITAAC			
	Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
ITAAC That Use This Generic Wording	Components 2.4.1 #6; 2.4.2 #5; 2.4.4 #3; 2.4.5 #3; 2.4.6 #3; 2.6.4 #27; 2.7.1.2 #3; 2.7.1.9 #3; 2.7.1.10 #3; 2.7.1.11 #3; 2.7.3.1 #3; 2.7.3.3 #3; 2.7.3.5 #3; 2.7.6.3 #3; 2.7.6.7 #3; 2.11.2 #3; 2.11.3 #3.a Piping 2.4.2 #5; 2.4.4 #3; 2.4.5 #3; 2.4.6 #3; 2.6.4 #27; 2.7.1.2 #3; 2.7.1.9 #3; 2.7.1.10 #3; 2.7.1.11 #3; 2.7.3.1 #3; 2.7.3.3 #3; 2.7.3.5 #3; 2.7.6.3 #3; 2.7.6.7 #3; 2.11.2 #3; 2.11.3 #3.b		

"Generic" ASME Hydrostatic Test ITAAC			
	Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
"Generic" Wording (yellow highlight identifies generic wording)	7.a The ASME Code Section III components of the Class 1E EPS support systems, identified in Table 2.6.4-2, retain their pressure boundary integrity at their design pressure.	7.a A hydrostatic test will be performed on the as-built components identified in Table 2.6.4-2 required by the ASME Code Section III to be hydrostatically tested.	7.a ASME Code Data Report(s) exists and conclude that the results of the hydrostatic test of the as-built components of the Class 1E EPS support systems, identified in Table 2.6.4-2 as ASME Code Section III conform with the requirements of ASME Code Section III.
Example Text Changes **ITAAC 2.6.4 #7.a**	7.a The ASME Code Section III components of the Class 1E EPS support systems, identified in Table 2.6.4-2, ~~for support systems that are required to support safety functions of starting and operating the Class 1E EPS,~~ retain their pressure boundary integrity at their design pressure.	7.a A h~~H~~ydrostatic test will be performed on the as-built components identified in Table 2.6.4-2 ~~of the support systems~~ required by the ASME Code Section III to be hydrostatically tested.	7.a ASME Code Data Report(s) exists and conclude that t~~T~~he results of the hydrostatic test~~s~~ of the as-built components of the Class 1E EPS support systems, identified in Table 2.6.4-2 as ASME Code Section III ~~components for support systems that are required to support safety functions of starting and operating the Class 1E EPS~~ conform with the requirements of ASME

"Generic" ASME Hydrostatic Test ITAAC			
	Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
			Code Section III.
Basis	• The DC, ITA, and AC are modified to reference a specific list of equipment, as needed [RIS 2008-05, "Standardization," 2nd bullet]. • The AC is modified to clarify that ASME Code Data Reports will document the results of hydrostatic tests of ASME Code Section III components [RIS 2008-05, "Nomenclature and Language," 5th bullet]. This wording is similar to corresponding ITAAC in the ESBWR DCD.		
ITAAC That Use This Generic Wording	<u>Components</u> 2.4.1 #7; 2.4.2 #6; 2.4.4 #4; 2.4.5 #4; 2.4.6 #4; 2.6.4 #7; 2.7.1.2 #4; 2.7.1.9 #4; 2.7.1.10 #4; 2.7.1.11 #4; 2.7.3.1 #4; 2.7.3.3 #4; 2.7.3.5 #4; 2.7.6.3 #4; 2.7.6.7 #4; 2.11.2 #4; 2.11.3 #4.a <u>Piping</u> 2.4.2 #6; 2.4.4 #4; 2.4.5 #4; 2.4.6 #4; 2.6.4 #7.b; 2.7.1.2 #4; 2.7.1.9 #4; 2.7.1.10 #4; 2.7.1.11 #4; 2.7.3.1 #4; 2.7.3.3 #4; 2.7.3.5 #4; 2.7.6.3 #4; 2.7.6.7 #4; 2.11.2 #4; 2.11.3 #4.b		

"Generic" ASME Materials of Construction ITAAC (Deletion)			
	Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
"Generic" Wording (yellow highlight identifies generic wording)	3a. Deleted 3b. Deleted	3a. Deleted 3b. Deleted	3a. Deleted 3b. Deleted
Example Text Changes **ITAAC 2.4.2 #3.a**	3a. Deleted~~The materials of construction of the ASME Code Section III components identified in Table 2.4.2-2 are in accordance with ASME Code requirements~~. 3b. Deleted~~The materials of construction of the ASME Code Section III piping identified in Table 2.4.2-3 are in accordance with ASME Code requirements~~.	3a. Deleted~~Inspections of the certified material test reports will be performed~~. 3b. Deleted~~Inspections of the certified material test reports will be performed~~.	3a. Deleted~~The materials of construction of the ASME Code components identified in Table 2.4.2-2 are in accordance with ASME Code requirements~~. 3b. Deleted~~The materials of construction of the ASME Code piping identified in Table 2.4.2-3 are in accordance with ASME Code requirements~~.
Basis	• This ITAAC is deleted as the information intended to be verified by this ITAAC is redundant to information which will be verified as part of the "Generic" ASME Components and Piping ITAAC" which states, 'The ASME Code Section III components of the ____system, identified in Table ___, are fabricated, installed, and inspected in accordance with ASME Code Section III requirements.' • There is no similar ITAAC identified in other current DCDs.		

"Generic" ASME Materials of Construction ITAAC (Deletion)			
	Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
ITAAC That Use This Generic Wording	2.4.1 #4; 2.4.2 #3; 2.4.4 #14; 2.4.5 #15; 2.4.6 #14		

"Generic" MCR Alarms and Displays ITAAC			
	Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
"Generic" Wording (yellow highlight identifies generic wording)	7. Alarms and displays identified in Subsection 2.6.2.1 are provided in the MCR.	7. Inspection will be performed for retrievability of alarms and displays identified in Subsection 2.6.2.1 in the as-built MCR.	7. Alarms and displays identified in Subsection 2.6.2.1 can be retrieved in the as-built MCR.
Example Text Changes **ITAAC 2.6.2 #7**	7. Alarms and displays identified in Subsection 2.6.2.1 are provided in the MCR~~The alarms initiate in MCR to indicate Class 1E system malfunctions and status conditions~~.	7. Inspection~~A test~~ will be performed for retrievability of ~~to verify that~~alarms and displays identified in Subsection 2.6.2.1 in the as-built MCR~~initiate in the as-built MCR to indicate the as-built Class 1E system malfunctions and status conditions~~.	7. ~~The results of the test conclude that the a~~Alarms and displays identified in Subsection 2.6.2.1 can be retrieved ~~initiate~~in the as-built MCR~~to indicate the as-built Class 1E system malfunctions and status conditions~~.
Basis	• The DC is modified to clarify the scope of alarms and displays, as needed, and to indicate in the DC that the design does provide these items. In some cases, the DC addresses alarms only or displays only. • The ITA and AC are modified from a test to an inspection for "retrievability" and that the alarms and displays can be retrieved, to provide a more appropriate verification method consistent with digital I&C systems. A new definition has been added to Tier 1, Section 1.0 to read as follows: **Inspect for retrievability** of a display or alarm means to visually observe that the specified information appears on a monitor when summoned by the operator. • This approach is consistent with the ESBWR DCD.		

"Generic" MCR Alarms and Displays ITAAC			
	Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
ITAAC That Use This Generic Wording	2.4.1 #13; 2.4.2 #14; 2.4.3 #2; 2.4.4 #11; 2.4.5 #12; 2.4.6 #12; 2.6.1 #20.a; 2.6.1 #20.c; 2.6.2 #7; 2.6.3 #14; 2.6.4 #23; 2.7.1.2 #10; 2.7.1.9 #10; 2.7.1.10 #10; 2.7.1.11 #10; 2.7.2 #3; 2.7.3.1 #11; 2.7.3.3 #11; 2.7.3.5 #11; 2.7.5.1 #7; 2.7.5.2 #7; 2.7.5.4 #6; 2.7.6.3 #9; 2.7.6.7 #12; 2.7.6.8 #2; 2.7.6.9 #8; 2.7.6.13 #6; 2.11.2 #11; 2.11.3 #11; 2.11.4 #4		

"Generic" MCR Controls ITAAC			
	Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
"Generic" Wording (yellow highlight identifies generic wording)	18. Controls are provided in the MCR and the Class 1E EPS room to start and stop each Class 1E EPS.	18. Tests will be performed on each as-built Class 1E EPS using the controls in the as-built MCR and the Class 1E EPS room.	18. Controls in the as-built MCR and the Class 1E EPS room start and stop each Class 1E EPS.
Example Text Changes **ITAAC 2.6.4 #18**	18. Controls are provided in ~~Each Class 1E EPS can be controlled from~~ the MCR and ~~from~~ the Class 1E EPS room to start and stop each Class 1E EPS.	18. Tests ~~A test~~ will be performed on ~~to verify control of~~ each as-built Class 1E EPS using the controls in the as-built MCR and the Class 1E EPS room.	18. ~~The results of the test conclude that each as-built EPS can be controlled from the~~ Controls in the as-built MCR and ~~from~~ the Class 1E EPS room start and stop each Class 1E EPS.
Basis	• The DC, ITA, and AC are modified to specify/reflect a functional test. • The AC is modified to delete the phrase "the results of the test conclude" to provide a functional AC and to be consistent with other similar AC.		
ITAAC That Use This Generic Wording	2.4.2 #11; 2.4.2 #13; 2.4.2 #17; 2.4.4 #8; 2.4.4 #10; 2.4.5 #9; 2.4.5 #11; 2.4.6 #9; 2.4.6 #11; 2.6.1 #20.b; 2.6.4 #18; 2.6.5 #8; 2.7.1.1 #4; 2.7.1.2 #8; 2.7.1.9 #8; 2.7.1.10 #13; 2.7.1.11 #8; 2.7.1.11 #18; 2.7.3.1 #8; 2.7.3.1 #8; 2.7.3.1 #10; 2.7.3.1 #13; 2.7.3.3 #8, 2.7.3.3 #10; 2.7.3.5 #8; 2.7.3.5 #10; 2.7.5.1 #5; 2.7.5.1 #6; 2.7.5.2 #5; 2.7.5.2 #6; 2.7.5.4 #5; 2.7.6.3 #11; 2.7.6.7 #10; 2.11.2 #10; 2.11.3 #8; 2.11.4 #5		

"Generic" RSC Alarms, Displays, and Controls ITAAC			
	Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
"Generic" Wording (yellow highlight identifies generic wording)	15. Alarms, displays and controls identified in Table 2.4.2-4 are provided in the RSC.	15.i Inspection will be performed for retrievability of the alarms and displays identified in Table 2.4.2-4 in the as-built RSC. 15.ii Tests of the as-built RSC control functions identified in Table 2.4.2-4 will be performed.	15.i Alarms and displays identified in Table 2.4.2-4 can be retrieved in the as-built RSC. 15.ii Controls in the as-built RSC operate the as-built equipment identified in Table 2.4.2-4 with an RSC control function.
Example Text Changes **ITAAC 2.4.2 #15**	15. ~~RSC a~~Alarms, displays and controls ~~are~~identified in Table 2.4.2-4 are provided in the RSC.	15.i Inspection~~s~~ will be performed for retrievability of the ~~as-built RSC~~alarms and displays ~~and controls~~ identified in Table 2.4.2-4 in the as-built RSC ~~will be performed~~. 15.ii Tests of the as-built RSC control functions identified in Table 2.4.2-4 will be performed.	15.i Alarms~~,~~ and displays ~~and controls exist on~~ identified in Table 2.4.2-4 can be retrieved in the as-built RSC ~~as identified in Table 2.4.2-4~~. 15.ii Controls ~~exist to operate each~~ in the as-built RSC operate the as-built equipment ~~control function~~ identified in Table 2.4.2-4 with an RSC control function.
Basis	• The DC is modified to clarify the scope of alarms, displays, and controls, as needed, and to indicate in the DC that the design does provide these items. In some cases, the DC addresses alarms only, displays only,		

"Generic" RSC Alarms, Displays, and Controls ITAAC			
	Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
	or controls only. • The ITA and AC are modified provide an inspection for "retrievability" to provide a more appropriate verification method consistent with digital I&C systems. A new definition has been added to Tier 1, Section 1.0 to read as follows: **Inspect for retrievability** of a display or alarm means to visually observe that the specified information appears on a monitor when summoned by the operator. • The DC, ITA, and AC are modified to add a functional test. • Although the text is not identical, this approach is consistent with the ESBWR DCD.		
ITAAC That Use This Generic Wording	2.4.2 #15; 2.4.4 #12; 2.4.5 #13; 2.4.6 #13; 2.7.1.2 #11; 2.7.1.9 #11; 2.7.1.10 #11; 2.7.1.11 #11; 2.7.2 #4; 2.7.3.1 #12; 2.7.3.3 #12; 2.7.3.5 #12; 2.7.5.1 #8; 2.7.5.2 #8; 2.7.5.4 #7; 2.7.6.3 #10; 2.7.6.7 #13; 2.11.2 #11; 2.11.3 #12		

"Generic" Equipment Qualification ITAAC					
	Design Commitment		**Inspections, Tests, Analyses**	**Acceptance Criteria**	
"Generic" Wording (yellow highlight identifies generic wording)	9.a	The Class 1E equipment identified in Table 2.4.2-2 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.	9.a.i	Type tests, or a combination of type tests and analyses using the design environmental conditions, or under the conditions which bound the design environmental conditions, will be performed on the Class 1E equipment identified in Table 2.4.2-2 as being qualified for a harsh environment.	9.a.i	A report exists and concludes that the Class 1E equipment identified in Table 2.4.2-2 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.
			9.a.ii	Inspection will be performed of the as-built Class 1E equipment identified in Table 2.4.2-2 as being qualified for a harsh environment and the associated wiring, cables, and terminations located in a harsh environment.	9.a.ii	The as-built Class 1E equipment and the associated wiring, cables, and terminations identified in Table 2.4.2-2 as being qualified for a harsh environment are bounded by type tests, or a combination of type tests and analyses.

"Generic" Equipment Qualification ITAAC			
	Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
Example Text Changes **ITAAC 2.4.2 #9.a**	9.a The Class 1E equipment identified in Table 2.4.2-2 as being qualified for a harsh environment can ~~is designed to~~ withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.	9.a.i Type tests, ~~and/or analyses,~~ or a combination of type tests and analyses using the design environmental conditions, or under the conditions which bound the design environmental conditions, will be performed on the Class 1E equipment identified in Table 2.4.2-2 as being qualified for ~~located in~~ a harsh environment.	9.a.i A report exists and concludes that ~~The results of the type tests and/or analyses conclude that~~ the Class 1E equipment identified in Table 2.4.2-2 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident ~~event~~ without loss of safety function for the time required to perform the safety function.
		9.a.ii Inspection~~s~~ will be performed of ~~on~~ the as-built Class 1E equipment identified in Table 2.4.2-2 as being qualified for a harsh environment and the associated wiring, cables, and terminations located in a harsh environment.	9.a.ii The as-built Class 1E equipment and the associated wiring, cables, and terminations identified in Table 2.4.2-2 as being qualified for a harsh environment are bounded by type tests, ~~and/or analyses,~~ or a

"Generic" Equipment Qualification ITAAC			
	Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
			combination of type tests and analyses.
Basis	• The DC is modified to replace "is designed to withstand" with "can withstand." The intent of the ITAAC is to verify that the as-built equipment meets the design requirements [RIS 2008-05, "Focus, Logic, and Practicality," 5th and 6th bullets]. • The DC and AC are modified from "design basis event" to "design basis accident," to be consistent with the Tier 1 definition of "harsh environment." • The ITA is modified to use the phrase "type tests or a combination of type tests and analyses," and "and/or" was deleted because analysis alone is not sufficient. The ITA is also modified to clarify the conditions that apply to the type tests and analyses. This wording is consistent with corresponding ITAAC in the ESBWR DCD. • "A report exists and concludes," is added to the AC to document the results of the analysis.		
ITAAC That Use This Generic Wording	2.4.1 #10; 2.4.2 #9a; 2.4.4 #6; 2.4.5 #6; 2.4.6 #6; 2.5.1 #6; 2.5.4 #3; 2.6.8 #7; 2.7.1.2 #6; 2.7.1.9 #6; 2.7.1.10 #12; 2.7.1.11 #6; 2.7.3.3 #6; 2.7.6.7 #6; 2.7.6.13 #3; 2.7.3.3 #6; 2.11.2 #6; 2.11.3 #6		

"Generic" Electrical Separation ITAAC			
	Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
"Generic" Wording (yellow highlight identifies generic wording)	9.b Class 1E equipment, identified in Table 2.4.2-2, is powered from its respective Class 1E division.	9.b A test will be performed on each division of the as-built Class 1E equipment identified in Table 2.4.2-2 by providing a simulated test signal only in the Class 1E division under test.	9.b The simulated test signal exists at the as-built Class 1E equipment identified in Table 2.4.2-2 under test.
Example Text Changes **ITAAC 2.4.2 #9.b**	9.b Class 1E equipment, identified in Table 2.4.2-2, is powered from its~~their~~ respective Class 1E division.	9.b A test will be performed on each division of the as-built Class 1E equipment identified in Table 2.4.2-2 by providing a simulated test signal only in the Class 1E division under test.	9.b The simulated test signal exists at the as-built Class 1E equipment identified in Table 2.4.2-2 under test.
Basis	• The ITA is modified to reference a specific list of equipment, as needed [RIS 2008-05, "Standardization," 2nd bullet]. This wording is similar to corresponding ITAAC in the AP1000 DCD.		
ITAAC That Use This Generic Wording	2.4.1 #11; 2.4.2 #9; 2.4.4 #6; 2.4.5 #6; 2.4.6 #6; 2.7.1.2 #6; 2.7.1.9 #6; 2.7.1.10 #6; 2.7.1.11 #6; 2.7.3.1 #6; 2.7.3.3 #6; 2.7.3.5 #6; 2.7.5.1 #3; 2.7.5.2 #3; 2.7.5.4 #3; 2.7.6.3 #7; 2.7.6.6 #3; 2.7.6.7 #6; 2.7.6.13 #4; 2.11.2 #6; 2.11.3 #6		

"Generic" Electrical Separation ITAAC *(Continued)*			
	Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
"Generic" Wording (yellow highlight identifies generic wording)	9.c Separation is provided between redundant divisions of RCS Class 1E cables, and between Class 1E cables and non-Class 1E cables.	9.c Inspections of the as-built Class 1E divisional cables will be performed.	9.c Physical separation or electrical isolation is provided in accordance with RG 1.75, between the as-built cables of redundant RCS Class 1E divisions and between Class 1E cables and non-Class 1E cables.
Example Text Changes **ITAAC 2.4.2 #9.c**	9.c Separation is provided between redundant divisions of RCS Class 1E cables~~divisions~~, and between Class 1E cables~~divisions~~ and non-Class 1E cables.	9.c Inspections of the as-built Class 1E divisional cables will be performed.	9.c Physical separation or electrical isolation is provided in accordance with RG 1.75, between the as-built cables of redundant RCS Class 1E divisions and between Class 1E cables~~divisions~~ and non-Class 1E cables.
Basis	• Editorial changes are made to the DC and AC for clarity and consistency. • The AC is modified to reflect Issue 1-B, "Lack of Quantitative Attribute or Reference to Standards to be Inspected" in the NRC's 12/17/09 ITAAC presentation and SRP 14.3 Appendix D [RIS p5, Logic, seventh bullet].		
ITAAC That Use This Generic Wording	2.4.1 #12; 2.4.2 #9; 2.4.4 #6; 2.4.5 #6; 2.4.6 #6; 2.6.8 #3; 2.7.1.2 #6; 2.7.1.9 #6; 2.7.1.10 #7; 2.7.1.11 #6; 2.7.3.1 #6; 2.7.3.3 #6; 2.7.3.5 #6; 2.7.5.1 #3; 2.7.5.2 #3; 2.7.5.4 #3; 2.7.6.3 #7; 2.7.6.6 #3; 2.7.6.7 #6; 2.7.6.13 #4; 2.11.2 #6; 2.11.3 #6		

"Generic" Physical Separation ITAAC			
	Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
"Generic" Wording (yellow highlight identifies generic wording)	1.b Each mechanical division of the ECCS (Divisions A, B, C & D) is physically separated from the other divisions with the exception of inside the containment so as not to preclude accomplishment of the safety function.	1.b Inspections and analysis of the as-built ECCS will be performed.	1.b A report exists and concludes that each mechanical division of the as-built ECCS is physically separated from other mechanical divisions of the system by spatial separation, barriers, or enclosures with the exception of inside the containment so as to assure that the functions of the safety related system are maintained.
Example Text Changes **ITAAC 2.4.2 #1.b**	1.b Each mechanical division of the ECCS (Divisions A, B, C & D) is physically separated from the other divisions with the exception of inside the containment so as not to preclude accomplishment of the safety function.	1.b Inspections and analysis of the as-built ECCS will be performed.	1.b A report exists and concludes that e~~E~~ach mechanical division of the as-built ECCS is physically separated from other mechanical divisions of the system by spatial separation, ~~structural~~ barriers, or enclosures with the exception of inside the containment so as to assure that the functions of

"Generic" Physical Separation ITAAC			
	Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
			the safety related system are maintained.
Basis	• The DC is modified for clarity, consistency with corresponding ITAAC in the ESBWR DCD, and for consistency with statements made in DCD Tier 2, Chapter 3. • The ITA is modified to add an analysis to recognize inspection alone is not sufficient to verify the as-built equipment is adequately separated. • The AC is modified to add "a report exists" because analysis was added to the ITA. The AC is also modified for consistency with DCD Tier 2, Chapter 3.		
ITAAC That Use This Generic Wording	2.4.4 #1; 2.4.5 #1; 2.7.1.2 #1; 2.7.1.9 #1; 2.7.1.10 #9; 2.7.1.11 #1; 2.7.3.1 #1; 2.7.3.3 #1; 2.7.3.5 #1; 2.7.5.1 #1; 2.7.5.2 #1; 2.11.3 #1.b		

"Generic" MOVs ITAAC			
	Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
"Generic" Wording (yellow highlight identifies generic wording)	11.b The remotely operated valves identified in Table 2.4.2-2 as having PSMS control, perform an active safety function after receiving a signal from PSMS.	11.b Tests will be performed on the as-built remotely operated valves identified in Table 2.4.2-2 as having PSMS control using simulated signals.	11.b The as-built remotely operated valves identified in Table 2.4.2-2 as having PSMS control perform the active function identified in the table after receiving a simulated signal.
Example Text Changes **ITAAC 2.4.2 #11.b**	11.b The remotely operated valves identified in Table 2.4.2-2 as having PSMS control, perform an active safety function after receiving a signal from PSMS.	11.b Tests will be performed on the as-built remotely operated valves ~~listed~~identified in Table 2.4.2-2 as having PSMS control using simulated signals.	11.b The as-built remotely operated valves identified in Table 2.4.2-2 as having PSMS control perform the active function identified in the table after receiving a simulated signal.
Basis	• The DC is modified to add the clarifying text, "remotely operated" to clearly identify the equipment that is within the scope of the ITAAC. A reference to a table is provided, where needed. [RIS 2008-05, "Standardization and Consistency," 2nd bullet]. • Editorial changes are made for clarity and consistency in the ITA. • This wording is similar to corresponding ITAAC in the AP1000 DCD.		
ITAAC That Use This Generic Wording	2.4.2 #11; 2.4.2 #13.b; 2.7.1.11 #17; 2.7.1.2 #8; 2.7.1.9 #8; 2.7.1.10 #13; 2.7.1.11 #8; 2.7.3.1 #10; 2.7.3.3 #8; 2.7.3.3 #10; 2.7.3.5 #10; 2.7.5.1 #5; 2.7.5.2 #5, 2.7.5.4 #4; 2.7.6.7 #10		

"Generic" MOVs ITAAC *(Continued)*			
	Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
"Generic" Wording (yellow highlight identifies generic wording)	12.a The motor-operated valves identified in Table 2.4.2-2 as having an active safety function perform an active safety function to change position as indicated in the table.	12.a.i Type tests or a combination of type tests and analyses of the motor-operated valves identified in Table 2.4.2-2 as having an active safety function will be performed that demonstrate the capability of the valve to operate under its design conditions.	12.a.i A report exists and concludes that each motor-operated valve identified in Table 2.4.2-2 as having an active safety function changes position as indicated in Table 2.4.2-2 under design conditions.
Example Text Changes **ITAAC 2.4.2 #12.a.i**	12.a The motor-operated valves~~,~~ identified in Table 2.4.2-2 as having an active safety function~~,~~ perform an active safety function to change position as indicated in the table.	12.a.i Type t~~T~~ests or a combination of type tests and analyses of the motor-operated valves identified in Table 2.4.2-2 as having an active safety function will be performed that demonstrate the capability of the valve to operate under its design conditions.	12.a.i A report exists and concludes that e~~E~~ach motor-operated valve identified in Table 2.4.2-2 as having an active safety function changes position as indicated in Table 2.4.2-2 under design conditions.
Basis	• The ITA is modified to clarify that "type tests" or a combination of type tests and analyses are used for valve qualification [RIS 2008-05, "ITAAC Nomenclature and Language," 4th bullet]. This is consistent with Tier 2, Section 3.9. • This DC, ITA, and AC are modified to include a reference to a specific list of equipment, as needed [RIS 2008-05, Standardization," 2nd bullet]. • The AC is modified to add the phrase "a report exists and concludes" for consistency with the analysis identified in the ITA [RIS 2008-05, "Focus, Logic, Practicality," 7th bullet].		

"Generic" MOVs ITAAC *(Continued)*			
	Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
	• This wording is consistent with corresponding ITAAC in the AP1000 DCD.		
ITAAC That Use This Generic Wording	2.4.2 #12; 2.4.4 #9; 2.4.5 #10; 2.4.6 #10; 2.7.1.2 #9; 2.7.1.9 #9; 2.7.1.10 #14; 2.7.1.11 #9; 2.7.3.1 #9; 2.7.3.3 #9; 2.7.6.7 #9; 2.11.2 #12; 2.11.3 #9		

"Generic" MOVs ITAAC *(Continued)*			
	Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
"Generic" Wording (yellow highlight identifies generic wording)	12.a The motor-operated valves identified in Table 2.4.2-2 as having an active safety function perform an active safety function to change position as indicated in the table.	12.a.ii Tests of the as-built motor-operated valves identified in Table 2.4.2-2 as having an active safety function will be performed under preoperational flow, differential pressure, and temperature conditions.	12.a.ii Each as-built motor-operated valve identified in Table 2.4.2-2 as having an active safety function changes position as indicated in Table 2.4.2-2 under preoperational test conditions.
Example Text Changes **ITAAC 2.4.2 #12.a.ii**	12.a The motor-operated valves~~,~~ identified in Table 2.4.2-2 as having an active safety function~~,~~ perform an active safety function to change position as indicated in the table.	12.a.ii Tests of the as-built motor-operated valves identified in Table 2.4.2-2 as having an active safety function will be performed under preoperational flow, differential pressure, and temperature conditions.	12.a.ii Each as-built motor-operated valve identified in Table 2.4.2-2 as having an active safety function changes position as indicated in Table 2.4.2-2~~2.7.1.2-2~~ under preoperational test conditions.
Basis	• The DC, ITA, and AC are modified to reference a specific list of equipment, as needed [RIS 2008-05, "Standardization," 2nd bullet]. • This wording is consistent with corresponding ITAAC in the AP1000 DCD.		
ITAAC That Use This Generic Wording	2.4.2 #12; 2.4.4 #9; 2.4.5 #10; 2.4.6 #10; 2.7.1.2 #9; 2.7.1.9 #9; 2.7.1.10 #14; 2.7.1.11 #9; 2.7.3.1 #9; 2.7.3.3 #9; 2.7.6.7 #9; 2.11.2 #12; 2.11.3 #9		

"Generic" MOVs ITAAC *(Continued)*			
	Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
"Generic" Wording (yellow highlight identifies generic wording)	12.a The motor-operated valves identified in Table 2.4.2-2 as having an active safety function perform an active safety function to change position as indicated in the table.	12.a.iii Inspections will be performed of the as-built motor-operated valves identified in Table 2.4.2-2 as having an active safety function.	12.a.iii Each as-built motor-operated valve identified in Table 2.4.2-2 as having an active safety function is bounded by the type tests, or a combination of type tests and analyses.
Example Text Changes **ITAAC 2.4.2 #12.a.iii**	12.a The motor-operated valves~~,~~ identified in Table 2.4.2-2 as having an active safety function~~,~~ perform an active safety function to change position as indicated in the table.	12.a.iii Inspections will be performed of the as-built motor-operated valves identified in Table 2.4.2-2 as having an active safety function.	12.a.iii Each as-built motor-operated valve identified in Table 2.4.2-2 as having an active safety function is bounded by the type tests, or a combination of type tests and analyses.
Basis	• The ITA is modified to add inspections to recognize that analysis alone is not sufficient to verify the as-built equipment is bounded by the tested or analyzed condition [RIS 2008-05, "Focus, Logic, Practicality," 6th and 7th bullets].		
ITAAC That Use This Generic Wording	2.4.2 #12; 2.4.4 #9; 2.4.5 #10; 2.4.6 #10; 2.7.1.2 #9; 2.7.1.9 #9; 2.7.1.10 #14; 2.7.1.11 #9; 2.7.3.1 #9; 2.7.3.3 #9; 2.7.6.7 #9; 2.11.2 #12; 2.11.3 #9		

"Generic" MOVs ITAAC *(Continued)*			
	Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
"Generic" Wording (yellow highlight identifies generic wording)	12.b After loss of motive power, the remotely operated valves, identified in Table 2.4.2-2, assume the indicated loss of motive power position.	12.b Tests of the as-built remotely operated valves identified in Table 2.4.2-2 will be performed under the conditions of loss of motive power.	12.b Upon loss of motive power, each as-built remotely operated valve identified in Table 2.4.2-2 assumes the indicated loss of motive power position.
Example Text Changes **ITAAC 2.4.2 #12.b**	12.b After loss of motive power~~,~~ the remotely operated valves~~,~~ identified in Table 2.4.2-2, assume the indicated loss of motive power position.	12.b Tests of the as-built remotely operated valves identified in Table 2.4.2-2 will be performed under the conditions of loss of motive power.	12.b Upon loss of motive power, each as-built remotely operated valve identified in Table 2.4.2-2 assumes the indicated loss of motive power position.
Basis	• The ITA is modified to add the clarifying text, "remotely operated" to clearly identify the equipment that is within the scope of the ITAAC. A reference to a table is provided, where needed. [RIS 2008-05, "Standardization and Consistency," 2nd bullet]. • This wording is consistent with corresponding ITAAC in the AP1000 DCD.		
ITAAC That Use This Generic Wording	2.4.2 #12; 2.4.4 #9; 2.4.5 #10; 2.4.6 #10; 2.7.1.2 #9; 2.7.1.9 #9; 2.7.1.10 #8; 2.7.1.11 #9; 2.7.3.1 #9; 2.7.3.3 #9; 2.7.3.5 #9; 2.7.5.1 #5; 2.7.5.2 #5; 2.7.5.4 #4; 2.7.6.7 #11; 2.11.2 #13; 2.11.3 #9		