Tier 1 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
1.	Tier 1 in its entirety	Made editorial changes in numerous locations to remove excessive spacing, correct punctuation, delete repeated words, correct misspelling, and correct grammar. Spelled out acronyms where appropriate and edited Acronym list where needed. Changed GE to GEH where appropriate.
2.	S1.0	This entire chapter has been revised to remove information that is not necessary for Tier 1. The deleted information consisted largely of the discussion on the content of Tier 1. Now the chapter (1) focuses on the important definitions that clarify certain terms, and (2) includes information that provides an understanding of the intended use of Tier 1 information and the ITAAC implementation.
3.		
4.	S2.1.1	Revision 4 reformats the Design Description to include an introductory paragraph and the listing of the attributes for which an ITAAC exists. The reformatting includes reducing the descriptions to be completely consistent with the Design Commitments in the ITAAC tables. The Design Descriptions should now include only the necessary attributes for ITAAC.
5.	T2.1.1-1	Table 2.1.1-1 is added to tabulate the equipment requirements for reference in the ITAAC. This type of table will be used as a standard in sections of Tier 1.
6.	T2.1.1-2	This table provides the key dimensions of the RPV components. Revision 4 adds values in inches in addition to the values in millimeters; added acceptable variations in millimeters and inches.
7.	T2.1.1-3	Previous ITAAC #1 on “basic configuration” is now split out into discrete ITAAC that include functional arrangement and ITAAC on the applicable attributes so as to make clear which attributes apply. These are now in specific ITAAC #1 through #6, which replace previous ITAAC #1 through 6.
8.	T2.1.1-3	ITAAC #7 addresses the as-built requirements for RPV surveillance specimens and the mounting brackets. It is essentially the same as previously stated.
9.	F2.1.1-1	The title of the figure is changed to add “Layout” to reflect that the figure represents a depiction of the RPV and is not a design drawing with dimensions.
10.	F2.1.1-2	Previous Figure 2.1.1-2 was a core arrangement. This figure was removed because it would be applicable only after fuel load and, thus, is not associated with an ITAAC.
11.		

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Item	Location	Description of Change
12.	S2.1.2	The Design Description has been revised to be consistent with the ITAAC Design Commitment column. Information previously in the Design Description that does not relate to an ITAAC has been deleted, unless it was included in a new ITAAC (as described below).
13.	T2.1.2-1, new	Table 2.1.2-1 is added as a new table. This is a mechanical equipment table that identifies various attributes that may or may not apply to a specific piece of equipment. The table is used to separate the previous "basic configuration" ITAAC into discrete ITAAC.
14.	T2.1.2-2, new	Table 2.1.2-1 is added as a new table. This is an electrical equipment table that identifies various attributes that may or may not apply to a specific piece of equipment. The table is used to separate the previous "basic configuration" ITAAC into discrete ITAAC.
15.	T2.1.2-3	Previous ITAAC #1 was previously a "basic configuration" ITAAC. It has been separated into new discrete ITAAC.
16.	T2.1.2-3	Previous ITAAC #2 related to ASME Code requirements. This ITAAC has been deleted and is covered by new ITAAC #2, 3, and 4. New ITAAC #5 addresses the seismic capability of the system.
17.	T2.1.2-3	Previous ITAAC #3 is now ITAAC #12. Flow "limiter" is now referred to as flow "restrictor." In the ITA column, "Inspections" has been replaced with "Measurements" to clarify the type of inspection that is performed.
18.	T2.1.2-3	Previous ITAAC #4 is now ITAAC #13. Flow "limiter" is now referred to as flow "restrictor" and the DD has been reworded to combine two sentences into one. The ITA has been changed to require verification of two instrument connections rather than referring to meeting the design. The AC column now requires that the as-built MSL flow restrictor have two instrument connections. The instrumentation function for steam flow monitoring is discussed in Tier 1, Subsection 2.2.3.
19.	T2.1.2-3	Previous ITAAC #5 is now covered by ITAAC #4.a and 4.b, which are intended to verify the pressure boundary integrity of the NBS system components and piping.
20.	T2.1.2-3	Previous ITAAC #6 is now ITAAC #14 with slight wording changes.
21.	T2.1.2-3	Previous ITAAC #7 regarding NBS System indication in the main control room is now covered by ITAAC #8.a.

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Item	Location	Description of Change
22.	T2.1.2-3	Previous ITAAC #8 regarding MSIV fast closure is now ITAAC #15. The wording of the ITAAC has been changed to reflect that the fast closure testing should be performed using only the accumulator and to reflect the acceptance criteria in the appropriate column.
23.	T2.1.2-3	Previous ITAAC #9 is now ITAAC #16. The ITAAC has been reformatted and the acceptance criteria have been changed to conform to the safety analyses assumption rather than the design value.
24.	T2.1.2-3, new	New ITAAC #17 addresses a test for the opening pressure of the SRVs.
25.	T2.1.2-3	Previous ITAAC #10 regarding opening time of the safety relief valves is now ITAAC #18. The ITAAC has been revised to include verification of the setpoints and discharge capacity to demonstrate that the as-built configuration is consistent with the assumptions of the safety analyses. The ITAAC wording has been revised to reflect the acceptance criteria in the appropriate column.
26.	T2.1.2-3, new	New ITAAC #19 addresses the steam discharge capacity of the SRVs.
27.	T2.1.2-3, new	New ITAAC #20 addresses a test for the opening pressure of the SVs.
28.	T2.1.2-3	Previous ITAAC #10 regarding opening time of the safety valves is now ITAAC #21. The ITAAC has been revised to include verification of the setpoints and discharge capacity to demonstrate that the as-built configuration is consistent with the assumptions of the safety analyses. The ITAAC wording has been revised to reflect the acceptance criteria in the appropriate column.
29.	T2.1.2-3, new	New ITAAC #22 addresses the steam discharge capacity of the SVs.
30.	T2.1.2-3	Previous ITAAC #11, regarding position indication for the SRVs/SVs and the DPVs, is now covered by ITAAC 8.a.
31.	T2.1.2-3	Previous ITAAC #12 is now relocated to a section that addresses ADS and GDCS instrumentation and controls.
32.	T2.1.2-3	Previous ITAAC #13 is now deleted. That the SRVs discharge through a line routed to a point submerged below the minimum water level of the wetwell pool is shown on the figure and verified as part of the functional arrangement inspection of the system (ITAAC 1). There is no associated testing.
33.	T2.1.2-3	Previous ITAAC #14 is now ITAAC# 24, which is wording to reflect the acceptance criteria in the appropriate column.

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Item	Location	Description of Change
34.	T2.1.2-3	Previous ITAAC #15 is deleted because it is covered by the functional arrangement verification in new ITAAC #1.
35.	T2.1.2-3	Previous ITAAC #16 is now ITAAC #25.
36.	T2.1.2-3	Previous ITAAC #17 is deleted because it is covered by the functional arrangement verification in new ITAAC #1. The capacity and setpoint are no longer verified by ITAAC, as these will be verified after fuel loading, as appropriate.
37.	T2.1.2-3	Previous ITAAC #18 is covered by ITAAC #8.b.
38.	T2.1.2-3	Previous ITAAC #19, 20, and 21 are eliminated and will be addressed in an ADS instrumentation and controls section.
39.	T2.1.2-3	Previous ITAAC #22 is deleted as it is now addressed by the design.
40.	T2.1.2-3	Previous ITAAC #23 is covered by ITAAC #7.
41.	T2.1.2-3	Previous ITAAC #24 is covered in ITAAC #9 and/or 10.
42.	T2.1.2-3	Previous ITAAC #25 is covered in ITAAC #11.
43.	T2.1.2-3	Previous ITAAC #26 remains as ITAAC #23, but the accumulator is now referred to as the relief-mode actuator.
44.	T2.1.2-3, new	New ITAAC #26 is added to address equipment qualification and to refer to the environmental qualification ITAAC in Section 3.8.
45.	T2.1.2-3	Previous ITAAC #27 is deleted and Tier 1 instrumentation and controls sections will address remote shutdown controls, as appropriate.
46.	T2.1.2-3, new	New ITAAC #27 is added to address the containment isolation function and to refer to Subsection 2.15.1 for the ITAAC.
47.	T2.1.2-3	Previous ITAAC #28 is included in ITAAC #15 as part of the testing to verify MSIV closure. The specific testing process will be addressed in Tier 2.
48.	F2.1.2-1	This figure has been revised to show that the DPVs are connected directly to the RPV and none are connected to the steam lines. Also, the terminology for the pressure relief valves is now consistent with referencing the valves as SRVs and SVs.
49.	F2.1.2-2	This figure is revised to include identification numbers for use with the equipment tables and to reflect revisions in Tier 2 information.

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Item	Location	Description of Change
50.	F2.1.2-3	In Rev. 3, this figure included sensitive security information. That portion of the figure has been removed and the figure is revised to be a more simple arrangement drawing.
51.	F2.1.2-4	This figure is eliminated. The functional arrangement of the RPV instrument locations may vary from the depiction.
52.	S2.1.3	Subsection 2.1.3 has been deleted. Verification of natural circulation will be included in the startup testing of the first operational ESBWR of through testing at a test facility or by another means.
53.	S2.2.1	Complete rewrite.
54.	S2.2.1	Clarified system purpose statement(s).
55.	S2.2.1	Relocated existing design description information to new Tables 2.2.1-1, 2.2.1-2, 2.2.1-3, 2.2.1-4.
56.	T2.2.1-1	New Table to describe functional arrangement. Added information that supports safety-related and RTNSS functions. Deleted information that does not support same.
57.	T2.2.1-2	New Table to describe system major functional groups. Added information that supports safety-related and RTNSS functions. Deleted information that does not support same.
58.	T2.2.1-3	New Table to describe system functions and initiating conditions. Added information that supports safety-related and RTNSS functions. Deleted information that does not support same.
59.	T2.2.1-4, new	New Table to describe rod block functions.
60.	T2.2.1-5, new	New Table to describe controls, interlocks, and bypasses in the main control room.
61.	T2.2.1-6	Re-named ITAAC table from Table 2.2.1-1 in Tier 1 Rev. 3 to Table 2.2.1-6.
62.	T2.2.1-6	Revised ITAAC #1 for functional arrangement. Note expansion of ITAAC description and associated acceptance criteria. Redundancy requirement added to Table 2.2.1-1.
63.	T2.2.1-6, new	New ITAAC #2 to utilize new Table 2.2.1-2. Bypass functions defined in new Table 2.2.1-5.

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Item	Location	Description of Change
64.	T2.2.1-6, new	New ITAAC #3 to utilize new Table 2.2.1-3. RWM rod block functions defined in new Tables 2.2.1-3 and 2.2.3-4.
65.	T2.2.1-6, new	New ITAAC #4 to utilize new Table 2.2.1-4. ATLM rod block functions defined in new Tables 2.2.1-3 and 2.2.3-4.
66.	T2.2.1-6, new	New ITAAC #5 to utilize Table 2.2.1-5.
67.	T2.2.1-6, new	New ITAAC #6 to utilize Section 3.3.
68.	T2.2.1-6, removed	Deleted ITAAC #7. See Table 2.2.1-3.
69.	T2.2.1-6	Re-named ITAAC table from Table 2.2.1-1 in Tier 1 Rev. 3 to Table 2.2.1-6.
70.	T2.2.1-6, removed	Deleted ITAAC #8. See Table 2.2.1-3.
71.	T2.2.1-6, removed	Deleted ITAAC #9. See Table 2.2.1-3.
72.	T2.2.1-6, removed	Deleted ITAAC #10. See Table 2.2.1-4.
73.	T2.2.1-6, removed	Deleted ITAAC #11. See Table 2.2.1-1 for RC&IS power arrangement.
74.	T2.2.1-6, removed	Deleted ITAAC #12. See Table 2.2.1-1 for RC&IS power arrangement.
75.	T2.2.1-6, removed	Deleted ITAAC #13. See Table 2.2.1-2.
76.	S2.2.2	Complete rewrite.
77.	S2.2.2	Relocated existing design description information to new Tables 2.2.1-1, 2.2.1-2, 2.2.1-3, 2.2.1-4. Also clarified system purpose statement(s).
78.	T2.2.2-1	New Table to describe functional arrangement. Added information that supports safety-related and RTNSS functions. Deleted information that does not support same.
79.	T2.2.2-2, new	New Table to describe CRD maximum allowable scram times for vessel bottom pressures below 7.481 MPa gauge (1085 psig).
80.	T2.2.2-3	New Table to describe CRD System Automatic Functions, Initiators, and Associated Interfacing Systems. Added information that supports safety-related and RTNSS functions. Deleted information that does not support same.

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Item	Location	Description of Change
81.	T2.2.2-4	New Table to describe CRD System Controls and Interlocks. Added information that supports safety-related and RTNSS functions. Deleted information that does not support same.
82.	T2.2.2-5, new	New Table to describe system Control Rod Drive System Mechanical Equipment.
83.	T2.2.2-6, new	New Table to describe system Control Rod drive system Electrical Equipment.
84.	T2.2.2-7	Re-named ITAAC table from Table 2.2.1-1 in Tier 1 Rev. 3 to Table 2.2.1-7.
85.	T2.2.2-7	Revised ITAAC #1 for functional arrangement. Note expansion of ITAAC description and associated acceptance criteria. Redundancy requirement added to Table 2.2.1-1.
86.	T2.2.2-7, removed	Deleted ITAAC #2. See ITAAC #15, 16, and 17.
87.	T2.2.2-7, removed	Deleted ITAAC #3. See ITAAC #1.c.
88.	T2.2.2-7	Revised ITAAC #4 to utilize new Table 2.2.2-2.
89.	T2.2.2-7	Revised ITAAC #5. See new Table 2.2.2-1 for applicability of seismic design basis. Deleted ITAAC #5. Revised brake holding force specification to functional test in Table 2.2.2-1.
90.	T2.2.2-7, removed	Deleted ITAAC #6. See Table 2.2.2-1.
91.	T2.2.2-7, removed	Deleted ITAAC #7. See Table 2.2.2-1.
92.	T2.2.2-7, removed	Deleted ITAAC #8. Separation and independence of Q and NS system is demonstrated by 2.2.15 IEEE Std. 603 ITAAC.
93.	T2.2.2-7, removed	Deleted ITAAC #9. Separation and independence of Q and NS system is demonstrated by 2.2.15 IEEE Std. 603 ITAAC.
94.	T2.2.2-7	Revised ITAAC #10 to utilize new Table 2.2.2-4 and ITAAC #11.
95.	T2.2.2-7, removed	Deleted ITAAC #11. See ITAAC #7.
96.	T2.2.2-7, removed	Deleted ITAAC #12. See ITAAC #8.
97.	T2.2.2-7, new	New ITAAC #7 to utilize new Tables 2.2.2-6 and 2.2.2-7.

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Item	Location	Description of Change
98.	T2.2.2-7, new	New ITAAC #8 replaces deleted ITAAC #12.
99.	T2.2.2-7, new	New ITAAC #9 to utilize new Table 2.2.2-3.
100.	T2.2.2-7, new	New ITAAC #10 to utilize new Table 2.2.2-4.
101.	T2.2.2-7, new	New ITAAC #11 replaces deleted ITAAC #10.
102.	T2.2.2-7, new	New ITAAC #12 to address IEEE 603.
103.	T2.2.2-7, new	New ITAAC #13 to address equipment qualification.
104.	T2.2.2-7, new	New ITAAC #14 to address seismic qualification.
105.	S2.2.3	Complete rewrite.
106.	S2.2.3	Relocated existing design description information to new Tables 2.2.3-1, 2.2.3-2, 2.2.3-3. Also clarified system purpose statement(s).
107.	T2.2.3-1	New Table to describe functional arrangement. Revised and replaced Table 2.2.3-1 with Table 2.2.3-3. Added information that supports safety-related and RTNSS functions. Deleted information that does not support same.
108.	T2.2.3-2	New Table to describe system automatic functions, initiators, and associated interfacing systems. Added information that supports safety-related and RTNSS functions. Deleted information that does not support same.
109.	T2.2.3-3	New Table to describe system controls. Replaced former Table 2.2.3-1. Added information that supports safety-related and RTNSS functions. Deleted information that does not support same.
110.	T2.2.3-4	Re-named ITAAC table from Table 2.2.3-1 in Tier 1 Rev. 3 to Table 2.2.3-4.
111.	T2.2.3-4, removed	Deleted ITAAC #1. See new ITAAC #4. Replaced ITAAC #1 to utilize new Table 2.2.3-1.
112.	T2.2.3-4, removed	Deleted ITAAC #2. See Table 2.2.3-1. Replaced ITAAC #2 to utilize new Table 2.2.3-2.
113.	T2.2.3-4, removed	Deleted ITAAC #3. See Table 2.2.3-1. Replaced ITAAC #3 to utilize new Table 2.2.3-3.
114.	T2.2.3-4, removed	Deleted ITAAC #4. Type of power supply is not a safety significant feature. Replaced ITAAC #4 to utilize Section 3.3.

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Item	Location	Description of Change
115.	T2.2.3-4, removed	Deleted ITAAC #5. See ITAAC #1, 2, 3, and 4.
116.	S2.2.4	Complete rewrite.
117.	S2.2.4	Relocated existing design description information to new Tables 2.2.4-1, 2.2.4-2, 2.2.4-3. Also clarified system purpose statement(s).
118.	T2.2.4-1	New Table to describe basic configuration. Added information that supports safety-related and RTNSS functions. Deleted information that does not support same. Provided in response to RAI 14.3-84.
119.	T2.2.4-2	New Table to describe system automatic trip initiators and associated interfacing systems. Added information that supports safety-related and RTNSS functions. Deleted information that does not support same.
120.	T2.2.4-3, new	New Table to describe system controls and interlocks in the main control room.
121.	T2.2.4-4	Re-named ITAAC table from 2.2.4-2 in Tier 1 Rev 3 to Table 2.2.4-4.
122.	T2.2.4-4	ITAAC #1 editorial change.
123.	T2.2.4-4	Revised ITAAC #2 to address system automatic trip initiators and associated interfacing systems using new Table 2.2.4-2. Provided in response to RAI 14.3-4, Item 2 and 3.
124.	T2.2.4-4	Revised ITAAC #3 to address system controls and interlocks using new Table 2.2.4-3.
125.	T2.2.4-4	Revised ITAAC #4 to add acceptance criteria (AC). Deleted AC from design commitment. Clarified test requirements.
126.	T2.2.4-4, removed	Deleted ITAAC #5. See Table 2.2.4-1.
127.	T2.2.4-4, removed	Deleted ITAAC #6. See Table 2.2.4-1.
128.	T2.2.4-4, removed	Deleted ITAAC #7. See Table 2.2.4-1.
129.	T2.2.4-4	Revised ITAAC #8 and renumbered as ITAAC #5 to address minimum inventory of alarms, displays, and status indications.
130.	T2.2.4-4, removed	Deleted ITAAC #9. See Table 2.2.4-3.

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Item	Location	Description of Change
131.	T2.2.4-4, removed	Deleted ITAAC #10. See Table 2.2.4-1.
132.	T2.2.4-4, new	New ITAAC #6 to address IEEE 603.
133.	T2.2.4-4, new	New ITAAC #7 to address equipment qualification.
134.	S2.2.5	Complete rewrite.
135.	S2.2.5	Relocated existing design description information to new Tables 2.2.5-1, 2.2.5-2, and 2.2.5-3. Also clarified system purpose statement(s).
136.	T2.2.5-1	New table to describe basic configuration. Added information that supports safety-related and RTNSS functions. Deleted information that does not support same.
137.	T2.2.5-2	New tables to describe (1) system functions and initiating conditions and (2) Interlocks, Bypasses, and Controls. Added information that supports safety-related and RTNSS functions. Deleted information that does not support same.
138.	T2.2.5-3	New Design Description and ITAAC to address alarms, displays, and status indication in Main Control Room.
139.	T2.2.5-4	Re-named ITAAC table from 2.2.5-1 in Tier 1 Rev 3 to Table 2.2.5-4.
140.	T2.2.5-4	Revised ITAAC #1 for basic configuration consistent with general Tier 1 approach.
141.	T2.2.5-4	Presented new ITAAC #2 and #3 to address new Table 2.2.5-2 and 2.2.5-3
142.	T2.2.5-4	Presented new ITAAC #4 to address MCR alarms, displays, and status, as shown in Table 2.2.5-4.
143.	T2.2.5-4	Deleted ITAAC #4. See Table 2.2.5-1.
144.	T2.2.5-4	Deleted ITAAC #5. See Table 2.2.5-1.
145.	T2.2.5-4	Deleted ITAAC #6. See Table 2.2.5-3.
146.	T2.2.5-4	Deleted ITAAC #7. See Table 2.2.5-3.
147.	T2.2.5-4	Deleted ITAAC #8. See Table 2.2.5-1.
148.	T2.2.5-4	Deleted ITAAC #9. See Table 2.2.5-1.
149.	T2.2.5-4	Presented new ITAAC #5 to address IEEE 603 ITAAC in Subsection 2.2.15.

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Item	Location	Description of Change
150.	T2.2.5-4, new	New ITAAC #6 to address equipment qualification.
151.	F2.2.5-1	Figure 2.2.5-1 deleted based on capturing the pertinent design, function, and system interface features in the revised Design Description Tables. In part, MFN 07-160 committed changes to this figure, which are also adequately captured in changes to Subsection 2.2.5 without reliance on the figure.
152.	F2.2.5-2	Figure 2.2.5-2 deleted based on capturing the pertinent design, function, and system interface features in the revised Design Description Tables. In part, MFN 07-160 committed changes to this figure, which are also adequately captured in changes to Subsection 2.2.5 without reliance on the figure.
153.	S2.2.6	Complete rewrite.
154.	S2.2.6	Relocated existing design description information to new Tables 2.2.6-1 and 2.2.6-2. Also clarified system purpose statement(s).
155.	T2.2.6-1, new	New Table to describe functional arrangement. Added information that supports the safety-related and nonsafety-related RSS functions.
156.	T2.2.6-2, new	New Table to describe RSS controls.
157.	T2.2.6-3	Re-named ITAAC table from 2.2.6-1 in Tier 1 Rev. 3 to Table 2.2.6-3.
158.	T2.2.6-3	Revised ITAAC #1 for basic configuration for editorial consistency throughout Tier 1.
159.	T2.2.6-3	Revised ITAAC #2 for consistency with new Table 2.2.6-2.
160.	T2.2.6-3	Revised ITAAC #3 for consistency with new Table 2.2.6-3.
161.	T2.2.6-3, removed	Deleted ITAAC #4 as identified in MFN 07-402. This incorporates changes from responses to RAI 7.1-9 through 7.1-30 related to IEEE-603 compliance.
162.	T2.2.6-3, new	New ITAAC #4 added to address IEEE-603 criteria in new subsection 2.2.15.
163.	T2.2.6-3, new	New ITAAC #5 added to address equipment qualification in conjunction with changes to ITAAC #1.
164.	F2.2.6-1	Figure 2.2.6-1 deleted based on capturing the pertinent design, function, and system interface features in the revised Design Description Tables.
165.	S2.2.7	Complete rewrite.

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166.	S2.2.7	Relocated existing design description information to new Tables 2.2.7-1, 2.2.7-2, and 2.2.7-3. Also clarified system purpose statement(s).
167.	T2.2.7-1, new	New Table to describe functional arrangement. Added information that supports safety-related and RTNSS functions. Deleted information that does not support these functions.
168.	T2.2.7-2, new	New Table to describe system functions and initiating conditions. Added information that supports safety-related and RTNSS functions. Deleted information that does not support these functions.
169.	T2.2.7-3, new	New Table 2.2.7-3 to describe interlocks, bypasses, controls and system interfaces in Main Control Room.
170.	T2.2.7-4	Re-named ITAAC table from 2.2.7-1 in Tier 1 Rev. 3 to Table 2.2.7-4.
171.	T2.2.7-4	Revised ITAAC #1 for basic configuration and moved the functional requirements from ITAAC #1 to new ITAAC #2 for editorial consistency throughout Tier 1. ITAAC Rev. 3 item #1 became ITAAC Rev. 4 items #1 and 2.
172.	T2.2.7-4, removed	Deleted ITAAC #2. Adequately addressed by ITAAC #1 and ITAAC in Subsection 2.2.15.
173.	T2.2.7-4	ITAAC #3 rewritten consistent with changes to add new Table 2.2.7-1.
174.	T2.2.7-4, removed	Deleted ITAAC #4. Adequately addressed by ITAAC #1 and ITAAC in Subsection 2.2.15.
175.	T2.2.7-4, removed	Deleted ITAAC #s 5, 6, 7, 11,and 12 as identified in MFN 07-402. This incorporates changes from responses to RAI 7.1-9 through 7.1-30 related to IEEE-603 compliance.
176.	T2.2.7-4, removed	Deleted ITAAC #8. Solenoid power is addressed as part of the CRDS and not RPS.
177.	T2.2.7-4	Revised ITAAC #9 for editorial consistency.
178.	T2.2.7-4, removed	Deleted ITAAC #10. Adequately addressed by ITAAC #1 and ITAAC in Subsection 2.2.15.
179.	T2.2.7-4, new	New ITAAC added to address IEEE-603 criteria in new Subsection 2.2.15.
180.	T2.2.7-4	New ITAAC added to address equipment qualification in conjunction with changes to ITAAC #1.

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Item	Location	Description of Change
181.	F2.2.7-1	Figure 2.2.7-1 deleted based on capturing the pertinent design, function, and system interface features in the revised Design Description Tables. In part, MFN 07-160 committed changes to this figure, which are also adequately captured in changes to Subsection 2.2.7 without reliance on the figure.
182.	S2.2.8	Deleted extraneous information. No entry for this system.
183.	S2.2.9	Complete rewrite.
184.	S2.2.9	Relocated existing design description information to new Tables 2.2.9-1 and 2.2.9-2. ITAAC table is now Table 2.2.9-3. Also Clarified system purpose statement(s).
185.	T2.2.9-1	New Table to describe basic configuration. Added information that supports the SB&PC function. Deleted information that does not support the function.
186.	T2.2.9-2	New Table 2.2.9-2 to describe system functions and initiating conditions.
187.	T2.2.9-3	Re-named ITAAC table from 2.2.9-1 in Tier 1 Rev 3. to Table 2.2.9-3.
188.	T2.2.9-3, new	New ITAAC #1 added to address functional arrangement.
189.	T2.2.9-3	ITAAC #1 added to Table 2.2.9-1. Addressed by new ITAAC #1 for functional arrangement. Editorial.
190.	T2.2.9-3	ITAAC #2 added to Table 2.2.9-1. Addressed by new ITAAC #2 for functional arrangement. Editorial.
191.	T2.2.9-3	ITAAC #3 added to Table 2.2.9-1. Addressed by new ITAAC #3 for functional arrangement. Editorial.
192.	T2.2.9-3, new	New ITAAC #2 to address trip functions related to new Table 2.2.9-2.
193.	T2.2.9-3, new	New ITAAC #3 to address alarms, displays, and status indications.
194.	S2.2.10	Deleted extraneous detail not consistent with scope of Tier 1. Clarified relationship to various comprising systems by replacing discussion lists and pointing to Table 2.2.10-1.
195.	T2.2.10-1	Added clarifying footnote that only the safety-related potions of the listed systems comprise Q-DCIS. Also deleted partial listing of SSLC subsystems for clarity.
196.	S2.2.11	Deleted “Electrical power is from redundant nonsafety-related sources of the DC Power Supply and Uninterruptible AC Power Supply.” Changed sentence to refer to new Table 2.2.11-1 listing N-DCIS systems.

Tier 1 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
197.	T2.2.11-1	New Table listing N-DCIS systems.
198.	S2.2.12	Complete rewrite.
199.	S2.2.12	Relocated existing design description information to new Tables 2.2.12-1, 2.2.12-2, 2.2.12-3, and 2.2.12-4. Also clarified system purpose statement(s).
200.	T2.2.12-5	Re-named ITAAC table from Table 2.2.12-2 in Tier 1 Rev. 3 to Table 2.2.12-5.
201.	T2.2.12-5	Revised ITAAC #1 for functional arrangement for consistency with other Tier 1 subsections.
202.	T2.2.12-5	Revised ITAAC #2 to utilize new Table 2.2.12-2.
203.	T2.2.12-5	Revised ITAAC #3 to utilize new Table 2.2.12-3.
204.	T2.2.12-5, removed	Deleted ITAAC #4. Testing provisions are demonstrated by Subsection 2.2.15 ITAAC for IEEE Std. 603.
205.	T2.2.12-5, removed	Deleted ITAAC #5. Test was not credited for any safety-related actuation and was not appropriate for Tier 1.
206.	T2.2.12-5, removed	Deleted ITAAC #6 through 10. See revised ITAAC using Table 2.2.12-4 ITAAC #4.
207.	T2.2.12-5, removed	Deleted ITAAC #11. Independence demonstrated by Subsection 2.2.15 ITAAC for IEEE Std. 603.
208.	T2.2.12-5, removed	Deleted ITAAC 12. Determination of setpoints is demonstrated by Subsection 2.2.15 ITAAC for IEEE Std. 603.
209.	T2.2.12-5, new	Added new ITAAC to utilize Table 2.2.12-4, to address IEEE Std. 603, to address equipment qualification, and to address containment isolation components
210.	F2.2.12-1	Figure 2.2.12-1 deleted based on capturing the pertinent design, function, and system interface features in the revised Design Description Tables.
211.	S2.2.13	Complete rewrite.
212.	S2.2.13	
213.	S2.2.13	Relocated existing design description information to new Tables 2.2.13-1, 2.2.13-2, and 2.2.13-3. Also clarified system purpose statement(s).

Tier 1 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
214.	T2.2.13-1	New Table 2.2.13-1 to describe functional arrangement. Added information that supports safety-related and RTNSS functions. Deleted information that does not support same.
215.	T2.2.13-2	New Table 2.2.13-2 to describe system functions and initiating conditions. Added information that supports safety-related and RTNSS functions. Deleted information that does not support same.
216.	T2.2.13-3, new	New Table 2.2.13-3 to describe interlocks, bypasses, and controls.
217.	T2.2.13-4	Re-named ITAAC table from 2.2.13-1 in Tier 1 Rev. 3 to Table 2.2.13-4.
218.	T2.2.13-4	Revised ITAAC #1 for basic configuration. Editorial.
219.	T2.2.13-4, removed	Deleted ITAAC #2. See New ITAAC #1.
220.	T2.2.13-4, removed	Deleted ITAAC #3. See New ITAAC #1 and #2.
221.	T2.2.13-4, removed	Deleted ITAAC #4 and #7. See New ITAAC #3.
222.	T2.2.13-4, removed	Deleted ITAAC #5 and #9. See New ITAAC #4.
223.	T2.2.13-4, removed	Deleted ITAAC #6. See New ITAAC #1, and #4.
224.	T2.2.13-4	Revised ITAAC #8. See New ITAAC #5.
225.	T2.2.13-4, new	New ITAAC #6 to address equipment qualification.
226.	F2.2.13-1	Figure 2.2.13-1 deleted based on capturing the pertinent design, function, and system interface features in the revised Design Description Tables. Excessive level of detail removed.
227.	F2.2.13-2	Figure 2.2.13-2 deleted based on capturing the pertinent design, function, and system interface features in the revised Design Description Tables. Excessive level of detail removed.
228.	S2.2.14	Complete rewrite.
229.	S2.2.14	Relocated existing design description information to new Tables 2.2.14-1, 2.2.14-2, 2.2.14-3. Also clarified system purpose statement(s).

Tier 1 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
230.	T2.2.14-1	New table to describe functional arrangement. Added information that supports safety-related and RTNSS functions. Deleted information that does not support same.
231.	T2.2.14-2	New table to describe system functions, initiators, and interfacing systems. Added information that supports safety-related and RTNSS functions. Deleted information that does not support same.
232.	T2.2.14-3, new	New table to describe system controls, interlocks, and bypasses.
233.	T2.2.14-4	Re-named ITAAC table from Table 2.2.14-1 in Tier 1 Rev. 3 to Table 2.2.14-4.
234.	T2.2.14-4	Revised ITAAC #1 for functional arrangement for editorial consistency throughout Tier 1.
235.	T2.2.14-4	New ITAAC #2 to utilize new Table 2.2.14-2. Deleted ITAAC #2. See new Tables 2.2.14-1, 2.2.14-2, and 2.2.14-3.
236.	T2.2.14-4	New ITAAC #3 to utilize new Table 2.2.14-3. Deleted ITAAC #3. See Table 2.2.14-3.
237.	T2.2.14-4, new	New ITAAC #4 to utilize Section 3.3.
238.	T2.2.14-4, new	New ITAAC #5 to utilize revised Section 3.8.
239.	T2.2.14-4, new	New ITAAC #6 to utilize containment isolation functions in Subsection 2.15.1.
240.	T2.2.14-4, new	New ITAAC #7 to utilize new Subsection 2.2.15 for IEEE 603 compliance.
241.	F2.2.14-1	Figure 2.2.14-1 deleted based on capturing the pertinent design, function, and system interface features in the revised Design Description Tables.
242.	S2.2.15	Complete new subsection as provided in MFN 07-402. This incorporates changes from responses to RAI 7.1-9 through 7.1-30 related to IEEE-603 compliance.
243		
244.	S2.3.1	Reformatted section to focus largely on ITAAC content for Design Description.

Tier 1 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
245.	T2.3.1-1	Previously, this table provided only a key to radiation monitors identified on Figure 2.3.1-1. The table continues to identify the key to the figure showing the approximate location of the various monitors. It has been revised to include whether or not the monitors are safety-related and to include a detailed description of the safety function of those monitors that are safety-related.
246.	T2.3.1-2	ITAAC #1 was previously a verification of the as-built configuration. It continues to verify the functional arrangement in a more consistent manner to directly refer to the figure and the table as the basis for the verification of installed monitors.
247.	T2.3.1-2	ITAAC #2 has been revised to refer to Table 2.3.1-1 for the design description information regarding verification of the power supply for safety-related PRMS subsystems.
248.	T2.3.1-2	Previous ITAAC #3 has been deleted because it established a verification of uninterruptible power supply for the nonsafety-related PRMS subsystems.
249.	T2.3.1-2	Previous ITAAC #4 has been reformatted, but is essentially the same except it now relates only to the safety-related PRMS subsystems. A reference to using a portable gamma source has been included for performing the testing of the indication and alarm features for the monitors to be consistent with options for testing described in Tier 2. Item “e” is added for verifying alarms in the MRC on upscale/downscale or inoperative conditions.
250.	T2.3.1-2	ITAAC #5 is added to verify that the nonsafety-related process monitors are provided and that they exist in the as-built plant.
251.	F2.3.1-1	The figure has been revised to include a note to indicate that Table 2.3.1-2 provides a description of the specific monitors numbered on the drawing. While the figure remains essentially unchanged, it has been replaced with the source figure, which is revised in Rev. 4 of Tier 2.
252.	S2.3.2	Reformatted section to focus largely on ITAAC content for Design Description.
253.	T2.3.2-1	This table previously included an elevation for the location of the ARMS. Based on discussion with the NRC Staff, and because these ARMS monitors may be relocated frequently to monitor hot spots in specific areas, specific elevations have been removed and only rooms and areas are listed. The location by rooms and areas indicate that these rooms and areas will be adequately monitored, but future licensees will have the flexibility to move the ARMS monitors to a different location within the same room or area.

Tier 1 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
254.	T2.3.2-1	ITAAC #1 has been revised to reflect the standard wording for the functional arrangement ITAAC for the ARMS equipment.
255.	T2.3.2-1	ITAAC #2 is essentially the same as the previous version, with some minor formatting changes.
256.	T2.3.2-1	ITAAC #3 is essentially the same as the previous version, with some minor formatting changes.
257		
258.	S2.4.1, Design Description 1st para	Revised paragraph as follows: "Figure 2.4.1-1 shows the Isolation Condenser System (ICS) that removes decay heat from the RPV when the reactor is isolated. Decay heat removal keeps the RPV pressure below the SRV pressure setpoint. ICS consists of 4 independent trains, each containing a heat exchanger that condenses steam on the tube side and transfers heat by heating/ and boiling water in the IC/PCC pool, which is then vented to the atmosphere."
259.	S2.4.1, Design Description 2nd para	Moved second paragraph behind old 3rd para, making the new 3rd para.
260.	S2.4.1, Design Description 3rd para	Revised old 3rd para (new 2nd para) as follows: "To commence operation of an ICS train, a condensate return valve and condensate return bypass valve are opened, whereupon the standing condensate drains into the reactor and the steam-water interface in the IC tube bundle moves downward exposing cooler tube surfaces to the hot steam."
261.	S2.4.1, Design Description 4th para	Revised paragraph as follows: "The operator from the MCR can also initiate the ICS manually. A fail-open pneumatically operated condensate return bypass valve in each train opens if the control power is lost."
262.	S2.4.1, Design Description 5th para	Revised paragraph as follows: "An in-line vessel is located on the condensate return line. The in-line vessel is located on each ICS train to provide additional condensate volume to the RPV. The amount of water volume contained in each train of ICS is at least [13.88 m3 (490 ft3)]. The volume of water from the ICS assures that adequate water level is maintained in the RPV."

Tier 1 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
263.	S2.4.1, Design Description 6th para	Revised paragraph as follows: "An ICS train is isolated automatically when either a high radiation level in the IC compartment is detected or excess flow is detected in the steam supply line or condensate return line."
264.	S2.4.1, Design Description 7th para, removed	Deleted paragraph.
265.	S2.4.1, Design Description 8th para	Deleted every thing in paragraph, but the first sentence.
266.	S2.4.1, Design Description 9th para	Incorporated RAI 14.3-77 into revised paragraph as follows: "The IC/PCC pools in combination with the Dryer/Separator pool and Reactor Well have an installed capacity that provides at least 72 hours of reactor decay heat removal capability without makeup. The heat rejection process can be continued indefinitely by replenishing the IC/PCC pool inventory. An independent FAPCS makeup line is provided to convey emergency makeup water into the IC/PCC pool, from either the site Fire Protection System or from piping connections located at grade level in the reactor yard external to the Reactor Building. This makeup can be accomplished without any valving changes in the Reactor Building no matter what the prior operating mode of the FAPCS might have been."
267.	S2.4.1, Design Description 10th para, 4th bullet	Deleted the fourth bulleted item.
268.	S2.4.1, Design Description 11th para	Revised paragraph as follows: "The ICs are sized to remove post shutdown reactor decay heat with 3 of 4 ICs operating and to reduce reactor pressure and temperature to safe shutdown conditions, with occasional venting of noncondensable gases to the suppression pool. Because the heat exchangers (ICs) are independent of plant AC power, they function whenever normal heat removal systems are unavailable, to maintain reactor pressure and temperature below the SRV setpoints."
269.	S2.4.1, Design Description 12th para, removed	Deleted paragraph.

Tier 1 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
270.	S2.4.1, Design Description 13th para	Revised paragraph as follows: "The portions of the ICS steam supply (P-1), condensate return (P-2) and purge lines (including isolation valves), which are located inside the containment and out to and including the IC flow restrictors, are designed to ASME Code Section III, Class 1, Quality Class A. Other portions of the ICS including the vent lines are ASME Code Section III, Class 2, Quality Class B. The IC/PCC pools are safety-related and Seismic Category I."
271.	S2.4.1, Design Description 14th para	Revised the first 4 bulleted items as follows: • "Automatically limit pressure within the reactor coolant pressure boundary below the SRV septoints following any abnormal event that results in containment isolation. • In event of a LOCA, ICS provides additional liquid inventory upon opening of the condensate return valves.. The ICS also provides an initial depressurization of the reactor on loss of feedwater flow, such that the setpoint for ADS initiation can take place from a lower reactor water level set point. • With an intact RCPB, the ICS in conjunction with the water in the RPV, conserve sufficient reactor coolant volume to avoid automatic depressurization caused by low reactor water level. • Remove reactor decay heat produced during and following an abnormal event, which involve reactor scram and containment isolation. The abnormal events include Station Blackout and Anticipated Transient Without Scram (ATWS)."
272.	S2.4.1, Design Description 15th para	Changed Table number for the ITAAC to Table 2.4.1-3.
273.	T2.4.1-1, new	New Table added for ICS Mechanical Equipment.
274.	T2.4.1-2, new	New Table added for ICS Electrical Equipment.
275.	T2.4.1-3	ITAAC Table re-numbered to 2.4.1-3 from 2.4.1-1.
276.	T2.4.1-3, Item 1a, removed	Deleted Item 1a Basic Configuration.
277.	T2.4.1-3	Moved Item 1b to new item 25.

Tier 1 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
278.	T2.4.1-3, New Items 1-12	Inserted 12 new basic configuration ITAAC (new items 1 – 12).
279.	T2.4.1-3, Old Item 2, removed	Deleted old item.
280.	T2.4.1-3, Old Item 3, removed	Deleted old item.
281.	T2.4.1-3, Old Item 4, removed	Deleted old item.
282.	T2.4.1-3, Old Item 5 New Item 13	Added valve designators in DC (V-5 and V-6).
283.	T2.4.1-3, Old Item 6 New Item 14	Added valve designators in DC (V-1, V-2, V-3 and V-4).
284.	T2.4.1-3, Old Item 7 New Item 15	Added valve designators in DC (V-1, V-2, V-3 and V-4).
285.	T2.4.1-3, Old Item 8 New Item 16	Added valve designators in DC (V-5). "Revised 5th bullet of DC as follows: 2 of 4 MSIVs less than fully open (≤92%) with the reactor mode switch in RUN." Changed "initiation" to "actuation", in the ITA. Changed "initiation" to "actuation", in the AC.
286.	T2.4.1-3, Old Item 9 New Item 17	Added valve designators in DC (V-6). Revised 5th bullet of DC as follows: "2 of 4 MSIVs less than fully open (≤92%) with the reactor mode switch in RUN." Changed "initiation" to "actuation", in the ITA. Changed "initiation" to "actuation", in the AC.

Tier 1 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
287.	T2.4.1-3, Old Item 10 New Item 18	Added valve designators in DC (V-9 and V-10).
288.	T2.4.1-3, Old Item 11 New Item 19	Added valve designators in DC (V-7, v-8, V-9, V-10, V-11, and V-12).
289.	T2.4.1-3, Old Item 12 New Item 20	Added valve designators in DC (V-1, V-2, V-3 and V-4). Deleted "pneumatic motor (PM)" in DC. Deleted "PM" in ITA. Deleted "PM" in AC. Deleted item b. in the AC and revised wording of a. to reflect a single AC.
290.	T2.4.1-3, Old Item 13 New Item 21	Added valve designators in DC (V-6).
291.	T2.4.1-3, Old Item 14, removed	Deleted old item.
292.	T2.4.1-3, Old Item 15, removed	Deleted old item.
293.	T2.4.1-3, Old Item 16 New Item 22	Inserted the words "at or" in the DC. Revised the AC as follows: "Test-analysis report(s) document that the ICS train unit heat removal capacity is greater than or equal to the committed value for a reactor at or above normal operating pressure."
294.	T2.4.1-3, Old Item 17 New Item 23	Revised the DC as follows: "Each ICS train provides at least [13.88 m3 (490 ft3)} drainable liquid volume available for return to the RPV." Revised the AC as follows: "An analysis exists and demonstrates that the as-built ICS trains provides the required volume of liquid available for return to the RPV."

Tier 1 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
295.	T2.4.1-3, Old Item 18, removed	Deleted old item.
296.	T2.4.1-3, Old Item 19, removed	Deleted old item.
297.	T2.4.1-3, Old Item 20 New Item 24	Added "and Reactor Well" in the DC, ITA and AC Deleted "will in the DC and ITA.b Revised AC.b as follows: "An analysis exists and demonstrates that the as-built Dryer/Separator Pool and Reactor Well provide sufficient makeup water volume to the IC/PCC expansion pool on a low water signal in the initial 72 hours of a LOCA."
298.	S2.4.2	Added design statement for each ITAAC in Table 2.4.2-3. Added new entries from the standard ITACC and included current entries from Revision 3. Included new criteria as follows: • "Functional arrangement of system • ASME Code Section III requirements • Seismic requirements • Safety-related and non safety related identification • System displays, alarms and controls • Included previous revision ITAAC entries • Added GDCS Deluge valves"
299.	S2.4.2	Deleted the rest of the Section description for the GDCS. This was duplication from the Tier 2 Subsection 1.2.2.4.2 description, for consistency with the standard Tier 1 sections. Also added reference statement.
300.	T2.4.2-1, new	New Table 2.4.2-1, GDCS Mechanical Equipment. (Tier 1 standardization.)
301.	T2.4.2-2	Old Table 2.4.2-1, GDCS Electrical Equipment. (Tier 1 standardization.)
302.	T2.4.2-3	Old Table 2.4.2-2, ITAAC For The Gravity-Driven Cooling System. (Tier 1 standardization.)
303.	T2.4.2-3	Revised ITAAC #1 wording for verification of functional arrangement.

Tier 1 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
304.	T2.4.2-3	Added Standard ITAAC #2.a, 2.b. Tier 1 rewrite, for ASME Code Section III.
305.	T2.4.2-3	Added Standard ITAAC #3.a, 3.b. Tier 1 rewrite, for ASME Code Section III.
306.	T2.4.2-3	Added Standard ITAAC #4.a, 4.b. Tier 1 rewrite, for ASME Code Section III.
307.	T2.4.2-3	Added Standard ITAAC #5.a, 5.b. Tier 1 rewrite, for seismic qualifications.
308.	T2.4.2-3	ITAAC #6 addresses main control room interface with GDCS.
309.	T2.4.2-3	ITAAC addresses environmental qualification of equipment and refers to Tier 1, Section 3.8.
310.	T2.4.2-3	Moved ITAAC #8 into separate table items, format consistency.
311.	T2.4.2-3	Changed Acceptance Criteria statements to reflect present tense instead of future. (format for consistency) for ITAAC remaining from Revision 3.
312.	T2.4.2-3	Added Standard ITAAC #22 to include GDCS deluge squib valves to include all system interconnections.
313.	F2.4.2-1	Deleted "TEMP STRAINER" from drawing, will not be part of the normal system functional configuration.
314.	F2.4.2-1	Applied numbered labels to piping and valves for GDCS, for reference used in Table 2.4.2-1 and 2.4.2-2.
315		
316.	S2.5.1 through S2.5.4	For consistency with NRC guidance, the Design Description has been removed from this section because the system has no entry for ITAAC.
317.	S2.5.5	The Design Description has been modified (1) to include a description of the functional arrangement of the refueling machine and fuel handling machine; and (2) to focus on and ensure consistency with the ITAAC Design Commitment.
318.	T2.5.5-1, new	A new ITAAC #1 has been added for verification of the functional arrangement of the RB refueling machine as described in Subsection 2.5.5.
319.	T2.5.5-1, new	A new ITAAC #2 has been added to reflect the seismic requirements for the RB refueling machine.
320.	T2.5.5-1	ITAAC #3 is a modification of previous ITAAC #1 and now clarifies that the testing of the auxiliary hoists is to ensure sufficient load capability.

Tier 1 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
321.	T2.5.5-1	ITAAC #4 is a modification of previous ITAAC #2 and now is consistent with the control interlock functions as described in Tier 2, Subsection 9.1.4.5.
322.	T2.5.5-1, new	A new ITAAC #5 has been added for verification of the functional arrangement of the FB fuel handling machine as described in Subsection 2.5.5.
323.	T2.5.5-1, new	A new ITAAC #6 has been added to reflect the seismic requirements for the FB fuel handling machine.
324.	T2.5.5-1	ITAAC #7 is a modification of previous ITAAC #3 and now clarifies that the testing of the auxiliary hoists is to ensure sufficient load capability.
325.	T2.5.5-1	ITAAC #8 is a modification of previous ITAAC #4 and identifies control interlock functions.
326.	S2.5.6	The Design Description has been revised to focus on and be consistent with the ITAAC.
327.	T2.5.6-1, new	New ITAAC #1 has been added to verify the seismic capability of the new fuel storage racks.
328.	T2.5.6-1, new	New ITAAC #2 has been added to verify the seismic capability of the spent fuel storage racks.
329.	T2.5.6-1	ITAAC #3 is a modification of previous ITAAC #1 to address that a full new fuel rack will remain subcritical. "Calculations" has been changed to "analyses."
330.	T2.5.6-1	ITAAC #4 is a modification of previous ITAAC #1 to address that a full spent fuel rack will remain subcritical. "Calculations" has been changed to "analyses."
331.	T2.5.6-1	ITAAC #5 is a modification of previous ITAAC #2 to clarify that the ITAAC applies to the spent fuel rack.
332.	T2.5.6-1	ITAAC #6 is a modification of previous ITAAC #3 to clarify that the ITAAC applies to the spent fuel rack. "Calculations" has been changed to "analyses." A reference to ASME Code, Section III, has been added to the acceptance criteria as it relates to the design allowables.
333.	S2.5.7 through S2.5.9	For consistency with NRC guidance, the Design Description has been removed from this section because the system has no entry for ITAAC.

Tier 1 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
334.	S2.5.10	The Design Description has been modified (1) to include a description of the functional arrangement of the inclined fuel transfer system; and (2) to focus on and ensure consistency with the ITAAC Design Commitment.
335.	T2.5.10-1	A new ITAAC #1 has been added for verification of the functional arrangement of the inclined fuel transfer system as described in Subsection 2.5.10.
336.	T2.5.10-1	A new ITAAC #2 has been added to verify the seismic capability of the inclined fuel transfer system. The Design Commitment defines which portions of the IFTS are designed to be capable of withstanding a seismic event.
337.	T2.5.10-1	ITAAC #3 is a modification of previous ITAAC #1 for demonstrating the functional capability of the system to move fuel. The testing will be performed using as-built installed instrumentation and controls and with a dummy fuel bundle.
338.	T2.5.10-1	ITAAC #4 has been added to replace previous ITAAC #3 for demonstrating that the IFTS has sufficient redundancy and diversity to prevent an uncontrolled loss of load or draining of water. Provided in response to RAI 14.3-67.
339.	T2.5.10-1	ITAAC #5 has been added to replace previous ITAAC #4 for demonstrating that the IFTS can be maintained filled with water for cooling in the event the fuel transport cart with fuel loaded with the IFTS cannot be moved. Provided in response to RAI 14.3-67.
340.	T2.5.10-1	ITAAC #6 has been added to include personnel radiation access.
341.	S2.5.11	No changes. This section was previously deleted.
342.	S2.5.12	Deleted. This section on inservice inspection equipment previously had no entry.
343		
344.	S2.6.1	Complete re-write.
345.	S2.6.1	Clarified system purpose statement(s).
346.	S2.6.1	Added Design Descriptions that support safety-related and RTNSS functions.
347.	S2.6.1	Removed Design Descriptions that did not support a safety-related or RTNSS function.
348.	S2.6.1	Aligned Design Description functions with ITAAC Design Commitment.

Tier 1 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
349.	T2.6.1-1	New Table to describe RWCU/SDC equipment and piping, ASME Code, Seismic and Safety-Related status.
350.	T2.6.1-2	Complete re-write.
351.	T2.6.1-2	Aligned ITAAC Design Commitment with associated Design Description.
352.	T2.6.1-2	ITAAC #1 Editorial change.
353.	T2.6.1-2	ITAAC #2 revised to refer to Tier 1 Subsection 2.15.1 for containment isolation function.
354.	T2.6.1-2	ITAAC #3 changed to include Table 2.6.1-1 for ASME requirements.
355.	T2.6.1-2	ITAAC #4 no change.
356.	T2.6.1-2	ITAAC #5 no change.
357.	T2.6.1-2, new	New ITAAC #4 to address pressure boundary integrity.
358.	T2.6.1-2	Revised ITAAC #6 for independence.
359.	T2.6.1-2, new	New ITAAC #7 to address Seismic requirements. Standard ITAAC.
360.	T2.6.1-2, removed	Deleted ITAAC #6. Not a safety-related or RTNSS function.
361.	F2.6.1-1	Revised Figure to simplify information presented.
362.	S2.6.2	Complete re-write.
363.	S2.6.2	Clarified system purpose statement(s), added Design Descriptions that support safety-related and RTNSS functions, removed Design Descriptions that did not support a safety-related or RTNSS function, and aligned Design Description functions with ITAAC Design Commitment.
364.	T2.6.2-1, new	New Table to describe FAPCS equipment and piping, ASME Code, Seismic and Safety Related status.
365.	T2.6.2-2	Complete re-write. Will need to revise GEH response to RAI 14.3-67 for several ITAACs.
366.	T2.6.2-2	Aligned ITAAC Design Commitment with associated Design Description.
367.	T2.6.2-2	ITAAC #1 Editorial change to acceptance criteria.

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Item	Location	Description of Change
368.	T2.6.2-2	Revised ITAAC #2 to address ASME Code Section III requirements. Standard ITAAC.
369.	T2.6.2-2	ITAAC #3 re-numbered to New ITAAC #7.
370.	T2.6.2-2, new	New ITAAC #3 to address equipment and piping construction.
371.	T2.6.2-2, removed	Deleted ITAAC #4. Redundant to functional arrangement ITAAC #1.
372.	T2.6.2-2, new	New ITAAC #4 to address pressure boundary integrity.
373.	T2.6.2-2, removed	Deleted ITAAC #5. Redundant to functional arrangement.
374.	T2.6.2-2, new	New ITAAC #5 to address Seismic requirements. Standard ITAAC.
375.	T2.6.2-2	Deleted ITAAC #6. Not a safety-related or RTNSS function.
376.	T2.6.2-2	New ITAAC #6 to address Containment Isolation requirements. Replaces Tier 1 Rev 3 ITAAC #7 and 8.
377.	T2.6.2-2, new	New ITAAC #7 to address nonsafety-related RTNSS functions.
378.	T2.6.2-2, new	New ITAAC #8 addresses standard ITAAC for displays, alarms and control in the main control room.
379.	T2.6.2-2, removed	Deleted ITAAC #9. Not a safety-related or RTNSS function.
380.	T2.6.2-2	ITAAC #9 editorial change.
381.	T2.6.2-2, new	New ITAAC #10 to address equipment qualification.
382.	F2.6.2-1	Revised Figure to simplify information presented.
383		
384.	S2.7.1	Editorial changes to Design Description.
385.	T2.7.1-1	ITAAC #1 editorial change.
386.	T2.7.1-1, new	New ITAAC #2 for seismic qualification. Standard seismic ITAAC wording.
387.	T2.7.1-1, new	New ITAAC #3 that combines Tier 1 Rev 3 ITAAC #2 and #3 for independence and separation. Utilizes standard ITAAC wording.
388.	T2.7.1-1, new	New ITAAC #4 to address Human Factors. Refers to Tier 1 Section 3.3.

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Item	Location	Description of Change
389.	S2.7.2	No entry for this system, performs no safety-related function.
390.	S2.7.3	Reworded for Standardized ITAAC listing and incorporated RAI 14.3-104.
391.	T2.7.3-1	ITAAC #1 editorial change.
392.	T2.7.3-1, new	New ITAAC #2 for seismic qualification. Standard seismic ITAAC wording.
393.	T2.7.3-1, new	New ITAAC #3 that splits Tier 1 Rev 3 ITAAC #2 for independence and separation. Utilizes standard ITAAC wording.
394		
395.	S2.8	This section has been changed no entry for this system. It previously contained information describing nuclear fuel, fuel roads and bundles (Subsection 2.8.1), and fuel channels (Subsection 2.8.2). There were no entries for ITAAC. This change is for consistency with NRC guidance in SRP 14.3.
396.	S2.9	This section has been changed to no entry for this system. It previously contained information describing controls rods. There were no entries for ITAAC. This change is for consistency with NRC guidance in SRP 14.3.
397		
398.	S2.10.1	This section has been revised and reformatted. The Design Description no longer refers to Figure 2.10.1-1, which has been deleted, but now refers to a new table, which lists the major components in the LWMS. The functional arrangement of the system is, thus, explained in text and the new table. The ITAAC content are added directly to the Design Description in addition to the information that describes the functional arrangement.
399.	T2.10.1-1	This is a new table added to the section to list the major components in the LWMS. It is to be used for verification of the as-built functional arrangement of the system (in conjunction with the text in Subsection 2.10.1) in lieu of a figure that has been deleted. The mobile systems are contained in the equipment listing, as these will be a part of the as-built system (skid), even though the specific type of mobile systems used at a particular plant may change as technology evolves.
400.	T2.10.1-1	ITAAC #1 is changed. Previously, it referred to a basic functional description of the LWMS. Now it refers to the functional arrangement of the LWMS to be consistent with the reformatting of the ITAAC on basic configuration.

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Item	Location	Description of Change
401.	T2.10.1-1	ITAAC #2 is changed. Previously, it referred to the "ASME Code components" of the LWMS. The revised version addresses the piping systems of the LWMS, consistent with NRC guidance in RG 1.143, Section 4.4. The hydrostatic test verifies pressure boundary integrity at internal pressures that will be experienced during service. Certain exceptions are specified in accordance with RG 1.143, Section 4.4, to ensure that equipment is not damaged. Finally, the acceptance criteria are revised to be consistent with RG 1.143, Section 4.4, and Tier 2, to be in accordance with the appropriate code and standard for the piping system (in this case, ASM/ANSI B31.3).
402.	T2.10.1-1, removed	Previous ITAAC #3 is removed. It addressed inspection and testing of MCR alarms for key parameters. These continue to be described in the functional arrangement, for purposes of verifying that these are in the as-built system. Inspections and/or testing of the instrumentation and controls for the ESBWR are, however, included in a separate section of Tier 1, as appropriate.
403.	T2.10.1-1, new	New ITAAC #3 replaces previous ITAAC #4. This ITAAC addresses the isolation function associated with the discharge line radiation monitor. This is not a safety-related component, but it is a function that is associated with 10 CFR Part 20. It is included in the LWMS ITAAC as a test separate from and in addition to any testing of the instrumentation and tests the actual discharge valve closure and termination of flow.
404.	F2.10.1-1, removed	This figure is deleted. It is included in Tier 2, but it is a process map rather than a system configuration drawing. Therefore, it is deemed inappropriate and overly detailed for the functional arrangement verification of the LWMS.
405.	S2.10.2	This section has been revised to reflect that there are no ITAAC for the solid waste management system. The system does not perform a safety related function and is not needed to achieve safe shutdown. In addition, the SWMS is not a candidate for regulatory treatment of nonsafety-related systems and is not expected to result in gaseous or liquid radioactive effluents. The SWMS is included in Tier 1 as "no entry ITAAC" to reflect that is included in the standard plant design. Note that this changes the response to RAI 14.3-142 regarding revising information previously in this section describing the shipping and packaging regulations addressed in the PCP program (DCD Tier 2 Subsection 11.4.23).

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Item	Location	Description of Change
406.	S2.10.3	This section has been reformatted consistent with other revisions to Tier 1. The functional arrangement of the Offgas System, which is the principal GWMS subsystem, is described in the Design Description through descriptions of the major components, their location, and system functions in order that the as-built functional arrangement may be verified.
407.	T2.10.3-1	ITAAC #1 is changed from the basic configuration ITAAC to a functional arrangement ITAAC. Other than verification of the functional arrangement, the remaining ITAAC address the critical design functions of the nonsafety-related system.
408.	T2.10.3-1	ITAAC #2 addresses the capability of the system to withstand an internal hydrogen explosion. The testing and acceptance criteria are based on ANSI B 31.3, which specifies a pressure test at 150% of normal system operating pressure.
409.	T2.10.3-1	ITAAC #3 addresses the potential leakage through portions of the system that may leak externally through purge or tap lines. The means of testing is a "soap bubble" test. Acceptance criteria are results that demonstrate no detectable leakage.
410.	T2.10.3-1	New ITAAC#4 is reformatted only and has no technical change.
411		
412.	S2.11.1	This section has been revised to focus the Design Description on the ITAAC. This is intended to be a standardization of the various sections.
413.	T2.11.1-1	ITAAC #1 replaces the "basic configuration" ITAAC and now is directed toward verifying the functional arrangement of the system layout.
414.	T2.11.1-1	ITAACs #2 through 6 are essentially the same as previous ITAAC #2 through 6.
415.	T2.11.1-1	ITAAC #7 is a new ITAAC, which addresses the Abnormal Event analyses assumptions regarding turbine inlet (throttle) pressure.
416.	S2.11.2	This section has been revised to focus the Design Description on the ITAAC. This is intended to be a standardization of the various sections.
417.	T2.11.2-1	ITAAC #1 replaces the "basic configuration" ITAAC and now is directed toward verifying the functional arrangement of the system layout.
418.	T2.11.2-1	ITAAC #2 is essentially the same as previous ITAAC #3.
419.	T2.11.2-1	ITAAC #3 is essentially the same as previous ITAAC #2.

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Item	Location	Description of Change
420.	T2.11.2-1	ITAAC #4 through ITAAC #8 are added to address verification of as-built configurations associated with Abnormal Event analyses (assumptions and inputs) and mitigation.
421.	S2.11.3	This section has been modified to indicate no entry for the condensate purification because it does not perform, ensure, or support any safety-related function, is classified as nonsafety-related, and thus, has no safety design basis. No failure within the CPS could prevent safe shutdown. In addition, the previous ITAAC #2 on alarms and indication for effluent conductivity has no association with any safety-related or regulatory function.
422.	T2.11.3-1	Previous ITAAC #1 and 2 are eliminated for the same reason provided in Subsection 2.11.3 (above).
423.	S2.11.4	This section has been revised to focus the Design Description on the ITAAC. This is intended to be a standardization of the various sections.
424.	T2.11.4-1	ITAAC #1 is essentially the same as previous ITAAC #3 intended to assure that the physical layout of the main turbine system assures that high and moderate energy piping failures does not adversely impact essential equipment and structures.
425.	T2.11.4-1	Previous ITAAC #1, 4, and 5 are now addressed in the Turbine Missile Probability Analysis, DCD Tier 2 Subsection 10.2.3.8 and COL Information Item 10.2-1-H. The Turbine Missile Probability Analysis utilizes as-built configuration and material data for the rotors, overspeed protection system, and other related features. Therefore, substituting this COL Holder item (and related description in Tier 2 Subsection 10.2.3.8) for the ITAAC is considered acceptable. This change modifies the responses to RAIs 10.2-20, 10.2-21, 10.2-22, and 3.5-17 regarding Tier 1 and associated ITAAC.
426.	T2.11.4-1	ITAAC #2 is similar to previous ITAAC #2 as it regards orientation of the main turbine to minimize potential effects of turbine missiles. The ITAAC has been clarified with use of the phrase “favorable orientation” as defined in Regulatory Guide 1.115.
427.	T2.11.4-1	ITAAC #3, 4, and 5 have been added to address the Abnormal Event analyses assumptions regarding turbine valve characteristics.
428.	S2.11.5	This section is reformatted to focus on the ITAAC content. This results in a modification to the response to RAI 10.4-6 (MFN 06-154, Supplement 1) regarding the content of this subsection.

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Item	Location	Description of Change
429.	T2.11.5-1	ITAAC #1 is revised to provide functional arrangement verification, consistent with the standard ITAAC.
430.	T2.11.5-1	Previous ITAAC #2 is deleted, as new ITAAC #1 and the added Figure 2.11.5-1 are considered adequate to confirm that the TGSS is constructed as designed.
431.	S2.11.6	This section has been revised to focus the Design Description on the ITAAC. This is intended to be a standardization of the various sections.
432.	T2.11.6-1	ITAAC #1 is revised to provide functional arrangement verification, consistent with the standard ITAAC.
433.	T2.11.6-1	ITAAC #2 and 3 are essentially the same as the previous ITAAC #2 with minor wording changes.
434.	T2.11.6-1	ITAAC #5 is essentially the same as previous ITAAC #4 with revised wording to be consistent with Abnormal Event analyses assumptions and inputs.
435.	T2.11.6-1	ITAAC #4 is essentially the same as previous ITAAC #5 with revised wording to be consistent with Abnormal Event analyses assumptions and inputs.
436.	T2.11.6-1, new	ITAAC #6 and #7 were added to address the Abnormal Event analyses assumptions regarding turbine valve characteristics.
437.	S2.11.7	This section is reformatted to focus on the ITAAC content so that the Design Description is consistent with the ITAAC content.
438.	T2.11.7-1	ITAAC #1 is essentially the same as the previous ITAAC #1. The phrase “structural members” has been added to be consistent with RAI 15.4-21 response.
439.	T2.11.7-1	Previous ITAAC #2 is eliminated and, instead, a sentence has been added to the Design Description that the instrumentation for condenser pressure is addressed in Tier 1, Subsection 2.2.7.
440.	T2.11.7-1, new	ITAAC #2 has been added to address the Abnormal Event analyses assumptions regarding turbine valve characteristics and to be consistent with performance requirements of the TBS that are used to mitigate Abnormal Events.
441.	S2.11.8	This section on the circulating water system is reformatted to standard content for systems that have no safety-related function and are not subject to additional regulatory oversight, thus having no entry in Tier 1.

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Item	Location	Description of Change
442.	S2.11.9, new	This section has been added to address the remaining auxiliary and support systems in the Power Cycle. None of the listed systems has any safety function and none of the systems is subject to additional regulatory oversight. Thus, none of the systems listed in this Section have an entry in Tier 1.
443		
444.	S2.12.1	This section has been reformatted to focus on the ITAAC.
445.	T2.12.1-1	ITAAC #1 replaces previous ITAAC #1 and ITAAC #2 for the containment isolation function of the MWS. Now the ITAAC refers to Tier 1, Subsection 2.15.1.
446.	S2.12.2	This section has been reformatted to a standard format for systems that have no associated ITAAC.
447.	S2.12.3	This section is reformatted to focus on the ITAAC and the RTNSS function of the RCCWS. It previously indicated that no ITAAC were included in the system.
448.	T2.12.3-1	The ITAAC table is added to include the ITAAC determined to be appropriate for the RTNSS function.
449.	T2.12.3-1	ITAAC #1 is a functional arrangement of the RCCWS.
450.	T2.12.3-1	ITAAC #2 is a flow test to verify flow to the NI chillers, the DGs, and the FAPCS, which is the RTNSS function.
451.	T2.12.3-1	ITAAC #3 verifies that the flow test can be done using controls in the MCR.
452.	T2.12.3-1	ITAAC #4 verifies that the flow indication is retrievable in the MCR.
453.	S2.12.4	This section has been reformatted to a standard format for systems that have no associated ITAAC.
454.	S2.12.5	This section is reformatted to focus on the ITAAC and the RTNSS function of the CWS. It previously indicated that no ITAAC were included in the system other than ITAAC associated with the containment isolation function.
455.	T2.12.5-1	The ITAAC table is added to include the ITAAC determined to be appropriate for the RTNSS function.
456.	T2.12.5-1	ITAAC #1 is a functional arrangement of the NICSW.
457.	T2.12.5-1	ITAAC #2 is a flow test to verify flow to the HVAC, which is the RTNSS function.

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Item	Location	Description of Change
458.	T2.12.5-1	ITAAC #3 verifies that the flow test can be done using controls in the MCR.
459.	T2.12.5-1	ITAAC #4 verifies that the flow indication is retrievable in the MCR.
460.	T2.12.5-1	ITAAC #5 addresses the containment isolation function by referring to Subsection 2.15.1. The previous two ITAAC that were included for the containment isolation function are deleted.
461.	F2.12.5-1, new	Figure 2.12.5-1 is added to show a functional arrangement of the components needed for the RTNSS function.
462.	S2.12.6	This section has been reformatted to a standard format for systems that have no associated ITAAC.
463.	S2.12.7	This section is reformatted to focus on the ITAAC and the RTNSS function of the PSWS. It previously indicated that no ITAAC were included in the system.
464.	T2.12.7-1	The ITAAC table is added to include the ITAAC determined to be appropriate for the RTNSS function.
465.	T2.12.7-1	ITAAC #1 is a functional arrangement of the PWSW.
466.	T2.12.7-1	ITAAC #2 is a flow test to verify flow to the RCCWS, which is the RTNSS function.
467.	T2.12.7-1	ITAAC #3 verifies that the flow test can be done using controls in the MCR.
468.	T2.12.7-1	ITAAC #4 verifies that the flow indication is retrievable in the MCR.
469.	F2.12.7-1	Figure 2.12.7-1 is added to show a functional arrangement of the components needed for the RTNSS function.
470.	S2.12.8	This section has been reformatted to focus on the ITAAC.
471.	T2.12.8-1	ITAAC #1 replaces previous ITAAC #1 and ITAAC #2 for the containment isolation function of the SAS. Now the ITAAC refers to Tier 1, Subsection 2.15.1.
472.	S2.12.9	This section has been reformatted to a standard format for systems that have no associated ITAAC.
473.	S2.12.10	This section has been reformatted to focus on the ITAAC.

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Item	Location	Description of Change
474.	T2.12.10-1	ITAAC #1 replaces previous ITAAC #1 and ITAAC #2 for the containment isolation function of the HPNSS. Now the ITAAC refers to Tier 1, Subsection 2.15.1.
475.	S2.12.11 through S2.12.17	This section has been reformatted to a standard format for systems that have no associated ITAAC.
476		
477.	S2.13.1	Complete re-write.
478.	S2.13.1	Added Design Descriptions that support safety-related and RTNSS functions, clarified system purpose statement(s), removed Design Descriptions that did not support a safety-related or RTNSS function, replaced detailed system description with Figure 2.13.1-1, and aligned Design Description functions with ITAAC Design Commitment.
479.	T2.13.1-1, new	New Table defines Location, Seismic Category, and Safety-Related status.
480.	T2.13.1-2	Complete re-write. Aligned ITAAC Design Commitment with Subsection 2.13.1 Design Description.
481.	T2.13.1-2	ITAAC #1 is a modification of previous ITAAC 1 and now verifies functional arrangement of the Onsite AC Power System as described in Subsection 2.13.1 and new Figure 2.13.1-1.
482.	T2.13.1-2, removed	Deleted ITAAC #2 and 3. Provided in response to RAI 14.3-105, 14.3.106, that is no longer required.
483.	T2.13.1-2, new	New ITAAC #2 to verify Seismic criteria.
484.	T2.13.1-2, new	New ITAAC #3.a and 3.b to address independence and separation. Replaces ITAAC #4 in DCD Tier 1 Rev 3.
485.	T2.13.1-2, removed	Deleted ITAAC #4 and replaced with new ITAAC #3.a. and 3.b. and 4.
486.	T2.13.1-2	Replaced ITAAC #5 with new ITAAC #5 because there is no Isolation Phase Bus described in DCD Tier 2 Chapter 8. ITAAC for Isolation Power Centers are now addressed in new ITAAC #5.
487.	T2.13.1-2	Replaced ITAAC #6 with new ITAAC #7 for displays, alarms and controls in the main control room.

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Item	Location	Description of Change
488.	T2.13.1-2, new	New ITAAC #6 created to address RTNSS functions of the Onsite AC Power System.
489.	T2.13.1-2, new	New ITAAC #7 created to address displays, alarms and controls in the main control room. ITAAC points to requirements in the emergency procedure guidelines and important operation actions identified in the ESBWR PRA.
490.	T2.13.1-2, new	New ITAAC #8 created to point to Tier 1 Section 3.8 for EQ.
491.	S2.13.2	Relocated Design Description to DCD Tier 1 Subsection 2.15.1. Relocated Fire Barrier Penetrations to DCD Tier 1, Subsection 2.16.3.1, "Fire Barriers". Relocated Inspections, Tests, Analyses and Acceptance Criteria to DCD Tier 1, Subsection 2.15.1, "Containment".
492.	S2.13.3	Complete re-write.
493.	S2.13.3	Added Design Descriptions that support safety-related and RTNSS functions, clarified system purpose statement(s), removed Design Descriptions that did not support a safety-related or RTNSS function, replaced detailed system description with Figure 2.13.3-1 for 250 V Safety-Related DC systems and Figure 2.13.3-2 for 250 V and 125 V Nonsafety-related DC systems, and aligned Design Description functions with ITAAC Design Commitment.
494.	T2.13.3-1, new	New Table defines Locations, Seismic Category, and Safety-Related status.
495.	T2.13.3-2, new	New Table identifies equipment with displays and status indication.
496.	T2.13.3-3	Complete re-write.
497.	T2.13.3-3	Aligned ITAAC Design Commitment with S2.13.3 Design Description.
498.	T2.13.3-3	ITAAC #1 is a modification of previous ITAAC #1 and now verifies functional arrangement of the 250 V Safety-Related DC systems using new Figure 2.13.3-1.
499.	T2.13.3-3, removed	Deleted old ITAAC #2. Redundant to ITAAC #1.
500.	T2.13.3-3, new	New ITAAC #2 to verify the functional arrangement of the 250 V and 125 V Nonsafety-related DC systems using new Figure 2.13.3-2.
501.	T2.13.3-3, new	New ITAAC #3 to verify Seismic criteria.

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Item	Location	Description of Change
502.	T2.13.3-3, new	New ITAAC #4 address independence. Replaces ITAAC #10 in DCD Tier 1 Rev. 3.
503.	T2.13.3-3, new	New ITAAC #5 to address separation. Replaces ITAAC #10 in DCD Tier 1 Rev. 3.
504.	T2.13.3-3	Replaced ITAAC #3 in DCD Tier 1 Rev. 3 with new ITAAC #6. New ITAAC #6 addresses RAI 14.3-110 and 113.
505.	T2.13.3-3	Replaced ITAAC #4 in DCD Tier 1 Rev. 3 with new ITAAC #7. New ITAAC addresses RAI 14.3.111 and 114.
506.	T2.13.3-3	Replaced ITAAC #5 in DCD Tier 1 Rev. 3 with new ITAAC #8. New ITAAC addresses RAI 14.3.115.
507.	T2.13.3-3	Replaced ITAAC #6 in DCD Tier 1 Rev. 3 with new ITAAC #10 and new ITAAC #11. New ITAAC #10 and 11 address RAI 14.3-117.
508.	T2.13.3-3	Deleted ITAAC #7. Redundant to ITAAC #3. Response to RAI 14.3.118 and 119 to state: "Each Class 1E battery is located in a Seismic Category I structure and in its respective vented divisional battery room" was not implemented. DCD Tier 2 Chapter 8 Section 8.3.2.1.1 "Ventilation" states that a safety-related ventilation system is not required for the batteries to perform their safety-related functions."
509.	T2.13.3-3	Deleted ITAAC #8. Redundant to ITAAC #3.
510.	T2.13.3-3	Deleted ITAAC #9 in DCD Tier 1 Rev. 3. Replaced with new ITAAC #3 for Seismic category. Requirement to verify color-coding is beyond Tier 1 scope and is adequately addressed in Tier 2 documents.
511.	T2.13.3-3, new	New ITAAC #9 added as a protective feature.
512.	T2.13.3-3	Deleted ITAAC #10 in DCD Tier 1 Rev. 3. Replaced with new ITAAC #4 and 5.
513.	F2.13.3-1, Sheet 1, new	New Figure to support Design Description and ITAAC.
514.	F2.13.3-2, Sheet 1 and 2	New Figure to support Design Description and ITAAC.
515.	S2.13.4	Complete re-write.
516.	S2.13.4	Added Design Descriptions that support RTNSS functions. Also clarified system statement(s).

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Item	Location	Description of Change
517.	T2.13.4-1	New table identifies equipment location.
518.	T2.13.4-2	Complete re-write. Aligned ITAAC Design Commitment with Subsection 2.13.4 Design Description.
519.	T2.13.4-2, new	New ITAAC #1 verifies functional arrangement of the Standby Onsite Power Supply System as described in Subsection 2.13.4.
520.	T2.13.4-2, new	New ITAAC #2 (a-e) created to address RTNSS functions of the Standby Onsite Power Supply System.
521.	T2.13.4-2, new	New ITAAC #3 created to address the minimum set of displays, alarms and controls in the main control room. ITAAC points to requirements in the emergency procedure guidelines and important operation actions identified in the ESBWR PRA.
522.	S2.13.5	Complete re-write.
523.	S2.13.5	Clarified system statement(s), added Design Descriptions that support safety-related and RTNSS functions, removed Design Descriptions that did not support a safety-related or RTNSS function, replaced detailed system description with Figure 2.13.5-1 for safety-related UPS systems and Figure 2.13.5-2 for nonsafety-related UPS systems, and aligned Design Description functions with ITAAC Design Commitment.
524.	T2.13.5-1, new	New table defines Seismic Category, Safety-Related status of associated parameter for equipment listed.
525.	T2.13.5-2	Complete re-write. Aligned ITAAC Design Commitment with Subsection 2.13.5 Design Description.
526.	T2.13.5-2, new	New ITAAC #1 verifies functional arrangement of the safety-related UPS systems using new Figure 2.13.5-1.
527.	T2.13.5-2, new	New ITAAC #2 to verify the functional arrangement of the nonsafety-related UPS systems using new Figure 2.13.2-2.
528.	T2.13.5-2, new	New ITAAC #3 to verify Seismic criteria.
529.	T2.13.5-2, new	New ITAAC #4 address independence. Addresses RAI 14.3-122.
530.	T2.13.5-2, new	New ITAAC #5 to address separation.

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Item	Location	Description of Change
531.	T2.13.5-2, new	New ITAAC #6 to address safety-related system capability.
532.	T2.13.5-2, new	New ITAAC #7 to address nonsafety-related system RTNSS capability.
533.	T2.13.5-2, new	New ITAAC #8 created to address displays, alarms and controls in the main control room. ITAAC points to requirements in the emergency procedure guidelines and important operation actions identified in the ESBWR PRA.
534.	T2.13.5-2, new	New ITAAC #8 to point to DCD Tier 1 Section 3.8 for EQ.
535.	F2.13.5-1, new	New Figure to support Design Description and ITAAC.
536.	S2.13.6	This is a no entry system.
537.	S2.13.7	Removed “Interface Requirements” section. Also revised ITAAC section.
538.	T2.13.7-1	New ITAAC #1 to reflect response to RAI 14.3-124.
539.	S2.13.8	Complete re-write.
540.	S2.13.8	Clarified system statement(s), added Design Descriptions that support safety-related and RTNSS functions, removed Design Descriptions that did not support a safety-related or RTNSS function, and aligned Design Description functions with ITAAC Design Commitment.
541.	T2.13.8-1	Complete re-write.
542.	T2.13.8-1, new	New ITAAC #1 to verify functional arrangement of the safety-related Control Room Emergency Lighting System per Design Description Subsection 2.13.8
543.	T2.13.8-1, new	New ITAAC #2 to verify Seismic mounting of safety-related Control Room Emergency Lighting System. Replaces ITAAC #4 in DCD Tier 1 Rev 3.
544.	T2.13.8-1, new	New ITAAC #3 to address independence and separation. Replaces ITAAC #2 in DCD Tier 1 Rev 3.
545.	T2.13.8-1, new	New ITAAC #4 to address electrical independence of safety-related Control Room Emergency Lighting System. Addresses RAI 14.3-127
546.	T2.13.8-1, new	New ITAAC #5 to address capability of safety-related Control Room Emergency Lighting System. Addresses RAI 14.3-125, 126 and 128.
547		

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Item	Location	Description of Change
548.	S2.14	This is a no entry system.
549		
550.	S2.15.1	Complete re-write.
551.	S2.15.1	Clarified system statement(s), added Design Descriptions that support safety-related function, removed Design Descriptions that did not support a safety-related or RTNSS function, and aligned Design Description functions with ITAAC Design Commitment.
552.	T2.15.1-1, new	New Table.
553.	T2.15.1-2	Complete re-write.
554.	T2.15.1-2	New ITAAC #1 to verify functional arrangement. Also addresses ITAAC from Subsections 2.16.4 and 2.13.2.
555.	T2.15.1-2	Revised ITAAC #2 from "The primary containment pressure boundary defined in Subsection 2.15.1 is designed to meet ASME Code, Section III requirements" to "The components and piping identified in Table 2.15.1-1 as ASME Code Section III are designed and constructed in accordance with ASME Code Section III requirements." Addresses RAI 14.3.96 and 100 responses. MFN 06-520.
556.	T2.15.1-2	Relocated ITAAC #3 to Table 2.15.3-1.
557.	T2.15.1-2, new	New ITAAC #3 to verify pressure boundary welds are IAW ASME Code Section III.
558.	T2.15.1-2	ITAAC #4 renumbered to ITAAC #7. New ITAAC #4 to verify, "components and piping identified as ASME Code Section III retain their pressure boundary integrity at their design pressure."
559.	T2.15.1-2	New ITAAC #5 to verify seismic Category I.
560.	T2.15.1-2	Relocated ITAAC #6 to Table 2.15.3-1.
561.	T2.15.1-2, new	New ITAAC #6a to verify harsh environment capability.
562.	T2.15.1-2, new	New ITAAC #6b to verify electrical independence.

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Item	Location	Description of Change
563.	T2.15.1-2, new	New ITAAC #6c to verify electrical separation. Also addresses ITAAC #3 from Subsection 2.13.2 Electrical Penetrations.
564.	T2.15.1-2	Relocated ITAAC #7 to Table 2.15.3-1. New ITAAC #7 is revised to cover Types A, B, and C leak rate. Addresses RAI 14.3.97 response. (MFN 07-239.)
565.	T2.15.1-2	Relocated ITAAC #8 to Table 2.15.3-1.
566.	T2.15.1-2, new	New ITAAC #8 to verify Structural Integrity Test. Addresses RAI 14.3.101 response. (MFN 06-520.)
567.	T2.15.1-2	Relocated ITAAC #9 to Table 2.15.3-1.
568.	T2.15.1-2, new	New ITAAC #9 to verify containment isolation valve functions.
569.	T2.15.1-2	Relocated ITAAC #10 to Table 2.15.3-1.
570.	T2.15.1-2	New ITAC #10 to verify overcurrent protection of electrical penetrations. Addresses ITAAC relocated from Subsection 2.13.2.
571.	T2.15.1-2	Revised ITAAC #11 to verify alarms, displays and controls.
572.	F2.15.1, new	New Figure added.
573.	S2.15.2	No changes made.
574.	S2.15.3	Complete re-write.
575.	S2.15.3	Clarified system statement(s), added Design Descriptions that support safety-related function, removed Design Descriptions that did not support a safety-related or RTNSS function, and aligned Design Description functions with ITAAC Design Commitment.
576.	T2.15.3-1	New Location table.
577.	T2.15.3-2	New ITAAC table.
578.	T2.15.3-2	New ITAAC #1 for functional arrangement.
579.	T2.15.3-2	New ITAAC #2 to verify ANSI/AISC N690 design report.
580.	T2.15.3-2	New ITAAC #3 to verify seismic Category I.
581.	T2.15.3-2	Relocated Table 2.15.1-1 ITAAC #3 to Table 2.15.3-2 ITAAC #4.
582.	T2.15.3-2	Relocated Table 2.15.1-1 ITAAC #6 to Table 2.15.3-2 ITAAC #5.

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Item	Location	Description of Change
583.	T2.15.3-2	Relocated Table 2.15.1-1 ITAAC #7 to Table 2.15.3-2 ITAAC #6.
584.	T2.15.3-2	Relocated Table 2.15.1-1 ITAAC #8 to combine with new Table 2.15.3-2 ITAAC #6.
585.	T2.15.3-2	Relocated Table 2.15.1-1 ITAAC #9 to Table 2.15.3-2 ITAAC #8.
586.	T2.15.3-2	Relocated Table 2.15.1-1 ITAAC #10 to Table 2.15.3-2 ITAAC #7.
587.	T2.15.3-2	Included applicable portion of Table 2.15.1-1 ITAAC #11 to combine with Table 2.15.3-2 ITAAC #8.
588.	S2.15.4, Design Description	Adjusted wording of general design description to match that in the response to RAI 6.2-102 S01.
589.	S.2.15.4, Design Description 1	Standardized statement of functional arrangement; matches ITAAC #1 in Table 2.15.4-2.
590.	S.2.15.4, Design Description 2	Standardized format for listing Design Description; matches ITAAC #2 in Table 2.15.4-2.
591.	S.2.15.4, Design Description 3	Standardized Design Description listing to match ITAAC #3 in Table 2.15.4-2.
592.	S.2.15.4, Design Description, removed	Deleted statements on IC/PCC pool capacity; no associated ITAAC in Table 2.15.4-2.
593.	S.2.15.4, Design Description 4	Standardized Design Description listing to match ITAAC #4 in Table 2.15.4-2.
594.	S.2.15.4, Design Description 5	Standardized Design Description listing to match ITAAC #5 in Table 2.15.4-2.
595.	S.2.15.4, Design Description 6	Standardized Design Description listing to match ITAAC #6 in Table 2.15.4-2.
596.	S.2.15.4, Design Description 7	Standardized Design Description listing to match ITAAC #7 in Table 2.15.4-2.

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Item	Location	Description of Change
597.	S.2.15.4, Design Description 8	Standardized Design Description listing to match ITAAC #8 in Table 2.15.4-2.
598.	S.2.15.4, Design Description	Deleted statements on PCCS periodic testing and inspection; no associated ITAAC in Table 2.15.4-2.
599.	T2.15.4-1, new	Added standardized table listing characteristics of mechanical equipment.
600.	T2.15.4-2, Design Description	Renumbered ITAAC Table 2.15.4-1 to 2.15.4-2.
601.	T2.15.4-2, Design Description 1	Standardized statement of functional arrangement.
602.	T2.15.4-2, Design Description 2 a&b	Replaced with standard ITAAC for replacing “Basic Configuration” for ASME components & piping.
603.	T2.15.4-2, Design Description 3 a&b	Replaced with standard ITAAC for replacing “Basic Configuration” for ASME boundary welds.
604.	T2.15.4-2, Design Description 4	Replaced ITAAC in DCD Tier 1 Rev. 3 A with ITAAC per RAI 6.2-102 S01.
605.	T2.15.4-2, Design Description 5 a&b	Replaced with standard ITAAC for replacing “Basic Configuration” for seismic.
606.	T2.15.4-2, Design Description 6	Replaced with standard ITAAC for replacing “Basic Configuration” for mechanical separation.
607.	T2.15.4-2, Design Description 7	Retained ITAAC describing PCCS performance characteristic.
608.	T2.15.4-2, Design Description 8	Added Standard ITAAC for Equipment Qualification.

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Item	Location	Description of Change
609.	T2.15.4-2	Deleted original ITAAC #3 in DCD Tier 1 Rev. 3 A per RAI 6.2-102 S01; renumbered ITAAC #4 as #7.
610.	F2.15.4-1	Replaced figure per RAI 6.2-102 S01. Added equipment IDs for reference in Table 2.15.4-1; deleted sparger & pipe sizing per customer comment.
611.	S2.15.5, Design Description	Reworded first paragraph per customer comment ("The objective of the system is to reduce oxygen concentration to levels that do not support post-accident hydrogen combustion.") Deleted last two sentences of 2nd paragraph; added comment that containment isolation valves and penetrations are covered in Tier 1 Subsection 2.15.1.
612.	S2.15.5, Design Description 1	Standardized Design Description listing to match ITAAC #1 in Table 2.15.5-3.
613.	S2.15.5, Design Description 2	Standardized Design Description listing to match ITAAC #2 in Table 2.15.5-3.
614.	T2.15.5-1	Added Standard ITAAC referring to Tier 1 Subsection 2.15.1 for containment isolation valves.
615.	S 2.15.6, Design Description	Reference to new Table 2.15.6-1 (see below) added to the Design Description: "The DCS provides a drywell temperature measurement, described in Table 2.15.6-1, associated with the ITAAC below."
616.	S 2.15.6, Design Description 1	Standardized Design Description listing to match ITAAC #1 in Table 2.15.6-2; deleted previous Design Description discussion to the same.
617.	T2.15.6-1	Added standardized table listing characteristics of electrical equipment.
618.	T2.15.6-2	Renumbered previous version ITAAC Table 2.15.6-1 to 2.15.6-2.
619.	S2.15.7, Design Description	Edited list of variables to conform to Tier 2 and ITAAC Table 2.15.7-2.
620.	S2.15.7, Design Description 1	Standardized Design Description listing to match ITAAC #1 in Table 2.15.7-2.
621.	S2.15.7, Design Description 2	Standardized Design Description listing to match ITAAC #2 in Table 2.15.7-2.

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Item	Location	Description of Change
622.	S2.15.7, Design Description 3	Standardized Design Description listing to match ITAAC #3 in Table 2.15.7-2.
623.	S2.15.7, Design Description 4	Standardized Design Description listing to match ITAAC #4 in Table 2.15.7-2.
624.	S2.15.7, Design Description 5	Standardized Design Description listing to match ITAAC #5 in Table 2.15.7-2.
625.	S2.15.7, Design Description 6	Standardized Design Description listing to match ITAAC #6 in Table 2.15.7-2.
626.	S2.15.7, Design Description 7	Standardized Design Description listing to match ITAAC #7 in Table 2.15.7-2.
627.	S2.15.7, Design Description	Added reference to Subsection 2.2.15 for "Instrumentation & Controls Compliance With IEEE Std. 603."
628.	S2.15.7, Design Description	Delete unnecessary text that is not part of ITAAC Design Commitment.
629.	T2.15.7-1	Added standardized table listing characteristics of electrical equipment.
630.	T2.15.7-2	Renumbered ITAAC Table 2.15.7-1 to 2.15.7-2.
631.	T2.15.7-2, ITAAC 1	Standardized statement of functional arrangement.
632.	T2.15.7-2, ITAAC 2	Provided ITAAC to confirm sensors/transmitters in Table 2.15.7-1 are powered by their respective divisional power; Deleted ITAAC on independence per Tier 1 markups to conform with Tier 1 resolution of IEEE 603 requirements (see MFN 07-402 Chapter 7 RAI responses).
633.	T2.15.7-2, ITAAC 3	Combine previous ITAAC #4 & 5 and renumbered as ITAAC #3.
634.	T2.15.7-2, ITAAC 4	Moved previous ITAAC #3 to #4; modified Design Commitment to conform with the description in Tier 2, Subsection 7.5.2.1.
635.	T2.15.7-2, ITAAC 5	Added ITAAC #2 from (previous) Table 2.15.7-2 on SPTM ITAACs; this permits deletion of (previous) Table 2.15.7-2 on SPTM.

Tier 1 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
636.	T2.15.7-2, ITAAC 6	Standard ITAAC for Seismic Category I equipment.
637.	T2.15.7-2, ITAAC 7	Added Standard ITAAC on EQ.
638.	T2.15.7-2, ITAAC 8	Deleted previous ITAAC #8 (Covered by ITAAC for IEEE 603 Compliance Confirmation, Table 2.2.15-2, ITAAC #3); replaced with Standard ITAAC on CIV.
639.	T2.15.7-2, ITAAC 9	Deleted previous ITAAC #9 (Covered by ITAAC for IEEE 603 Compliance Confirmation, Table 2.2.15-2, ITAAC #10).
640.	T2.15.7-2 (Previous table before renumbering T2.15.7-1)	Deleted (previous) Table 2.15.7-2 on SPTM. Delete ITAAC #1 – covered by ITAAC #1 of (renumbered) Table 2.15.7-2; Moved & modified ITAAC #2 – See item above; Delete ITAAC #5 – covered by ITAAC for IEEE 603 Compliance Confirmation, Table 2.2.15-2, ITAAC # 3; Delete ITAAC #6 – covered by ITAAC for IEEE 603 Compliance Confirmation, Table 2.2.15-2, ITAAC #10; Deleted other ITAACs redundant to those in new Table 2.15.7-2.
641.	F2.15.7-1	Added Figure 2.15.7-1.
642		
643.	S2.16.1	The subsection has been reformatted to focus on the ITAAC.
644.	T2.16.1	ITAAC #1 remains essentially the same, except for formatting; however, the ITAAC is now two ITAAC so that the RB crane and the FB crane are separate. Revised ITAAC #1 applies to the RB crane load test.
645.	T2.16.1	ITAAC #2 is the separate ITAAC for the FB crane load test.
646.	T2.16.1	Previous ITAAC #2 is now separated into ITAAC for the RB and for the FB in ITAAC #3 and 4 for verifying interlocks to prevent movement of heavy loads over new or spent fuel.
647.	T2.16.1	Previous ITAAC #3 was a “basic configuration” ITAAC. This is eliminated and the ITAAC now address the important function of preventing dropping of a heavy load on new or spent fuel.

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Item	Location	Description of Change
648.	T2.16.1	Previous ITAAC #4 addressed special lifting devices. This ITAAC has been eliminated, as the associated lifting devices will be tested in accordance with purchase specifications and may be used during the load test of the cranes. These are not safety related and no NRC guidance specifically addresses ITAAC for these types of devices.
649.	T2.16.1	New ITAAC #5 and 6 address the Seismic Category II over I capability of the RB and FB cranes. This is a special seismic qualification case for assurance that the cranes will not fall during a SSE and result in a release of radioactive material in excess of regulatory limits.
650.	S2.16.2	Complete re-write of HVAC.
651.	S2.16.2.1	Clarified system purpose statement(s), added Design Descriptions that support safety-related and RTNSS functions of RBHVAC, removed Design Descriptions that did not support a safety-related or RTNSS function, and aligned Design Description functions with ITAAC Design Commitment.
652.	S2.16.2.2	Clarified system purpose statement(s) of CBHVAC, added Design Descriptions that support safety-related and RTNSS functions, removed Design Descriptions that did not support a safety-related or RTNSS function, and aligned Design Description functions with ITAAC Design Commitment.
653.	S2.16.2.3	Clarified system purpose statement(s) of EFU's, added Design Descriptions that support safety-related and RTNSS functions, removed Design Descriptions that did not support a safety-related or RTNSS function, and aligned Design Description functions with ITAAC Design Commitment.
654.	S2.16.2.4	Clarified system purpose statement(s), added Design Descriptions that support RTNSS functions for Turbine HVAC, removed Design Descriptions that did not support a safety-related or RTNSS function, and aligned Design Description functions with ITAAC Design Commitment.
655.	S2.16.2.5	Clarified system purpose statement(s) of FBHVS, added Design Descriptions that support safety-related and RTNSS functions, removed Design Descriptions that did not support a safety-related or RTNSS function, and aligned Design Description functions with ITAAC Design Commitment.
656.	S2.16.2.6	Revised as a "No entry for this system" section.

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Item	Location	Description of Change
657.	S2.16.2.7	Clarified system purpose statement(s) of Electrical Building HVAC, added Design Descriptions that support RTNSS functions, removed Design Descriptions that did not support a safety-related or RTNSS function, and aligned Design Description functions with ITAAC Design Commitment.
658.	S2.16.2.8	Revised as a "No entry for this system" section.
659.	T2.16.2-2	Complete re-write.
660.	T2.16.2-2	Aligned ITAAC Design Commitment with associated Design Description.
661.	T2.16.2-2	ITAAC #1 Editorial change to include figure(s).
662.	T2.16.2-2	ITAAC #2 editorial change.
663.	T2.16.2-2	ITAAC #3 editorial change.
664.	T2.16.2-2	Revised ITAAC #4 to remove "cooling to the safety-related equipment" because it is not specifically addressed in Tier 2. Created New ITAAC #4 to address RBVS function to maintains the hydrogen concentration levels in the battery rooms.
665.	T2.16.2-2	Revised ITAAC #5 to remove "a minimum negative pressure of 62 Pa (-1/4 inch W.G.)". Will need to re-submit response to RAI 14.3-55 to address this change.
666.	T2.16.2-2	Revised ITAAC #6 to remove "a minimum negative pressure of 62 Pa (-1/4 inch W.G.)". Will need to re-submit response to RAI 14.3-55 to address this change.
667.	T2.16.2-2, new	New ITAAC #7 to address RTNSS function of RBVS.
668.	T2.16.2-2, new	New ITAAC #8 to address indications and controls.
669.	T2.16.2-2, new	New ITAAC #9 to address independence for safety-related equipment.
670.	T2.16.2-4	Aligned ITAAC Design Commitment with associated Design Description.
671.	T2.16.2-4	ITAAC #1 Editorial change to include figure(s).
672.	T2.16.2-4	ITAAC #2 editorial change.
673.	T2.16.2-4	ITAAC #3 no change.
674.	T2.16.2-4	ITAAC #4 editorial change.
675.	T2.16.2-4	ITAAC #5 no change.

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Item	Location	Description of Change
676.	T2.16.2-4	ITAAC #6 editorial change.
677.	T2.16.2-6	Complete re-write.
678.	T2.16.2-6	Aligned ITAAC Design Commitment with associated Design Description.
679.	T2.16.2-6	ITAAC #1 Editorial change to include figure(s).
680.	T2.16.2-6	ITAAC #2, 3 and 4 no change.
681.	T2.16.2-6	ITAAC #5 combined with ITAAC #6 because it is redundant to ITAAC #6.
682.	T2.16.2-6	ITAAC #7 renumbered to ITAAC #6. Editorial changes and revised acceptance criteria.
683.	T2.16.2-6	ITAAC #8 renumbered to ITAAC #7.
684.	T2.16.2-6, removed	Deleted ITAAC #9. No DCIS control function for the EFU system.
685.	T2.16.2-6, removed	Deleted ITAAC #10. Redundant to ITAAC #7.
686.	T2.16.2-6	ITAAC #11 renumbered to ITAAC #8.
687.	T2.16.2-6, new	New ITAAC #9 to address indications and controls.
688.	T2.16.2-6, new	New ITAAC #9 to address portable power supply for EFU fan system.
689.	T2.16.2-7, new	New Table inserted for Turbine Building Ventilation System.
690.	T2.16.2-7	New ITAAC #1 to address functional arrangement.
691.	T2.16.2-7	New ITAAC #2 to address RTNSS function.
692.	T2.16.2-9	Renumbered FBVS Table-to-Table 2.16.2-9.
693.	T2.16.2-9	Complete re-write.
694.	T2.16.2-9	Aligned ITAAC Design Commitment with associated Design Description.
695.	T2.16.2-9	ITAAC #1 Editorial change to include figure(s).
696.	T2.16.2-9	ITAAC #2 editorial change.
697.	T2.16.2-9	ITAAC #3 Added 3b ITA and associated acceptance criteria.

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Item	Location	Description of Change
698.	T2.16.2-9	Revised ITAAC #4 to remove "a minimum negative pressure of 62 Pa (-1/4 inch W.G.)". Will need to re-submit response to RAI 14.3-48 to address this change.
699.	T2.16.2-9, new	New ITAAC #5 to address RTNSS function.
700.	T2.16.2-9, new	New ITAAC #6 to address indications and controls.
701.	T2.16.2-10, new	New Table inserted for Electrical Building Ventilation System.
702.	T2.16.2-10	New ITAAC #1 to address functional arrangement.
703.	T2.16.2-10	New ITAAC #2 to address RTNSS function.
704.	F2.16.2-1	Revised Figure of CLAVS to simplify information presented.
705.	F2.16.2-2	Revised Figure to simplify information presented.
706.	F2.16.2-3	Revised REPAVS Figure to simplify information presented.
707.	F2.16.2-4	Revised CRHAVS Figure to simplify information presented.
708.	F2.16.2-5	Revised CBGAVS Figure to simplify information presented.
709.	F2.16.2-6	Revised CBGAVS (set B) Figure to simplify information presented.
710.	F2.16.2-7	Revised FPGAVS Figure to simplify information presented.
711.	F2.16.2-8	Revised FBFPVS Figure to simplify information presented.
712.	S2.16.3	Complete re-write.
713.	S2.16.3	Clarified RBHVAC system purpose statement(s), added LP Design Descriptions that support important to safety and RTNSS functions, removed Design Descriptions that did not support an important to safety or RTNSS function, aligned Design Description functions with ITAAC Design Commitment.
714.	S2.16.3	Replaced detailed system description with Figure 2.16.3-1.
715.	T2.16.3-2, removed	This table has been deleted. Information contained in this table has been integrated into Design Commitments, ITAAC and Acceptance Criteria.
716.	T2.16.3-3	Re-named to Table 2.16.3-2.
717.	T2.16.3-2	Re-numbered ITAAC #1.a in Tier 1 Rev. 3 to New ITAAC #1 to address basic configuration.

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Item	Location	Description of Change
718.	T2.16.3-2	Re-numbered ITAAC #1.b.1 in Tier 1 Rev 3 to New ITAAC #2 to address seismic requirements per Table 2.16.3-1.
719.	T2.16.3-2	Re-numbered ITAAC #1.b.2 in Tier 1 Rev. 3 to New ITAAC #3 to address SSE. Addresses RAI 14.3-11.
720.	T2.16.3-2	Relocated ITAAC #1.c of Tier 1 Rev. 3 to New ITAAC #6.
721.	T2.16.3-2	Relocated ITAAC #3 of Tier 1 Rev. 3 to New ITAAC #5.
722.	T2.16.3-2	Relocated ITAAC #4 of Tier 1 Rev. 3 to New ITAAC #6.
723.	T2.16.3-2, new	New ITAAC #4 to address manual suppression capabilities. (Formerly ITAAC #5, 6 in Tier 1 Rev 3). Addresses RAI 14.3-12.
724.	T2.16.3-2	Relocated ITAC #5 of Tier 1 Rev 3 to New ITAAC #4.
725.	T2.16.3-2	New ITAAC #5 to address firewater storage capacities. (Formerly ITAAAC #3 in Tier 1 Rev 3).
726.	T2.16.3-2	Relocated ITAAC #6 of Tier 1 Rev 3 to New ITAAC #4.
727.	T2.16.3-2	Deleted ITAAC #7 of Tier 1 Rev 3. Revised response to RAI 14.3-13 and 14.3-15 needed.
728.	T2.16.3-2	New ITAAC #7 to address RTNSS function of the FPS system.
729.	T2.16.3-2	Deleted ITAAC #8 of Tier 1 Rev 3. Revised response to RAI 14.3-13 and 14.3-15 needed.
730.	T2.16.3-2, new	New ITAAC #8 to address alarms, displays and controls.
731.	T2.16.3-2, removed	Deleted ITAAC #9 of Tier 1 Rev. 3. Does not meet the selection criteria for Tier 1 per DCD Tier 2 Chapter 14 Section 14.3.
732.	T2.16.3-2	Relocated ITAAC #10 of Tier 1 Rev. 3 to New ITAAC #7.b.
733.	T2.16.3-2	Relocated ITAAC #11 of Tier 1 Rev. 3 to New ITAAC #8.
734.	T2.16.3-2	Relocated ITAAC #12 of Tier 1 Rev. 3 to New ITAAC #7.a.
735.	T2.16.3-2	Deleted ITAAC #13 of Tier 1 Rev 3. Does not meet the selection criteria for Tier 1 per DCD Tier 2 Chapter 14 Section 14.3. Revised repose to RAI 14.3-10 needed.

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Item	Location	Description of Change
736.	S2.16.3.1	Editorial changes to design description.
737.	S2.16.3.1	Aligned design descriptions with design commitments.
738.	T2.16.3.1-1	New table to define where the fire areas are located.
739.	T2.16.3.1-2	Aligned design commitments with design descriptions.
740.	T2.16.3.1-2	ITAAC #1 editorial change.
741.	T2.16.3.1-2	ITAAC #2 editorial change.
742.	T2.16.3.1-2, removed	Deleted ITAAC #3. This information is considered a fabrication detail and not Tier 1 material.
743.	T2.16.3.1-2	Renumbered ITAAC #4 to ITAAC #3. This is a no entry system. Deleted reference to NFPA 90 code. This information is a fabrication detail and not Tier 1 material.
744.	S2.16.4	Revised Design Description to clarify important to safety functions.
745.	S2.16.4	Relocated containment penetration function to Subsection 2.15.1.
746.	T2.16.4-1	Relocated ITAAC #1 to Tier 1 Subsection 2.15.1. New ITAAC #1 for functional arrangement.
747.	T2.16.4-1	Relocated ITAAC #2 to Tier 1 Subsection 2.15.1 New ITAAC #2 for Reactor Coolant Pressure Boundary (RCPB) unidentified leakage function. Note that instrumentation and alarms for RCPB leakage is addressed in Tier 1 Subsection 2.2.12.
748.	T2.16.4-1	New ITAAC #3 for Reactor Coolant Pressure Boundary (RCPB) identified leakage function. Note that instrumentation and alarms for RCPB leakage is addressed in Tier 1 Subsection 2.2.12.
749.	S2.16.5, S2.16.6 and S2.16.7	Rearranged text to more closely follow AP1000 format.
750.	S2.16.5, removed	Deleted “right circular cylindrical,” because it was superfluous information.
751.	S2.16.5	Changed “100%” to “50%”, consistent with Tier 2 Table 15.4-5.
752.	S2.16.5	Clarified by adding “in external walls.”

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Item	Location	Description of Change
753.	S2.16.5	Added text related to internal flooding protection features prevent flood water in one division from propagating to other division(s).
754.	S2.16.5	Incorporated Response to RAI 15.4-26 as provided in MFN 07-299 to identify RB leakage units as 50% by weight and create appropriate ITAAC.
755.	T2.16.5-1	Incorporated Response to RAI 15.4-26 as provided in MFN 07-299 to identify RB leakage units as 50% by weight and create appropriate ITAAC.
756.	T2.16.5-1, Part 1	Critical Dimensions of Reactor Building and tolerances provided.
757.	T2.16.5-1 Part 2, new	Critical Dimensions of Reactor Building and tolerances provided.
758.	T2.16.5-2, T2.16.6-2, and T2.16.7-2	Rewrote ITAAC to follow text changes, conform to new standards and to address customer comments.
759.	F2.16.5-1 through F2.16.5-11	Replaced all figures with updated non-sensitive versions.
760.	S2.16.6	Added introduction for new figures.
761.	S2.16.6	Added the external and internal flooding protection features from Table 2.16.6-2.
762.	F2.16.6-1 through F2.16.6-5, New	Added new Figures 2.16.6-1 through –5.
763.	S2.16.7, new	Added “FB external flooding protection features” paragraph, consistent with Table 2.16.7-2, Item 3.
764.	T2.16.7-2, Item 2	Reworded the Design Commitment and Acceptance Criteria to be more consistent with the Design Description.
765.	F2.16.7-1 through F2.16.7-6, New	Provided new Figures 2.16.7-1 through –6.
766.	S2.16.8 and T2.16.8-1	Inserted standard ESBWR text for no ITAAC subsections and deleted the ITAAC based on change to Seismic Category NS under ECA-0043 and safety-related component discussions in MFN 07-003 Supplement 1.
767.	S2.16.9	Inserted standard ESBWR text for no ITAAC subsections.

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Item	Location	Description of Change
768.	S2.16.10	Inserted standard ESBWR text for no ITAAC subsections.
769		
770.	S2.17.1	This is a no entry system.
771.	S2.18.1	This is a no entry system.
772.	S2.18.2	This is a no entry system.
773.	S2.19 and T2.19-1	This entire section is new and is added to address guidance from the NRC to include any security system features in Tier 1 and to establish a set of ITAAC. The industry security-working group presented the "generic" security system approach to the NC and obtained agreement on the content and the ITAC. Thus, the section is considered consistent with NRC guidance as develop through interactions with the industry security working group.
774		
775.	S3.1	The title of this section is changed to reflect that piping consists of both systems and components. This section is reformatted to reflect the ITAAC more directly in the content of Design Description. In addition, the ITAAC have been revised. Some of the pervious content of this section is now contained in the ITAAC inspection, test, or analyses or in the acceptance criteria. An exception for piping systems that are qualified for leak-before-break has been deleted to be consistent with revisions to Tier 2, Subsection 3.6.3, which is deleted in Rev. 4.
776.	T3.1-1	ITAAC #1 is revised to focus on the design requirements of the ASME Code Section III and the appropriate records required by the ASME Code.
777.	T3.1-1	ITAAC #2 is added to focus on the design requirements for Seismic Category I and verification of the as-built piping systems.
778.	T3.1-1	ITAAC #3 is to address analyses of potential pipe break events and the verification of features to mitigate the consequences of pipe break events. This ITAAC appropriately replaces COL Information Item 3.6.5 in Rev. 3 of Tier 2. It is essentially the same as previous ITAAC #2.
779.	T3.1-1	ITAAC $4 is added to address design features to prevent fatigue failure. This topic was previously discussed in the Design Description, but there was no associated ITAAC.

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Item	Location	Description of Change
780.	T3.1-1	ITAAC #5 is added to address design features to remain within stress limits. This topic was previously discussed in the Design Description, but there was no associated ITAAC.
781.	T3.1-1	ITAAC #6 was previously ITAAC #3.
782		
783.	S3.2, Design Description	Revised Software Design Description, added verbiage on Software Plans to clarify where the plans are located and how they relate to the ESBWR software development process, and updated software plan descriptions to accurately reflect the appropriate Reg. Guides and IEEE standards.
784.	T3.2-1	ITAAC #1 is revised to comply with requirements of BTP 7-14 process. Rather than stating that an "Inspection of the Software Management Plan (SMP) will be performed", it now states that a "Results Analysis of the SMP will be performed." The Acceptance Criteria has also been revised to address BTP 7-14 Rev. 4 process planning and implementation characteristics.
785.	T3.2-1	ITAAC #2 is revised to comply with requirements of BTP 7-14 process. Rather than stating that an "Inspection of the Software Development Plan (SDP) will be performed", it now states that a "Results Analysis of the SDP will be performed." The Acceptance Criteria has also been revised to address BTP 7-14 Rev. 4 process planning and implementation characteristics.
786.	T3.2-1	ITAAC #3 is revised to comply with requirements of BTP 7-14 process. Rather than stating that an "Inspection of the Software Quality Assurance Plan (SQAP) will be performed", it now states that a "Results Analysis of the SQAP will be performed." The Acceptance Criteria has also been revised to address BTP 7-14 Rev. 4 process planning and implementation characteristics.
787.	T3.2-1	ITAAC #4 is revised to comply with requirements of BTP 7-14 process. Rather than stating that an "Inspection of the Software Integration Plan (SIntP) will be performed", it now states that a "Results Analysis of the SIntP will be performed." The Acceptance Criteria has also been revised to address BTP 7-14 Rev. 4 process planning and implementation characteristics.
788.	T3.2-1	ITAAC #5 is revised to comply with requirements of BTP 7-14 process. Rather than stating that an "Inspection of the Software Installation Plan (SIP) will be performed", it now states that a "Results Analysis of the SIP will be performed." The Acceptance Criteria has also been revised to address BTP 7-14 Rev. 4 process planning and implementation characteristics.

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Item	Location	Description of Change
789.	T3.2-1	ITAAC #6 is revised to comply with requirements of BTP 7-14 process. Rather than stating that an "Inspection of the Software Operations and Maintenance Plan (SOMP) will be performed", it now states that a "Results Analysis of the SOMP will be performed." The Acceptance Criteria has also been revised to address BTP 7-14 Rev. 4 process planning and implementation characteristics.
790.	T3.2-1	ITAAC #7 is revised to comply with requirements of BTP 7-14 process. Rather than stating that an "Inspection of the Software Training Plan (STrngP) will be performed", it now states that a "Results Analysis of the STrngP will be performed." The Acceptance Criteria has also been revised to address BTP 7-14 Rev. 4 process planning and implementation characteristics.
791.	T3.2-1	ITAAC #8 is revised to comply with requirements of BTP 7-14 process. Rather than stating that an "Inspection of the Software Safety Plan (SSP) will be performed", it now states that a "Results Analysis of the SSP will be performed." The Acceptance Criteria has also been revised to address BTP 7-14 Rev. 4 process planning and implementation characteristics.
792.	T3.2-1	ITAAC #9 is revised to comply with requirements of BTP 7-14 process. Rather than stating that an "Inspection of the Software Validation & Verification Plan (SVVP) will be performed", it now states that a "Results Analysis of the SVVP will be performed." The Acceptance Criteria has also been revised to address BTP 7-14 Rev. 4 process planning and implementation characteristics.
793.	T3.2-1	ITAAC #10 is revised to comply with requirements of BTP 7-14 process. Rather than stating that an "Inspection of the Software Configuration Management Plan (SCMP) will be performed", it now states that a "Results Analysis of the SCMP will be performed." The Acceptance Criteria has also been revised to address BTP 7-14 Rev. 4 process planning and implementation characteristics.
794.	T3.2-1	ITAAC #11 Cyber Security Plan entries revised to align with the software life cycle phases in the ESBWR Software Management Plan.
795.	T3.2-1	ITAAC #12 (DCD Rev 3) Deleted discussion on software tools. This discussion is too detailed for the ITAAC and belongs within the SMP. Added Design Commitment for the Software Design Documentation (SDD) that includes all software life cycle and design output documents.
796		
797.	S3.3, 3rd para	Deleted "high level" before task analysis as a result of changes to DCD Tier 2.

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Item	Location	Description of Change
798.	T3.3-01, 6.d, column 3	Added after instruments "comprising the minimum inventory of HSI and" in response to RAIs 18.5-27 and 18.8-47, NRC audit comments, and draft NRC Interim Guidance on Minimum Inventory.
799.	T3.3-01, 7.a, column 3	Added after procedures "derived from ESBWR EPGs" in response to RAI 19.9-1 and NRC audit comments.
800.	T3.3-01 Column 3 (all item numbers)	Replaced the phrase "A results summary is completed describing the following" with "Summary report(s) document that."
801.	T3.3-01, item 2, column 3	Added the work "safety" in front of "functional" and "function" for clarity.
802.	T3.3-01, item 7, column 3	Moved Item a under the number item number 7.
803		
804.	S3.4, Design Description	Revised Design Description to remove detailed information that is not required in a Tier 1 level description and modified the format to focus on the ITAAC as the elements of the Design Description. This change reflects the approach to revising Tier 1 in Revision 4.
805.	S3.4, ITAAC Criteria	Added "and shielding" to the statement to comply with the response to RAI 14.3-134 (see MFN 07-355).
806.	T3.4-1	Changed the Table 3.4-1 title to include "and Shielding."
807.	T3.4-1	ITAAC #1, added "(10% or less)" in the acceptance criteria to clarify what is meant by the term small fraction.
808.	T3.4-1	ITAAC #2, revised columns 2 and 3 to identify the appropriate Tier 1 location for the ARMS.
809.	T3.4-1	ITAAC #3, added the ITAAC information to comply with the response to RAI 14.3-134 (see MFN 07-355).
810		
811.	S3.6	Numbered list of program objectives was collapsed into the paragraph so they would not be confused with individual design commitments. Also identified design commitment so it corresponds with the ITAAC.
812.	T3.6-1, ITA 1	Inspection changed to be consistent with the description of DRAP implementation in Tier 2.

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Item	Location	Description of Change
813.	T3.6-1, AC 1	Acceptance criteria changed to be consistent with the description of DRAP implementation in Tier 2.
814		
815.	S3.7	Removed redundant sentence and reference to GEH QA program.
816.	T3.7-1	Identified Inspection, Tests, Analyses Item #1 as DAC.
817.	S3.8	This is a new section created to address mechanical and electrical equipment qualification for harsh and mild environment. This is considered nonsystem-based material because it covers many systems, and yet it establishes the method for verification of the as-built and installed equipment qualification. Previously, the "basic configuration" ITAACs in various systems confirmed the as-built and installed equipment qualification for environmental conditions. Now that the broad ITAAC has been separated into discrete ITAAC, it was determined that a nonsystem-based ITAAC was more appropriate for the type of verification necessary for environmental qualification of equipment by groups and types of equipment. In addition, the records established by this ITAAC will be equally available for verification of the ITAAC for each system, as necessary, allowing completion of the ITAAC requirements on a system-by-system basis. Section 3.8 ITAAC will be closed upon verification of the completion of the ITAAC requirements for the scope of equipment addressed in the ITAAC.
818		
819.	S4.0	Reworded to indicate the purpose of Section 4.0.
820.	S4.0	Added sentence to indicate that PSWS has interface requirements.
821.	S4.1, rev 3	Deleted. There are no interface requirements for the ultimate heat sink.
822.	S4.2, rev 3	Deleted. There are no interface requirements for the offsite power system.
823.	S4.3, rev 3	Deleted. There are no interface requirements for the potable and sanitary water system.
824.	S4.4, rev 3	Re-numbered as Section 4.1. Made interface requirement consistent with the conceptual design information described in DCD Tier 2.
825.	S4.5, rev 3	Deleted. There are no interface requirements for the cooling water systems.
826.	S4.6, rev 3	Deleted. There are no interface requirements for the makeup water system.
827.	S4.7	Section removed.

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Item	Location	Description of Change
828		
829.	S5.1, T5.1-1	Removed Subsection 5.1.1 References and table parenthetical removed concomitant with removal of notes.
830.	T5.1-1	Revised Table 5.1-1 to be consistent with Tier 2 Table 2.0-1.
831.	T5.1-1, Soil Properties	Added parameters for RB/FB, CB and FWSC that were added to Tier 2, Rev. 4.
832.	T5.1-1 Hazards in Site Vicinity	Changed text to agree with Tier 2, as modified in Rev. 4.
833.	T5.1-1 Meteorological Dispersion	Replaced text to agree with Tier 2, Rev. 4 changes.
834.	T5.1-1	Notes removed because they are Tier 2 level notes rather than Tier 1. Notes will still reside in Tier 2.