Tier 2 Chapter 7 Revision 2 to Revision 3 Change List

Item	Location (e.g., subsection with paragraph/sentence/item, table with column/row, or figure)	Description of Change
1.	S7.0	Changed essential DCIS (E-DCIS) to safety-related DCIS (Q-DCIS) to better describe the function. Changed non-essential DCIS (NE-DCIS) to nonsafety-related DCIS (N-DCIS) to better describe the function.
2.	S7.1	Section 7.1 has been completely re-written to enhance the description of the ESBWR DCIS. The existing description in 7.1 has been combined with the communication information previously included in section 7.9 to provide a better picture of the integrated system. Specific changes of note are identified below.
3.	S7.1.2	RAI 7.9-13 was addressed and does not apply to the Q-DCIS.
4.	S7.1.2	RAI 7.9-4 was addressed and it was determined that the data communicated between safety and nonsafety can not result in a loss of safety system availability.
5.	S7.1.2	RAI 7.9-2 was addressed including loss of safety-related displays.
6.	S7.1.2.8.3.8	RAI 7.1-32 was addressed and the classification for the ATWS was clarified.
7.	S7.1.3	RAI 7.9-13 was addressed and does not apply to the Q-DCIS.
8.	S7.1.3, 3rd para.	RAI 7.1-34 Partial response provided until the actual hardware is chosen. However the design principles of the NMS/RTIF and ECCS DCIS system's communications interface can be described.
9.	S7.1.3.2	RAI 7.1-34 Partial response provided until the actual hardware is chosen. However the design principles of the NMS/RTIF and ECCS DCIS system's communications interface can be described.
10.	S7.1.3.1.2	RAI 7.9-14 was addressed and all safety information is sent through the gateways and becomes available to the N-DCIS for alarming, monitoring, recording, and driving the integrated overview displays.
11.	S7.1.3.2.6	RAI 7.1-40 Potential water level instrumentation improvements and The ESBWR design for water level instrumentation was addressed.
12.	S7.1.3.3	RAI 7.9-4 was addressed and it was determined that the data communicated between safety and nonsafety can not result in a loss of safety system availability.
13.	S7.1.3.3, 5th para.	RAI 7.9-3 was addressed and determined that no credible events can cause the failure.

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14.	S7.1.3.3, 5th para.	RAI 7.9-7 was addressed in the response to RAI 7.9-3.
15.	S7.1.3.3, 6th para.	RAI 7.9-8 was addressed and no safety function depends on time tagging.
16.	S7.1.5.1.2	RAI 7.9-9 was addressed and all safety-related systems have redundant power supplies.
17.	S7.1.5.5	RAI 7.1-43 was addressed.
18.	S7.1.5.5.9	RAI 7.9-16 was addressed.
19.	S7.1.5.5.10	RAI 7.9-15 was addressed and the alarm management philosophy was clarified as well as time tagging capabilities were clarified.
20.	S7.1.5.6, 8th bullet	RAI 7.1-31 partially addressed.
21.	S7.1.5.6, 7th bullet	RAI 7.1-33 was addressed and the description of gateway cabinets was given.
22.	S7.1.5.7, 8th para.	RAI 7.9-12 was addressed and the output formats are compatible with the actuated devices.
23.	S7.1.5.10.1	RAI 7.9-9 was addressed and all safety-related systems have redundant power supplies.
24.	S7.1.6.1, 3rd bullet	RAI 7.1-39 was addressed and the TMI action plan was discussed.
25.	S7.1.6.4	In response to RAI 7.1-7 references to RG 1.180 and RG 1.204 were added.
26.	S7.1.6.4	RAI 7.1-8 discussion of RG 1.152, 1.168, 1.169, 1.170, 1.171, 1.172, 1.173, 1.180, and 1.204 were provided.
27.	S7.1.6.6.1.2	RAI 7.1-9 was addressed and the discussion of IEEE Std. 603, 5.1 Single Failure Criterion was provided.
28.	S7.1.6.6.1.3	RAI 7.1-10 was addressed and the discussion of IEEE Std. 603, 5.2 Completion of Protective Action was provided.
29.	S7.1.6.6.1.4	RAI 7.1-11 was addressed and the discussion of IEEE Std. 603, 5.3 Quality was provided.
30.	S7.1.6.6.1.5, 5th para.	RAI 7.9-5 was addressed and all computer function equipment is specified to be seismically qualified.
31.	S7.1.6.6.1.5	RAI 7.1-12 was addressed and the discussion of IEEE Std. 603, 5.4 Equipment Qualification was provided.
32.	S7.1.6.6.1.6	RAI 7.1-13 was addressed and the discussion of IEEE Std. 603, 5.5 System Integrity was provided.
33.	S7.1.6.6.1.7	RAI 7.1-14 was addressed and the discussion of IEEE Std. 603, 5.6 Independence was provided.

Item	Location (e.g., subsection with paragraph/sentence/item, table with column/row, or figure)	Description of Change
34.	S7.1.6.6.1.8	RAI 7.1-15 was addressed and the discussion of IEEE Std. 603, 5.7 Capability for Testing and Calibration was provided.
35.	S7.1.6.6.1.9	RAI 7.1-16 was addressed and the discussion of IEEE Std. 603, 5.8 Information Displays was provided.
36.	S7.1.6.6.1.10	RAI 7.1-17 was addressed and the discussion of IEEE Std. 603, 5.9 Control of Access was provided.
37.	S7.1.6.6.1.11	RAI 7.1-18 was addressed and the discussion of IEEE Std. 603, 5.10 Repair was provided.
38.	S7.1.6.6.1.12	RAI 7.1-19 was addressed and the discussion of IEEE Std. 603, 5.11 Identification was provided.
39.	S7.1.6.6.1.13	RAI 7.1-20 was addressed and the discussion of IEEE Std. 603, 5.12 Auxiliary Features was provided.
40.	S7.1.6.6.1.15	RAI 7.1-21 was addressed and the discussion of IEEE Std. 603, 5.14 Human Factors Considerations was provided.
41.	S7.1.6.6.1.16	RAI 7.1-22 was addressed and the discussion of IEEE Std. 603, 5.15 Reliability was provided.
42.	S7.1.6.6.1.17	RAI 7.1-23 was addressed and the discussion of IEEE Std. 603, 6.1 Automatic Controls was provided.
43.	S7.1.6.6.1.18	RAI 7.1-24 was addressed and text was added describing RG 1.62 as well as a discussion on conformance.
44.	S7.1.6.6.1.19	RAI 7.1-25 was addressed in the rewrite of section 7. including a clarification of how safety and nonsafety-related control systems communicate.
45.	S7.1.6.6.1.20	RAI 7.1-26 was addressed and the discussion of IEEE Std. 603, 6.4 Derivation of System Inputs was provided.
46.	S7.1.6.6.1.21	RAI 7.1-27 was addressed and the discussion of IEEE Std. 603, 6.5 Capability for testing and calibration was provided.
47.	S7.1.6.6.1.22	RAI 7.1-28 was addressed and the discussion of IEEE Std. 603, 6.6 Operating Bypasses was provided.
48.	S7.1.6.6.1.23	RAI 7.1-29 was addressed and the discussion of IEEE Std. 603, 6.7 Maintenance Bypasses was provided.
49.	S7.1.6.6.1.28	RAI 7.1-6 was addressed and information pertaining to RG 1.152 was added to the section as well as information concerning Cyber Security.
50.	S7.1.7	Section 7.1.3 was moved to section 7.1.7 and all four COL items were deleted because they did not meet the definition of COL action items.

Item	Location (e.g., subsection with paragraph/sentence/item, table with column/row, or figure)	Description of Change
51.	T7.1-1	In response to RAI 7.1-7 Table 7.1 was changed to reflect the correct references. The following is a list of the changes made to Table 7.1-1. DCD Tier 2, Table 7.1-1, the heading "Applicable Criteria" revised in Revision 3 to reference SRP NUREG-0800, Section 7.1, and correct title of Suppression Pool Temperature Monitor Function. DCD Tier 2, Table 7.1-1, 10CFR 50.55a(h) revised to reference IEEE Std. 603. DCD Tier 2, Table 7.1-1, Reference to NUREGs 718, 737, and 694 deleted because NUREGs do not apply to ESBWR. DCD Tier 2, Table 7.1-1, 10CFR 50.62 added check marks for SLC, RC&IS, and FWCS, and new note associated with the DPS: "‡ DPS initiates the 10 CFR 50.62 SLC, ARI, and FW runback and trip functions as described in Section 7.8." DCD Tier 2, Table 7.1-1, 10CFR 52.47 references to (Tier 1) and (Tier 2) removed. DCD Tier 2, Table 7.1-1, 10CFR 52.79 (c) reference to (Tier 1) removed. DCD Tier 2, Table 7.1-1, GDC 2, 4, 13, and 29 revised to refer to IEEE Std. 603. DCD Tier 2, Table 7.1-1, GDC 21 revised to add IEEE Std. 338. DCD Tier 2, Table 7.1-1, RG 1.22 revised to refer to RG 1.153. DCD Tier 2, Table 7.1-1, RG 1.53 revised to add reference to IEEE Std. 603. DCD Tier 2, Table 7.1-1, RG 1.97 revised to refer to IEEE Std. 497, added check marks for Neutron Monitoring System and Suppression Pool Temperature Monitoring Function. The design conforms to IEEE Std. 497-2002, which is endorsed by RG 1.97, Revision 4.

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		DCD Tier 2, Table 7.1-1, RG 1.105 revised to add reference to ANSI/ISA S67.04.01. DCD Tier 2, Table 7.1-1, RG 1.152 revised to delete check mark for Standby Liquid Control System. DCD Tier 2, Table 7.1-1, RG 1.168 revised to delete check mark for Standby Liquid Control System. DCD Tier 2, Table 7.1-1, RG 1.169 revised to add reference to IEEE Std. 828 and deleted check mark for Standby Liquid Control System. DCD Tier 2, Table 7.1-1, RG 1.170 revised, deleted check mark for Standby Liquid Control System. DCD Tier 2, Table 7.1-1, RG 1.171 revised, deleted check mark for Standby Liquid Control System. DCD Tier 2, Table 7.1-1, RG 1.172 revised, deleted check mark for Standby Liquid Control System. DCD Tier 2, Table 7.1-1, RG 1.173 revised, deleted check mark for Standby Liquid Control System. DCD Tier 2, Table 7.1-1, revised, added RG 1.180. The design conforms to RG 1.180-10/2003. DCD Tier 2, Table 7.1-1, revised, added a footnote to line Post Accident Monitoring System†; "Q=Q-DCIS, N=N-DCIS; † Interlocks are imbedded within system logic; ††N-DCIS hardware uses industrial methods for EMI/EMF compliance; #Initiates the 10 CFR 50.62 ARI, SLC and FW runback and trip functions as described in Section 7.8. * These criteria are addressed in conjunction with the digital computer-related functions of the Q-DCIS; ‡ IEEE Std. 603 provides criteria for the safety-related systems in lieu of the endorsement standard, IEEE Std. 279 that has been withdrawn."

Item	Location (e.g., subsection with paragraph/sentence/item, table with column/row, or figure)	Description of Change
		DCD Tier 2, Table 7.1-1, revised, added item RG 1.204. The design conforms to RG 1.204-11/2005. DCD Tier 2, Table 7.1-1, HICB-1 revised, added reference to IEEE Std. 603, and added check mark for the Gravity-Driven Cooling System. DCD Tier 2, Table 7.1-1, HICB-8 revised to refer to RG 1.153. DCD Tier 2, Table 7.1-1, HICB-9 revised to refer to RG 1.153. DCD Tier 2, Table 7.1-1, HICB-10 revised, added check marks for Neutron Monitoring System and Suppression Pool Temperature Monitoring Function. DCD Tier 2, Table 7.1-1, HICB-13 revised to refer to RG 1.153. DCD Tier 2, Table 7.1-1, item HICB-14 revised, deleted check mark for Standby Liquid Control System and added a check mark for N-DCIS. DCD Tier 2, Table 7.1-1, HICB-17 revised to refer to RG 1.22, 1.47, 1.53, 1.118, 1.152, and 1.153, and deleted check mark for Standby Liquid Control System. DCD Tier 2, Table 7.1-1, HICB-18 revised to refer to RG 1.152, and deleted check mark for Standby Liquid Control System. DCD Tier 2, Table 7.1-1, HICB-19 revised to refer to NUREG/CR-6303. DCD Tier 2, Table 7.1-1, HICB-21 revised to refer to NUREG/CR-6083, and deleted check mark for Standby Liquid Control System. Changes to this table were also made to designate safety-related systems with a (Q) and nonsafety-related systems with an (N).
52.	T7.1-2	Revised to incorporate IEEE Std. 603, section 4.1 through 8.3
53.	F7.1-1	Figure added to clarify architecture.

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54.	F7.1-2	Figure added to clarify architecture.
55.	F7.1-3	Figure added to clarify architecture.
56.	S7.2	Added and/or clarified IEEE 603 references. References pointing to Sections 7.1 and 7.9 revised as necessary due to incorporation of Section 7.9 into Section 7.1. Made editorial changes in numerous locations in S7.2 to revise use of the term SSLC or to change to SSLC/ESF as appropriate. Editorial changes - changed Roman numerals to Arabic for Division designations throughout Section 7.2
57.	S7.2.1.1	Added description of select rod insert (SRI) function to System Design Bases bulleted list.
58.	S7.2.1.2.4.1	Added a description of the Digital Trip Module (DTM) and Trip Logic Units.
59.	S7.2.1.2.4.1, 2nd para, 2nd bullet	Changed "optic fiber" to "fiber optic" - editorial change.
60.	S7.2.1.4, 2nd bullet	Added a brief description of the RMU function.
61.	S7.2.1.5, 1st para	Added a brief description of the RMU function.
62.	S7.2.1.6	Added a brief description of the RMU function.
63.	S7.2.1.6, 5th bullet	Provided additional information on half-scram conditions.
64.	S7.2.1.7, 2nd bullet	Added a brief description of the RMU function.
65.	S7.2.1.11, 17th and 18th bullet	Added reference to RGs 1.180 and 1.204.
66.	S7.2.1.13.3	Editorial change for clarity.
67.	S7.2.1.14.2.1, 1st bullet	Clarified that the TCV fast closure SCRAM is bypassed when the reactor mode switch is in either the SHUTDOWN, REFUEL or STARTUP mode position and reactor power is below a certain preset power level.
68.	S7.2.1.14.2.1, 7th bullet	Editorial change to delete "by indication."

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69.	S7.2.1.14.2.1, 4th bullet	Added a description of Special Isolated Main Steam Line Operational Bypass.
70.	S7.2.1.14.4	Added a description of the mode switch positions and their related bypass and trip/reset functions to address RAI 7.2-34.
71.	S7.2.1.14.4, 2nd bullet	Revised last item for consistency.
72.	S7.2.2.2.7.4	Added a description of the OPRM bypass to address RAI 7.2-35.
73.	S7.2.2.6.2	Revised Basic Control Logic Requirements to address RAI 7.2-38.
74.	T7.2-3, column 5, header	Revised per RAI 7.2-37.
75.	T7.2-3, note 6	Revised per RAI 7.2-37.
76.	T7.2-4	Revised Table to address RAI 7.2-36.
77.	T7.2-6	Added OPRM Trip Function Summary to address RAI 7.2-35.
78.	F7.2-1	Revised to delete reference to SSLC.
79.	F7.2-1	Revised RPS Functional Block Diagram.
80.	F7.2-2	Editorial changes for clarity.
81.	F7.2-8	Seven (7) additional sensors will be placed within the LPRM assembly, NOT four (4) as noted. In addition, gamma thermometers may not be the sensor used for this application. Where applicable, replace the phrase "gamma thermometer" with "AFIP sensor. Figure redrawn and additional dimensions provided to address RAI 4.2-12, Supp 01.
82.	S7.3	Added appropriate IEEE 603 references. Added ADS SRV(s) to avoid confusion with non-ADS SRVs. Changed all references to SSLC and ESF to SSLC/ESF for consistency. Deleted references to Tier 1.
83.	S7.3, 1st para.	Editorial change to add a pointer to Section 7.1 for discussion of Q-DCIS

Item	Location (e.g., subsection with paragraph/sentence/item, table with column/row, or figure)	Description of Change
84.	S7.3.1.1.2	Editorial - Enhanced the ADS description. Editorial - Revised conformance with 10CFR50.55a(h) to reflect compliance with IEEE 603 verses IEEE 279 Added change to indicate three trains of logic for DPVs Added that the single-failure criterion are satisfied with any three of the four divisions of safety-related power available. This is consistent design already described in R2 of this section. Deleted specific time delay values from the test discussion and referenced the appropriate table. Other editorial changes.
85.	S7.3.1.1.3	Editorial.
86.	S7.3.1.1.3.1	Editorial.
87.	S7.3.1.1.3.4	Editorial - Added Safety Guide 22 to the title of RG 1.22 Added RG 1.180 and RG 1.204 requirements per Table 7.1-1. Other editorial changes.
88.	S7.3.1.1.3.5	Editorial.
89.	S7.3.1.1.3.7	Editorial.
90.	S7.3.1.2.2	Revised the GDCS deluge logic to include safety-related temperature switches that will be in series with the nonsafety-related PLCs. These temperature switches will serve as a permissive for the deluge logic to prevent inadvertent actuation. Changed description to accommodate three (multiple) logic trains for the DPVs. Added that the single-failure criterion are satisfied with any three of the four divisions of safety-related power available. Deleted specific time delay values from the test discussion and referenced the appropriate table. Editorial changes.
91.	S7.3.1.2.3	Revised the GDCS deluge logic to include safety-related temperature switches that will be in series with the nonsafety-related PLCs. These temperature switches will serve as a permissive for the deluge logic to prevent inadvertent actuation. Added that the single-failure criterion are satisfied with any three of the four divisions of safety-related power available. Editorial Changes

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92.	S7.3.1.2.3.1	Editorial - Revised conformance with 10CFR50.55a(h) to reflect compliance with IEEE 603 verses IEEE 279 Other editorial changes
93.	S7.3.1.2.3.4	Deleted two years as the refuel cycle. This level of detail is not yet confirmed. Editorial - Added Safety Guide 22 to the title of RG 1.22 Added RG 1.180 and RG 1.204 requirements per Table 7.1-1. Other Editorial changes
94.	S7.3.1.2.3.5	Editorial.
95.	S7.3.3	Editorial to clarify that the MSIV LD&IS logic is performed in the RPS/RTIF platform.
96.	S7.3.3.1	Editorial to change future tense to present tense. Clarified that loss of power to one LD&IS division results in a channel trip Added that LD&IS is powered from safety-related power Clarified that separation (independence) includes electrical, communication and physical per Section 7.1. Added that the single-failure criterion are satisfied with any three of the four divisions of safety-related power available.
97.	S7.3.3.2	Editorial to clarify that the MSIV LD&IS logic is performed in the RPS/RTIF platform. Added RWCU/SDC sampling lines isolation. Revised FAPCS isolation to indicate that only the suction lines from the GDCS pools are isolated by LD&IS. Changed drywell sump discharge to drain. Deleted Refueling Area air duct isolation. Deleted SRV discharge monitoring by LD&IS. This monitoring is performed by NBS. Added Feedwater Isolation on feedwater line differential pressure.
98.	S7.3.3.3.1	Editorial - Revised conformance with 10CFR50.55a(h) to reflect compliance with IEEE 603 verses IEEE 279 Other editorial changes
99.	S7.3.3.3.4	Editorial - Added Safety Guide 22 to the title of RG 1.22 Added RG 1.180 and RG 1.204 requirements per Table 7.1-1. Other editorial changes
100.	S7.3.3.3.5	Editorial.
101.	S7.3.3.4.1	Editorial to clarify LD&IS is in two platforms.

Tier 2 Chapter 7 Revision 2 to Revision 3 Change List

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102.	S7.3.4	Added a new subsection for the Control Room Habitability System (CRHS).
103.	S7.3.5	This was previously section 7.3.4. The section is renumbered because of the addition of the CRHS as section 7.3.4.
104.	S7.3.5.1	Editorial to clarify that the SSLC/ESF platform is separate from RPS platform. Editorial to remove mention of systems not included in SSLC/ESF platform.
105.	S7.3.5.2	Editorial to clarify SSLC/ESF platform is separate from RPS platform. Editorial to remove mention of systems not included in SSLC/ESF platform.
106.	S7.3.5.2.1	Editorial to clarify SSLC/ESF platform is separate from RPS platform. Editorial to remove mention of systems not included in SSLC/ESF platform.
107.	S7.3.5.2.2	Editorial change to indicate three load drivers instead of two for DPVs. Remove discussion of ATWS/SLC from the SSLC section. The ATWS/SLC function is performed in the RPS/RTIF. This is not a design change, only a change in nomenclature.
108.	S7.3.5.2.3	Editorial.
109.	S7.3.5.2.4	Editorial. Change to indicate three load drivers instead of two for DPVs.
110.	S7.3.5.3	Editorial to distinguish between SSLC/ESF and RPS. RPS is a separate diverse platform.
111.	S7.3.5.3.1	Revised conformance with 10 CFR 50.55a(h) to reflect compliance with IEEE 603 verses IEEE 279. Other editorial changes.
112.	S7.3.5.3.2	Editorial.
113.	S7.3.5.3.4	Editorial - Added Safety Guide 22 to the title of RG 1.22 Added RG 1.180 and RG 1.204 requirements per Table 7.1-1. Other editorial changes.
114.	S7.3.5.3.5	Editorial.
115.	S7.3.5.4	Reduce the level of detail associated with surveillance testing consistent with other sections. Testing detail appropriately addressed in Tech Specs and plant procedures to be developed. Other editorial changes.

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116.	S7.3.5.5	Deleted SLU, NIM and BTM consistent with F7.3-4. Other editorial changes.
117.	T7.3-2	Added a note that the Table values represent design or analytical limits. The actual setpoints will be determined using an NRC approved setpoint methodology.
118.	T7.3-3	Added a note that the Table values represent design or analytical limits. The actual setpoints will be determined using an NRC approved setpoint methodology.
119.	T7.3-4	Added a note that the Table values represent design or analytical limits. The actual setpoints will be determined using an NRC approved setpoint methodology.
120.	T7.3-5	Added Feedwater Isolation on feedwater line differential pressure.
121.	F7.3-1A, title	Changed the title to replace SRV with ADS SRV.
122.	F7.3-1B, new note 1	Added Note 1 to describe that there are three load drivers for the DPVs.
123.	F7.3-3, new note 3	Added Note 3 to describe that the MSIV LD&IS logic is performed in the RPS/RTIF platform. Added Feedwater Isolation on feedwater line differential pressure.
124.	F7.3-4	This figure was redrawn to make it independent of the logic platform.
125.	F7.3-5	Added ATWS/SLC function to RTIF. Added Manual Initiation to RTIF. Added CRHS Isolation to SSLC/ESF.
126.	S7.4, title	Revised title by adding the words “Safe Shutdown” and “Cold Shutdown”, in order to clarify that safety-related systems are used for safe shutdown, and nonsafety-related systems are used for cold shutdown. These changes are to support the response to RAI 8.1-3.
127.	S7.4.1.1, 4th 6th and 8th para	Added IEEE Std. 603 references. Expanded discussion to address IEEE 603 sections, and improve level of detail. Added references to Section 7.1
128.	S7.4.1.2	Revised SLC System Description for clarity, and added text to reflect the addition of series shut-off valves to address single failure.
129.	S7.4.1.2.1	Added IEEE Std. 603 references. Expanded discussion to address IEEE 603 sections, and improve level of detail.
130.	S7.4.1.2.1, bullets	Deleted references to valves/instruments, as excessive details not required for DCD.

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131.	S7.4.1.2.2, 2nd para	Expanded level of detail to describe signals. Expanded discussion to include reference to series shut-off valves.
132.	S7.4.1.3, 2nd para	Expanded discussion to reflect addition of series shut-off valves in response to RAI 6.2-58 S01.
133.	S7.4.1.3.1	Added consistency with DCD Tier 2 Table 7.1-1, and Section 9.3.5.
134.	S7.4.1.3.1.1	Revised conformance statement for 10 CFR 52.47(b)(2)(i), to state that ESBWR I&C design does not use innovative means for accomplishing safety-related functions.
135.	S7.4.1.3.2	Added consistency with DCD Tier 2 Table 7.1-1 and Section 9.3.5.
136.	S7.4.1.3.3	Added consistency with DCD Tier 2 Table 7.1-1 and Section 9.3.5.
137.	S7.4.1.3.4	Added consistency with DCD Tier 2 Table 7.1-1 and Section F9.3.5.
138.	S7.4.1.4, 1st and 3rd para	Added Subsection 9.3.5.3 reference, revised for clarity, and added IEEE Std. 603 references.
139.	S7.4.1.5, 1 and 2nd para	Added IEEE Std. 603 references. Clarified what are considered as key valves.
140.	S7.4.2.2.1, 1st para.	Revised for clarity. Added IEEE Std. 603 references.
141.	S7.4.2.2.1, 2nd para.	Revised for clarity. Changed numbers from Roman to Arabic. Changed E-DCIS to Q-DCIS, and NE-DCIS to N-DCIS.
142.	S7.4.2.2.1 1st, 3rd and 4th para	Added IEEE Std. 603 references.
143.	S7.4.2.2.2, 1st, 2nd, and 3rd para	Added IEEE Std. 603 references. Revised information on electrical power to RSS panel.
144.	S7.4.2.2.3	Revised and reformatted text for clarity.
145.	S7.4.2.3.1.1	Revised conformance statement for 10 CFR 52.47(b)(2)(i), to state that ESBWR I&C design does not use innovative means for accomplishing safety-related functions.
146.	S7.4.2.3.1.1	Added IEEE Std. 603 references, & deleted redundant information regarding applicability of the Standard. Revised references to match with Table 7.1-1.
147.	S7.4.2.3.3	Added IEEE Std. 603 references. Revised references to match with Table 7.1-1.
148.	S7.4.2.3.5	Revised the reference.

Item	Location (e.g., subsection with paragraph/sentence/item, table with column/row, or figure)	Description of Change
149.	S7.4.2.5	Deleted reference to Table 7.4-1, which is withdrawn per response to RAI 7.4-5.
150.	S7.4.3.1	Revised & expanded text for clarity, and reference Section 7.1.
151.	S7.4.3.1.1	Added IEEE Std. 603 references. Revised references to match with Table 7.1-1.
152.	S7.4.3.1.2	Deleted two sentences on RWCU and SDC design bases references to relocate in S7.4.3.1.
153.	S7.4.3.3.1	Added IEEE Std. 603 references, & revised as applicable in accordance with DCD Tier 2 Table 7.1-1.
154.	S7.4.3.3.2	Added IEEE Std. 603 references, & revised as applicable in accordance with DCD Tier 2 Table 7.1-1.
155.	S7.4.3.3.3	Added IEEE Std. 603 references, & revised as applicable in accordance with DCD Tier 2 Table 7.1-1.
156.	S7.4.3.3.3	Revised references to match with Table 7.1-1.
157.	S7.4.3.3.4	Added IEEE Std. 603 references, & revised as applicable in accordance with DCD Tier 2 Table 7.1-1.
158.	S7.4.3.4	Added IEEE Std. 603 references.
159.	S7.4.4.1	Added IEEE Std. 603 references. Referenced Section 7.1.
160.	S7.4.4.2	Added IEEE Std. 603 references. Referenced Section 7.1.
161.	S7.4.4.3	Added IEEE Std. 603 references. Referenced Section 7.1.
162.	S7.4.4.3.1.1	Revised conformance statement for 10 CFR 52.47(b)(2)(i), to state that ESBWR I&C design does not use innovative means for accomplishing safety-related functions.
163.	S7.4.4.3.1.1	Added IEEE Std. 603 references.
164.	S7.4.4.3.3	Revised references to conform to Table 7.1-1.
165.	S7.4.4.4	Added IEEE Std. 603 references.
166.	S7.4.4.5	Added IEEE Std. 603 references.
167.	S7.4.4.5.1	Added IEEE Std. 603 references.
168.	T7.4-1	Deleted table, per response to RAI 7.4-5.
169.	F7.4-1	Replaced figure with a schematic showing typical panel configuration, per response to RAI 7.4-1 S01.

Tier 2 Chapter 7 Revision 2 to Revision 3 Change List

Item	Location (e.g., subsection with paragraph/sentence/item, table with column/row, or figure)	Description of Change
170.	F7.4-2B	Added missing reference to Train B.
171.	F7.4-2C	Changed Division numbers.
172.	F7.4-2D	Changed Division numbers.
173.	S7.5.1 entire section	Replaced "Post Accident Monitoring System" with "Post Accident Monitoring Instrumentation" numerous replacements in Section 7.5.1.
174.	S7.5.1 entire section	Numerous replacements in Section 7.5.1: Replaced "RG 1.97 Revision 4" with "RG 1.97." Replaced "IEEE Std. 497-2002" with "IEEE Std. 497." Specific revision/date information is located in DCD Chapter 1 Tables 1.9.21 and 1.9.22.
175.	S7.5.1	Relocated 7.5.1 Title line a few paragraphs lower.
176.	S7.5.1.1	Second entry: Changed: "Provide a control room from which actions……" To "Provide the appropriate instrumentation and displays to provide the information from which actions….."
177.	S7.5	Changed Pool Monitoring System to "Pool Monitoring Subsystems." Added material (two paragraphs) on Q-DCIS and N-DCIS to section 7.5. This material references the appropriate material in Section 7.1 (including Fig 7.1-1 and 7.1-2).
178.	S7.5.1.2	Changed "nuclear data link" to "Emergency Response Data System (ERDS)."
179.	S7.5.1.3	Replaced "Table 7.1.1" with " Table 7.1-1" correction.

Item	Location (e.g., subsection with paragraph/sentence/item, table with column/row, or figure)	Description of Change
180.	S7.5.1.3.1.1	Changed: From 10 CFR 50.55 and 52 to 10 CFR 50 and 52. 50.34a(f)(2)(v) to 50.34 (f)(2)(v). 50.34(f)(2)(vii) to 50.34(f)(2)(xvii). 50.34(f)(2)(viii) to 50.34(f)(xviii). Subsection 7.1.2.2 to Subsection 7.1.6 (two places). 50.47 to 52.47 (five places). 50.79 to 52.79 (one place). 52.47 (b)(2)(i) Changed: "The ESBWR is designed with innovative means of accomplishing safety functions……..." to "The ESBWR I&C design does not use innovative means for accomplishing safety-related functions."
181.	S7.5.1.3.1.2	Added GDC 24.
182.	S7.5.1.3.1.3	Changed "Subsection 7.1.2.2" to "Subsection 7.1.6."
183.	S7.5.1.3.1.4	Regulatory Guides Section First sentence: Changed "RG is" to "RGs are", changed "system" to "instrumentation." Added information on RG 1.180 and RG 1.204 to match information in Table 7.1-1. (RAI 7.1-7) Third bullet: Deleted first sentence "RG 1.97 is intended for licensees…"
184.	S7.5.1.3.1.4 Performance Criteria Section	Added to Performance Criteria list: "Performance Assessment Documentation" Regulatory Position (C7) changed: "plants LDB" to "plant's" LDB"
185.	S7.5.1.3.1.4 Design Criteria Section	Added to Design Criteria List: "Testability" and "Documentation of Design Criteria."
186.	S7.5.1.3.1.4 Qualification Criteria Section	Rewrote first paragraph for clarification. Added bullet list identifying the specific criteria listed in IEEE standard 497 –clarification.
187.	S7.5.1.3.1.4 Display Criteria Section	Removed "Quality Assurance" from list of Display Criteria.

Tier 2 Chapter 7 Revision 2 to Revision 3 Change List

Item	Location (e.g., subsection with paragraph/sentence/item, table with column/row, or figure)	Description of Change
188.	S7.5.1.3.1.4 Display Criteria Section	Rewrote the six paragraphs at the end of the Display Criteria section for clarity: References to Section 7.9 were corrected to reference Section 7.1 (section 7.1 has been rewritten to incorporate material from section 7.9). Changed "E-DCIS to Q-DCIS" in several places. Changed "NE-DCIS to N-DCIS" in several places Removed reference to "IE sources" and replaced with reference to safety-related sources in several places. Removed reference to "non IE sources" and replaced with reference to "nonsafety-related" sources.
189.	S7.5.1.3.1.4 Quality Assurance Section	Added bullet "Quality Assurance" Added paragraph titled "Quality Assurance" immediately before item titled "PAM Variable List Documentation" –item added to provide information on GE Appendix B quality program.
190.	S7.5.1.4	Changed "IEEE Std." to "IEEE Std. 497"
191.	S7.5.1.5	Added section on "Instrumentation Requirements"
192.	S 7.5.2	Deleted last two bullets: "Post Accident Sampling Subsystem (PASS)" "Dewpoint…….(ILRT)"
193.	S7.5.2.1	Added sentence to first bullet: "IEEE Std. 603 Sections 4.5 and 5.8 apply to the safety-related portions of CMS." Next bullet: Changed "nonsafety-related H2/O2" to "safety-related Hydrogen/Oxygen (H2/O2) analyzers…" RAI 6.2-136
194.	S.7.5.2.1	Deleted 3rd from last bullet: (Information on dew point elements/ILRT)
195.	S7.5.2.1	Next to last bullet: Deleted: Information on Post Accident Sampling –PASS is being deleted. Last bullet: Added "." At end of sentence.
196.	S7.5.2.2	First paragraph – Added reference to IEEE Std. 603 Section 5.6.3.

Item	Location (e.g., subsection with paragraph/sentence/item, table with column/row, or figure)	Description of Change
197.	S7.5.2.2	Eighth bullet: Deleted information on PASS system from bullet. Added "Piping connections are required in order to connect the sampling instrumentation." Tenth bullet: Changed "four wide range instruments.." to "four nonsafety-related wide range instruments." Eleventh bullet: Two of the….. Deleted second sentence "The other two safety-related……" Twelfth bullet: Deleted bullet (dewpoint levels/ILRT)
198.	S7.5.2.2	Deleted last four paragraphs: PASS is being deleted
199.	S7.5.2.3.1	52.47 (b)(2)(i) Changed: "The ESBWR is designed with innovative means of accomplishing safety functions……..." to "The ESBWR I&C design does not use innovative means for accomplishing safety-related functions."
200.	S7.5.2.3.3	Changed "..independent VDUs.." to "..independent Video Display Units (VDUs).." Changed "The only thing that is not redundant….." to "the horn and voice speaker are not redundant."
201.	S7.5.2.3.4	Seventh bullet: Changed: "Safety System Logic and Control (SSLC)" to "SSLC/ESF " Changed "Subsection 7.3.4.3" to "Subsection 7.3.5.3".
202.	S7.5.2.3.4	Added information on RG 1.180 and RG 1.204 to match information in Table 7.1-1. (RAI 7.1-7)
203.	S7.5.2.3.5	Last bullet: Changed: "SSLC" to "SSLC/ESF "
204.	S7.5.2.3, S7.5.3.1.1, S7.5.4.1.1	Changed 10 CFR 50.55 to 10 CFR 50
205.	S7.5.2.3.1	50.55a(h): Changed reference from ANSI /IEEE std 279 to IEEE Std. 603. Changed conformance statement to "…in accordance with IEEE std. 603 Section 5.6…" Added reference to 50.44 (c) (4)
206.	S7.5.2.3.4	Changed "Subsection 7.1.2.2" to "Subsection 7.1.6" (2 places)

Item	Location (e.g., subsection with paragraph/sentence/item, table with column/row, or figure)	Description of Change
207.	S7.5.2.4, first bullet	Changed "..post accident monitoring.." to "..post accident monitoring (IEEE section 603 Section 6.5)"
208.	S7.5.2.5	Third bullet: Deleted- information on PASS.
209.	S7.5.3.1	Changed: "The PRMS design" to "The safety-related PRMS design" Changed: "are Engineered into both safety-related…and are environmentally…." To "are environmentally…."
210.	S7.5.3.1.1	Changed "10 CFR 50.55.." to "10 CFR 50.." Next to last bullet: 52.47 (b)(2)(i) Changed: "The ESBWR is designed with innovative means of accomplishing safety functions……..." to "The ESBWR I&C design does not use innovative means for accomplishing safety-related functions."
211.	S7.5.3.1.3	Changed "The only thing that is not redundant….." to "the horn and voice speaker are not redundant."
212.	S7.5.1.3.1 S7.5.3.1.1 S7.5.4.1.1	Bullet 50.55a(h) Changed reference from ANSI /IEEE std 279 to IEEE Std. 603.
213.	S7.5.2.6	Last bullet: Removed description of Post Accident Sampling subsystem.
214.	S7.5.3.1.4	Added information on RG 1.180 and RG 1.204 to match information in Table 7.1-1. (RAI 7.1-7) Changed "Subsection 7.1.2.2" to "Subsection 7.1.6" (2 places). Seventh bullet: RG 1.152…. Changed "SSLC system" to "SSLC/ESF system"
215.	S7.5.3.1.5	Last bullet: Changed "Subsection 7.1.2.2" to "Subsection 7.1.6". Changed "Subsection 7.3.4" to Subsection 7.3.5." Changed ""SSLC" to "SSLC/ESF."
216.	S7.5.3.2	Added Testing and Inspection Requirements section
217.	S7.5.3.3	Added Instrumentation and Controls Requirements section
218.	S7.5.4.1.3	Added RG Section, Added information on RG 1.180 and RG 1.204 to match information in Table 7.1-1. (RAI 7.1-7) Renumbered next two sections to 7.5.4.1.4 and 7.5.4.1.5.

Item	Location (e.g., subsection with paragraph/sentence/item, table with column/row, or figure)	Description of Change
219.	S7.5.5.2	Last sentence deleted second period.
220.	S7.5.5.4 & 7.5.5.5	Deleted spurious "RG" at end of last sentence in each section.
221.	Fig 7.5-3	Changed "non-essential DCIS" to "N-DCIS" Deleted reference to system numbers (D11, C62) in blocks
222.	S7.6	Editorial at the end of paragraph.
223.	S7.6.1.1	Acronyms are spelled out. FAPCS, RWCU, LPCI, NBS, GDCS.
224.	S7.6.1.1	Added IEEE Std. 603 references.
225.	S7.6.1.2.1	Changed from single set of valves to parallel valves arrangement, Two parallel testable check valves and two parallel Isolation valves with identical logic for operation per design change for redundancy and fire zone separation.
226.	S7.6.1.1	Added IEEE Std. 603 references.
227.	S7.6.1.1	Editorial.
228.	S7.6.1.2.2	Power supplies are identified for nonsafety solenoids. Reference section no. are changes for Power supplies
229.	S7.6.1.2.2	Added IEEE Std. 603 references.
230.	S7.6.1.2.2	Changed from Class 1E to safety related and non-class 1E to nonsafety-related.
231.	S7.6.1.2.3	Editorial.
232.	S7.6.1.2.3	Changed from Class 1E to safety related.
233.	S7.6.1.2.4	Editorial.
234.	S7.6.1.2.4	Subsection reference is changed.
235.	S7.6.1.2.6	Deleted 'or interlock features".
236.	S7.6.1.2.7	Editorial. Specified Parallel set of valves for check valves and on-off valve per design change
237.	S7.6.1.2.8	Air bottle is specified. Added "Valves are failed closed" for clarification. Editorial.

Item	Location (e.g., subsection with paragraph/sentence/item, table with column/row, or figure)	Description of Change
238.	S7.6.1.2.9	Subsection reference is changed.
239.	S7.6.1.2.9	Changed from Class 1E to safety related.
240.	S7.6.1.2.10	Editorial.
241.	S7.6.1.2.3	Changed from Class 1E to safety related.
242.	S7.6.1.2.11	Environmental Requirement for nonsafety-related I &C is deleted as it is not necessary to specify in this section. Editorial.
243.	S7.6.1.2.11	Changed from Class 1E to safety related and non-class 1E to nonsafety-related.
244.	S7.6.1.2.13	Editorial. Acronym MCR is spelled out.
245.	S7.6.1.3.3	Added IEEE Std. 603 reference. Deleted reference to IEEE 279.
246.	S7.6.1.3.3	52.47(a)(1)(vii), Interface Requirements Changed Conformance: "There are no interface requirements for this section."
247.	S7.6.1.3.3	52.47(b)(2)(i), Innovative Means of Accomplishing Safety Functions Changed Conformance: "The ESBWR I&C design does not use innovative means for accomplishing safety-related functions".
248.	S7.6.1.3.5	Conformance to RG 1.153 is revised, Section 7.6 conforms to all RGs.
249.	S7.6.1.3.5, 7th bullet	Added RG 1.180 and RG 1.204 per Table 7.1-1 requirements.
250.	S7.6.1.3.5	RGs 1.152…..Acronyms are spelled out and proper systems and references are identified.
251.	S7.6.1.3.6	Added IEEE Std. 603 reference.
252.	S7.6.1.3.6	HICB 21: Identified correctly (SSLC/ESF).
253.	S7.6.1.3.7	Editorial.
254.	S7.6.1.4	Editorial.
255.	S7.6.1.5	Added IEEE Std. 603 references. Deleted duplicate similar line "Reactor pressure above the HP/LP interlock----------"

Item	Location (e.g., subsection with paragraph/sentence/item, table with column/row, or figure)	Description of Change
256.	S7.6.1.5	Editorial and changed wording to indicate that there are four valves now.
257.	S7.6.2.1	Added subsection 7.6.2.1 Isolation-DPS and Safety systems–per RAI 7.6-2. Acronym spelled out (DPS)
258.	S7.7	Editorial changes. Also changed "FCS" to "FWCS"
259.	S7.7, 2nd and 3rd para	Added for clarity
260.	S7.7.1	Edited for clarity
261.	S7.7.1.1.1, 1st sent	Editorial and added IEEE Std. 603 references.
262.	S7.7.1.1.2	Added for clarity.
263.	S7.7.1.2.1, 2nd and 5th para.	Editorial and added, "power supply" and changed "Class 1E" to "safety-related".
264.	S7.7.1.2.2, 1st and 2nd para	Edited for clarity
265.	S7.7.1.2.2, after 2nd para, title	Added RPV for clarity.
266.	S7.7.1.2.2, 3rd para title and para	Edited title for continuity. Also added, "The reactor water level measurement is temperature compensated through the thermocouple installed on the sensing line"
267.	S7.7.1.2.2, 4th para, 4th bullet	Edited for clarity.
268.	S7.7.1.2.2, after 4th bullet, title	Edited title for continuity
269.	S7.7.1.2.2, 5th para, 1st and 2nd bullets	Edited for clarity.
270.	S7.7.1.2.2, new 6th para	Added for clarity
271.	S7.7.1.2.2, after 6th para, title	Added "Main Steam Flow" for clarity.
272.	S7.7.1.2.2, 7th para	Edited for clarity

Item	Location (e.g., subsection with paragraph/sentence/item, table with column/row, or figure)	Description of Change
273.	S7.7.1.3, 1st and 2nd para	Edited for clarity. Added IEEE Std. 603 references. Also changed "Class 1E" to "safety-related"
274.	S7.7.1.3.1	Edited for clarity
275.	S7.7.1.3.1.1, title	Changed "10 CFR 50.55a(1) and 10 CFR 50.55a(h)" to "10 CFR Part 50 and 52"
276.	S7.7.1.3.2, 2nd bullet	Edited for clarity
277.	S7.7.1.3.3, 2nd and 5th bullet	Changed the Subsection # from "7.1.2.2" to "7.1.6".
278.	S7.7.1.3.3, 3rd and 4th bullets	Edited for clarity.
279.	S7.7.1.3.3, new 6th and 7th bullet	Added RG 1.180 – Guidelines for Evaluating Electromagnetic and Radio-Frequency Interference in safety-related Instrumentation and Control Systems. RG 1.204 – Guidelines for Lightning Protection of Nuclear Power Plants. Conformance: The NBS system conforms to RG 1.180 and RG 1.204 as discussed in Subsection 7.16.
280.	S7.7.1.3.4, 4th bullet	Changed the Subsection # from "7.3.4.3" to "7.3.5.3" and "7.1.2.2" to "7.1.6".
281.	S7.7.1.4, 1st and 2nd para.	Added IEEE Std. 603 references. And edited for clarity.
282.	S7.7.1.5, 1st sent	Added IEEE Std. 603 references.
283.	S7.7.1.5, bullets	Edited for clarity.
284.	S7.7.1.5, 5th bullet	Added "Main steam flow is indicated in the main control room" for clarity.
285.	S7.7.2.1.1	Edited for clarity.
286.	S7.7.2.1.2, 2nd, 3rd, 6th, 7th, 8th, and 11th bullet	Edited for clarity.
287.	S7.7.2.1.2, 7th bullet	Added "RC&IS also sends a SCRRI signal to Diverse Protection System (DPS) to initiate a Select Rod Insert (SRI)" for clarity.

Item	Location (e.g., subsection with paragraph/sentence/item, table with column/row, or figure)	Description of Change
288.	S7.7.2.2.1	Edited for clarity
289.	S7.7.2.2.2, 1st and 2nd para	Edited for clarity and added "Signal Interface Unit" for SIU and "Refer to Subsection 7.1.3.3" in 2nd para.
290.	S7.7.2.2.3	Edited for clarity
291.	S7.7.2.2.4	Edited for clarity
292.	S7.7.2.2.5	Edited for clarity
293.	S7.7.2.2.6, 1st bullet	Edited for clarity
294.	S7.7.2.2.6, 1st bullet, 6th sub-bullet	Added "RC&IS also sends a SCRRI signal to DPS to initiate a SRI function" for clarity
295.	S7.7.2.2.6, 2nd bullet	Edited for clarity
296.	S7.7.2.2.6, 3rd bullet	Changed "touch screen display" to "VDU" and editorial changes.
297.	S7.7.2.2.7.1	Edited for clarity
298.	S7.7.2.2.7.3	Edited for clarity
299.	S7.7.2.2.7.4, 1st and 2nd para.	Editorial and added IEEE Std. 603 references and deleted the "or into the RC&IS".
300.	S7.7.2.2.7.6, 4th and 8th para	Edited acronyms for continuity
301.	S7.7.2.2.7.7	Edited for clarity and continuity
302.	S7.7.2.2.7.8	Edited for clarity and continuity
303.	S7.7.2.2.7.9, 2nd para	Editorial changes and changed "flat display panel" to "VDU".
304.	S7.7.2.2.7.10	Edited for clarity
305.	S7.7.2.3.2, new 1st bullet	Added: 10 CFR 50.62, Requirements for reduction of risk from ATWS events for light-water-cooled nuclear power plants. Conformance: The ATWS mitigation functions are designed in accordance with the requirements of 10 CFR 59,52

Item	Location (e.g., subsection with paragraph/sentence/item, table with column/row, or figure)	Description of Change
306.	S7.7.2.3.3	Edited for clarity
307.	S7.7.2.3.4, new 1st and 2nd bullets	Added: RG 1.180 – Guidelines for Evaluating Electromagnetic and Radio-Frequency Interference in safety-related Instrumentation and Control Systems. RG 1.204 – Guidelines for Lightning Protection of Nuclear Power Plants. Conformance: The RC&IS system conforms to RG 1.180 and RG 1.204 as discussed in Subsection 7.16.
308.	S7.7.3.1.1	Additional sentences provided for clarity concerning the feedwater isolation function and LD& IS.
309.	S7.7.3.1.2, 1st sent	Added IEEE Std. 603 references.
310.	S7.7.3.2.1	Edited for clarity
311.	S7.7.3.2.2, 1st bullet	Edited for clarity
312.	S7.7.3.2.2, 4th and 5th bullet	Editorial changes and added the info regarding the “loss of feedwater heating” and “feedwater temp controls" with reference 10.4.7.2.2.3
313.	S7.7.3.3, 1st para	Removed from 7.7.3.3.1
314.	S7.7.3.3, 2nd para	Added the “FWCS initiates a runback of feedwater pump feedwater demand to zero and closes the LFCV and RWCU/SDC overboard flow control valve upon receipt of ATWS trip signal from ATWS/SLC logic. Refer to Subsection 7.8.1.1”
315.	S7.7.3.3.1, title	Added the section title”7.7.3.3.1 Specific Regulatory Requirements Conformance” for consistency
316.	S7.7.3.3.1, new 1st thru 5th bullets	Added the “10 CFR 50.62” and Conformance:.. Added the “FWCS initiates a runback of feedwater pump feedwater demand to zero and closes the LFCV and RWCU/SDC overboard flow control valve upon receipt of ATWS trip signal from ATWS/SLC logic. Refer to Subsection 7.8.1.1” and Editorial.
317.	S7.7.3.3.2	Edited for clarity

Item	Location (e.g., subsection with paragraph/sentence/item, table with column/row, or figure)	Description of Change
318.	S7.7.3.3.4, new section	Added "7.7.3.3.4 Regulatory Guides" RG 1.180 – Guidelines for Evaluating Electromagnetic and Radio-Frequency Interference in safety-related Instrumentation and Control Systems. RG 1.204 – Guidelines for Lightning Protection of Nuclear Power Plants. Conformance: The FWCS system conforms to RG 1.180 and RG 1.204 as discussed in Subsection 7.16.
319.	S7.7.3.5.3	Editorial change "RBS" to "NBS"
320.	S7.7.3.5.4 and 7.7.3.5.5	Edited for clarity
321.	S7.7.4.1.1 and 7.7.4.1.2	Edited for clarity
322.	S7.7.4.2	Added IEEE Std. 603 references, editorial, changed "TCS" to "TGCS".
323.	S7.7.4.2, 1st para	Added "The N-DCIS accepts one-way communication from the Q-DCIS so that the safety-related information can be monitored, archived and alarmed seamlessly with the N-DCIS data. (IEEE std 603, section 5.6.3)." Also changed the Subsection # from "7.9.2" to "7.1.5" and correct the typo "RWCU/SDC". Editorial.
324.	S7.7.4.3	Edited for clarity
325.	S7.7.4.3.1, title	Added section title"7.7.4.3.1 for consistency.
326.	S7.7.4.3.1, 2nd thru 4th bullet	Added for clarity
327.	S7.7.4.3.4, new section	Added "7.7.4.3.4 Regulatory Guides" RG 1.180 – Guidelines for Evaluating Electromagnetic and Radio-Frequency Interference in safety-related Instrumentation and Control Systems. RG 1.204 – Guidelines for Lightning Protection of Nuclear Power Plants. Conformance: The PAS system conforms to RG 1.180 and RG 1.204 as discussed in Subsection 7.16.
328.	S7.7.4.4 and 5	Editorial
329.	S7.7.5.1.1	Added "Mode 1 operation information".
330.	S7.7.5.1.2	IEEE Std. 603 references and editorial

Item	Location (e.g., subsection with paragraph/sentence/item, table with column/row, or figure)	Description of Change
331.	S7.7.5.2.1, 2 and 3	Edited for clarity
332.	S7.7.5.2.4, 3rd para	Changed “flat display panel” and “screen display” to “VDU”
333.	S7.7.5.3	Edited for clarity
334.	S7.7.5.3.1, title	Changed the title to” Specific Regulatory Requirements Conformance”
335.	S7.7.5.3.1	Edited for clarity
336.	S7.7.5.5	Edited for clarity
337.	S7.7.5.6.1.1	Edited for clarity
338.	S7.7.5.6.1.2	Deleted for consistency
339.	S7.7.5.7.1.2 thru 7.7.5.7.1.5	Edited for clarity
340.	S7.7.5.7.2.1	Changed “TCS” to “TGCS”. Term no longer used.
341.	S7.7.5.7.2.1	Added “The TGCS is a redundant process control system. Only the operator can switch the turbine generator controller to Automatic (remote), but either the operator or the APR can switch the turbine generator controller to Manual (local). The TGCS controls the turbine speed, load and flow for startup and normal operations. The TGCS operates the turbine stop valves (TSVs), turbine control valves (TCVs), and the intermediate stop and intercept valves. The TGCS also provides automation functions like sequencing the appropriate turbine support systems and controlling turbine roll, synchronization of the main generator, and initial loading. The SB&PC system sends a steam flow demand to the TG controller”. (Chapter 10.2.2) Also editorial changes
342.	S7.7.5.7.2.3	Edited the “From the foregoing analysis, it is concluded that the SB&PC meets its design bases” for clarity.
343.	S7.7.6.1	Added the “System” to the title.
344.	S7.7.6.1.1	Added acronyms AFIP and MRBM with “Automated Fixed In-core Probe” and “Multi-Channel Rod Block Monitor”.
345.	S7.7.6.1.2	Edited for clarity

Item	Location (e.g., subsection with paragraph/sentence/item, table with column/row, or figure)	Description of Change
346.	S7.7.6.2.1.1	Deleted “a minimum of four AFIP” added “seven gamma thermometer”. Changed reference From “7.7-1” to “7.7.6-1”. Also editorial changes for clarity.
347.	S7.7.6.2.1.1 thru 7.7.6.4.1	Changed total six “AFIP” to “gamma thermometer” and editorial.
348.	S7.7.6.2.2.2	Edited with new references.
349.	S7.7.6.3	Added a subsection titled “7.7.6.3.1 Specific Regulatory Requirements Conformance” and editorial.
350.	S7.7.6.3.3	Added “7.7.6.3.3 Regulatory Guides” RG 1.180 – Guidelines for Evaluating Electromagnetic and Radio-Frequency Interference in safety-related Instrumentation and Control Systems. RG 1.204 – Guidelines for Lightning Protection of Nuclear Power Plants. Conformance: The Neutron Monitoring System-Nonsafety-Related Subsystem conforms to RG 1.180 and RG 1.204 as discussed in Subsection 7.16.
351.	S7.7.6.4.1	Editorial and changed “AFIP” to “gamma thermometer”. Also added “Additional information is provided in Reference 7.7.1”
352.	S7.7.6.5.1 and 7.7.6.5.2	Edited for clarity and continuity
353.	S7.7.7.3	Added “Refer to Subsection 6.2.4 and 9.4.9.”
354.	S7.7.7.3.1	Changed title to “Specific Regulatory Requirements Conformance”
355.	S7.7.7.3.1.3	Added for clarity
356.	S7.7.7.5.1 thru 3	Edited for clarity
357.	S7.7.9, new references	Added reference information.
358.	T7.7-1	Changed “TCS” to “TGCS”.
359.	F7.7-1	Edited for clarity
360.	F7.7-2	Edited for clarity
361.	F7.7-3	Edited for clarity
362.	F7.7-4	Edited for clarity

Item	Location (e.g., subsection with paragraph/sentence/item, table with column/row, or figure)	Description of Change
363.	F7.7-5	Edited for clarity
364.	F7.7-6	Edited for clarity
365.	S7.8.1	Edited for clarity
366.	S7.8.1.1	Editorial; description of SRI; added description of ATWS mitigation of unsuccessful SCRRI/SRI and unsuccessful RPS scram using DPS-ARI, diverse scram and feedwater runback; added section 7.7.2 reference for ARI
367.	S7.8.1.1.1	Editorial
368.	S7.8.1.1.1.1	Editorial
369.	S7.8.1.1.2	Editorial; elaborated on ADS inhibit parameters;
370.	S7.8.1.1.3	Editorial; added description of ARI function on certain ATWS scenarios; added DPS scram processing on ARI
371.	S7.8.1.1.4	Added new subsection for additional DPS scram and SCRRI/SRI ATWS mitigation logic and SRI.
372.	S7.8.1.2	Editorial
373.	S7.8.1.2.1	Added ARI to DPS scram signal
374.	S7.8.1.2.2, 9th para, 4th bullet	Added feedwater isolation valves in place of motor-operated discharge valves; added discussion of 3rd series load driver for DPVs
375.	S7.8.1.3	Editorial
376.	S7.8.2.1	Editorial.
377.	S7.8.2.2	Editorial.
378.	S7.8.2.2.1	Editorial-numbering.
379.	S7.8.2.3	Editorial. Added IEEE Std. 603 sections
380.	S7.8.3.1	Editorial. Expanded conformance discussion. Deleted reference to IEEE Std. 279 (withdrawn standard)
381.	S7.8.3.1.1	Deleted based on restructuring (info in S7.8.3.1)
382.	S7.8.3.1.2	Deleted based on restructuring (info in S7.8.3.1)

Tier 2 Chapter 7 Revision 2 to Revision 3 Change List

Item	Location (e.g., subsection with paragraph/sentence/item, table with column/row, or figure)	Description of Change
383.	S7.8.3.2	Editorial.
384.	S7.8.3.3	Editorial.
385.	S7.8.3.4	Editorial (added "Safety Guide to RG 1.22). Also added reference to RG 1.180 and 1.204 (RAI 7.1-7) for consistency with Table 7.1-1.
386.	S7.8.3.5	Editorial. Expanded discussion based on RAIs 7.8-5 and 14.3-94
387.	S7.8.5, references	Editorial: added NUREG/CR-6303 deleted references for HICB-19 and RG 1.152
388.	F7.8-1	Changed Division numbering to Arabic; depiction of ATWS functions
389.	F7.8-2	Changed Division numbering to Arabic; depiction of ATWS functions
390.	F7.8-3	Changed Division numbering to Arabic; depiction of ATWS functions
391.	F7.8-4	Added note to indicate configuration of third series load driver for DPVs
392.	S7.9	Deleted and relocated to Section 7.1.
393.	S7A	Additional information has been added to 7.7.6 and 7.7.9
394.	S7B, title	Editorial change for clarity
395.	S7B, 2nd para.	Paragraph incorporates response to RAI 07.1-6
396.	S7B, 3rd para.	Paragraph discusses the new structure of Software Plans into two documents.
397.	S7B, entire section	Rewritten and additional information provided for clarity
398.	S7B.1thru S7B.10, ALL Sections	Order of Sections changed to agree with integrated Software Plans. Guidance for all plans was obtained from NUREG 0800 BTP 14.
399.	S7B.1, entire section	Rearrangement of section and additional info provided for clarity. Plans that are contained in the Software Management Plan are discussed.
400.	S7B.2, entire section	Rearrangement of section and additional info provided for clarity. Phase work contained in the Software Development Plan is clarified. New phases added are the Test Phase, and the Retirement Phase.

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Item	Location (e.g., subsection with paragraph/sentence/item, table with column/row, or figure)	Description of Change
401.	S7B.3, entire section	Rearrangement of section and additional info provided for clarity. Some work performed during integration phase was moved into surrounding phases for better process flow.
402.	S7B.4, entire section	Minor revision of Software Installation Plan provided for clarity.
403.	S7B.5, entire section	Minor revision of Software Training Plan provided for clarity
404.	S7B.6, entire section	Revision of Software Operation and Maintenance Plan provided for use of IEEE Std 1219 and for clarity.
405.	S7B.7, entire section	Rearrangement of section and additional info provided for clarity. Plans called from the Software Quality Assurance Plan are identified for clarity.
406.	S7B.8, entire section	Rearrangement of section and additional info provided for clarity in the Software Verification and Validation Plan.
407.	S7B.9, entire section	Rearrangement of section and additional info provided for clarity in the Software Safety Plan.
408.	S7B.10, entire section	Rearrangement of section and additional info provided for clarity in the Software Configuration Management Plan.
409.	S7B.11, references	Rearrangement of references and additional info provided for clarity.
410.	T7B-1 thru T7B-8	Additional tables provided.