

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
		All numbering is Rev 4 unless otherwise labeled
1.	C7, entire chapter	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. Changed GE to GEH where appropriate.
2.	C7, entire chapter	10 CFR 52.47(a)(1)(vii) Deleted the text following the “Conformance” bullet. Added, “There are no interface requirements for this section.”
3.	C7, entire chapter	The text “Table 7.1-1 identifies the <i>(system name)</i> and the associated codes and standards applied, in accordance with the Standard Review Plan NUREG-0800. This subsection addresses conformance with regulatory requirements, guidelines, and industry standards.” (or similar) was added to each safety evaluation section to improve consistency.
4.	C7, entire chapter	References to Appendix 7B were replaced with references to ESBWR I&C Software Management Plan and ESBWR I&C Software Quality Assurance Plan. These changes are considered editorial so no change bars are shown to mark these changes.
5.	C7, entire chapter	References to fiber optic cable were modified to consistently use the term “fiber optic cable”. These changes are considered editorial so no change bars are shown to mark these changes.
6.	C7, entire chapter	The term “ESBWR” has been removed wherever it is superfluous. These changes are considered editorial so no change bars are shown to mark these changes.
7.	C7, entire chapter	References to Tier 1 or Tier 2 of the DCD have been replaced with “DCD”. These changes are considered editorial so no change bars are shown to mark these changes.
8.	C7, acronym list	Updated acronym list to reflect chapter content.
9.	S7.1, Entire section	Corrected reference numbers and added title text to the first instance of each throughout. Changed “% power” and “% reactor power” to “% of rated power”. Corrected future tense (“will”) to present tense. These changes are considered editorial so no change bars are shown to mark these changes.
10.	S7.1.1, bullet list	Rewritten for clarity.

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
11.	S7.1.1, 2 nd para	Deleted last sentence because it did not add value to the text.
12.	S7.1.1 last para	Reference to Appendix 7B replaced with references to software plans due to removal of Appendix 7B.
13.	S7.1.2, all bullets	Added subsection references where needed in accordance with MFN 07-160.
14.	S7.1.2, 1 st bullet set	Rewritten to clarify the cabinets, systems, and functions contained in RTIF in accordance with MFN 07-160, including ATWS/SLC.
15.	S7.1.2, 3 rd bullet set	Rewritten to clarify that SSLC/ESF also includes safety-related monitoring and manual control.
16.	S7.1.2, 6 th para	Added “and NMS”, “(and may also be independently monitored on N-DCIS VDUs after appropriate isolation)”, and “and manual control capability for the SSLC/ESF safety-related systems” and Deleted “for manual control” to better describe current design.
17.	S7.1.2, 7 th and 8 th para	Added “divisional” for clarity.
18.	S7.1.2, 8 th para	Rewritten for clarity.
19.	S7.1.2.1	Added “to N-DCIS” for clarity.
20.	S7.1.2.2	Replaced “data monitoring” with “historical trending and analysis” for clarity.
21.	S7.1.2.3	1 st para - Removed most of the first paragraph describing references because references are no longer valid. 2 nd para – Clarified power sources and communications.
22.	S7.1.2.4	Removed BTP’s 3, 6, 10, & 13 from last bullet to more accurately represent current design. 10 CFR 52.79 Deleted to make distinction between the scope of the DCD and the scope of the Combined Operating License Application.
23.	S7.1.2.6	Added “the division and VDU” for clarity.
24.	S7.1.2.8.1, 1 st para	Modified paragraph in accordance with MFN 07-160 (removed “MSIV LD&IS”).

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
25.	S7.1.2.8.1, last para	<p>Added, “Note that although the RTIF cabinets house the RPS and the ATWS/SLC systems, the ATWS/SLC uses different hardware and is not a fail-safe design.”</p> <p>Deleted “The RPS cabinets house the equipment that perform the Suppression Pool Temperature Monitoring functions for the Containment Monitoring System (CMS) discussed in Section 7.5.2” in accordance with MFN 07-160.</p>
26.	S7.1.2.8.2	<p>2nd bullet – added “outputs of the individual LPRMS are averaged to” for clarity.</p> <p>3rd bullet – replaced “have a connection” with “provide information” for clarity.</p>
27.	S7.1.2.8.3, 1 st bullet	Replaced “operation” with “various” for clarity.
28.	S7.1.2.8.3.5	Deleted “(RPS)” in accordance with MFN 07-160.
29.	S7.1.2.8.3.6	<p>Deleted “The LD&IS logic for the non-MSIV isolation valves resides on the SSLC/ESF and the MSIV isolation valve logic resides on the RPS portions of Q-DCIS.” and changed “RPS” to “RTIF” in accordance with MFN 07-160.</p> <p>Added “fail-safe and therefore” for clarity.</p>
30.	S7.1.2.8.3.8, 2 nd para	<p>Added “in addition to providing hot shutdown capability,” for clarity.</p> <p>Added reference to Subsection 7.1.2.8.3.5 for clarity.</p> <p>Deleted “(RPS)” in accordance with MFN 07-160.</p>
31.	S7.1.2.8.4.1	Added “The RTIF cabinet houses the equipment that performs the Suppression Pool Temperature Monitoring functions for the Containment Monitoring System (CMS) discussed in Section 7.5.2.” in accordance with MFN 07-160.”
32.	S7.1.2.8.4.2	Added “hydrogen/oxygen” to the second sentence for increased clarity.
33.	7.1.3	Deleted last sentence because it did not add value to the text.
34.	S7.1.3.1.3, 2 nd para	Modified third sentence to more accurately describe current design

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
35.	S7.1.3.2	<p>1st para - added “the RTIF cabinets” for clarity.</p> <p>4th para – added “and CB” for clarity.</p> <p>7th para – added “Q-DCIS components” and “the cooling is active if either offsite or diesel generator power is available and is passive when the system is operating on battery power,” for clarity.</p> <p>7th para - Deleted “Control of the electromagnetic environment is paramount to preventing degraded operation of sensitive, software based, control equipment,” as unnecessary.</p> <p>Last para – Deleted “, grounding” as repetitive to the bullet directly above.</p>
36.	S7.1.3.2.3.1	Added cross-references for clarity.
37.	S7.1.3.2.4.3	In the next to last sentence changed “for isolation of further radiation release” to “to prevent further radiation release” for increased clarity.
38.	S7.1.3.2.5, 3 rd para	<p>Replaced “ High Pressure/Low Pressure (HP/LP) interlock, embedded in logic,” with “LPCI logic to prevent opening or to close, if open, the FAPCS injection valves” for clarity.</p> <p>Deleted “When the high reactor pressure signal is received, the HP/LP interlock circuit initiates a signal to close the isolation valves and prevent them from opening” as repetitive.</p>
39.	S7.1.3.2.7	<p>Added “Safety-related Q-DCIS internal and external communication protocols are deterministic” in accordance with response to RAI 7.1-23.</p> <p>Deleted “ESBWR does not have separate data communication systems” to limit confusion.</p>

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
40.	S7.1.3.3	<p>Paragraphs restructured to improve clarity. (Editorial)</p> <p>Deleted the text “As such, the safety- related/nonsafety-related fibers do not have a safety-related function because” because it is not accurate,</p> <p>1st para – Divided text into bullets, changed wording to improve clarity, and added “For communication within a division”.</p> <p>7th para – added “gateway” for clarity.</p> <p>19th para – replaced NUREG-0800 with section reference for clarity.</p> <p>22nd para – added “includes” and “hardware and software for the” and removed “forms an integral part of” and “systems and” for clarity.</p>
41.	7.1.3.3.1 (Rev 3)	Heading deleted as superfluous.
42.	S7.1.4	<p>Deleted last bullet “Cabinets for housing devices as power supplies.” as redundant and unnecessary.</p> <p>3rd para – replaced “in segments that can” with “with a segmented architecture that allows the different portions of the system to” for clarity.</p> <p>Added “ the network is designed to tolerate a single hardware failure (and many dual hardware failures) without loss of power generation capability or challenge to a safety-related system” for clarity.</p>
43.	S7.1.4.2, bullet list	<p>3rd bullet – replaced “Prevent” with “Tolerate,” “from affecting” with “without loss of.” Added “capability or challenge to a safety-related system” for clarity.</p> <p>6th bullet – added “secure”, “communication”, and “generally” and deleted “through the firewall” for clarity.</p>
44.	S7.1.4.3, 1 st para	Added “network design in both hardware and software” for clarity.
45.	S7.1.4.4, 1 st para	<p>Added “guidelines” and “industry” for clarity.</p> <p>Inserted references to Table 7.1-1 and subsection 7.1.6 to serve as a link between 7.1.4.4 and 7.1.5.3</p>

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
46.	S7.1.4.4	<p>Removed 10 CFR 50.55 from 1st bullet (consistent with S7.1.5.8).10 CFR 52.79 Deleted to make distinction between the scope of the DCD and the scope of the Combined Operating License Application.</p> <p>Removed RG's 1.22, 1.62, 1.75, 1.105, 1.118, & 1.153 to more accurately describe current design.</p> <p>Removed IEEE Std. 1050 to be consistent with Table 7.1-1.</p> <p>Added SRM II.T to be consistent with 7.1.5.3.</p> <p>Removed BTP 8 because it does not apply to N-DCIS design.</p>
47.	S7.1.4.7	<p>Replaced title "Major Systems Description Summary" with "System Boundaries" since title was incorrectly repetitive of the preceding section.</p>
48.	S7.1.4.8.2	<p>Added "CRD" as first bullet.</p> <p>Added "6.9 KV Plant Electric Power" to PIP list; this system was erroneously left off the original list.</p>
49.	S7.1.4.8.4, 2 nd bullet	<p>Replaced "and annunciator" with "management" to agree with the system's title.</p>
50.	S7.1.5	<p>Renumbered subsections as follows:</p> <p>7.1.5.3 to 7.1.5.2.2</p> <p>7.1.5.4 to 7.1.5.2.3</p> <p>7.1.5.5 to 7.1.5.2.4</p> <p>7.1.5.6 to 7.1.5.2.5</p> <p>7.1.5.7 to 7.1.5.2.6</p> <p>7.1.5.8 to 7.1.5.3</p> <p>7.1.5.8.1.1 to 7.1.5.3.1</p> <p>7.1.5.8.1.2 to 7.1.5.3.2</p> <p>7.1.5.8.1.3 to 7.1.5.3.3</p> <p>7.1.5.8.1.4 to 7.1.5.3.4</p> <p>7.1.5.8.1.5 to 7.1.5.3.5</p> <p>7.1.5.9 to 7.1.5.4</p> <p>7.1.5.10 to 7.1.5.5</p> <p>7.1.5.11 to 7.1.5.6</p>
51.	S7.1.5, 2 nd para	<p>Deleted last 2 sentences because they did not add value to the text.</p>
52.	S7.1.5.1.3, 2 nd para	<p>Modified third sentence to more accurately describe current design.</p>

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
53.	S7.1.5.2	<p>4th para – replaced “The switches “learn” the addresses of all the nodes connected to them” with ” The network switches learn and maintain their own forwarding tables containing a list of all the nodes and hosts on their respective network segment. When a network switch receives a data communication packet, it forwards only that particular data packet to the segment to which that receiving host is connected. This mechanism prevents data traffic between devices on the network from impacting devices on other segments of the network,” for clarity.</p> <p>Last bullet – added “functions (PCF)” to the bullet title to agree with the segments title.</p>
54.	S7.1.5.2.1.3	Added “fuel, PCCS/” and “pools” for clarity.
55.	S7.1.5.2.3.10 (7.1.5.4.10 Rev 3), 1 st para	Changed “SRI or SCRRI” to “SRI and SCRRI” in response to RAI 4.6-28.
56.	S7.1.5.2.4 (7.1.5.5 Rev 3), 1 st para	Added text “Additionally, PCF (like the plant controllers) are powered with uninterruptible power supplies so that they are available to the operator for as long as the N-DCIS is powered.” To more accurately represent current design.
57.	S7.1.5.3 (7.1.5.8 Rev. 3), last para	Inserted reference to 7.1.6 to serve as a link between 7.1.4.4 and 7.1.5.3.
58.	S7.1.5.3 (7.1.5.8.1 Rev 3)	Subsection 7.1.5.8.1 deleted because it was repetitive.
59.	S7.1.5.3.1 (7.1.5.8.1.1 Rev 3)	Conformance to 10 CFR 52.79(c) deleted to make distinction between the scope of the DCD and the scope of the COLA.
60.	S7.1.5.3.3 (7.1.5.8.1.3 Rev. 3)	Inserted compliance statement for Item II.Q to be consistent with section 7.1.4.4.
61.	S7.1.5.2.4.3 (7.1.5.5.3 Rev 3), 2 nd bullet list	<p>3th bullet – added “(linking alarms to alarm response procedures)” for clarity.</p> <p>9th bullet – Last sentence modified to state “either audibly (annunciator), visually (display), or both” deleted “using both an” and “and display function” for clarity.</p> <p>11th bullet – added “; in general the alarm management system and TSM provide the suggested operator response to the various alarm and monitoring function events,” for clarity.</p>

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
62.	S7.1.5.2.4.4 (7.1.5.5.4 Rev 3)	<p>9th bullet – replaced “Logging of discrepancies” with “Logs of the discrepancies” and “decisions and actions and recommended” with “action and” for clarity.</p> <p>10th bullet – replaced “Retracing” with “Logs of the execution” and added “(this may require manual operator input of steps that cannot be monitored by the N-DCIS);” for clarity.</p>
63.	S7.1.5.2.4.6 (7.1.5.5.6 Rev 3), 3 rd para	Deleted “needed.” Replaced “Turbine Generator (TG) and BOP supplier” with “plant-wide equipment” for clarity.
64.	S7.1.5.2.5 (7.1.5.6 Rev 3), 7 th bullet item	Added text “, for further detail on this communication and transmission of time synchronization signals see Subsection 7.1.3.3”. This change is considered editorial so no change bars are shown to mark the change.
65.	S7.1.5.2.6 (7.1.5.7 Rev 3)	<p>3rd para - Deleted “when they are placed in auto” and “The N-DCIS controllers can also be placed in “manual” for the operator to override automatic control.” for clarity.</p> <p>6th para - Added text “, for further detail on this communication and transmission of time synchronization signals see Subsection 7.1.3.3”. This change is considered editorial so no change bars are shown to mark the change.</p> <p>Last para – added “and components” and “UPS” for clarity.</p>
66.	S7.1.5.3.1, S7.1.5.3.1.1, S7.1.5.3.1.2, S7.1.5.3.1.3, S7.1.5.3.1.4, and S7.1.5.3.1.5	S7.1.5.8.1.1 through S7.1.5.8.1.5 changed to S7.1.5.3.1 through S7.1.5.3.5 to make S7.1 numbering consistent with other sections in Ch 7
67.	S7.1.5.3.1 (S7.1.5.8.1.1 Rev 3)	Reference and conformance statement to 10 CFR 52.79(c) are deleted to make distinction between the scope of the DCD and the scope of the Combined Operating License Application.
68.	S7.1.5.3.2 (S7.1.5.8.1.2 Rev 3)	Added “1, 2, 4” to GDC list to be consistent with S7.1.4.4.
69.	S7.1.5.5.2	New Subsection added to better describe current design.
70.	S7.1.5.3.4 (S7.1.5.8.1.4 Rev 3)	Modified to refer to subsection 7.1.6.4.
71.	S7.1.5.6 (S7.1.5.11 Rev 3), 1 st para	Added “systems acquiring” for clarity.

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
72.	S7.1.6.1	Deleted 10 CFR 50.34(f)(2)(xii), 10 CFR 50.34(f)(2)(xx), 10 CFR 50.34(f)(2)(xxii), and 10 CFR 50.34(f)(2)(xxiii) as not applicable to ESBWR. Reference and conformance statement to 10 CFR 52.79(c) are deleted to make distinction between the scope of the DCD and the scope of the Combined Operating License Application.
73.	S7.1.6.2	Added GDC 20 to more accurately describe current design.
74.	S7.1.6.4	For RG 1.75 added “RG 1.75. See Chapter 8, Subsections 8.3.1.3 and 8.3.1.4 for discussion of how the design meets the requirements of RG 1.75” and deleted everything following to avoid repetition because it is described in Chapter 8.
75.	S7.1.6.4	RG 1.118 – Deleted clarification positions C.6b and C.2 because the clarifications are no longer appropriate for current design.
76.	S7.1.6.4	Combine sections describing RG 1.152 to reduce confusion (Editorial) and removed the sentence “RG 1.152 contains extensive requirements on “security” and endorses IEEE Std. 7-4.3.2.“. Removed “The NRC refers to Reference 7.1-11 as a replacement for Annex C.” because reference is deleted.
77.	S7.1.6.4	Deleted “Reference 7.1-3 is used to define the envelope limits” for RG 1.180 in accordance with RAI 7.1-37.
78.	S7.1.6.4	Added references to RG 1.168,1.169, 171, 172 and 173 to improve clarity.
79.	S7.1.6.5	Replaced “7.2.1.12” with “7.2.1.3.5” to be in conformance with section 7.2 reference.
80.	S7.1.6.5	Removed References to Section 7.2 Safety Evaluation subsections because the references were too limiting. Added statement for BTP 1,9, and 10 for consistency.
81.	S7.1.6.6, 7 th para	Corrected reference for IEEE 384.
82.	S7.1.6.6, 3 rd para	IEC 61000-4 – Replaced “Electromagnetic Compatibility (EMC) Testing and Measurement Techniques. This applies to EMI qualification.” with “The design conforms to this series of standards.”
83.	S7.1.6.6, 9 th para	Replaced “This applies to EMI qualification.” with “The design conforms to this standard.”

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
84.	S7.1.6.6, 11th para	Replaced “This applies to EMI qualification and electrical equipment protection.” with “The design conforms to this standard.”
85.	S7.1.6.6.1.1, 9 th bullet	Added “Interlock Systems (Section 7.6)” to be compatible with subsection 7.6.
86.	S7.1.6.6.1.2, 4 th para	Replaced “broadcasts” with “transmits”, added “to the other divisions” and “like parameter”, and replaced “broadcasts” with “transmissions” for clarity.
87.	S7.1.6.6.1.2	Removed “The report, “ESBWR Safety Criteria for Instrumentation & Control Systems,” NEDO-33294, (reference 7.1-5) will describe how the overall ESBWR safety-related system designs conform with IEEE Std. 603, Criterion 5.1, based on the above discussion and the results of the architecture reports.” from the last paragraph to generalize statement.
88.	S7.1.6.6.1.4	Detail added in accordance with response to RAI 7.1-11.
89.	S7.1.6.6.1.5, 1st para	Deleted “system”, “and other associated equipment qualification requirements”, and “and” in accordance with response to RAI 7.1-47. Added “safety-related”; “abnormal, and Design Basis Accident”; “10 CFR 50.49, RG 1.209, RG 1.89, RG 1.100,”; “IEEE Std. 323, and IEEE Std. 344”; “is”; and “and DBA” in accordance with response to RAI 7.1-47. Added “ “General Electric Environmental Qualification Program”, NEDE-24326-1-P “ as it is the first use of the reference.
90.	S7.1.6.6.1.5, 3rd para	Deleted “The components are qualified in accordance with RG 1.89 (IEEE Std. 323 - 1974) and IEEE Std. 323 - 1983. All qualification is based on type testing. The designers of the HVAC systems confirm that the maximum control room temperature plus mounting panel temperature rise allows for the heat load of the Q-DCIS equipment. HVAC systems maintain temperature and control room humidity within limits” in accordance with response to RAI 7.1-47. Added “as preferred method” in accordance with response to RAI 7.1-47.
91.	S7.1.6.6.1.5, 4th para	Replaced “to specification” with “safety-related functions” and deleted the text “The design of the HVAC systems surrounding the Q-DCIS components ensures that the maximum control room pressure does not exceed the specified limit.” in accordance with response to RAI 7.1-47.

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
92.	S7.1.6.6.1.5, 5th para	Replaced “within specification limits” with “safety-related functions” in accordance with response to RAI 7.1-47.
93.	S7.1.6.6.1.5, 6th para	Replaced “specified” with “safety-related” in accordance with response to RAI 7.1-47. Deleted “1975” from IEEE Std. 344.
94.	S7.1.6.6.1.5, last para	Deleted “Reference 7.1-3 is used for envelope limits” in response to RAI 7.1-37. Replaced “all specified” with “safety-related” in accordance with response to RAI 7.1-47.
95.	S7.1.6.6.1.7, 4 th para	Added text “for further detail on this communication and transmission of time synchronization signals see Subsection 7.1.3.3”. This change is considered editorial so no change bars are shown to mark the change.
96.	S7.1.6.6.13, 2 nd para	Paragraph modified for clarity and to more accurately describe current design.
97.	S7.1.6.6.1.14	Added “however for multiple unit designs only the N-DCIS would have common network components as necessary to control and monitor common hardware and systems. The Q-DCIS of multiple units would not have shared components nor shared divisions” for clarity.
98.	S7.1.6.6.1.17	Added “Control” to title to correct the title.
99.	S7.1.6.6.1.17, 2 nd para	Text modified in accordance with response to RAI 7.1-23.
100.	S7.1.6.6.1.18, 1st para	Removed “and isolation functions (RTIF)” and changed “ESI” to “SSLC/ESF) in accordance with MFN 07-160.
101.	S7.1.6.6.1.19, last para	Added text “, for further detail on this communication and transmission of time synchronization signals see Subsection 7.1.3.3”. This change is considered editorial so no change bars are shown to mark the change.
102.	S7.1.6.6.1.26	Deleted incorrect text “Header” Added “Additionally” to the beginning of the next sentence. Added a new sentence for clarity, “An alarm is issued for low CRD charging header pressure that keeps the accumulators charged; if the CRD pressure decreases further the reactor is automatically scrammed while there is still pressure to do so.”
103.	S7.1.6.6.1.27	Modified text to more accurately describe current design.

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
104.	S7.1.8	<p>The following references were deleted to agree with the text:</p> <p>7.1-3: Electric Power Research Institute (EPRI) TR-102323 (TR-1003697), "Guidelines for Electromagnetic Interference Testing of Power Plant Equipment", Revision 3. in response to RAI 7.1-37</p> <p>7.1-5: GE Energy, "ESBWR Safety Criteria for Instrumentation & Control Systems." NEDO- 33294, Class I (Non-proprietary), Revision 0.</p> <p>7.1-6: GE Energy, "Application of Nuclear Measurement Analysis and Control for a new BWR (NUMAC Platform Architecture.)" NEDC-33288P, Class III (Proprietary), Revision 0</p> <p>7.1-7: GE Energy, "SSLC/ESF Licensing Topical Report (Platform Architecture.)" Class III (Proprietary), Revision 0</p> <p>7.1-11: Electric Power Research Institute (EPRI) TR-106439, "Guideline on Evaluation and Acceptance of Commercial Grade Digital Equipment for Nuclear Safety Applications".</p> <p>The following references were added as required by the text:</p> <p>7.1-12: GE Energy Nuclear, "ESBWR I&C Software Management Plan," NEDO-33226, Class I (Non-proprietary); and "ESBWR I&C Software Management Plan," NEDE-33226P, Class III (Proprietary), Revision 2, July 2007.</p> <p>7.1-13 (RAI 7.1-11): GE Energy Nuclear, "ESBWR Man-Machine Interface System and Human Factors Engineering Implementation Plan," Revision 3, NEDO-33217.</p> <p>Reference 7.1-10 added the text "; and "ESBWR I&C Software Quality Assurance Plan," NEDE-33245P, Class III (Proprietary), Revision 2, July 2007." for greater detail.</p>
105.	T7.1-1	<p>Entire table revised to increase accuracy, readability, maintainability and consistency with the DCD text. Major changes include:</p> <p>Table format changed by moving "systems" to the horizontal axis and "regulatory requirements" to the vertical axis for clarity.</p> <p>"N/A" added to distinguish regulations that do not apply to ESBWR design.</p> <p>"Diverse I&C (N)" changed to "DPS(N) ATWS/SLC (Q)"</p> <p>Numerous changes to N-DCIS to agree with the the text of the DCD.</p>

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
106.	T7.1-2	Entire table revised to increase accuracy, maintainability and consistency with the DCD text. Numerous references were removed because the text did not reference the indicated standard. Unusual acronyms are defined in a footnote to the table.
107.	S7.2	Added introductory statement.
108.	S7.2 through 7.7	In “Safety Evaluation” subsections, added the following text as an introductory statement, “Table 7.1-1 identifies the XX systems and their/its associated codes and standards applied in accordance with the SRP. This subsection addresses conformance with regulatory requirements, guidelines, and industry standards.”
109.	S7.2.1.1, 2 nd para	Added IEEE 603 section references.
110.	S7.2	S7.2.1.3.1, S7.2.2.3.1 and S7.2.3.3.1: Reference and conformance statement to 10 CFR 52.79(c) are deleted to make distinction between the scope of the DCD and the scope of the Combined Operating License Application.
111.	S7.2.1.1, 4 th from last bullet	Revised the sentence for clarification.
112.	S7.2.1.2.1, 16 th bullet	Deleted bullet to update RPS interfaces.
113.	S7.2.1.2.4.1, Sensor Channels: Last Para	Changed NUMAC LTr number per MFN 07-160, Enclosure 1. Revised to address communication isolation.
114.	S7.2.1.2.4.2 1 st para	Added IEEE 603 section references.
115.	S7.2.1.2.4.2 Reactor Water Level	Added a brief description of the RMU function.
116.	S7.2.1.2.4.2, MSIV	Added sentence to explain reactor scram initiation.
117.	S7.2.1.2.4.2, Turbine Valve Bypass Position	Added paragraph to describe the Turbine Bypass Valve Position.
118.	S7.2.1.2.4.2, CRD	Deleted sentence for clarification.
119.	S7.2.1.2.4.2, RPS, TSV Closure:	Added sentence to clarify TSV closure occurrence.
120.	S7.2.1.2.4.2, RPS, TCV Fast-Closure:	Added sentence to clarify TCV fast closure occurrence.
121.	S7.2.1.2.4.2, RPS, Manual Scram:	Added sentence to explain reactor mode switch operation.

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
122.	S7.2.1.2.4.2, CMS, Suppression Pool Temperature:	Added sentence to explain SPTM high temperature enable function requirements. Added number of thermocouple used in SPTM.
123.	S7.2.1.2.4.3, Displays:	Added three displays to bullet list.
124.	S7.2.1.2.4.3, Alarms:	Added five alarms to bullet list. Added four bypass functions to RPS status
125.	S7.2.1.	<p>Subsections S7.2.1.3 through 7.2.1.14.5.6. were incorrectly numbered in Rev. 03. Corrected the subsection numbering in Rev. 04 as follows:</p> <p>7.2.1.3 – Deleted 7.2.1.4 – Deleted 7.2.1.5 – Deleted 7.2.1.6 – Deleted 7.2.1.7 - Deleted 7.2.1.7.1.1 to 7.2.1.2.4.3 7.2.1.7.1.2 - deleted 7.2.1.7.1.3 to 7.2.1.2.4.4 7.2.1.8 to 7.2.1.3 7.2.1.8.1 to 7.2.1.3.1 7.2.1.9 to 7.2.1.3.2 7.2.1.10 to 7.2.1.3.3 7.2.1.11 to 7.2.1.3.4 7.2.1.12 to 7.2.1.3.5 7.2.1.3.6 – Added 7.2.1.13 to 7.2.1.4 7.2.1.13.1 to 7.2.1.4.1 7.2.1.13.2 to 7.2.1.4.2 7.2.1.13.3 to 7.2.1.4.3 7.2.1.14 to 7.2.1.5 7.2.1.14.1 to 7.2.1.5.1 7.2.1.14.2 to 7.2.1.5.2 7.2.1.14.2.1 to 7.2.1.5.2.1 7.2.1.14.2.2 to 7.2.1.5.2.2 7.2.1.14.3 to 7.2.1.5.3 7.2.1.14.4 to 7.2.1.5.4 7.2.1.14.5 to 7.2.1.5.5 7.2.1.14.5.1 to 7.2.1.5.6 7.2.1.14.5.2 to 7.2.1.5.7 7.2.1.14.5.3 to 7.2.1.5.8 7.2.1.14.5.4 to 7.2.1.5.9 7.2.1.14.5.5 to 7.2.1.5.10</p>

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
126.	S7.2.1.3,	Section 7.2.1.3.1 through 7.2.1.3.5: Revised wording on conformance statements for consistency. Added conformance statements to RGs and BTPs.
127.	S7.2.1.3.4, RG 1.75	Added Chapter 8 reference for separation requirements and deleted remaining paragraph.
128.	S7.2.1.3.4, RG 1.118	Deleted Position C.5 text because it is no longer applicable.
129.	S7.2.1.3.5	Text revised in accordance with RAI 7.1-23
130.	S7.2.1.3.6	Added section for TMI action plan requirements
131.	S7.2.1.4.1 1 st para	Added IEEE references.
132.	S7.2.1.5.2.1 TSV and TCV trip bypasses, 1 st para	Revised last sentence for more clarification.
133.	S7.2.1.5.2.1	Added two bullets for reactor water level high trip bypass and condenser pressure high trip bypass
134.	S7.2.1.5.4, 3 rd bullet set	Added automatic bypass of the MSIV closure trip.
135.	S7.2.1.5.8	Deleted last sentence for clarification.
136.	S7.2.2.1.1.2, S7.2.2.1.2.1, S7.2.2.1.3.1, and S7.2.2.1.4.1	Text was added to the locations listed from the following subsections: S7.2.2.3.1.1, S7.2.2.3.1.2, S 7.2.2.3.1.3 and S 7.2.2.3.1.4. Text was added for better clarity.
137.	S7.2.2.2.3	Revised first sentence to more accurately describe current design
138.	S7.2.2.2.4.2	Deleted Bus A, B, C, D.
139.	S7.2.2.3,	Revised wording on conformance statements for consistency. Added conformance statements to RGs and BTPs.
140.	S7.2.2.2.4.6, 1 st para	Added sentence for clarification and changed “RPS” to “NMS” per MFN 07-160, Enclosure 1.
141.	S7.2.2.2.4.7	Changed “RPS” to “NMS” per MFN 07-160, Enclosure 1.
142.	S7.2.2.2.4.8, 2 nd para	Deleted Reference 7.1-6 and 7.1-7.
143.	S7.2.2.2.5.2	Deleted Bus A, B, C, D.
144.	S7.2.2.2.5.8	Edited references.
145.	S7.2.2.2.6.1	Deleted sentence per MFN 07-160, Enclosure 1.
146.	S7.2.2.2.6.2	Deleted Bus A, B, C, D.

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
147.	S7.2.2.2.6.6, 1 st para	Deleted sentence and changed “RPS” to “NMS” per MFN 07-160, Enclosure 1.
148.	S7.2.2.2.6.7	Changed “RPS” to “NMS” per MFN 07-160, Enclosure 1.
149.	S7.2.2.2.6.8	Edited references.
150.	S7.2.2.2.7.4, 3 rd para	Deleted first sentence per MFN 07-160, Enclosure 1.
151.	S7.2.2.3	<p>Changed subsection numbers as follows in Rev. 04 to match with standard SRP heading format.</p> <p>7.2.2.3.1 – Deleted 7.2.2.3.1.1 – Deleted 7.2.2.3.1.2 – Deleted 7.2.2.3.1.3 – Deleted 7.2.2.3.1.4 – Deleted 7.2.2.3.2 to 7.2.2.3.1 7.2.2.4 to 7.2.2.3.2 7.2.2.4.1 to 7.2.2.3.3 7.2.2.4.2 to 7.2.2.3.4 7.2.2.4.3 to 7.2.2.3.5 7.2.2.4.4 to 7.2.2.3.6 7.2.2.5 to 7.2.2.4 7.2.2.5.1 to 7.2.2.4.1 7.2.2.5.2 to 7.2.2.4.2 7.2.2.5.2.1 to 7.2.2.4.2.1 7.2.2.5.2.2 to 7.2.2.4.2.2 7.2.2.5.2.3 to 7.2.2.4.2.3 7.2.2.5.2.4 to 7.2.2.4.2.4 7.2.2.6 to 7.2.2.5 7.2.2.6.1 to 7.2.2.5.1 7.2.2.6.2 to 7.2.2.5.2 7.2.2.6.3 to 7.2.2.5.3</p>
152.	S7.2.2.3.1 (Rev 3)	Deleted subsection number and title. The text for subsections within S7.2.2.3.1 was relocated. See the next entry.
153.	S7.2.2.3.1.1, S7.2.2.3.1.2, S7.2.2.3.1.3 and S7.2.2.3.1.4 (Rev 3)	Deleted subsection titles and moved the text portions to S7.2.2.1.1.2, S7.2.2.1.2.1, S7.2.2.1.3.1 and S7.2.2.1.4.1 respectively.
154.	S7.2.2.4, S7.2.2.5, and S7.2.2.6 (Rev 3)	Changed subsections number to match with standard SRP heading format.
155.	S7.2.2.5.2, 5 th through 9 th para	Revised per MFN 07-160, Enclosure 1.

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
156.	S7.2.3.3 Subsections (Rev 3)	Changed subsections number to match with standard SRP heading format.
157.	S7.2.3.3, Safety Evaluation	Revised wording on conformance statements for consistency. Added conformance statements to RGs and BTPs. Changed the subsection numbering in Rev. 04 as follows: 7.2.3.3.1.1 to 7.2.3.3.1 7.2.3.3.1.2 to 7.2.3.3.2 7.2.3.3.1.3 to 7.2.3.3.3 7.2.3.3.1.4 to 7.2.3.3.4 7.2.3.3.1.5 to 7.2.3.3.5 7.2.3.3.1.6 to 7.2.3.3.6
158.	S7.2.3.3.1	Deleted section title and moved some text portion to S7.2.3.1.1
159.	S7.2.3.3.2	Deleted section title.
160.	S7.2.3.3.4	Added conformance statements to each RG. Added reference to chapter 8 for RG 1.75 to conform with other Chapter 7 sections. (Editorial)
161.	S7.2.3.3.5	Added conformance sentence to every BTP listed in safety evaluation sections.
162.	S7.2.5	Added Reference 7.2-2, 7.2-3 and 7.2-4.
163.	T7.2-1	Changed number from 8 to 16 for MSL isolation switches.
164.	T7.2-6	Revised the wording for analytical limit on OPRM Oscillation detection channel trip and alarm.
165.	F7.2-1	Revised to delete note 2 per MFN 07-160, Enclosure 1.
166.	F7.2-2	Revised – Changed “SSLC” to “RTIF.”
167.	F7.2-4	Revised – Changed “RPS” to “RTIF” and changed SRNM bypasses input per MFN 07-160, Enclosure 1.
168.	F7.2-5	Revised – Changed RPS to “RTIF” And added APRM bypasses per MFN 07-160, Enclosure 1.
169.	F7.2-8	Replaced F7.2-8 with a new figure that more accurately describes the Axial Distribution of LPRM Detectors.
170.	S7.3	All references to “ADS SRV” changed to “SRV” because ADS SRVs were being confused with non ADS SRVs, non ADS SRVs are now referred to as SVs.

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
171.	S7.3	Reference and conformance statement to 10 CFR 52.79(c) are deleted to make distinction between the scope of the DCD and the scope of the Combined Operating License Application.
172.	S7.3	Change the 10CFR52.47(a)(1)(vii) conformance statement to “There are no interface requirements for this section”
173.	S7.3	Changed conformance statements to RG 1.75 to agree with other safety evaluation sections.
174.	S7.3.1	Added subsection numbers to SLC and ICS to provide references to these two systems..
175.	S7.3.1.1.1	Removed header for safety related and nonsafety related design basis and grouped all bullets together. There should only be one design basis not safety and non safety related.
176.	S7.3.1.1.1 first bullet	Added references to describe water level because water level definitions were not in section 7.3.
177.	S7.3.1.1.2,	Entire section rewritten for better clarity. Paragraphs reordered for flow because many paragraphs jumped from topic to topic without a proper description. (Editorial)
178.	S7.3.1.1.3.1	Corrected “NBS” to “ADS.” S7.3.1.1 addresses the ADS, not the NBS
179.	S7.3.1.1.3.1	10CFR52.47(a)(2) conformance statement edited to provide more detail about how it conforms.
180.	S7.3.1.1.3.1	Reference and conformance statement to 10 CFR 52.79(c) are deleted to make distinction between the scope of the DCD and the scope of the Combined Operating License Application. Change the 10CFR52.47(a)(1)(vii) conformance statement to “There are no interface requirements for this section”
181.	S7.3.1.1.3.1	Changed section title from “Specific regulatory requirements conformance” to “Code of federal Regulations”

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
182.	S7.3.1.1.3.4	<p>RG 1.22 - Removed statement concerning frequency of system logic testing because the information is found in the reference which was updated and placed at the end of the paragraph.</p> <p>RG 1.118 - Changed “loss of coolant event” to LOCA.</p> <p>RG 1.153 - Added conformance statement for consistency with other RGs.</p> <p>RG 180 and 204 – Removed reference to 7.1.6 because information did not add value.</p>
183.	S7.3.1.1.3.4	Conformance statements added to all RG that did not have one and generic conformance statement at end of the section removed.
184.	S7.3.1.1.3.5	<p>BTP HICB-4 added to section with conformance statement.</p> <p>BTP HICB-12 removed reference to subsection and added reference 7.3-2 to better describe current design.</p> <p>BTP HICB-13 added to section with conformance statement.</p> <p>Individual BTPs were added in place of the list of BTPs at end of the section.</p>
185.	S7.3.1.1.4 (7.3.1.1.3.6 Rev 3)	Section 7.3.1.1.3.6 renamed 7.3.1.1.4 for consistency with other sections
186.	S7.3.1.1.5 (7.3.1.1.3.7 Rev 3)	Section 7.3.1.1.3.7 renamed 7.3.1.1.5 for consistency with other sections
187.	S7.3.1.1.5	Added reference to 7.3.1.1.2 to provide additional discussion of the ADS.
188.	S7.3.1.2.1	Added requirements (IEEE Std. 603, Sections 4.1, 4.2, 4.5, 5.1, 5.8, 6.2, 7.2, and 7.3). GDCS non safety design basis statement removed and the alarm GDCS parameter removed because it's not a design basis.
189.	S7.3.1.2.2,	Entire section rewritten for better clarity. Paragraphs reordered for better flow because many paragraphs jumped from topic to topic without a proper description. (Editorial)
190.	S7.3.1.2.2, 21 st para	Added “electrical” before continuity.
191.	S7.3.1.2.3, 3rd para	Clarified use of the safety related temperature switches.
192.	S7.3.1.2.3 6 th para	Deleted 6 th paragraph because the information contained was the same as the 7 th paragraph. 7 th paragraph was retained. (Editorial)
193.	S7.3.1.2.3, last para	Deleted repetitive text. (Editorial)

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
194.	S7.3.1.2.3.1	<p>10CFR50.55a(h) deleted reference to 7.2.1.2.4 because its no longer needed.</p> <p>10CFR 52.47(a)(1)(vi) modified conformance statement to conform with other Chapter 7 sections.</p> <p>Reference and conformance statement to 10 CFR 52.79(c) are deleted to make distinction between the scope of the DCD and the scope of the Combined Operating License Application.</p> <p>Change the 10CFR52.47(a)(1)(vii) conformance statement to “There are no interface requirements for this section”</p>
195.	S7.3.1.2.3.4	<p>RG 1.105 - Clarified conformance discussion and corrected the location of the reference</p> <p>RG 1.62 supporting text combine with conformance statement. (Editorial)</p> <p>RG 1.180 1.204 – Deleted references that did not add value. (Editorial)</p>
196.	S7.3.1.2.3.4	<p>RG list at end of section changed to individual statements on each RG. (Editorial)</p>
197.	S7.3.1.2.3.5	<p>BTP HICB-1 conformance changed for clarity on how it conforms.</p> <p>BTP HICB-3 Changed “recirculation” to “coolant.”</p> <p>BTP HICB-4 Added with conformance statement.</p> <p>BTP HICB-12 Deleted subsection location of references. (Editorial)</p> <p>BTP HICB – 14 Added with conformance statement.</p> <p>BTP HICB - 16 Deleted unneeded text</p> <p>Generic BTP list at end of the section changed to individual entries with each having a conformance statement. (Editorial)</p>
198.	7.3.2	<p>Reference to leak rates added for chapter 16B.3.3</p>
199.	S7.3.3	<p>Changed “RPS” to “Reactor Trip and Isolation Function (RTIF) in accordance with MFN 07-160.</p>
200.	7.3.3.1	<p>Added reference to IEEE 603 Criteria 5.2, 5.7, 5.9, 6.1, and 6.8.</p> <p>4th bullet removed, it was redundant with 6th bullet.</p> <p>15th bullet removed, its not a design basis.</p>
201.	S7.3.3.1, 7 th bullet	<p>Added reference to safety related to nonsafety related and reference to 7.1.3.3 removed.</p>

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
202.	S7.3.3.2 1 st para	Last sentence. Changed “RPS” to “RTIF” in accordance with MFN 07-160.
203.	S7.3.3.2, 11 th bullet	Added “Fission products sampling lines.”
204.	S7.3.3.2, after 11 th bullet	Deleted “leak detection and monitoring functions are implemented in the plant design” added “sources of leakage are detected and monitored” These changes are just a rewording to make things more clear. (Editorial)
205.	S7.3.3.2 After last bullet	Added “Drywell sump levels and flow rates are used to quantify identified and unidentified leakages.”
206.	S7.3.3.3	3 rd para First 2 sentences deleted 6 th para last sentence, reference to section 5.2.5 added in place of references to RG 1.45 deleted in 3 rd para. (Editorial)
207.	S7.3.3.3.1	The first sentence of the 10 CFR 50.55a(h) conformance statement is deleted to more accurately describe current design.
208.	S7.3.3.3.1	10 CFR 50.34(f)(2)(v)(I.D.3) removed references to IEEE 603 Sections 6.2 and 7.2 to more accurately describe conformance. Reference and conformance statement to 10 CFR 52.79(c) are deleted to make distinction between the scope of the DCD and the scope of the Combined Operating License Application. Change the 10CFR52.47(a)(1)(vii) conformance statement to “There are no interface requirements for this section”
209.	S7.3.3.3.1	10 CFR 52.47(a)(2) Conformance statement modified to correct errors in system name and regulation description.
210.	S7.3.3.3.2	Deleted “GDC conformance is discussed in section 3.1” because unnecessary out of chapter references were removed and replaced with explanations in each individual chapter.
211.	S7.3.3.3.4	Conformance statements added to all the RG entries and all RG are listed individually instead of a list at the end. (Editorial) RG 180 and 204 – Removed reference to 7.1.6 because information did not add value. (Editorial)
212.	S7.3.3.3.5	All BTP are now listed individually in accordance with the SRP and a conformance statement was added to each instead of a list at the end. (Editorial) BTP HICB-13 conformance statement changed to more accurately describe current design.

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
213.	S7.3.3.4.1	Changed “RPS” to “RTIF” In accordance with MFN 07-160.
214.	S7.3.3.4.1	Deleted “in accordance with establish test procedure” this text is implied and no need to use it.
215.	S7.3.4.2	Changed title from control room habitability area to System Description.
216.	S7.3.4.2 4 th para	Deleted “fault tolerant and single failure proof” this text was redundant with the remainder of the sentence.
217.	S7.3.4.2	Added text to clarify description of PRMS. (Editorial)
218.	S7.3.4.2, 2nd para	Sentence “The PRMS is used to detect excessive radiation in the inlet ventilation air” because it didn’t add value.
219.	S7.3.4.2, 3 rd and 5 th para	Paragraph rewritten for detail and clarity. (Editorial)
220.	S7.3.4.3.1	Reference and conformance statement to 10 CFR 52.79(c) are deleted to make distinction between the scope of the DCD and the scope of the Combined Operating License Application. Change the 10CFR52.47(a)(1)(vii) conformance statement to “There are no interface requirements for this section”
221.	S7.3.4.3.2	Deleted “GDC conformance is discussed in section 3.1” because unnecessary out of chapter references were removed and replaced with explanations in each individual chapter. (Editorial)
222.	S7.3.4.3.4	All RG have individual entries and conformance statements, RG list at the end removed. (Editorial) On RG 1.180 and 1.204 removed unnecessary text and reference to Subsection 7.1.6. (Editorial)
223.	S7.3.4.3.5	All BTP given individual entries and conformance statements, list at end removed. (Editorial) BTP HICB-13 conformance statement changed to more accurately describe current design.
224.	S7.3.5.1	Deleted 7th bullet describing ATWS.
225.	S7.3.5.2	Reference to Qualification Summary Report added in accordance with MFN 07-101.
226.	S7.3.5.3	7 th paragraph combine with 6 th paragraph, 7 th paragraph was a single sentence. (Editorial)

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
227.	S7.3.5.3.1	<p>10 CFR 50.34 (f)(2)(xiv). Added [II.E.4.2]: to 10 CFR 50.34 (f)(2)(xiv).</p> <p>Reference and conformance statement to 10 CFR 52.79(c) are deleted to make distinction between the scope of the DCD and the scope of the Combined Operating License Application.</p> <p>Change the 10CFR52.47(a)(1)(vii) conformance statement to “There are no interface requirements for this section”</p>
228.	S7.3.5.3.3	Added “SRM to” for clarity. (Editorial)
229.	S7.3.5.3.4	Removed reference to 7.1.6 from RG 1.180 and RG 1.204.
230.	S7.3.5.3.5	<p>Added BTP HICB-4- with conformance statement.</p> <p>BTP-HICB-13 conformance statement changed to more accurately describe current design.</p> <p>BTP HICB-14 added references to software management plan and software quality assurance.</p> <p>BTP HICB-21 added “real-time performance of the safety-related control system is deterministic based on the Q-DCIS internal and external communication system design and the SSLC/ESF controller design.”</p> <p>BTP HICB-21 deleted “Maximum time delay from input to output is deterministic, based on the control logic design.”</p> <p>Incorporates response to RAI 7.1-23</p>
231.	S7.3.7	<p>Added references:</p> <p>7.3-1 Triconex Topical Report 7286-545-1-a, “Qualification Summary report”, March 08, 2002</p> <p>7.3-2 GE Nuclear Energy, “General Electric instrument Setpoint Methodology,” NEDC 31336P-A, Class III (Proprietary), September 1996.None</p> <p>7.3-3 GE Energy Nuclear, “ESBWR I&C Software Management Plan,” NEDO-33226, Class I (Non-proprietary), and “ESBWR I&C Software Management Plan,” NEDE-33226P, Class III (Proprietary), Revision 1, July 2007.</p> <p>7.3-4 GE Energy Nuclear, “ESBWR I&C Software Quality Assurance,” NEDO-33245, Class I (Non-proprietary), and “ESBWR I&C Software Quality Assurance,” NEDE-33245P, Class III (Proprietary), Revision 1, July 2007.</p>

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
232.	T7.3-5	Under flow rates 2 nd bullet “ differential Volume” was changed to “Differential Mass” to be more correct. Deleted “RWCU/SDC Rooms” as it is unnecessary.
233.	F7.3-1 a.	Removed keylock switches because they are not needed for SRVs and clarified the trip logic diagram.
234.	F7.3-1b. F7.3-2	Clarified the trip logic diagram.
235.	T7.3-2, T7.3-3, T7.3-4	Deleted “The actual setpoint will be determined using an NRC approved setpoint methodology.”
236.	F7.3-3	Removed SLC MPL # in figure. Made editorial changes. (Editorial)
237.	S7.4.1.2, 2 nd paragraph	Edited for clarity.
238.	S7.4.1.2.1	Updated D3 term to be consistent with the new industry convention and BTP-19.
239.	S7.4.1.2.2	Edited for clarity. Added reference to IEEE Std. 603, Section 5.2.
240.	S7.4.1.3	Edited for clarity. Added references to various sections of IEEE Std. 603.
241.	S7.4.1.3.1	For SLC system, added references and conformance statements for 10 CFR 50.34(f)(2)(v)[I.D.3], Bypass and Inoperable Status Indication, and 10 CFR 52.47(a)(1)(vii), Interface Requirements. Reference and conformance statement to 10 CFR 52.79(c) are deleted to make distinction between the scope of the DCD and the scope of the Combined Operating License Application.
242.	S7.4.1.3.1.1	S7.4.1.3.1.1 changed to S 7.4.1.3.1 to bring S7.4 into conformity with other Chapter 7 sections.
243.	S7.4.1.3.2	New subsection number 7.4.1.3.2 for “General Design Criteria” added to correct the missing subsection number in Revision 3. S7.4.1.3.3 and 7.4.1.3.4 are renumbered as a result.
244.	S7.4.1.3.3	Added conformance to RG 1.22, on periodic testing of protection system actuation function. Added conformance to RG 1.47 on Bypass and Inoperable Status Indication, since SLC is an ESF system, and SRP 7.3 applies. Added conformance to RG 1.151 for instrument sensing lines, since SLC is a safety-related system.

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
245.	S7.4.1.3.4	Added BTP HICB-8 and BTP HICB-13 based on applicability of SRP 7.3 (SRP Table 7-1).
246. 0	S7.4.1.4	Revised for clarity, including testing information for shut-off valve logic.
247. 1	S7.4.2.3.1	Edited conformance statement to 10 CFR 52.47(a)(1)(vii) for content, since there is no interface with plant portions for which the application does not seek certification. Reference and conformance statement to 10 CFR 52.79(c) are deleted to make distinction between the scope of the DCD and the scope of the Combined Operating License Application.
248. 2	S7.4.2.3.1.1	S 7.4.2.3.1.1 changed to S 7.4.2.3.1 to bring S7.4 into conformity with other Chapter 7 sections.
249.	S7.4.2.3.3	Added reference to Section 8 Subsections for RG 1.75 conformance statement to bring it into conformity with rest of Section 7 (Editorial)
250. 3	S7.4.2.4	S 7.4.2.4 changed to S 7.4.2.3.5 to bring S7.4 into conformity with other Chapter 7 sections.
251. 4	S7.4.2.5	S 7.4.2.5 changed to S 7.4.2.4 to bring S7.4 into conformity with other Chapter 7 sections.
252. 5	S7.4.2.6	S 7.4.2.6 changed to S 7.4.2.5 to bring S7.4 into conformity with other Chapter 7 sections.
253. 6	S7.4.3.1.2	Edited for clarity, since isolation of purification equipment is bounded by isolation of the RWCU/SDC system.
254. 7	S7.4.3.1.3	Added a paragraph to reflect the interlocking of RWCU/SDC function modes with Reactor Power operation, in accordance with DCD Tier 2 Revision 4 Section 5.4.8.1.1.
255. 8	S7.4.3.2.2	Inserted text to more accurately describe current design.
256. 9	S7.4.3.3.1	Edited conformance statement to 10 CFR 52.47(a)(1)(vii) for content, since there is no interface with plant portions for which the application does not seek certification. Reference and conformance statement to 10 CFR 52.79(c) are deleted to make distinction between the scope of the DCD and the scope of the Combined Operating License Application.
257. 0	S7.4.4.3, 1 st paragraph	Edited references to DCD Tier 2 Chapter 5 subsections for clarity with regard to applicability of IEEE Std. 603.

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
258.	S7.4.4.3.1	<p>Added conformance of ICS to 10 CFR 50.34(f)(2)(v)[I.D.3], Bypass and Inoperable Status Indication.</p> <p>Edited conformance statement to 10 CFR 52.47(a)(1)(vii) for content, since there is no interface with plant portions for which the application does not seek certification.</p> <p>Reference and conformance statement to 10 CFR 52.79(c) are deleted to make distinction between the scope of the DCD and the scope of the Combined Operating License Application.</p>
259.	S7.4.4.3.3	<p>Added conformance to RG 1.22, on periodic testing of protection system actuation function. Added conformance to RG 1.47 on Bypass and Inoperable Status Indication, since ICS is an ESF system, and SRP 7.3 applies. Added conformance to RG 1.62, Manual Initiation of Protective Actions.</p>
260.	S7.4.4.3.3	<p>Added reference to Section 8 Subsections for RG 1.75 conformance statement to bring it into conformity with rest of Section 7 (Editorial)</p>
261.	S7.4.4.3.4	<p>Added BTP HICB-8 based on applicability of SRP 7.3 (SRP Table 7-1).</p> <p>BTP-HICB-13 conformance statement changed to more accurately describe current design.</p>
262.	F7.4-1	<p>Revised figure to reflect correct terminology for DCIS, and altered size for clarity.</p>
263.	F7.4-2a	<p>Revised tag number format for temperature elements.</p>
264.	F7.4-2b	<p>Revised tag number format for temperature elements.</p>
265.	F7.4-2c	<p>Revised tag number format for temperature elements.</p>
266.	F7.4-2d	<p>Revised tag number format for temperature elements.</p>
267.	F7.4-2e	<p>Edited for clarity.</p>
268.	S7.5.1.3.1 (S7.5.1.3.1.1 Rev 3)	<p>The change was made for the following reason: 10CFR52.47(a)(1)(vii) refers only to interface requirements to be met by those portions of the plant for which the application does not seek certification. Hence, no interface requirements for this section.</p>

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
269.	S7.5.1	<p>S7.5.1.3.1.1 was deleted.</p> <p>S7.5.1.3.1 changed title from Regulatory Requirements to Code of Federal Regulations</p> <p>S7.5.1.3.1.2 changed to S7.5.1.3.2</p> <p>S7.5.1.3.1.3 changed to S7.5.1.3.3</p> <p>S7.5.1.3.1.4. changed to S7.5.1.3.4</p> <p>S7.5.1.3.1.5 changed to 7.5.1.3.5 to bring S7.5 into conformity with other sections in Ch 7.</p>
270.	S7.5.1.3.4 (S7.5.1.3.1.4 Rev 3) Display Criteria section, last para	Subsection 7.1.5.8 changed to subsection 7.1.5.3.3
271.	S7.5.1.3.4 (S7.5.1.3.1.4 Rev 3), Post Accident Monitoring Variable List Doc section	Removed sentence for clarity.
272.	S7.5.1.3.2 (S7.5.1.3.1.2 Rev 3)	<p>Added GDC 64 which relates to monitoring radioactivity releases. GDC 64 is applicable to Section 7.5 although this is not reflected in SRP 7.5. It should be included in 7.5 and Table 7.1-1. NRC has issued Reg Guide 4.15 “Quality Assurance for Radiological Monitoring Programs (Inception through Normal Operations to License Termination) – Effluent Streams and the Environment, Rev. 2, July 2007 and it includes reference to GDC 64.</p>
273.	S7.5.1.3.4 (S7.5.1.3.1.4 Rev 3)	<p>Under the heading ‘Variable types and Selection Criteria’, removed Regulatory Position statements relating to RG 1.97 endorsing modifications to IEEE Std. 497. There was no need to cite the entire RG position in the DCD since the 3rd bullet under this subsection already discusses conformance with RG 1.97 including certain exceptions specified in section C of the RG. The ‘exceptions’ mentioned here are these Regulatory Position statements being removed. Removal of these statements does not change the intent of RG 1.97 conformance.</p>
274.	S7.5.1.3.4 (S7.5.1.3.1.4 Rev 3)	Under heading ‘Performance Criteria’-Same response in previous item above applies here.
275.	S7.5.1.3.4 (S7.5.1.3.1.4 Rev 3)	Under heading ‘Design Criteria’ – same response in previous item above applies here.

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
276.	S7.5.1.3.4 (S7.5.1.3.1.4 Rev 3)	Under the heading ‘Display Criteria,’ reworded sentence to provide additional information regarding power sources.
277.	S7.5.2.1, 3 rd para	Edited to clarify that the H2/O2 analyzers are not subsystem of the CMS.
278.	S7.5.2.1, 6 th para	Changed suppression chamber to wetwell which is the proper name. Edited sentence on the ‘signals’ for clarity. Suppression chamber and wetwell are used interchangeably in BWR but wetwell is the preferred name in ESBWR.
279.	S7.5.2.1, 11 th paragraph	Replaced the term ‘hotwell’ with ‘wetwell,’ the correct name.
280.	S7.5.2.3.1	The change was made for the following reason: 10CFR52.47(a)(1)(vii) refers only to interface requirements to be met by those portions of the plant for which the application does not seek certification. Hence, no interface requirements for this section. 10 CFR 52.79(c) deleted to make distinction between the scope of the DCD and the scope of the Combined Operating License Application.
281.	S7.5.2.3.3	Replaced “EPRI” with “of SECY-93-087, Item II.T .” NRC references EPRI in their documentation. However, ESBWR should reference NRC document SECY-93-087.
282.	S7.5.2.3.5, last bullet	Added discussion to BTP-HICB-13 why it is not applicable to CMS. BTP-13 refers to cross-calibration of RTDs. CMS uses thermocouple type sensors, not RTDs.
283.	S7.5.3, last sentence	Added a new subsection, “System Description” for clarity, then reassigned it the number S7.5.3.2 to bring S7.5 into conformity with other sections in Ch 7.
284.	S7.5.3.1 and S7.5.3.2	Two subsections added, “Design Bases” and “System Description” to bring S7.5 into conformity with other sections in Ch 7. S7.5.3.1 was reassigned for discussion on Design Bases while Safety Evaluation was reassigned to S7.5.3.3. S7.5.3.2 was reassigned for discussion on System Description.

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
285.	S7.5.3	<p>Changed subsection numbers as follows to bring S7.5 into conformity with other sections in Ch 7.</p> <p>From S7.5.3.1.1 to S7.5.3.3.1 From S7.5.3.1.2 to S7.5.3.3.2 From S7.5.3.1.3 to S7.5.3.3.3 From S7.5.3.1.4 to S7.5.3.3.4 From S7.5.3.1.5 to S7.5.3.3.5 From S7.5.3.1.6 to S7.5.3.3.6</p> <p>For S7.5.3.2 and S7.5.3.3 changes, see previous item.</p>
286.	S7.5.3.3.1 (S7.5.3.1.1 Rev 3)	<p>10CFR52.47(a)(1)(vii) refers only to interface requirements to be met by those portions of the plant for which the application does not seek certification. Hence, not applicable to this section.</p>
287.	S7.5.3.3.2 (S7.5.3.1.2 Rev 3)	<p>Added GDC 64 which relates to monitoring radioactivity releases. GDC 64 is applicable to Section 7.5 although this is not reflected in SRP 7.5. It should be included in 7.5 and Table 7.1-1. NRC has issued Reg Guide 4.15 “Quality Assurance for Radiological Monitoring Programs (Inception through Normal Operations to License Termination) – Effluent Streams and the Environment, Rev. 2, July 2007 and it includes reference to GDC 64.</p>
288.	S7.5.3.3.3 (S7.5.3.1.3 Rev 3)	<p>Edited reference to EPRI for clarity with regard to applicability of SECY-93-087, Item II.T</p>
289.	S7.5.3.3.5 (S7.5.3.1.5 Rev 3)	<p>Added discussion to BTP-HICB-13 why it is not applicable to PRMS. BTP-HICB-13 refers to cross-calibration of RTDs PRMS uses thermocouple type sensors, not RTDs.</p>
290.	S7.5.4.1 and S7.5.4.2	<p>Two subsections added to bring S7.5 into conformity with other sections in Ch 7. S7.5.4.1 was reassigned for discussion on Design Bases. S7..5.4.2 was added for discussion on System Description.</p>
291.	S7.5.3.4 (S7.5.3.2 Rev 3)	<p>Expanded sentence to provide compliance with IEEE Std. 603 Sections 5.7 and 6.5</p>

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
292.	S7.5.4	<p>Changed subsection numbers as follows to bring S7.5 into conformity with other sections in Ch 7.</p> <p>From S7.5.4.1.1 to S7.5.4.3.1 From S7.5.4.1.2 to S7.5.4.3.2 From S7.5.4.1.3 to S7.5.4.3.3 From S7.5.4.1.4 to S7.5.4.3.4 From S7.5.4.1.5 to S7.5.4.3.5</p>
293.	S7.5.4.3.1 (S7.5.4.1.1 Rev 3)	<p>10CFR52.47(a)(1)(vii) refers only to interface requirements to be met by those portions of the plant for which the application does not seek certification. Hence, not applicable to this section.</p> <p>10 CFR 52.79(c) deleted to make distinction between the scope of the DCD and the scope of the Combined Operating License Application.</p>
294.	S7.5.4.3.2 (S7.5.4.1.2 Rev 3)	<p>Added GDC 64 which relates to monitoring radioactivity releases. GDC 64 is applicable to Section 7.5 although this is not reflected in SRP 7.5. It should be included in 7.5 and Table 7.1-1. NRC has issued Reg Guide 4.15 “Quality Assurance for Radiological Monitoring Programs (Inception through Normal Operations to License Termination) – Effluent Streams and the Environment, Rev. 2, July 2007 and it includes reference to GDC 64.</p>
295.	S7.5.4.4, S7.5.4.5	<p>Added Testing and Inspection Requirements and Instrumentation and Control requirements subsections for consistency with other DCD Chapter 7 sections.</p>
296.	S7.5.5 (S7.5.5.2 Rev 3)	<p>Changes made to agree with section 9.1.3.</p>
297.	S7.5.5 (S7.5.5.4 Rev 3)	<p>Changes made to agree with section 9.1.3.</p>

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
298.	S7.5.5	<p>Reassigned subsection numbers 7.5.5.1, 7.5.5.2, 7.5.5.3, 7.5.5.4, and 7.5.5.5 from Pool Monitoring subsystems to Design Bases, System Description, Safety Evaluation, Testing and Inspection Requirements, and Instrumentation and Control Requirements respectively for consistency with other DCD Chapter 7 sections.</p> <p>Subsection title change as follows for consistency with other DCD Ch 7 sections:</p> <p>S7.5.5.1 “General Functional Requirements Conformance” to “System Design Bases”</p> <p>S7.5.5.2 “Suppression Pool” to “System Description”</p> <p>S7.5.5.3 “Gravity Driven Cooling System Pools” to “Safety Evaluation”</p> <p>S7.5.5.4 “IC/PCC Expansion Pools” to “Testing and Inspection Requirements”</p> <p>S7.5.5.5 “Spent Fuel Pools” to “Instrumentation and Control Requirements”</p>
299.	S7.5.5 (S7.5.5.5 rev 3)	Additional info provided to agree with section 9.1.3.
300.	S7.5.8	Deleted S7.5-1 reference in its entirety. It was related material that was removed in an earlier revision.
301.	S7.6	Editorial Changes: Throughout S7.6, “interlock,” “interlock function,” “interlock logic” changed to “interlock system(s)” where appropriate.
302.	S7.6. 1 st sentence	Specified NUREG-0800. (Editorial)
303.	S7.6.1.1 3 rd Para.	Clarified low and high pressure portion of the Gravity-Driven Cooling System (GDCCS) connections to RPV. (Editorial)
304.	S7.6.1.1	Deleted reference to IEEE Std 603 as reference is related to the Gravity-Driven Cooling System (GDCCS) section 7.3.1.2. (Editorial)
305.	S7.6.1.1 3 rd Para.	An “interlock” is identified that it is “High pressure interlock” and independent of reactor operating mode.
306.	S7.6.1.1 3 rd Para, last sentence	Added last sentence to clarify that all subsequent subsections describe LPCI line HP/LP interlock. (Editorial)
307.	S7.6.1.2.1	Added IEEE Std. 603 reference. (Editorial)
308.	S7.6.1.2.2	Deleted IEEE Std. 603, Section 8.2 reference, as it was not applicable to this section. (Editorial)
309.	S7.6.1.2.4	Added IEEE Std. 603 references. (Editorial)

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
310.	S7.6.1.2.7	Revised-Fail closed valve is “fail as-is” per DCD section 9.1.3.
311.	S7.6.1.2.8	Revised-Fail closed valves are “fail as-is” per DCD section 9.1.3, and added IEEE Std. 603 references. Added the function of backup air supply (to open or close the valve) to last sentence.
312.	S7.6.1.2.9	Clarified the separation of the safety-related solenoids from the nonsafety-related solenoids and the associated logic. And added IEEE Std. 603 references. (Editorial)
313.	S7.6.1.2.10	“Interlock” is identified as “high pressure” interlock. Added IEEE Std. 603 references. (Editorial)
314.	S7.6.1.2.11	Added IEEE Std. 603 references. (Editorial)
315.	S7.6.1.3	Substituted NUREG-0800 in place of SRP. (Editorial)
316.	S7.6.1.3.	Added IEEE Std. 603 references. (Editorial)
317.	S7.6.1.3.1	Reference and conformance statement to 10CFR 52.79(c) are deleted to make distinction between the scope of the DCD and the scope of the combined Operating License Application.
318.	S7.6.1.3.3	Conformance statements are added for all RGs for clarity. RG 1.75- Reference to chapter 8.0 Subsections are added for additional details.
319.	S7.6.1.3.3	Added RG 1.151 Instrument Sensing lines- and associated conformance statement.
320.	S7.6.1.3.5, 1 st sentence	Substituted NUREG-0800 in place of SRP. (Editorial)
321.	S7.6.1.5, 1 st bullet	Corrected local rack locations to outside containment.
322.	S7.7 Entire Section	Modified references to triplicated FTDCs to ensure that they were consistently referred to as “triplicated FTDCs” Added names to Reg Guides to conform with other Chapter 7 Sections. These changes are considered editorial and will not be marked with revision bars.
323.	S7.7, 2 nd and 3 rd para	Edited for clarity.
324.	S7.7 1 st Bullet	Added the “– nonsafety-related subsystems” to be consistent with 6 th bullet.
325.	S7.7.1.1.2, 1 st and 2 nd bullets	Edited for clarity.
326.	S7.7.1.2.1, 1 st para	Edited for clarity.

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
327.	S7.7.1.2.2, 12 th paragraphs	Edited for clarity. Changed “eight” to “ten” and added “(Refer to section 5.2.5)”
328.	S7.7.1.2.2, 3 rd para	Changed “common reference” to the “level” for clarity.
329.	S7.7.1.2.2, 5 th para	Added the additional information to better describe current design.
330.	S7.7.1.2.2, 7 th para	Added the additional information for clarity.
331.	S7.7.1.3.1	<p>Moved text to previous subsection. Deleted subsection number to bring S7.7 into conformity with other Chapter 7 sections. Added the “10 CFR 50.34(f)(2)(v)[I.d.3]---“for consistency.”</p> <p>Reference and conformance statement to 10 CFR 52.79(c) are deleted to make distinction between the scope of the DCD and the scope of the Combined Operating License Application. Change the 10CFR52.47(a)(1)(vii) conformance statement to “There are no interface requirements for this section”</p>
332.	S7.7.1.3.1.1	<p>S7.7.1.3.1.1 changed to S 7.7.1.3.1 to bring S7.7 into conformity with other Chapter 7 sections. The text in the old S7.7.1.3.1.1 was relocated to the beginning of 7.7.1.3</p> <p>10 CFR 50.55a(h) - Delete “7.1.2.3.3, 7.1.2.3.6, 7.2.1.2.4” and, added “7.1.6.4, and 7.2.1.3.4”</p> <p>Added conformance of NBS to 10 CFR 50.34(f)(2)(v) [I.D.3],</p> <p>Bypass and Inoperable Status Indication since NBS is a safety related system.</p> <p>Reference and conformance statement to 10 CFR 52.79(c) are deleted to make distinction between the scope of the DCD and the scope of the Combined Operating License Application.</p> <p>Change the 10CFR52.47(a)(1)(vii) conformance statement to “There are no interface requirements for this section”</p>
333.	S7.7.1.3.3	Added a new subsection number for Staff Requirements Memorandum which renumbered the next two subsection..

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
334.	S7.7.1.3.3 S7.7.1.3.4	S7.7.1.3.3 changed to S7.7.1.3.4 and S7.7.1.3.4 changed to S7.7.1.3.5 as a result of adding a new subsection number. Changed RG 1.75 entry to RG 1.75 - Physical Independence of Electric Systems. *Conformance: The NBS system design conforms with RG 1.75. See chapter 8.0 Subsections 8.3.1.3 and 8.3.1.4 for a discussion of how the design meets the requirements of RG 1.75.
335.	S7.7.1.5	Edited for clarity. Added “Instrument” and changed “containment” to “Reactor Building.”
336.	S7.7.2.2.6	3 rd through 7 th bullets indented to read as a second level list
337.	S7.7.2.2.6, 3 rd bullet	New text added to clarify manual rod movement.
338.	S7.7.2.2.7.5, 2 nd paragraph	Added “due to failure” for clarity.
339.	S7.7.2.2.7.1	Added detail for clarity.
340.	S7.7.2.2.7.6	Removed superfluous text and added detail for clarity.
341.	S7.7.2.2.7.11	Relocated the text in S7.7.2.3.5 and renumbered as S7.7.2.2.7.11.
342.	S7.7.2.3.1	Subsection number deleted, and the text for this subsection is now in S 7.7.2.3 to bring S7.7 into conformity with other Chapter 7 sections. Change the 10CFR52.47(a)(1)(vii) conformance statement to “There are no interface requirements for this section”
343.	S7.7.2.3.	Changed S 7.7.2.3.2 to S7.7.2.3.1, S 7.7.2.3.3 to S 7.7.2.3.2, S 7.7.2.3.4 to S 7.7.2.3.3, and S 7.7.2.3.4.1 to S 7.7.2.3.4 to bring S7.7 into conformity with other Chapter 7 sections. Added the GDC “28” for consistency.
344.	S7.7.3.1.1	Delete the “safety-related” because this function does not belong to Feedwater Control System. Changed “Mode 1” to “Power Operation Mode” and changed “main” to “reactor” for clarity.
345.	S7.7.3.1.2	Added “(Reference Figure 7.7-1, Water Level Range Definition)”.

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
346.	S7.7.3.2.1, 2 nd para	Added “including power supplies and input/output signals. The controller is designed for a Mean Time to Failure (MTTF) of no less than 1000 years” for clarity. Added “Additional ---- (Reference 7.7-2)” for clarity.
347.	S7.7.3.2.2, 2 nd , 3 rd para	<p>Changed the sentences from “Additional feedwater temperature controls, monitoring, and alarms are provided to assist in power maneuvering using the number 7 high-pressure feedwater heater. Refer to Section 10.4 and Subsection 7.2.2.3.” to “Additional feedwater temperature controls, monitoring, and alarms are provided to assist in power maneuvering using the number seven high-pressure feedwater heater and bypass around the high-pressure feedwater heaters. Refer to Section 10.4.” for clarity.</p> <p>Added the “FWCS sends to N-DCIS to initiate a SCRRI and SRI functions.” And deleted “initiates a SCRRI” for clarification.</p>
348.	S7.7.3.3.	<p>Moved S7.7.3.3.3 to become S7.7.3.3.4 to make it consistent with other “Safety Evaluation” sections.</p> <p>Added reference and conformance statement for BTP HICB-19 to S7.7.3.3.4.</p> <p>Added annotation: Reference and conformance statement to 10 CFR 52.79(c) are deleted to make distinction between the scope of the DCD and the scope of the Combined Operating License Application.</p>
349.	S7.7.4.2	Added information concerning PAS manual mode for clarity.
350.	S7.7.4.3.	<p>Moved S7.7.4.3.3 to become S7.7.4.3.4 to make it consistent with other “Safety Evaluation” sections.</p> <p>Changed Subsection from “7.1.2.2” to “1.11” for consistency.</p> <p>Added annotation: Reference and conformance statement to 10 CFR 52.79(c) are deleted to make distinction between the scope of the DCD and the scope of the Combined Operating License Application.</p>
351.	S7.7.5.1.1	Changed “Mode 1” to “Power Operation Mode” for clarity.

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
352.	S7.7.5.2.1 1 st and 3 rd para	<p>In order to more accurately describe the current design the following changes were made:</p> <p>Added “The SB&PC System is implemented on the triplicatedFTDCs. Power supplies and input/output signals are redundant. The controller is designed for a MTTF of no less than 1000 years.”</p> <p>Changed “This” to “Control of reactor pressure.”</p> <p>Added ”Additional information is provided in Major Plant Automation System Interfaces (Reference Table 7.7-1).</p>
353.	S7.7.5.3	<p>Added information for clarity.</p> <p>Added annotation:</p> <p>Reference and conformance statement to 10 CFR 52.79(c) are deleted to make distinction between the scope of the DCD and the scope of the Combined Operating License Application.</p> <p>Change the 10CFR52.47(a)(1)(vii) conformance statement to “There are no interface requirements for this section”</p>
354.	S7.7.5.3.3 (7.7.5.4.1 Rev 3)	<p>Added “RG1.180 & 1.204” and a conformance bullet for consistency.</p>
355.	S7.7.5.	<p>Changed S7.7.5.4 to S7.7.5.3.2, S7.7.5.4.1 to S7.7.5.3.3, S7.7.5.4.2 to S7.7.5.3.4, S7.7.5.5 to S7.7.5.4, and S7.7.5.6 to S7.7.5.5, and, to bring S7.7 into conformity with other Chapter 7 sections.</p>
356.	S7.7.6.2.1.1, 1 st and 3 rd para	<p>Changed "gamma thermometer" to "AFIP" for consistency, added the “and between” and changed the “across” to “axially along.”</p>
357.	S7.7.6.2.1.1, 4 th para	<p>Removed first sentence as AFIP sensor lifetimes have yet to be determined. Ongoing testing will establish a sensor lifetime.</p>
358.	S7.7.6.2.2.2	<p>Deleted the “This interface is discussed in Subsection 7.2.2.1.” for consistency.</p>
359.	S7.7.6.3.1	<p>Added annotation:</p> <p>Reference and conformance statement to 10 CFR 52.79(c) are deleted to make distinction between the scope of the DCD and the scope of the Combined Operating License Application.</p>

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
360.	S7.7.6.3.2	Added the GDC “28” for consistency.
361.	S7.7.6.4.1 1 st , 2 nd and 3 rd para	<p>Changed "gamma thermometer" to "AFIP" for consistency. And removed info as an instruction manual for the AFIP subsystem does not exist yet. Added the complete document title for clarity.</p> <p>Changed “NEDC-33197P” to “NEDE-33197P” for correct information.</p>
362.	S7.7.7.3.1	<p>Added annotation: Reference and conformance statement to 10 CFR 52.79(c) are deleted to make distinction between the scope of the DCD and the scope of the Combined Operating License Application.</p> <p>Change the 10CFR52.47(a)(1)(vii) conformance statement to “There are no interface requirements for this section”</p>
363.	S7.7.7.3.1.1, S7.7.7.3.1.2, and S7.7.7.3.1.3	S7.7.7.3.1.1, S7.7.7.3.1.2, S7.7.7.3.1.3 changed to S7.7.7.3.2, S7.7.7.3.3, and S7.7.7.3.4 to bring S7.7 into conformity with other Chapter 7 sections.
364.	S7.7.7.3.1.2	Added applicable conformance information from RG 1.204 to RG 1.180.
365.	S7.8.1	Text reworded slightly to make consistent with other sections (editorial). Added reference to Figure 7.8-1 and Reference 7.8-1 for clarity (editorial). Eliminated modes 1 and 2 reference for ATWS mitigation logic in 1 st paragraph for level of detail consistency, and since ATWS conditions are defined subsequently. .
366.	S7.8.1.1.1, title	Revised title to eliminate SSLC term for documentation consistency in terminology.
367.	S7.8.1.1.1.1, title	Revised title to eliminate SSLC term for documentation consistency in terminology.
368.	S7.8.1.1.1.1	Split text into separate paragraphs for clarity (editorial).
369.	S7.8.1.1.3	Relocated discussion on manual ARI from following subsection (editorial); deleted elevated power levels logic statement for RPS scram command to reflect current logic for the DPS (consistency with 7.8.1.1.4).
370.	S7.8.1.1.4, title	Changed for continuity/documentation consistency in terminology.

Chapter 7 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
371.	S7.8.1.1.4	Restructure text sequence for clarity. Deleted “delayed” from diverse scram discussion to reflect current DPS logic. Added OPRM trip input for SRI to reflect new DPS logic signal. Added discussion on manual SRI and SCRR I to be consistent with level of detail in S7.1.5. Relocated discussion of manual ARI to 7.8.1.1.3.
372.	S7.8.1.2.2	Editorial: Updated cross-references and deleted reference to SLC squib power assignments to be consistent with referenced subsection 7.4.1.
373.	S7.8.2.1	Replaced reference to (deleted) Appendix 7B with a reference to the ESBWR I&C Software Quality Assurance Plan NEDO-33245/NEDE-33245P (new Reference 7.8-3)
374.	S7.8.2.2	Modified title (editorial).
375.	S7.8.2.2.1	Modified title and heading (editorial)
376.	S7.8.2.3	Deleted subsection to accommodate formatting consistency, and moved content to Subsection 7.8.3
377.	S7.8.3	Changed Subsection title to “Safety Evaluation” for consistency, and incorporated discussion previously in S7.8.2.3. Expanded safety evaluation discussion to include ATWS/SLC.
378.	S7.8.3.4	Added RG 1.151 (for ATWS/SLC). Added conformance statements to each RG. Deleted reference to RG 1.29 to be consistent with Diverse I&C design basis.
379.	S7.8.3.5	Added conformance statements to each BTP.
380.	S7.8.4	Revised subsection title to “Testing and Inspection Requirements”
381.	S7B	Section deleted because the information previously found in 7B is currently found in the following documents: -GE Energy Nuclear, “ESBWR I&C Software Quality Assurance Plan,” NEDO-33245, Class I (Non-proprietary); and “ESBWR I&C Software Quality Assurance Plan,” NEDE-33245P, Class III (Proprietary), Revision 2, July 2007 and -GE Energy Nuclear, “ESBWR I&C Software Management Plan,” NEDO-33226, Class I (Non-proprietary); and “ESBWR I&C Software Management Plan,” NEDE-33226P, Class III (Proprietary), Revision 2, July 2007.