

Chapter 11 Changes From Revision 3 to Revision 4

Item	Location	Description of Change
1.	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 and edited Acronym list where needed. Changed GE to GEH where appropriate.
2.	S11.1, 2 nd para.	Information provided to address SRP 11.1.
3.	S11.1, 5 th para	Information provided to address SRP 11.1 and edited for clarity.
4.	S11.1.1, 2 nd , 4 th and 6 th para	Additional info provided to clarify where the operational source term resides.
5.	S11.1.2, 1 st and 3 rd para	Additional info provided for clarity and to refer where the normal operation concentration resides.
6.	S11.1.4	Reflects where fuel fission product inventory is located.
7.	S11.1.5, 1 st para	Removed sentence as it provided no additional information, and does not flow or have relevance with previous sentences.
8.	S11.1.5, 4 th para	Corrected subsection reference for model parameters associated with airborne concentrations.
9.	S11.1.6, new para	Additional section added to conform to other chapters.
10.	S11.1.7, References	Reference added for additional detail as a result of S11.1, 2 nd para change.
11.	S11.2, 3 rd para	Replaced “A conceptual” with “The” and edited tense.
12.	S11.2.1, new 2 nd para	Additional information provided for clarity. Title also changed to coincide with section. Pointer added to PERM systems in Section 11.5.
13.	S11.2.1, 7 th bullet	Additional information provided for compliance with BTP 11-6 and incorporating the use of steel tank cubicle liners.
14.	S11.2.1, 4 th and 5 th para	Moved subsections to 11.2.2.3 for chapter continuity.
15.	S11.2.2.1, new 6 th para	Additional information provided in response to RAI 11.2.3-1 S01.
16.	S11.2.2.2, new 1 st para	Information provided to address SRP 11.2 and to provide additional clarity.

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17.	S11.2.2.2, 3 rd para	Edited to conform to additional design information provided in Figure 11.2-1A.
18.	S11.2.2.2, 6 th para	Additional information provided or edited for clarity to reflect design.
19.	S11.2.2.2, 8 th para	Edited to conform to additional design information provided in Figure 11.2-1B.
20.	S11.2.2.2, 9 th para	Changed “equipment” to “floor” to reflect design.
21.	S11.2.2.2, 12 th para	Changed information to reflect that sludge is discharged to a phase separator.
22.	S11.2.2.2, 14 th para	Additional information provided to clarify waste minimization and reflect additional design information provide on Figure 11.2-3. Also added information that contents can be chemically pre-treated.
23.	S11.2.2.2, 14 th para	Sentence removed in response to RAI 11.2-11 S01.
24.	S11.2.2.2, 15 th para	Edited for clarity to reflect detergent drain subsystem design.
25.	S11.2.2.3, 4 th para	Clarified that tanks are vented to sumps.
26.	S11.2.2.3, 5 th para	Additional information provided to reflect incorporation of tank cubicle liners into the ESBWR design and compliance to BTP 11-6.
27.	S11.2.2.3, new 6 th and 7 th para	Sections moved from 11.2.1 for chapter continuity.
28.	S11.2.2.3, 8 th para	Edited for clarity.
29.	S11.2.2.3, 10 th and 13 th para	Additional information provided to clarify conceptual design and reference section figures.
30.	S11.2.2.3, 12 th para	Edited for clarity.
31.	S11.2.2.3, 11 th and 14 th para	Identify that RO concentrates are accumulated in the concentrated waste tank for processing.
32.	S11.2.2.3, 14 th and 15 th para	Removed redundant information and clarified the Floor Drain RO and Deep Bed Demineralizer Mobile Subsystem conceptual design.
33.	S11.2.2.3, 17 th para	Edited information to conform to Figure 11.2-4 and clarify conceptual design.
34.	S11.2.2.3, 18 th para	Removed information to reflect design presented in Figure 11.2-4.

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35.	S11.2.3, 2 nd para	Clarify where radioactive material is concentrated.
36.	S11.2.3, new 3 rd para	Additional information provided in response to RAI 11.2-11 S01.
37.	S11.2.3, new 6 th para	Information provided to address SRP 11.2 and BTP 11-6.
38.	S11.2.4, 1 st para	Additional information provided to reference Table 11.2-1.
39.	S11.2.4, new 4 th para	Additional information provided in response to RAI 11.2-13 S01 and RAI 11.5-44.
40.	S11.2.5, 2 nd para	Sampling is addressed in Section 11.5.
41.	S11.2.6, COL sect	Replaced “COL Holder” with “COL Applicant”, also added subsection references.
42.	S11.2.6, 11.2-2-A	Removed Subsection reference as it no longer provided clarity.
43.	S11.2.7, new 11 th reference	Reference added for BTP 11-6 compliance.
44.	T11.2-1	Edited references for correct sections of ASME Code.
45.	T11.2-1, 3 rd footnote	Removed 3 rd footnote in response to RAI 11.2-4 S01. Also edited table to reference footnote number change.
46.	T11.2-1, new 7 th footnote	RG 1.143 compliance information added.
47.	T11.2-2c, title	Adjusted title to show table as conceptual design information.
48.	T11.2-2c	Corrected information to correspond to current mobile technology.
49.	T11.2-3	Added Reverse Osmosis decontamination factors to equipment drain subsystem, and adjusted DF totals accordingly.
50.	T11.2-3, 2 nd footnote	Edited to conform to correct reference.
51.	T11.2-3, new 3 rd footnote	Additional information provided in response to RAI 11.2-31 S01.
52.	T11.2-4	Updated LWMS inputs from operational occurrences.
53.	F11.2-1, title	Removed information for clarity.
54.	F11.2-1	Replaced figure to provide updated design details.
55.	F11.2-1a, new	New Equipment Drains design.
56.	F11.2-1b, new	New Floor Drains design.

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57.	F11.2-2	Replaced figure to provide updated changes.
58.	F11.2-3, new	New Detergent Drain design.
59.	F11.2-4, new	New Chemical Drain design.
60.	S11.3.1, 1 st , 4 th , 8 th and 10 th para	Edited for clarity.
61.	S11.3.1, 15 th row	Additional information provided for compliance to IE Bulletin 80-10.
62.	S11.3.2, 3 rd para	Removed information for clarity since the statement has no relevance to the process facility design.
63.	S11.3.2, 7 th para	Reference DCD Chapter 12 as basis for release conclusion that MPC to environment is not exceeded.
64.	S11.3.2.1, 12 th para	Information is redundant to information in 2 nd paragraph.
65.	S11.3.2.1, 13 th para	Removed combination of check valve and pressure control valve as means to comply with IE Bulletin 80-10
66.	S11.3.2.1, 19 th para	Edited tense for clarity.
67.	S11.3.2.1, 22 nd para	Additional information concerning method provided to reference IE Bulletin 80-10.
68.	S11.3.2.2, 3 rd para	Edited for clarity; acronyms previously defined.
69.	S11.3.2.2, 4 th para	Additional design information provided for clarity.
70.	S11.3.2.2, 13 th para	Removed “nuclear quality” for clarity; pre-heater provided with normal steam supply.
71.	S11.3.2.2, 24 th para, bullet	Removed bullet to correspond with system design.
72.	S11.3.2.3	OGS design conformance with RG 1.143.
73.	S11.3.5, 2 nd para	Additional information provided concerning inspection and testing requirements per RG 1.143.
74.	S11.3.5, new 4 th para	Quality Assurance requirement provided in response to RAI 11.2-13 S01 and RAI 11.5-44.
75.	S11.3.6, new 4 th para	OGS Hydrogen concentration and effluent radiation level alarm locations.
76.	S11.3.7.1, 1 st , 2 nd para and 2 nd bullet	Compliance with BTP 11-5.
77.	S11.3.7.1, 2 nd para	Additional design information provided to clarify the radiation level and signal alarms.

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78.	S11.3.7.2, 2 nd para	Compliance with BTP 11-5.
79.	S11.3.9, 18 th reference	Compliance with BTP 11-5.
80.	T11.3-1, new rows	Additional information provided in response to RAI 14.2-86
81.	T11.3-5	New isotopic source rates based upon compliance with BTP 11-5.
82.	T11.3-6	New isotopic release rates based upon compliance with BTP 11-5.
83.	T11.3-7	Information revised/updated for BTP 11-5 compliance.
84.	F11.3-1	Replaced figure to provide updated design changes.
85.	S11.4, 1 st , 2 nd and 3 rd para	Replaced “four” subsystems with “five”
86.	S11.4, new 3 rd bullet	Information provided to reflect addition of Mobile Concentrate system.
87.	S11.4, 3 rd para	Replaced “A conceptual” with “The” and added additional information for clarity.
88.	S11.4.1, 2 nd subtitle	Replaced “Power Generation” with “SWMS” since the SWMS performs no power generation function.
89.	S11.4.1, 2 nd para, 1 st and 2 nd bullet	Adjusted to reflect correct references.
90.	S11.4.1, 2 nd para, 4 th and 5 th bullets	10 CFR 20.2007 compliance.
91.	S11.4.1, 2 nd para, 7 th bullet	Edited for clarity. Added COL applicant reference for temporary storage requirements if one is installed.
92.	S11.4.1, 3 rd para	Chapter 12 isotopic activity references for SWMS.
93.	S11.4.1, 5 th para	Replaced “COL Holder” with “COL Applicant,” and clarified regulatory references.
94.	S11.4.1, 6 th para	Reference added to reflect Area Radiation Monitors in Table 12.3-4.
95.	S11.4.1, 7 th para	Clarified regulatory references.
96.	S11.4.2.1, 1 st para	Reflects addition of reverse osmosis design.
97.	S11.4.2.2, 1 st , and 2 nd para	Paragraphs removed and incorporated into other COL applicant items.

Item	Location	Description of Change
98.	S11.4.2.2, 3 rd para	Incorporated RG 1.143 compliance to other COL applicant item.
99.	S11.4.2.2, 5 th para	Added Wet Solid Waste Collection system references.
100.	S11.4.2.2, 6 th para	Spent bead resin transferred to resin tanks.
101.	S11.4.2.2, 8 th para	Clarified name of transfer pump.
102.	S11.4.2.2, 9 th thru 15 th para	HIC acronym previously defined; named circulation pump transfer pump; how suspended solids are kept in suspension and added second mixing/transfer pump.
103.	S11.4.2.2, 12 th para	Clarified conceptual design information for Mobile Wet Solid Waste Processing Subsystem.
104.	S11.4.2.2, new 17 th through 20 th para	Clarify the conceptual design information for Mobile Wet Concentrate Treatment System.
105.	S11.4.2.2, 21 st through 24 th , 27 th and 28 th para	Additional design information; clarification of Dry Solid Waste Accumulation and Conditioning Subsystem and Mixed Waste Processing.
106.	S11.4.2.2, 29 th para	This paragraph was deleted since waste characterization compliance in accordance with 10 CFR 61.55 has already been discussed.
107.	S11.4.2.3, 2 nd para	Clarified tank sizing of SWMS.
108.	S11.4.2.3, 4 th and 5 th para	Paragraph 4 discusses tank venting through a filtration unit resulting in paragraph 5 being redundant.
109.	S11.4.2.3, 7 th para	Additional information provided to reference RG 1.143 and RG 8.8 compliance.
110.	S11.4.2.3, 9 th para	Clarification.
111.	S11.4.2.3, 10 th para	Clarification of SWMS Mobile System conceptual design.
112.	S11.4.2.3, 11 th para	Replaced “COL Holder” with “COL Applicant,” with complete description of conformance requirements
113.	S11.4.3, 2 nd para	Paragraph removed and incorporated into previous COL applicant item under Mobile Systems.
114.	S11.4.4, 2 nd para	Paragraph removed and incorporated into previous COL applicant item under Mobile Systems.
115.	S11.4.4, new 5 th para	Quality Assurance requirement added as a result of response to RAI 11.2-13 S01 and RAI 11.5-44.
116.	S11.4.5	Clarification.

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117.	S11.4.6	COL applicant requirements clarified, re-worded and combined, maintaining same level of compliance.
118.	S11.4.6, all COL items	Replaced “COL Holder” with “COL Applicant,” adjusted COL numbering, added subsection references and generalized editing for clarity.
119.	S11.4.6, COL items 11.4.6.4 and 11.4.6.5 removed	COL items removed and incorporated into another COL applicant items.
120.	S11.4.7, 26 th reference	Reference added for additional detail to reflect compliance with Part 20.2007.
121.	T11.4-1	Additional design tank and pump information provided; clarified number of pumps and corrected number of HIC return pumps.
122.	T11.4-2	Updated bead resin and wet solid waste totals.
123.	T11.4-2, footnotes	Clarified footnotes.
124.	F11.4-1	Edited to designate conceptual design.
125.	F11.4-2	Revised to remove conceptual design designation (projected response to RAI 11.4-18).
126.	F11.4-3	Revised to identify as conceptual design (projected response to RAI 11.4-18).
127.	S11.5, 1 st para	Edited information to provide clarity.
128.	S11.5.1.1.1, 4 th bullet	Edited for clarity; acronym previously defined.
129.	S11.5.2, 1 st bullet	Additional applicable regulatory compliance references added.
130.	S11.5.2, new 4 th bullet	Additional regulatory compliance references provided in response to RAI 11.5-46.
131.	S11.5.2, 6 th bullet	Edited to provide updated reference.
132.	S11.5.2, 2 nd para	Edited/modified information to provide clarity.
133.	S11.5.2.1, new 10 th bullet	Additional information provided in response to RAI 11.5-37.
134.	S11.5.2.2, 1 st para	Corrected tense.
135.	S11.5.2.2, new 7 th bullet	Additional information provided in response to RAI 11.5-37.
136.	S11.5.3.1, 2 nd para	Second sentence modified to add location of radiation detectors.

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137.	S11.5.3.1.1, new	Subsection 11.5.3.2.1 on MSL moved to subsection describing other Radiation Monitors Required for Safety. Added mechanical vacuum pump.
138.	S11.5.3.1.2, 3 rd para	Corrected the regulatory reference.
139.	S11.5.3.1.4, 8 th para	Changed “Class IE” to “safety-related.”
140.	S11.5.3.1.5, new 4 th para	Additional information provided for clarification on the LCW/HCW radiation monitors.
141.	S11.5.3.1.6, new 1 st and 2 nd para	Additional information provided in response to RAI 11.5-6 S02. Also added “closure” to refer to the isolation function and to refer to the regulatory guidelines.
142.	S11.5.3.1.6, old 4 th and 5 th para	Removed paragraphs in response to RAI 11.5-6 S02.
143.	S11.5.3.1.6, 4 th para	Additional information provided to clarify which isolation condenser channels are being discussed.
144.	S11.5.3.1.6, 6 th and 10 th para	Edited for clarity.
145.	S11.5.3.1.8, 8 th para	Edited for clarity.
146.	S11.5.3.1.9, 9 th and 10 th para	Removed duplicate information; see previous paragraphs and corrected tense.
147.	S11.5.3.2.1, removed	Moved subsection to 11.5.3.1.1 to be located with other radiation monitors required for safety.
148.	S11.5.3.2.2, 1 st para	Corrected capitalization errors and removed “-1999” from ANSI/HPS reference.
149.	S11.5.3.2.2, 8 th para	Additional information provided in response to RAI 11.5-38.
150.	S11.5.3.2.4, 2 nd para	Edited for clarity and removed “-1999” from ANSI/HPS reference.
151.	S11.5.3.2.4, 7 th para	Clarified that Tritium grab sampling and monitoring is provided in the design.
152.	S11.5.3.2.7, 2 nd para and 5 th para	Clarified that Tritium grab sampling and monitoring is provided in the design. Removed “-1999” from ANSI/HPS reference.
153.	S11.5.3.2.9, 2 nd para	Replaced “will be” with “is” to correct tense.
154.	S11.5.3.2.10, 1 st para	Clarified the type of alarm function provided.
155.	S11.5.3.2.10, 3 rd para	Edited to correct tense.

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156.	S11.5.3.2.11, 2 nd and 7 th para	Clarified the type of alarm function provided. Also corrected tense.
157.	S11.5.3.2.12, 2 nd para	Clarified the type of alarm function provided.
158.	S11.5.3.2.13, 1 st para	Edited to correct tense.
159.	S11.5.3.2.13, 2 nd and 8 th para	Additional information provided in response to RAI 11.5-46.
160.	S11.5.3.2.13, 4 th para	Clarified that Tritium grab sampling and monitoring is provided in the design and edited to correct tense.
161.	S11.5.3.2.13, 5 th para	Edited to correct tense and removed “-1999” from ANSI/HPS reference.
162.	S11.5.3.2.14, 1 st para	Edited tense.
163.	S11.5.3.2.14, 2 nd and 6 th para	Clarified that Tritium grab sampling and monitoring is provided in the design. Also edited to correct tense. Removed “-1999” from ANSI/HPS reference.
164.	S11.5.4.4	Removed text and replaced with “(COL 11.5-2-A)” to be consistent with COL sections.
165.	S11.5.4.5, 1 st para	Replaced “COL Holder” with “COL Applicant” in response to RAI 11.5-47. Also added information to be consistent with COL section.
166.	S11.5.4.5, 2 nd para	Additional sampling requirements for COL Applicant to include ODCM and referencing Tables 11.5-5 and 11.5-6.
167.	S11.5.4.6	Replaced “COL Holder” with “COL Applicant” since applicant will be establishing this program. Also edited information to be consistent with COL section.
168.	S11.5.4.7, new	Additional information provided to be consistent with COL Applicant items identified in S11.5.7.
169.	S11.5.4.8 and 11.5.4.9	Replaced “COL Holder” with “COL Applicant” since applicant will be establishing this program. Also edited information to be consistent with COL section.
170.	S11.5.5.8	Removed text and replaced with “(COL 11.5-2-A)” to be consistent with COL sections.
171.	S11.5.5.9, 2 nd para	Edited tense.
172.	S11.5.6.1, 1 st para	Channel checks can be performed more frequently or less frequently depending on system operability requirements. Deleted duplicate paragraph.

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173.	S11.5.6.1, new 5 th para	Quality Assurance provisions added in response to RAI 11.2-13 S01 and RAI 11.5-44.
174.	S11.5.7, COL 1-A and 2-A	Replaced “COL Holder” with “COL Applicant” in response to RAI 11.5-47 and added additional regulatory guidance.
175.	S11.5.7, COL 2-A, new para	Additional information provided in response to RAI 11.5-23. Added sampling and monitoring provisions with reference to Tables 11.5-5 and 11.5-6.
176.	S11.5.7, COL 3-A through 5-A	Replaced “COL Holder” with “COL Applicant” in response to RAI 11.5-47 and provided additional references for clarity.
177.	S11.5.8, 3 rd reference	Additional regulatory references provided in response to RAI 11.5-47.
178.	S11.5.8, 14 th reference	Removed reference in response to RAI 11.5-39.
179.	S11.5.8, 19 th reference	Updated ANSI/IEEE standard reference provided in response to RAI 11.5-39.
180.	S11.5.8, 22 nd and 23 rd references	Additional regulatory compliance references provided for clarity.
181.	T11.5-1, Sec A, new 1 st row	Added row because the main steam line is actually a safety-related radiation monitor.
182.	T11.5-1, Sec B, 1 st row	Removed row because the main steam line is actually a safety-related radiation monitor.
183.	T11.5-1, new 2 nd footnote	Added new footnote to clarify that the MSL monitor is qualified safety-related but performs no safety-related closure function.
184.	T11.5-2, Sec A, new 1 st row	Added row because the main steam line is actually a safety-related radiation monitor.
185.	T11.5-2, Sec B, 1 st row	Removed row because the main steam line is actually a safety-related radiation monitor.
186.	T11.5-2, Sec B, 2 nd row	Edited line in response to RAI 11.5-40.
187.	T11.5-2, 2 nd footnote	Edited and added requirement to include information in ODCM. Also referenced the COL Applicant requirement.
188.	T11.5-2, new 4 th footnote	Added new footnote to clarify that the MSL monitor is qualified safety-related but performs no safety-related closure function.

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189.	T11.5-4, 2 nd footnote	Edited and added requirement to include information in ODCM. Also referenced the COL Applicant requirement.
190.	T11.5-5, #11 and 14	Replaced “COL Holder” with “COL Applicant” in response to RAI 11.5-47.
191.	T11.5-5, new #15	Additional sampling stream added to reflect design.
192.	T11.5-5, 4 th footnote	Edited and added requirement to include information in ODCM. Also referenced the COL Applicant requirement.
193.	T11.5-5, 7 th footnote	Correcting the LLD standard and tense.
194.	T11.5-7, 3 rd footnote	Correcting the LLD standard and tense. Changed regulatory requirement.
195.	T11.5-7, 4 th footnote	Typographical error corrected in response to RAI 11.5-42.
196.	T11.5-8, 2 nd footnote	Correcting the LLD standard and tense.
197.	T11.5-8, 3 rd footnote	Typographical error corrected in response to RAI 11.5-42.
198.	T11.5-9, Sec A, 2 nd row	Corrected the number to be consistent with T11.5-2.
199.	F11.5-1	Notation added for 3 radiation monitors identified for FB in response to RAI 11.5-43, and showed radiation monitor 9A and 9B. Deleted duplicate title.