**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, 2nd para. | Information provided to address SRP 11.1. |
| 3. | S11.1, 5th para | Information provided to address SRP 11.1 and edited for clarity. |
| 4. | S11.1.1, 2nd, 4th and 6th para | Additional info provided to clarify where the operational source term resides. |
| 5. | S11.1.2, 1st and 3rd 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, 1st para | Removed sentence as it provided no additional information, and does not flow or have relevance with previous sentences. |
| 8. | S11.1.5, 4th 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, 2nd para change. |
| 11. | S11.2, 3rd para | Replaced “A conceptual” with “The” and edited tense. |
| 12. | S11.2.1, new 2nd 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, 7th bullet | Additional information provided for compliance with BTP 11-6 and incorporating the use of steel tank cubicle liners. |
| 14. | S11.2.1, 4th and 5th para | Moved subsections to 11.2.2.3 for chapter continuity. |
| 15. | S11.2.2.1, new 6th para | Additional information provided in response to RAI 11.2.3-1 S01. |
| 16. | S11.2.2.2, new 1st para | Information provided to address SRP 11.2 and to provide additional clarity. |

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

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|---|---|---|
| 35. | S11.2.3, 2nd para | Clarify where radioactive material is concentrated. |
| 36. | S11.2.3, new 3rd para | Additional information provided in response to RAI 11.2-11 S01. |
| 37. | S11.2.3, new 6th para | Information provided to address SRP 11.2 and BTP 11-6. |
| 38. | S11.2.4, 1st para | Additional information provided to reference Table 11.2-1. |
| 39. | S11.2.4, new 4th para | Additional information provided in response to RAI 11.2-13 S01 and RAI 11.5-44. |
| 40. | S11.2.5, 2nd 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 11th reference | Reference added for BTP 11-6 compliance. |
| 44. | T11.2-1 | Edited references for correct sections of ASME Code. |
| 45. | T11.2-1, 3rd footnote | Removed 3rd footnote in response to RAI 11.2-4 S01. Also edited table to reference footnote number change. |
| 46. | T11.2-1, new 7th 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, 2nd footnote | Edited to conform to correct reference. |
| 51. | T11.2-3, new 3rd 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, 1st, 4th, 8th and 10th para | Edited for clarity. |
| 61. | S11.3.1, 15th row | Additional information provided for compliance to IE Bulletin 80-10. |
| 62. | S11.3.2, 3rd para | Removed information for clarity since the statement has no relevance to the process facility design. |
| 63. | S11.3.2, 7th para | Reference DCD Chapter 12 as basis for release conclusion that MPC to environment is not exceeded. |
| 64. | S11.3.2.1, 12th para | Information is redundant to information in 2nd paragraph. |
| 65. | S11.3.2.1, 13th para | Removed combination of check valve and pressure control valve as means to comply with IE Bulletin 80-10 |
| 66. | S11.3.2.1, 19th para | Edited tense for clarity. |
| 67. | S11.3.2.1, 22nd para | Additional information concerning method provided to reference IE Bulletin 80-10. |
| 68. | S11.3.2.2, 3rd para | Edited for clarity; acronyms previously defined. |
| 69. | S11.3.2.2, 4th para | Additional design information provided for clarity. |
| 70. | S11.3.2.2, 13th para | Removed “nuclear quality” for clarity; pre-heater provided with normal steam supply. |
| 71. | S11.3.2.2, 24th 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, 2nd para | Additional information provided concerning inspection and testing requirements per RG 1.143. |
| 74. | S11.3.5, new 4th para | Quality Assurance requirement provided in response to RAI 11.2-13 S01 and RAI 11.5-44. |
| 75. | S11.3.6, new 4th para | OGS Hydrogen concentration and effluent radiation level alarm locations. |
| 76. | S11.3.7.1, 1st, 2nd para and 2nd bullet | Compliance with BTP 11-5. |
| 77. | S11.3.7.1, 2nd para | Additional design information provided to clarify the radiation level and signal alarms. |

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

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|---|---|---|
| 98. | S11.4.2.2, 3rd para | Incorporated RG 1.143 compliance to other COL applicant item. |
| 99. | S11.4.2.2, 5th para | Added Wet Solid Waste Collection system references. |
| 100. | S11.4.2.2, 6th para | Spent bead resin transferred to resin tanks. |
| 101. | S11.4.2.2, 8th para | Clarified name of transfer pump. |
| 102. | S11.4.2.2, 9th thru 15th 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, 12th para | Clarified conceptual design information for Mobile Wet Solid Waste Processing Subsystem. |
| 104. | S11.4.2.2, new 17th through 20th para | Clarify the conceptual design information for Mobile Wet Concentrate Treatment System. |
| 105. | S11.4.2.2, 21st through 24th, 27th and 28th para | Additional design information; clarification of Dry Solid Waste Accumulation and Conditioning Subsystem and Mixed Waste Processing. |
| 106. | S11.4.2.2, 29th 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, 2nd para | Clarified tank sizing of SWMS. |
| 108. | S11.4.2.3, 4th and 5th para | Paragraph 4 discusses tank venting through a filtration unit resulting in paragraph 5 being redundant. |
| 109. | S11.4.2.3, 7th para | Additional information provided to reference RG 1.143 and RG 8.8 compliance. |
| 110. | S11.4.2.3, 9th para | Clarification. |
| 111. | S11.4.2.3, 10th para | Clarification of SWMS Mobile System conceptual design. |
| 112. | S11.4.2.3, 11th para | Replaced “COL Holder” with “COL Applicant,” with complete description of conformance requirements |
| 113. | S11.4.3, 2nd para | Paragraph removed and incorporated into previous COL applicant item under Mobile Systems. |
| 114. | S11.4.4, 2nd para | Paragraph removed and incorporated into previous COL applicant item under Mobile Systems. |
| 115. | S11.4.4, new 5th 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, 26th 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, 1st para | Edited information to provide clarity. |
| 128. | S11.5.1.1.1, 4th bullet | Edited for clarity; acronym previously defined. |
| 129. | S11.5.2, 1st bullet | Additional applicable regulatory compliance references added. |
| 130. | S11.5.2, new 4th bullet | Additional regulatory compliance references provided in response to RAI 11.5-46. |
| 131. | S11.5.2, 6th bullet | Edited to provide updated reference. |
| 132. | S11.5.2, 2nd para | Edited/modified information to provide clarity. |
| 133. | S11.5.2.1, new 10th bullet | Additional information provided in response to RAI 11.5-37. |
| 134. | S11.5.2.2, 1st para | Corrected tense. |
| 135. | S11.5.2.2, new 7th bullet | Additional information provided in response to RAI 11.5-37. |
| 136. | S11.5.3.1, 2nd para | Second sentence modified to add location of radiation detectors. |

| Item | Location | Description of Change |
|---|---|---|
| 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, 3rd para | Corrected the regulatory reference. |
| 139. | S11.5.3.1.4, 8th para | Changed "Class IE" to "safety-related." |
| 140. | S11.5.3.1.5, new 4th para | Additional information provided for clarification on the LCW/HCW radiation monitors. |
| 141. | S11.5.3.1.6, new 1st and 2nd 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 4th and 5th para | Removed paragraphs in response to RAI 11.5-6 S02. |
| 143. | S11.5.3.1.6, 4th para | Additional information provided to clarify which isolation condenser channels are being discussed. |
| 144. | S11.5.3.1.6, 6th and 10th para | Edited for clarity. |
| 145. | S11.5.3.1.8, 8th para | Edited for clarity. |
| 146. | S11.5.3.1.9, 9th and 10th 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, 1st para | Corrected capitalization errors and removed "-1999" from ANSI/HPS reference. |
| 149. | S11.5.3.2.2, 8th para | Additional information provided in response to RAI 11.5-38. |
| 150. | S11.5.3.2.4, 2nd para | Edited for clarity and removed "-1999" from ANSI/HPS reference. |
| 151. | S11.5.3.2.4, 7th para | Clarified that Tritium grab sampling and monitoring is provided in the design. |
| 152. | S11.5.3.2.7, 2nd para and 5th 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, 2nd para | Replaced "will be" with "is" to correct tense. |
| 154. | S11.5.3.2.10, 1st para | Clarified the type of alarm function provided. |
| 155. | S11.5.3.2.10, 3rd para | Edited to correct tense. |

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| 156. | S11.5.3.2.11, 2nd and 7th para | Clarified the type of alarm function provided. Also corrected tense. |
| 157. | S11.5.3.2.12, 2nd para | Clarified the type of alarm function provided. |
| 158. | S11.5.3.2.13, 1st para | Edited to correct tense. |
| 159. | S11.5.3.2.13, 2nd and 8th para | Additional information provided in response to RAI 11.5-46. |
| 160. | S11.5.3.2.13, 4th para | Clarified that Tritium grab sampling and monitoring is provided in the design and edited to correct tense. |
| 161. | S11.5.3.2.13, 5th para | Edited to correct tense and removed "-1999" from ANSI/HPS reference. |
| 162. | S11.5.3.2.14, 1st para | Edited tense. |
| 163. | S11.5.3.2.14, 2nd and 6th 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, 1st 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, 2nd 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, 2nd para | Edited tense. |
| 172. | S11.5.6.1, 1st 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 5th 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, 3rd reference | Additional regulatory references provided in response to RAI 11.5-47. |
| 178. | S11.5.8, 14th reference | Removed reference in response to RAI 11.5-39. |
| 179. | S11.5.8, 19th reference | Updated ANSI/IEEE standard reference provided in response to RAI 11.5-39. |
| 180. | S11.5.8, 22nd and 23rd references | Additional regulatory compliance references provided for clarity. |
| 181. | T11.5-1, Sec A, new 1st row | Added row because the main steam line is actually a safety-related radiation monitor. |
| 182. | T11.5-1, Sec B, 1st row | Removed row because the main steam line is actually a safety-related radiation monitor. |
| 183. | T11.5-1, new 2nd 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 1st row | Added row because the main steam line is actually a safety-related radiation monitor. |
| 185. | T11.5-2, Sec B, 1st row | Removed row because the main steam line is actually a safety-related radiation monitor. |
| 186. | T11.5-2, Sec B, 2nd row | Edited line in response to RAI 11.5-40. |
| 187. | T11.5-2, 2nd footnote | Edited and added requirement to include information in ODCM. Also referenced the COL Applicant requirement. |
| 188. | T11.5-2, new 4th 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, 2nd 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, 4th footnote | Edited and added requirement to include information in ODCM. Also referenced the COL Applicant requirement. |
| 193. | T11.5-5, 7th footnote | Correcting the LLD standard and tense. |
| 194. | T11.5-7, 3rd footnote | Correcting the LLD standard and tense. Changed regulatory requirement. |
| 195. | T11.5-7, 4th footnote | Typographical error corrected in response to RAI 11.5-42. |
| 196. | T11.5-8, 2nd footnote | Correcting the LLD standard and tense. |
| 197. | T11.5-8, 3rd footnote | Typographical error corrected in response to RAI 11.5-42. |
| 198. | T11.5-9, Sec A, 2nd 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. |