October 29, 2013

Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application

Part 2

FSAR Revision 3

Update Tracking Report

Revision 4

Revision History

Revision	Date	Update Description
-	6/28/2012	COLA Revision 3 Transmittal See Luminant Letter no. TXNB-12023 Date 6/28/2012
-	05/16/2012	Updated Chapters: Ch. 8, 13 See Luminant Letter no. TXNB-12013 Date 05/16/2012 Incorporated responses to following RAIs No. 249, 255
-	05/31/2012	Updated Chapters: Ch. 9, 14, 19 See Luminant Letter no. TXNB-12016 Date 05/31/2012 Incorporated responses to following RAIs No. 248, 251
-	6/13/2012	Updated Chapters: Ch. 3, 6, 9 See Luminant Letter no. TXNB-12021 Date 6/13/2012 Incorporated responses to following RAIs No. 52 Supplemental 01, 240 Supplemental 01, 244 Supplemental 01
-	6/21/2012	Updated Chapters: Ch. 3, 9, 14 See Luminant Letter no. TXNB-12022 Date 6/21/2012 Incorporated responses to following RAIs No. 254, 257
-	7/20/2012	Updated Chapters: Ch. 14 See Luminant Letter no. TXNB-12026 Date 7/20/2012

		Incorporated responses to following RAIs No. 256
-	7/24/2012	Updated Chapters: Ch. 13 See Luminant Letter no. TXNB-12027 Date 7/24/2012 Incorporated responses to following RAIs No. 261
-	8/29/2012	Updated Chapters: Ch. 9 See Luminant Letter no. TXNB-12030 Date 8/29/2012 Incorporated responses to following RAIs No. 243 S01
-	9/10/2012	Updated Chapters: Ch. 3, 9, 14 See Luminant Letter no. TXNB-12031 Date 9/10/2012 Incorporated responses to following RAIs No. 251 S01, 252 S01
-	9/14/2012	Updated Chapters: Ch. 1, 2, 3, 8, 9, 11, 19 See Luminant Letter no. TXNB-12032 Date 9/14/2012 Incorporated responses to following RAIs No. 250
-	9/24/2012	Updated Chapters: Ch. 3, 9, 14 See Luminant Letter no. TXNB-12034 Date 9/24/2012 Incorporated responses to following RAIs No. 254 S01, 257 S01
-	9/26/2012	Updated Chapters: Ch. 1, 3 See Luminant Letter no. TXNB-12035 Date 9/26/2012 Incorporated responses to following RAIs No. 262
-	11/12/2012	Updated Chapters: Ch. 9, 14 See Luminant Letter no. TXNB-12036 Date 11/12/2012 Incorporated responses to following RAIs No. 252 S02, 254 S02, 257 S02
-	12/03/2012	Updated Chapters: Ch. 1, 9, 14

		See Luminant Letter no. TXNB-12041 Date 12/03/2012 Incorporated responses to following RAIs No. 251 S02
-	12/06/2012	Updated Chapters: Ch. 9, 10, 11, 12 See Luminant Letter no. TXNB-12042 Date 12/06/2012 Incorporated responses to following RAIs No. 135 S04
-	12/18/2012	Updated Chapters: Ch. 9 See Luminant Letter no. TXNB-12043 Date 12/18/2012 Incorporated responses to following RAIs No. 266
-	12/18/2012	Updated Chapters: Ch. 19 See Luminant Letter no. TXNB-12043 Date 12/18/2012 Incorporated responses to following RAIs No. 267
-	12/18/2012	Updated Chapters: Ch. 19 See Luminant Letter no. TXNB-12043 Date 12/18/2012 Incorporated responses to following RAIs No. 264
-	12/18/2012	Updated Chapters: Ch. 1, 19 See Luminant Letter no. TXNB-12043 Date 12/18/2012 Incorporated responses to following RAIs No. 268
-	12/18/2012	Updated Chapters: Ch. 3, 9 See Luminant Letter no. TXNB-12043 Date 12/18/2012 Incorporated responses to following RAIs No. 265
-	01/17/2013	Updated Chapters: Ch. 1, 6 See Luminant Letter no. TXNB-13001 Date 01/17/2013 Incorporated responses to following RAIs No. 271

-	03/04/2013	Updated Chapters: Ch. 1, 6 See Luminant Letter no. TXNB-13005 Date 03/04/2013 Incorporated responses to following RAIs No. 272
-	03/04/2013	Updated Chapters: Ch. 9 See Luminant Letter no. TXNB-13006 Date 03/04/2013 Incorporated responses to following RAIs No. 243 S02
-	03/04/2013	Updated Chapters: Ch. 8 See Luminant Letter no. TXNB-13007 Date 03/04/2013 Incorporated responses to following RAIs No. 9 S03
0	2/26/2013	Updated Chapters: Ch 1, 2, 3, 8, 9, 12
-	04/29/2013	Updated Chapters: Ch. 2 See Luminant Letter no. TXNB-13013 Date 04/29/2013 Incorporated responses to following RAIs No. 147 S01, 147 S04
1	05/10/2013	Updated Chapters: Ch 2, 6, 8, 9, 19
-	5/13/2013	Updated Chapters: Ch. 2 See Luminant Letter no. TXNB-13016 Date 5/13/2013 Incorporated responses to following RAIs No. 139 S03
-	5/28/2013	Updated Chapters: Ch. 13 See Luminant Letter no. TXNB-13017 Date 5/28/2013 Incorporated responses to following RAIs No. 270
-	5/28/2013	Updated Chapters: Ch. 2 See Luminant Letter no. TXNB-13018 Date 5/28/2013 Incorporated responses to following RAIs No. 145 S02

-	6/18/2013	Updated Chapters: Ch. 3 See Luminant Letter no. TXNB-13019 Date 6/18/2013 Incorporated responses to following RAIs No. 275
2	8/1/2013	Updated Chapters: Ch. 1, 2, 3, 8, 9, 13
-	03/04/2013	Updated Chapters: Ch. 16 See Luminant Letter no. TXNB-13006 Date 03/04/2013 Incorporated responses to following RAIs No. 90 S01
-	6/19/2013	Updated Chapters: Ch. 6 See Luminant Letter no. TXNB-13020 Date 6/19/2013 Incorporated responses to following RAIs No. 272 S01
3	10/7/2013	Updated Chapters: Ch. 1, 2, 3, 9, 17, 19
-	10/7/2013	Updated Chapters: Ch2 See Luminant Letter no. TXNB-13029 Date 10/07/2013 Incorporated responses to following RAIs No. 233 Supplemental 01
-	10/7/2013	Updated Chapters: Ch 8 See Luminant Letter no. TXNB-13029Date 10/07/2013 Incorporated responses to following RAIs No. 249 Supplemental 01
-	10/8/2013	Updated Chapters: Ch19 See Luminant Letter no. TXNB-13031 Date 10/08/2013 Incorporated responses to following RAIs No. 277
4	10/29/2013	Updated Chapters: Ch. 1, 2, 3, 5, 7, 8, 9, 10, 11, 12, 13, 14, 16, 19

Chapter 1

Chapter 1 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
RCOL2_03.03.02-9	Table 1.8-201 (Sheets 4, 6, 10, 21 of 71) Table 1.9-201 (Sheet 12 of 12) Table 1.9-206 (Sheet 1 of 2)	1.8-15 1.8-17 1.8-21 1.8-32 1.9-15 1.9-24 [1.9-25]	Response to RAI No. 250 Luminant Letter no.TXNB-12032 Date 09/14/2012	Revised to incorporate RG 1.221.	-
RCOL2_03.06.01-1	Table 1.8-201 (Sheets 7, 8 of 71)	1.8-18 1.8-19	Response to RAI No. 262 Luminant Letter no.TXNB-12035 Date 9/26/2012	Revised COL 3.6(1) and COL 3.6(4).	-
RCOL2_09.02.01-9 S02	Table 1.8-201 (Sheet 39 of 71)	1.8-50	2nd Supplemental Response to RAI No. 251 Luminant Letter no.TXNB-12041 Date 12/03/2012	Change the wording to address the need of COL evaluation for a void detection system.	-
RCOL2_19-24	Table 1.8-201 (Sheets 68, 70, 71 [68, 70, 72] of 71 [72])	1.8-79, 1.8-81, 1.8-82 [1.8-79, 1.8-81, 1.8-83]	Response to RAI No. 268 Luminant Letter no.TXNB-12043 Date 12/18/2012	Clarified resolution of combined license items on site specific information.	-
RCOL2_19-25	Table 1.8-201 (Sheet 70 [71] of 71 [72])	1.8-81 [1.8-82]	Response to RAI No. 268 Luminant Letter no.TXNB-12043 Date 12/18/2012	Included updated FSAR reference locations.	-

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
RCOL2_06.02.02-5	Table 1.8-201 (Sheet 26 of 71[72])	1.8-37	Response to RAI No. 271 Luminant Letter no.TXNB-13001 Date 01/17/2013	Added FSAR Location and Resolution Category for COL Item 6.2(6).	-
RCOL2_06.02.02-6	Table 1.8-201 (Sheet 26 of 71 [72])	1.8-37	Response to RAI No. 272 Luminant Letter no.TXNB-13005 Date 03/04/2013	COL Item 6.2(5) location made more specific (Section 6.2.2.3 to Section 6.2.2.3.2)	-
CTS-01506	Figure 1.2-1R	1.2-5 1.2-6	Consistency with DCD as described in Letter. TXNB-12033 (ML12268A413) and TXNB-12038 (ML12334A026)	Figure was updated to reflect standard plant and site-specific layout	0
CTS-01506	Figure 1.2-201	1.2-8	Consistency with DCD as described in Letter. TXNB-12033 (ML12268A413) and TXNB-12038 (ML12334A026)	Figure was updated to reflect standard plant and site-specific layout and general arrangement design changes.	0
CTS-01507	Figure 1.2-202	1.2-9	Design change as described in Letter TXNB-12033 (ML12268A413)	Figure was revised to reflect the integration of the north portions of the ESWPT into the south side of the UHSRS	0

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01507	Figures 1.2-203 through 1.2-210	1.2-10 through 1.2-17	Design change as described in Letter TXNB-12033 (ML12268A413), TXNB-12038 (ML12334A026), and TXNB-12030 (ML12243A456)	Figures were revised to reflect: Integration of the north portions of the ESWPT into the south side of the UHSRS. Integration of adjacent UHSRS (C and D) and (A and B) on a single foundation. ESW Pump House layout changes described in responses to RAIs 243 S01 and 254 S03. Addition of an ESW Pipe Removal Shaft to the ESWPT Segment integrated to UHSRS C and D	0
CTS-01532	ACRONYMS AND ABBREVIATION	1-xxi	Acronym added for consistency with new Fukushima changes.	“NTTF” was added.	2
CTS-01532	Table 1.8-201 (Sheet 1[2] of 71[74]) 1.9.6	1.8-12 [1.8-14 1.8-15] 1.9-3 [1.9-4]	Reflection of COL items designated by the US-APWR DCD update tracking report, MUAP-11021, Rev. 4 (ML13154A292)	COL items 1.9(2) through 1.9(7) were added.	2

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01532	APPENDIX 1A (new)	New pages after 1.10-10 [1A-i 1A-1]	Consistency with DCD	Appendix 1A was added consistent with DCD Appendix 1A.	2
CTS-01532	1.9.5.2 (new) APPENDIX 1B (new)	1.9-3 New pages after 1.10-10 [1B-i, 1B-ii 1B-1 through 1B-36]	Addition of Fukushima-related actions	1.9.5.2 and Appendix 1B were added.	2
CTS-01538	1.2.1.7.2.8 Figure 1.2-202 Table 1.8-1R (Sheet 1 through 3 [4] of 8)	1.2-3 1.2-9 1.8-5 through 1.8-7 [1.8-8]	Consistency with DCD per the CPNPP ISCP as described in Letter TXNB-12033 (ML 12268A413)	Revised 1.2.1.7.2.8, Figure 1.2-202 and Table 1.8-1R.	3
CTS-01539	Table 1.8-201 (Sheet 9 [11] through 18 [22] of 71 [77])	1.8-20 through 1.8-29 [1.8-23 through 18-34]	Consistency with DCD	Revised Table 1.8-201.	3
CTS-01564	Table 1.8-201 (Sheet 4[6], 5[8], 6[9], 22[28] through 25[30], 26[32], 29[35], 31[36, 37], 32[37], 34[40], 35[41], 37[44] through 43[50], 45[51] through 47[54], 49[56] through 52[58], 53[60], 62[69], 68[75] through 70[79] of 71[80])	1.8-15 [1.8-18],1.8-16[1.8-20], 1.8-17 [1.8-21], 1.8-33[1.8-40] through 1.8-36[1.8-42], 1.8-37 [1.8-44],	Consistency with DCD Rev.4	Revised Table 1.8-201	4

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
		1.8-40 [1.8-47], 1.8-42 [1.8-48, 1.8-49], 1.8-43 [1.8-49], 1.8-45 [1.8-52], 1.8-46 [1.8-53], 1.8-48 [1.8-56] through 1.8-54[1.8-62], 1.8-56[1.8-63] through 1.8-63 [1.8-70], 1.8-64 [1.8-72], 1.8-73 [1.8-81], 1.8-79 [1.8-87] through 1.8-81 [1.8-91]			
CTS-01564	1B.14 (New)	1.10-10 [1B-26]	Reflection of MUAP-13002 Rev. 1 ADAMS Accession Number: ML13280A469 submitted via MHI Letter No.	Changed “Rev. 0, March 2013” to “Rev. 1, September 2013”.	4

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
			UAP-HF-13238. ADAMS Accession Number: ML13280A473		
CTS-01564	Table 1B-201 Sheet 3 through 5 of 7 (New)	1.10-10 [1B-29 through 1B-31]	Reflection of MUAP-13002 Rev. 1 ADAMS Accession Number: ML13280A469 submitted via MHI Letter No. UAP-HF-13238. ADAMS Accession Number: ML13280A473	Updated references to MUAP-13002 sections.	4

*Page numbers for the attached marked-up pages may differ from the revision 3 page numbers due to text additions and deletions. When the page numbers for the attached pages do differ, the page number for the attached page is shown in brackets.

CP COL 1.8(2)

Table 1.8-201 (Sheet 6 of 80)

Resolution of Combined License Items for Chapters 1 - 19

COL Item No.	COL Item	FSAR Location	Resolution Category
COL 3.2(5)	The COL Applicant is to identify the equipment class and seismic category of the site-specific, safety-related and non safety-related fluid systems, components (including pressure retaining), and equipment as well as the applicable industry codes and standards.	3.2.2 Table 3.2-201	3a
COL 3.2(6)	The COL Applicant is to apply DCD methods of equipment classification and seismic categorization of risk-significant, non-safety related SSCs based on their safety role assumed in the PRA and treatment by the D-RAP.	3.2.2.5 Table 3.2-201	3a
COL 3.3(1)	The COL Applicant is responsible for verifying the site-specific basic wind speed is enveloped by the determinations in this section.	3.3.1.1	3a
COL 3.3(2)	These requirements also apply to seismic category I structures provided by the COL Applicant. Similarly, it is the responsibility of the COL Applicant to establish the methods for qualification of tornado or hurricane effects to preclude damage to safety-related SSCs.	3.3.2.1 3.3.2.2.1 3.3.2.2.4	3a
COL 3.3(3)	It is the responsibility of the COL Applicant to assure that site-specific structures and components not designed for tornado and hurricane loads will not impact either the function or integrity of adjacent safety-related SSCs, or generate missiles having more severe effects than those discussed in Subsection 3.5.1.4.	3.3.2.3	3a
COL 3.3(4)	The COL Applicant is to provide the wind load design method and importance factor for site-specific category I and category II buildings and structures. The COL Applicant shall also verify that the site location does not have features promoting channeling effects or buffeting in the wake of upwind obstructions that invalidate the standard plant wind load design ~~methods described above~~.	3.3.1.2	3a

RCOL2_03.03.02-9

RCOL2_03.03.02-9

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CP COL 1.8(2)

Table 1.8-201 (Sheet 8 of 80)

Resolution of Combined License Items for Chapters 1 - 19

COL Item No.	COL Item	FSAR Location	Resolution Category
COL 3.4(7)	The COL Applicant is responsible for the protection from internal flooding for those site-specific SSCs that provide nuclear safety-related functions or whose postulated failure due to internal flooding could adversely affect the ability of the plant to achieve and maintain a safe shutdown condition.	3.4.1.3	3a
COL 3.4(8)	The COL Applicant is responsible for developing inspection and testing procedures in accordance with manufacturer recommendations so that each water-tight door remains capable of performing its intended function.	3.4.1.3	3a
COL 3.5(1)	The COL Applicant is to have plant procedures in place prior to fuel load that specify unsecured equipment, including portable pressurized gas cylinders, located inside or outside containment and required for maintenance or undergoing maintenance is to be removed from containment prior to operation, moved to a location where it is not a potential hazard to SSCs important to safety, or seismically restrained to prevent it from becoming a missile.	3.5.1.1.4	2
COL 3.5(2)	The COL Applicant is to commit to actions to maintain P_1 within this acceptable limit as outlined in RG 1.115, “Protection Against Low-Trajectory Turbine Missiles” (Reference 3.5-6) and SRP Section 3.5.1.3, “Turbine Missiles” (Reference 3.5-7).	3.5.1.3.2	2
COL 3.5(3)	As described in DCD, Section 2.2, the COL Applicant is to establish the presence of potential hazards, except aircraft, which is reviewed in Subsection 3.5.1.6, and the effects of potential accidents in the vicinity of the site.	3.5.1.5	3a

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CP COL 1.8(2)

Table 1.8-201 (Sheet 9 of 80)

Resolution of Combined License Items for Chapters 1 - 19

COL Item No.	COL Item	FSAR Location	Resolution Category
COL 3.5(4)	It is the responsibility of the COL Applicant to verify the site interface parameters with respect to aircraft crashes and air transportation accidents as described in Section 2.2.	3.5.1.6	3a
COL 3.5(5)	The COL Applicant is responsible to evaluate site-specific hazards for external events that may produce missiles more energetic than tornado missiles and hurricane missiles for the standard plant presented in Subsection 3.5.1.4, and assure that the design of seismic category I and II structures meet these loads.	3.5.1.4 3.5.2	3a
COL 3.5(6)	~~The COL Applicant is responsible to assess the orientation of the T/G of this and other unit(s) at multi-unit site for the probability of missile generation using the evaluation of Subsection 3.5.1.3.2.~~The COL applicant is to identify the site-specific systems and components to be protected and to assess the orientation of the T/G with respect to the essential site-specific SSCs using the guidance and examples in RG 1.117 and use the evaluation method described in Subsection 3.5.1.3.2 to determine the probability that a turbine missile will cause unacceptable damage to an essential SSC. For multi-unit sites, the COL applicant is to also evaluate the effect of other unit(s) on this unit as specified in RG 1.115.	3.5.1.3.1	3a

RCOL2_03.03.02-9

RCOL2_03.03.02-9

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CP COL 1.8(2)

Table 1.8-201 (Sheet 28 of 80)

Resolution of Combined License Items for Chapters 1 - 19

COL Item No.	COL Item	FSAR Location	Resolution Category	
COL 4.4(1)	Deleted from the DCD.			
COL 5.2(1)	ASME Code Cases that are approved in Regulatory Guide 1.84; The COL ~~a~~Applicant addresses the addition of ASME Code Cases that are approved in Regulatory Guide 1.84.	5.2.1.2	3a	CTS-01564
COL 5.2(2)	ASME Code Cases that are approved in Regulatory Guide 1.147; The COL ~~a~~Applicant addresses Code Cases invoked in connection with the inservice inspection program that are in compliance with Regulatory Guide 1.147.	5.2.1.2	3a	CTS-01564
COL 5.2(3)	ASME Code Cases that are approved in Regulatory Guide 1.192; The COL ~~a~~Applicant addresses Code cases invoked in connection with the operation and maintenance that are in compliance with Regulatory Guide 1.192.	5.2.1.2	3a	CTS-01564
COL 5.2(4)	Inservice inspection and testing program for the RCPB The COL ~~a~~Applicant provides and develops the implementation milestone of the inservice inspection and testing program for the RCPB, in accordance with Section XI of the ASME Code and 10 CFR 50.55a.	5.2.4.1 Table 5.2.4-201 Table 13.4-201	1b	CTS-01564
COL 5.2(5)	Preservice inspection and testing program for the RCPB The COL ~~a~~Applicant provides and develops the implementation milestone of the preservice inspection and testing program for the RCPB in accordance with Article NB-5280 of Section III, Division I of the ASME Code.	5.2.4.2	1b and 1a	CTS-01564
COL 5.2(6)	Deleted from the DCD.			

CP COL 1.8(2)

Table 1.8-201 (Sheet 29 of 80)

Resolution of Combined License Items for Chapters 1 - 19

COL Item No.	COL Item	FSAR Location	Resolution Category
COL 5.2(7)	Deleted from the DCD.		
COL 5.2(8)	Deleted from the DCD.		
COL 5.2(9)	Deleted from the DCD.		
COL 5.2(10)	Deleted from the DCD.		
COL 5.2(11)	ASME Code Edition and Addenda The COL ~~a~~Applicant addresses whether ASME Code editions or addenda other than those specified in Table 5.2.1-1 will be used.	5.2.1.1	3a
COL 5.2(12)	EPRI Primary Water Chemistry Guideline The COL ~~a~~Applicant should specify the applicable version of the EPRI “Primary Water Chemistry Guideline” that will be implemented.	5.2.3.2.1	3a
COL 5.2(13)	ISI accessibility The COL ~~a~~Applicant addresses the discussion of the provisions to preserve accessibility to perform ISI for Class 1 components provided design of US-APWR Class 1 component is changed from the DCD design.	5.2.4.1.1	3a
COL 5.2(14)	Procedures for conversion into common leakage rate The COL Applicant addresses and develops a milestone schedule for preparation and implementation of the procedure.	5.2.5.9	2

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CP COL 1.8(2)

Table 1.8-201 (Sheet 30 of 80)

Resolution of Combined License Items for Chapters 1 - 19

COL Item No.	COL Item	FSAR Location	Resolution Category	
COL 5.2(15)	Procedures for operator response to prolonged low-level leakage The COL Applicant addresses and develops a milestone schedule for preparation and implementation of the procedure.	5.2.5.9	2	
COL 5.3(1)	Pressure-Temperature Limit Curves; The COL ~~a~~Applicant addresses the use of plant-specific reactor vessel P-T limit curves. Generic P-T limit curves for the US-APWR reactor vessel are shown in Figures 5.3-2 and 5.3-3, which are based on the conditions described in Subsection 5.3.2. However, for a specific US-APWR plant, these limit curves are plotted based on actual material composition requirements and the COL ~~a~~Applicant addresses the use of these plant-specific curves.	5.3.2.1 5.3.2.2	3a	CTS-01564 CTS-01564
COL 5.3(2)	Reactor Vessel Material Surveillance Program; The COL ~~a~~Applicant provides a reactor vessel material surveillance program based on information in Subsections 5.3.1.6 and 4.3.2.8.	5.3.1.6	1a	CTS-01564 CTS-01564
COL 5.3(3)	Surveillance Capsule Orientation and Lead Factors; The COL ~~a~~Applicant addresses the orientation and resulting lead factors for the surveillance capsules of a particular US-APWR plant.	5.3.1.6.1	3a	CTS-01564
COL 5.3(4)	Reactor Vessel Material Properties Verification; The COL ~~a~~Applicant verifies the USE and RT_{NDT} at EOL, including a PTS evaluation based on actual material property requirements of the reactor vessel material and the projected neutron fluence for the design-life objective of 60 years.	5.3.1.1(DCD) 5.3.2.3 5.3.2.4	3a	CTS-01564
COL 5.3(5)	Preservice and Inservice Inspection; The COL ~~a~~Applicant provides the information for preservice and inservice inspection described in Subsection 5.2.4.	5.3.3.7	3a	CTS-01564

CP COL 1.8(2)

Table 1.8-201 (Sheet 32 of 80)

Resolution of Combined License Items for Chapters 1 - 19

COL Item No.	COL Item	FSAR Location	Resolution Category	
COL 6.2(5)	Preparation of a cleanliness, housekeeping and foreign materials exclusion program is the responsibility of the COL ~~a~~Applicant. This program will be established to limit ~~200lbs of~~ latent debris, and to limit the allocated ~~200ft^2 of~~ miscellaneous debris per sump to the limits specified in Table 6.2.2-4.	6.2.2.3.2 Table 6.2.2-2R	2	RCOL2_06.02.02-6 CTS-01564
COL 6.2(6)	Preparation of administrative procedures is the responsibility of the COL Applicant. The procedures will ensure that RMI and fiber insulation debris within ZOIs will be consistent with the design basis debris specified in the Table 6.2.2-4, and will ensure that the aluminum in containment exposed to water in containment in post-LOCA condition (i.e., spray and blowndown water) is limited to equal or less than 810 ft^2.	6.2.2.3.2	2	RCOL2_06.02.02-5
COL 6.2(7)	Deleted from the DCD.			
COL 6.2(8)	The COL applicant is responsible for identifying the implementation milestone for the containment leakage rate testing program described under 10CFR50, Appendix J.	6.2.6.1	1b	
COL 6.2(9)	Deleted from the DCD.			
COL 6.2(10)	Deleted from the DCD.			
COL 6.3(1)	Deleted from the DCD.			
COL 6.3(2)	Deleted from the DCD.			
COL 6.3(3)	Deleted from the DCD.			
COL 6.3(4)	Deleted from the DCD.			
COL 6.3(5)	Deleted from the DCD.			

CP COL 1.8(2)

Table 1.8-201 (Sheet 35 of 80)

Resolution of Combined License Items for Chapters 1 - 19

COL Item No.	COL Item	FSAR Location	Resolution Category
COL 8.2(3)	The COL applicant is to address the plant switchyard which includes layout, control system and characteristics of circuit breakers and buses, and lightning and grounding protection equipment.	8.1.1 ~~8.1.5.3.5~~ 8.2.1.2.1 8.2.1.2.1.1 8.2.1.2.1.2 8.2.1.2.2 Figure 8.1-1R Figures 8.2-202 – 8.2-208 Figure 8.3.1-1R Figure 8.3.1-2R	3a
COL 8.2(4)	The COL applicant is to provide detail description of normal preferred power.	8.2.1.2 Figure 8.2-202 Figure 8.2-203 Figure 8.2-207 Figure 8.2-208	3a
COL 8.2(5)	The COL applicant is to provide detail description of alternate preferred power.	8.2.1.2 Figure 8.2-202 Figure 8.2-204 Figure 8.2-207 Figure 8.2-208	3a
COL 8.2(6)	Deleted from the DCD.		

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CP COL 1.8(2)

Table 1.8-201 (Sheet 36 of 80)

Resolution of Combined License Items for Chapters 1 - 19

COL Item No.	COL Item	FSAR Location	Resolution Category
COL 8.2(7)	The COL applicant is to address protective relaying for each circuit such as lines and buses.	8.2.1.2.1.1 8.2.1.2.1.2 Figure 8.2-203 Figure 8.2-204 Figure 8.2-209 Figure 8.2-210	3a
COL 8.2(8)	The COL applicant is to address switchyard dc power as part of switchyard design description.	8.2.1.2.1.1 8.2.1.2.1.2	3a
COL 8.2(9)	The COL applicant is to address switchyard ac power as part of switchyard design description.	8.2.1.2.1.1 8.2.1.2.1.2	3a
COL 8.2(10)	The COL applicant is to address transformer protection corresponded to site-specific scheme.	8.2.1.2	3a
COL 8.2(11)	The COL applicant is to address the stability and reliability study of the offsite power system. The stability study is to be conducted in accordance with BTP 8-3 (Reference 8.2-17). The study should address the loss of the unit, loss of the largest unit, loss of the largest load, or loss of the most critical transmission line including the operating range, for maintaining transient stability. A failure modes and effects analysis (FMEA) is to be provided. The grid stability study shows in part that, with no external electrical s~~v~~ystem failures, the grid will remain stable and the transmission system voltage and fre~~g~~quency will remain within the interface requirements (±10% for voltage and ±5% for frequency) to maintain the RCP flow assumed in the Chapter 15 analysis for a minimum of 3 seconds following reactor/turbine generator trip.	8.2.1.2.1.1 8.2.1.2.3 8.2.3 Table 8.2-203	3a

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COL Item No.	COL Item	FSAR Location	Resolution Category
COL 8.2(12)	Deleted from the DCD.		
COL 8.3(1)	The COL applicant is to provide transmission voltages. This includes also MT and RAT voltage ratings.	8.3.1.1 Table 8.3.1-1R	3a
COL 8.3(2)	The COL applicant is to provide ground grid and lightning protection.	8.3.1.1.11	3a
COL 8.3(3)	The COL applicant is to provide short circuit analysis for ac power system, since the system contribution is site specific.	8.3.1.1.9 8.3.1.3.2 ~~8.3.1.3~~	3a
COL 8.3(4)	Deleted from the DCD.		
COL 8.3(5)	Deleted from the DCD.		
COL 8.3(6)	Deleted from the DCD.		
COL 8.3(7)	Deleted from the DCD.		
COL 8.3(8)	The COL applicant is to provide short circuit analysis for dc power system.	8.3.2.1.1 8.3.2.1.2 8.3.2.3.2	3a
COL 8.3(9)	Deleted from the DCD.		
COL 8.3(10)	The COL applicant is to provide protective devise coordination.	8.3.1.3.4	3a
COL 8.3(11)	The COL applicant is to provide insulation coordination (surge and lightning).	8.3.1.3.5	3a
COL 8.3(12)	~~Cable Monitoring Program~~The COL Applicant is to provide the cable monitoring program for underground and inaccessible cables with the scope of the maintenance rule (10 CFR 50.65).	8.2.3	3a
COL 9.1(1)	Deleted from the DCD.		

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Resolution of Combined License Items for Chapters 1 - 19

COL Item No.	COL Item	FSAR Location	Resolution Category
	equipment inspections. Safe load paths will be defined so that heavy loads avoid being moved over or near irradiated fuel or critical equipment. Mechanical stops or electrical interlocks to prevent movement of heavy loads near irradiated fuel or safe shutdown equipment may also be employed.		
COL 9.1(7)	Deleted from the DCD.		
COL 9.1(8)	Deleted from the DCD.		
COL 9.1(9)	The COL applicant is to create a procedure that will instruct operators to perform formal inspection of the integrity of the spent fuel racks.	9.1.2.1	2
COL 9.2(1)	The COL Applicant is to provide the evaluation of the ESWP at the lowest probable water level of the UHS. The COL Applicant is to develop recovery procedures in the event of approaching low water level of UHS.	9.2.1.3 9.2.5.2.1 13.5.2.1	3a
COL 9.2(2)	The COL Applicant is to provide protection of the site-specific portions of the ESWS against adverse environmental, operating, and accident conditions that can occur, such as ~~freezing~~countermeasure to freezing by safety-related heat tracing, low temperature operation, and thermal overpressurization.	9.2.1.3	3a
COL 9.2(3)	The COL Applicant is to determine source and location of the UHS.	9.2.5.2 9.2.5.2.1 9.2.5.2.2 9.2.5.2.3	3a

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Resolution of Combined License Items for Chapters 1 - 19

COL Item No.	COL Item	FSAR Location	Resolution Category
COL 9.2(4)	The COL Applicant is to determine location and design of the ESW intake structure.	9.2.5.2 9.2.5.2.1 9.2.5.2.2 9.2.5.2.3	3a
COL 9.2(5)	The COL Applicant is to determine location and design of the ESW discharge structure.	9.2.5.2 9.2.5.2.1 9.2.5.2.2 9.2.5.2.3	3a
COL 9.2(6)	The COL Applicant is to provide ESWP design details – required total dynamic head with adequate margin and~~,~~ NPSH available~~, and the mode of cooling the ESWP motor~~. The COL Applicant is to assure that the sum of the shut-off head of the selected ESW pumps and the static head will not result in system pressure that exceeds the ESWS design pressure at any location within the system. The COL Applicant is responsible for the testing of ~~to evaluate~~ the potential for vortex formation based on the most limiting assumptions that apply.	9.2.1.2.1 9.2.1.2.2 9.2.1.2.2.1 Table 9.2.1-1R Table 9.2.1-2R	3a
COL 9.2(7)	The COL Applicant is to address the piping, valves, lining material specifications for piping and fittings as applicable, including those at the boundary between the safety-related and nonsafety-related portions with clarifications for their connecting loations, and other design of the ESWS related to the site specific conditions. The COL Applicant is also to design the pipes entering and exiting the pipe tunnel based on the location of the UHSRS.	9.2.1.2.2.5 9.2.1.2.3.1 13.4 Table 13.4-201 9.2.1.3 ~~Figure 9.2.1-1R~~	3a

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Resolution of Combined License Items for Chapters 1 - 19

COL Item No.	COL Item	FSAR Location	Resolution Category
COL 9.2(19)	The COL Applicant is to design the UHS to receive its electrical power supply, if required by the UHS design, from safety busses so that the safety functions are maintained during LOOP. The UHS also receives its standby electrical power from the onsite emergency power supplies during a LOOP.	9.2.5.2 9.2.5.2.1 9.2.5.2.2 9.2.5.2.3 Table 9.2.5-201	3a
COL 9.2(20)	The COL Applicant is to provide a detailed description and drawings of the UHS, including water inventory, temperature limits, heat rejection capabilities, instrumentation, and alarms.	9.2.5.2 9.2.5.2.1 9.2.5.2.2 9.2.5.2.3 Table 9.2.5-3R Figure 9.2.5-1R	3a
COL 9.2(21)	The COL Applicant is to determine the source of makeup water to the UHS inventory and the blowdown discharge location based on specific site conditions.	9.2.5.2 9.2.5.2.1 9.2.5.2.2 9.2.5.2.3	3a
COL 9.2(22)	The COL Applicant is to provide results of UHS capability and safety evaluation of the UHS based on specific site conditions and meteorological data. The COL Applicant is to use at least 30 years site specific meteorological data and heat loads data for UHS performance analysis per Regulatory Guide 1.27.	9.2.5.3 Table 9.2.5-4R	3a
COL 9.2(23)	The COL Applicant is to provide test and inspection requirements of the UHS. These include inspection and testing requirements necessary to demonstrate that fouling and degradation mechanisms are adequately managed to maintain acceptable UHS performance and integrity.	9.2.5.4 13.5	3a

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Resolution of Combined License Items for Chapters 1 - 19

COL Item No.	COL Item	FSAR Location	Resolution Category
COL 9.2(24)	The COL Applicant is to provide the required alarms, instrumentation and controls details based on the type of UHS to be provided.	9.2.5.5	3a
COL 9.2(25)	The COL Applicant is to develop system filing, venting, keeping full, and operational procedures to minimize the potential for water hammer; to analyze the system for water hammer impacts; to design the piping system to withstand potential water hammer forces; and to analyze water hammer events in accordance with NUREG-0927.	9.2.1.2.1 13.5.2.1	2
COL 9.2(26)	The COL ~~a~~Applicant is to specify appropriate sizes of piping and pipe fittings such as restriction orifices to prevent potential plugging due to debris buildup, and develop maintenance and test procedures to monitor debris build up and flush out debris.	9.2.1.2.1 9.2.1.3 13.5.2.1	2 CTS-01564
COL 9.2(27)	The COL Applicant is to develop a milestone schedule for implementation of the operating and maintenance procedures for water hammer prevention.	9.2.2.2.2.6 9.2.7.2.1 13.5.2.1	2 CTS-01564
COL 9.2(28)	The COL Applicant is to provide the piping, valves, materials specifications, and other design details related to the site-specific UHS.	9.2.5.2.2 9.2.5.2.3	3a
COL 9.2(29)	The COL Applicant is to provide the safety evaluation of the capability of the ESWS to: (1) isolate its site-specific, nonsafety-related portions; and (2) provide measures to prevent long-term corrosion and organic fouling that may degrade its performance, per Generic Letter (GL) 89-13.	9.2.1.3 13.5.2.1	3a

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COL Item No.	COL Item	FSAR Location	Resolution Category
COL 9.2(30)	The COL Applicant shall conduct periodic inspection, monitoring, maintenance, performance and functional testing of the ESWS and UHS piping and components, including the heat transfer capability of the CCW heat exchangers and essential chiller units, consistent with GL 89-13 and GL.89-13 Supplement 1. The COL Applicant is to develop operating procedures to periodically alternate the operation of the trains to ensure performance of all trains is regularly monitored.	9.2.1.4 9.2.5.4 13.4 13.5 13.5.2.1	3a
COL 9.2(31)	The COL Applicant is to verify the system layout of the ESWS and UHS and is to develop operating procedures to assure that the ESWS and UHS are above saturation conditions for all operating modes.	9.2.1.2.1 9.2.5.2.2 9.2.5.2.3	3a
COL 9.2(32)	The COL Applicant is to ~~provide a void detection system with alarms to detect system voiding~~evaluate the need for a void detection system.~~-~~	9.2.1.2.3.1 ~~9.2.5.5~~	3a
COL 9.2(33)	The COL Applicant is to provide the design details of the strainer blowdown line, vent line, and their discharge locations.	9.2.1.2.2.2	3a
COL 9.3(1)	The COL Applicant is to provide the high pressure nitrogen gas, low pressure nitrogen gas, the hydrogen gas, carbon dioxide, and oxygen supply systems.	9.3.1.2.1.3 9.3.1.2.2.3 Figure 9.3.1-201	3a
COL 9.3(2)	Deleted from the DCD.		
COL 9.3(3)	Deleted from the DCD.		
COL 9.3(4)	Deleted from the DCD.		
COL 9.3(5)	Deleted from the DCD.		
COL 9.3(6)	Deleted from the DCD.		
COL 9.3(7)	Deleted from the DCD.		

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COL Item No.	COL Item	FSAR Location	Resolution Category
COL 9.4(1)	Deleted from the DCD.		
COL 9.4(2)	Deleted from the DCD.		
COL 9.4(3)	Deleted from the DCD.		
COL 9.4(4)	~~The COL Applicant is to determine the capacity of cooling and heating coils that are affected by site specific conditions.~~The COL Applicant is to determine the capacity of heating coils provided in the safety-related HVAC system and the capacity of cooling and heating coils provided in the non-safety related HVAC system air handling units that are affected by site specific conditions.	9.4.1.2 9.4.3.2.1 9.4.3.2.2 9.4.3.2.3 9.4.3.2.4 9.4.5.2.2 9.4.5.2.3 9.4.5.2.4 9.4.5.2.5 9.4.6.2.4.1 9.4.6.2.4.2 Table 9.4-201	3a
COL 9.4(5)	Deleted from the DCD.		
COL 9.4(6)	The COL Applicant is to provide a system information and flow diagram of ESW pump area ventilation system if the ESW pump area requires the heating, ventilating and air conditioning.	9.4.5 9.4.5.1.1.6 9.4.5.2.6 9.4.5.3.6 9.4.5.4.6 9.4.5.5.6 Table 9.4-203 Table 9.4-204 Figure 9.4-201	3a

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COL Item No.	COL Item	FSAR Location	Resolution Category	
COL 9.4(7)	The COL Applicant is to determine the frequency of performance of periodic auxiliary building HVAC system ventilation flow balancing.	9.4.3.4.1	2	
COL 9.5(1)	The COL applicant establishes a fire protection program, including organization, training and qualification of personnel, administrative controls of combustibles and ignition sources, firefighting procedures, and quality assurance.	9.5.1 9.5.1.3 9.5.1.6 Table 9.5.1-1R Table 9.5.1-2R	1a	CTS-01564
COL 9.5(2)	The COL Applicant addresses the design and fire protection aspects of the facilities, buildings and equipments, such as cooling towers and a fire protection water supply system, which are site specific and/or are not a standard feature of the US-APWR.	~~9.2.1.2.1~~ 9.5.1.2.1 9.5.1.2.2 9.5.1.2.3 9.5.1.2.4 Table 9.5.1-1R Table 9.5.1-2R Figure 9.5-201 Figure 9.5-202 Appendix 9A	3a	CTS-01564
COL 9.5(3)	The COL Applicant describes the provided apparatus for plant personnel and fire brigades such as portable fire extinguishers and self contained breathing apparatus.	9.5.1.6.1.8 Table 9.5.1-2R	3a	CTS-01564
COL 9.5(4)	The COL Applicant addresses all communication system interfaces external to the plant (offsite locations). These include interfaces to utility private networks, commercial carriers and the federal telephone system. The configuration of these connections will include consideration of the concerns raised in IE Bulletin 80-15.	9.5.2 9.5.2.2.2 9.5.2.2.2.2 9.5.2.2.5.1	3a	

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COL Item No.	COL Item	FSAR Location	Resolution Category
COL 9.5(5)	The COL Applicant addresses the emergency offsite communications including the crisis management radio system.	9.5.2.2.2 9.5.2.2.2.2 9.5.2.2.5.2	3a
COL 9.5(6)	The COL Applicant addresses connections to the Technical Support Center from where communications networks are provided to transmit information pursuant to the requirements delineated in 10 CFR 50 Appendix E, Part IV.E.9.	9.5.2.2.5.2	3a
COL 9.5(7)	Deleted from the DCD.		
COL 9.5(8)	The COL Applicant addresses offsite communications for the onsite operations support center.	9.5.2.2.5.2	3a
COL 9.5(9)	Deleted from the DCD.		
COL 9.5(10)	Deleted from the DCD.		
COL 9.5(11)	The COL Applicant is to specify that adequate and acceptable sources of fuel oil are available, including the means of transporting and recharging the fuel storage tank, following a design basis accident.	9.5.4.3	3a
COL 9.5(12)	The COL Applicant is to address the need for installing unit heaters in the Power Source Fuel Storage Vault during the winter for site locations where extreme cold temperature conditions exist.	9.5.4.~~3~~2.2.1	3a
COL 10.2(1)	Inservice Inspection The Combined License Applicant is to establish a turbine maintenance, ~~and~~ inspection and test procedure prior to fuel load.	10.2.3.5	2

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COL Item No.	COL Item	FSAR Location	Resolution Category
COL 10.3(1)	FAC monitoring program The Combined License Applicant will provide a description of the FAC monitoring program for carbon steel portions of the steam and power conversion systems that contain water or wet steam and are susceptible to erosion-corrosion damage. The description will address consistency with Generic Letter 89-08 and NSAC-202L-R3~~2~~ and will provide a milestone schedule for implementation of the program.	10.3.6.3	2
COL 10.3(2)	Deleted from the DCD.		
COL 10.3(3)	Operating and maintenance procedures for water hammer prevention The Combined License Applicant is to provide operating and maintenance procedures including adequate precautions to prevent water (steam) hammer, relief valve discharge loads and water entrainment effects in accordance with NUREG-0927 and a milestone schedule for implementation of the procedure.	10.3.2.4.3	2
COL 10.3(4)	The COL applicant will provide secondary side water chemistry threshold values and recommended operator actions for chemistry excursions, or provide a commitment to the latest version of the EPRI “PWR Secondary Water Chemistry Guidelines” in effect at the time of COLA submittal.	10.3.5.5	1a
COL 10.4(1)	Circulating Water System; The Combined License Applicant is to determine the site specific final system configuration and system design parameters for the CWS including makeup water and blowdown.	10.4.5 Table 10.4.5-1R Figure 10.4.5-1R Figure 10.4.5-201	3a

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COL Item No.	COL Item	FSAR Location	Resolution Category
COL 10.4(2)	Steam Generator Blowdown System; The Combined License applicant is to address the discharge to Waste Water System including site specific requirements.	10.4.8.1 10.4.8.2 10.4.8.5 Table 10.4.8-1R Figure 10.4.8-1R Figure 10.4.8-2R Figure 10.4.8-201	3a
COL 10.4(3)	Deleted from the DCD.		
COL 10.4(4)	Deleted from the DCD.		
COL 10.4(5)	System Design for Steam Generator Drain; The Combined License applicant is to address the nitrogen or equivalent system design for Steam Generator Drain Mode. (This is dependent on Waste water system design)	10.4.8.2.2.4	3a
COL 10.4(6)	Operating and maintenance procedures for water hammer prevention The combined License Applicant is to provide operating and maintenance procedures in accordance with NUREG-0927 and a milestone schedule for implementation of the procedure.	10.4.7.7 10.4.9.2.2	2
COL 11.2(1)	The COL ~~a~~Applicant is responsible for ensuring that mobile and temporary liquid radwaste processing equipment and its interconnection to plant systems conforms to regulatory requirements and guidance such as 10 CFR 50.34a (Ref. 11.2-5), 10 CFR 20.1406 (Ref.11.2-7) and RG 1.143 (Ref. 11.2-3), respectively.	11.2.1.6	3a

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COL Item No.	COL Item	FSAR Location	Resolution Category	
COL 11.2(2)	Site-specific information of the LWMS, e.g., radioactive release points, effluent temperature, shape of flow orifices, etc., is provided in the COLA.	11.2.2 11.2.3.1	3a	
COL 11.2(3)	The COL ~~a~~Applicant is responsible for the site-specific hydrogeological data and for performing an analysis to demonstrate that the potential groundwater or surface water contamination concentration resulting from radioactive release due to liquid containing tank failure meets the 10 CFR 20, Appendix B, Table2 ECLs.	11.2.3.2	3a	CTS-01564 CTS-01564
COL 11.2(4)	The COL ~~a~~Applicant is to calculate doses to members of the public following the guidance of RG 1.109 (Ref 11.2-15) and RG 1.113 using site-specific parameters, and compares the doses due to the liquid effluents with the numerical design objectives of Appendix I to 10 CFR 50 (Ref 11.2-10) and compliance with requirements of 10 CFR 20.1302, 40 CFR 190.	11.2.3.1 Table 11.2-10R Table 11.2-11R Table 11.2-12R Table 11.2-13R Table 11.2-14R Table 11.2-15R	3a	CTS-01564
COL 11.2(5)	The COL ~~a~~Applicant is to perform a site-specific cost benefit analysis to demonstrate compliance with the regulatory requirements.	11.2.1.5	3a	CTS-01564
COL 11.2(6)	The COL ~~a~~Applicant is to provide piping and instrumentation diagrams (P&IDs).	11.2.2 Figure 11.2-201	3a	CTS-01564
COL 11.2(7)	The COL Applicant is responsible for identifying the implementation milestones for the coatings program used in the LWMS. The coatings program addresses RG 1.54 Revision 1, recognizing that more recent standards may be used if referenced in DCD Section 11.2.	11.2.4	1b	

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COL Item No.	COL Item	FSAR Location	Resolution Category
COL 11.2(8)	The COL Applicant is to describe mobile/portable LWMS connections that are considered non-radioactive but later may become radioactive through contact or contamination with radioactive systems (i.e., a non-radioactive system becomes contaminated due to leakage, valving errors, or other operating conditions in the radioactive systems), and operational procedures of the mobile/portable LWMS connections. The COL Applicant is to prepare a plan to develop and use operating procedures so that the guidance and information in Inspection and Enforcement (IE) Bulletin 80-10 (Ref. 11.2-25) is followed.	11.2.1.6	3a
COL 11.3(1)	Deleted from the DCD.		
COL 11.3(2)	Deleted from the DCD.		
COL 11.3(3)	The COL ~~a~~Applicant is to provide a discussion of the onsite vent stack released point height.	11.3.2	3a CTS-01564
COL 11.3(4)	Deleted from the DCD.		
COL 11.3(5)	Deleted from the DCD.		
COL 11.3(6)	The COL ~~a~~Applicant is to calculate doses to members of the public following the guidance of RG 1.109 (Ref. 11.3-19) and RG 1.111 (Ref. 11.3-22), and compare the doses due to the gaseous effluents with the numerical design objectives of 10 CFR 50, Appendix I (Ref. 11.3-3) and compliance with the requirements of 10 CFR 20.1302 (Ref. 11.3-24)~~,~~ and 40 CFR 190 (Ref. 11.3-25).	11.3.3.1 Table 11.3-8R Table 11.3-9R Table 11.3-201 Table 11.3-202 Table 11.3-203 Table 11.3-204 Table 11.3-205 Table 11.3-206	3a CTS-01564 CTS-01564

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COL Item No.	COL Item	FSAR Location	Resolution Category
COL 11.3(7)	Deleted from the DCD.		3a
COL 11.3(8)	The COL ~~a~~Applicant is to perform a site-specific cost benefit analysis to demonstrate compliance with the regulatory requirements.	11.3.1.5	3a
COL 11.3(9)	The COL ~~a~~Applicant is to provide piping and instrumentation diagrams (P&IDs).	11.3.2 Figure 11.3-201	3a
COL 11.4(1)	The current design meets the waste storage requirements in accordance with ANSI/ANS-55.1. When the COL applicant desires additional storage capability beyond that which is discussed in this Tier 2 document, the COL applicant will identify plant-specific needs for on-site waste storage and provide a discussion of on-site storage of low-level waste.	11.4.2.1.1 11.4.2.3	3a
COL 11.4(2)	Deleted from the DCD.		
COL 11.4(3)	The COL applicant is to prepare a plan for the process control program describing the process and effluent monitoring and sampling program. The plan should include the proposed implementation milestones.	11.4.3.2	1a
COL 11.4(4)	The COL applicant is to describe mobile/portable SWMS connections that are considered non-radioactive but later may become radioactive through contact or contamination with radioactive systems (i.e., a non-radioactive system becomes contaminated due to leakage, valving errors, or other operating conditions in the radioactive systems). The COL Applicant is to prepare a plan to develop and use operating procedures so that the guidance and information in Inspection and Enforcement (IE) Bulletin 80-10 (Ref. 11.4-29) is followed.	11.4.4.5	3a

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COL Item No.	COL Item	FSAR Location	Resolution Category	
COL 11.5 (1)	The COL ~~a~~Applicant is responsible for the additional site-specific aspects of the process and effluent monitoring and sampling system beyond the standard design, in accordance with RGs 1.21, 1.33 and 4.15 (Ref. 11.5-12, 11.5-17, 11.5-14). Furthermore, the COL ~~a~~Applicant is responsible for assuring the fulfillment of the guidelines issued in 10 CFR 50, Appendix I (Ref. 11.5-3) regarding the offsite doses released through gaseous and liquid effluent streams.	11.5.2.9 11.5.2.5.3 11.5.2.5.4 Table 11.5-201 Figure 11.5-201	3a	CTS-01564
COL 11.5(2)	The COL ~~a~~Applicant is to prepare an offsite dose calculation manual to provide specific administrative controls and liquid and gaseous effluent source terms to limit the releases to site-specific requirements containing a description of the methods and parameters that drive to arrive radiation instrumentation alarm setpoint. The COL ~~a~~Applicant is to commit to follow the NEI generic template 07-09A (Ref. 11.5-30) as an alternative to providing the offsite dose calculation manual at the time of application.	11.5.2.7 11.5.2.9	1a	CTS-01564 CTS-01564
COL 11.5(3)	The COL ~~a~~Applicant is to develop a radiological and environmental monitoring program taking into consideration local land use and census data in identifying all potential radiation exposure pathways. The program shall take into account associated radioactive materials present in liquid and gaseous effluents and direct external radiation from SSCs. The COL ~~a~~Applicant is to follow the guidance outlined in NUREG-1301(Ref. 11.5-21), and NUREG-0133 (Ref. 11.5-18) when developing the radiological effluent monitoring program. The COL ~~a~~Applicant is to commit to follow the NEI generic template 07-09A (Ref. 11.5-30) as an alternative to providing the radiological effluent monitoring program at the time of application.	11.5.2.10	1a	CTS-01564 CTS-01564 CTS-01564

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COL Item No.	COL Item	FSAR Location	Resolution Category	
COL 11.5(4)	The COL ~~a~~Applicant is to develop procedures which are of inspection, decontamination, and replacement related to radiation monitoring instruments.	11.5.2.6 11.5.2.8	2	CTS-01564
COL 11.5(5)	The COL ~~a~~Applicant is to provide analytical procedures and sensitivity for selected radioanalytical methods and type of sampling media for site-specific matter.	11.5.2.6 11.5.2.8	2	CTS-01564
COL 11.5(6)	The COL ~~a~~Applicant is to perform a site-specific cost benefit analysis to demonstrate compliance with the regulatory requirements.	11.5.2.11	3a	CTS-01564
COL 12.1(1)	The COL Applicant ~~is to~~will demonstrate that the policy considerations regarding plant operations ~~are compliance~~comply with RG 1.8, 8.8 and 8.10 (Subsection 12.1.1.3).	12.1.1.3.1 12.1.1.3.2 12.1.1.3.3	3a	CTS-01564
COL 12.1(2)	Deleted from the DCD.			
COL 12.1(3)	The COL Applicant ~~is to~~will describe how the plant ~~follows~~complies with the guidance of RG 8.2, 8.4, ~~8.6,~~ 8.7, 8.9, 8.13, 8.15, 8.25, 8.27, 8.28, 8.29, 8.34, 8.35, 8.36 and 8.38.	12.1.3	3a	CTS-01564
COL 12.1(4)	Deleted from the DCD.			
COL 12.1(5)	The COL Applicant ~~is to~~will describe the operational radiation protection program ~~for ensuring~~ that ensures occupational radiation exposures are ALARA.	12.5	1a	CTS-01564
COL 12.1(6)	The COL ~~a~~Applicant ~~is to~~will describe how the periodic review of operational practices to ensure configuration management, personnel training and qualification update, and procedure adherence.	12.1.3	3a	CTS-01564

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Resolution of Combined License Items for Chapters 1 - 19

COL Item No.	COL Item	FSAR Location	Resolution Category	
COL 12.1(7)	The COL ~~a~~Applicant ~~is to~~will describe how implementation of requirements for record retention are tracked according to 10 CFR50.75(g) and 10 CFR70.25(g) as applicable is implemented.	12.1.3 12.3.1.3.2	3a	CTS-01564 CTS-01564
COL 12.1(8)	The COL Applicant is responsible for the development of the operational procedures~~,~~ following the guidance of RG 4.21 (Reference 12.1-27)~~,~~ for the operation and handling of all structures, systems, and components (SSC) which could be potential sources of contamination within the plant. These procedures will be developed according to the objective of limiting leakage and the spread of contamination within the plant.	12.1.3 12.3.1.3.2	3a	CTS-01564
COL 12.2(1)	The COL Applicant ~~is to~~will list any additional contained radiation sources that are not identified in Subsection 12.2.1, including radiation sources used for instrument calibration or radiography.	12.2.1.1.10	3a	CTS-01564
COL 12.2(2)	The COL Applicant ~~is to~~will address the radiation protection aspects associated with additional storage space for radwaste and/or additional radwaste facilities for dry active waste.	12.2.1.1.10 12.5	3a	CTS-01564
COL 12.2(3)	The COL Applicant ~~is to~~will include the conduct of regular surveillance activities and provisions to maintain the dose rate at 2 meters from the surface of both the RWSAT and PMWTs under 0.25 mrem/h in the Radiation Protection Program.	12.5	3a	CTS-01564
COL 12.2(4)	The COL Applicant ~~is to~~will implement a method of ensuring that the radioactivity concentration in both the RWSAT and the PMWTs remain under the specified concentration level described in the DCD.	12.5	3a	CTS-01564

CP COL 1.8(2)

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Resolution of Combined License Items for Chapters 1 - 19

COL Item No.	COL Item	FSAR Location	Resolution Category
COL 12.3(8)	If the COL Applicant adopts the Mobile Liquid Waste Processing System, the COL Applicant is to confirm the radiation zone(s) where the system is installed in and to revise Figure 12.3-1, if necessary.	12.3.1.1.1.2	3a
COL 12.3(9)	In order to ensure that the B.A. evaporator room does not become a VHRA during the end of cycle, the COL Applicant is to stipulate a need for routine surveillance in the Radiation Protection Program. In the event that the routine surveillance shows an increase in dose level, the COL Applicant must provide an appropriate strategy to sufficiently reduce the dose rate below the criteria for a VHRA.	12.5	3a
COL 12.3(10)	The COL Applicant will address the site-specific design features, operational, post-construction objectives, and conceptual site model guidance of Regulatory Guide 4.21.	12.3.1.3.1.1 12.3.1.3.2 Table 12.3-201 Figure 12.3-201 Figure 12.3-202	3a
COL 12.4(1)	For multiunit plants, the COL Applicant is to provide estimated annual doses to construction workers in a new unit construction area, as a result of radiation from onsite radiation sources from the existing operating plant(s).	12.4.1.9 Table 12.4-201	3a
COL 13.1(1)	The COL Applicant is to provide a description of the corporate or home office organization, its functions and responsibilities, and the number and qualifications of personnel. The COL Applicant directs attention to activities that include facility design, design review, design approval, construction management, testing, and operation of the plant.	13.1-13.1.1.2.5 Figures 13.1-201 – 204 Appendix 13AA 13.1.2 Table 13.1-201 Table 13.1-202	3a

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Table 1.8-201 (Sheet 69 of 80)

Resolution of Combined License Items for Chapters 1 - 19

COL Item No.	COL Item	FSAR Location	Resolution Category
COL 16.1_3.3.2(1)	Deleted from the DCD.		
COL 16.1_3.3.2(2)	LCO 3.3.2 and associated Bases for hazardous chemical are to be confirmed by the evaluation with site-specific condition.	COLA Part 4, Section A	3a
COL 16.1_3.3.4(1)	Component controls and instrumentation required for safe shutdown related to the Ultimate Heat Sink in Tables B 3.3.4-1 and B 3.3.4-2 to be specified.	COLA Part 4, Section A	3a
COL 16.1_3.3.5(1)	~~The time delay values in SR 3.3.5.3 are to be confirmed based on the plant specific transmission system performance.~~ Deleted from the DCD.	~~COLA Part 4, Section A~~	~~3a~~
COL 16.1_3.3.6(1)	Deleted from the DCD.		
COL 16.1_3.4.17(1)	Deleted from the DCD.		
COL 16.1_3.7.9(1)	LCO 3.7.9 and associated Bases for the Ultimate Heat Sink based on plant specific design, including required UHS water volume, lowest water level for ESW pumps and maximum water temperature of the UHS, are to be developed.	COLA Part 4, Section A	3a
COL 16.1_3.7.10(1)	LCO 3.7.10 and associated Bases for hazardous chemical are to be confirmed by the evaluation with site-specific condition.	COLA Part 4, Section A	3a
COL 16.1_3.8.4(1)	The battery float current values in required action A.2 is to be confirmed after selection of the plant batteries.	COLA Part 4, Section A	3a
COL 16.1_3.8.5(1)	The battery float current values in required action A.2 is to be confirmed after selection of the plant batteries.	COLA Part 4, Section A	3a

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Table 1.8-201 (Sheet 75 of 80)
Resolution of Combined License Items for Chapters 1 - 19

COL Item No.	COL Item	FSAR Location	Resolution Category
COL 18.9(1)	Deleted from the DCD.		
COL 18.10(1)	Deleted from the DCD.		
COL 18.10(2)	Deleted from the DCD.		
COL 18.11(1)	Deleted from the DCD.		
COL 18.11(2)	Deleted from the DCD.		
COL 18.12(1)	Deleted from the DCD.		
COL 19.3(1)	The COL Applicant who intends to implement risk-~~managed technical specifications continues to update Probabilistic Risk Assessment and Severe Accident Evaluation to provide PRA input for risk-managed technical specifications. Peer reviews for the updated PRA will be performed prior to the use of PRA to risk-informed applications.~~informed applications will update and upgrade the information in the design-specific PRA to incorporate site-specific, as-built and as-operated information per 10 CFR 50.71(h)(1) for its intended uses and application. The COL Licensee will perform peer reviews of the site-specific PRA in accordance with requirements in PRA standards endorsed by the NRC prior to the use of the PRA to support risk-informed applications and will verify that the PRA model ~~meets~~has the technical adequacy and detail to support the proposed licensee programs and applications.	19.1.2.3 19.1.7.6	4
COL 19.3(2)	Deleted from the DCD.		
COL 19.3(3)	Deleted from the DCD.		

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Table 1.8-201 (Sheet 76 of 80)

Resolution of Combined License Items for Chapters 1 - 19

COL Item No.	COL Item	FSAR Location	Resolution Category
COL 19.3(4)	The Probabilistic Risk Assessment and Severe Accident Evaluation is updated as necessary to assess specific site information and all potential site specific external hazards (both natural and man-made hazards) that may affect the facility are screened out or subjected to analysis.	19.1.1.2.1 19.1.4.1.2 19.1.4.2.2 19.1.5 19.1.5.1.1 19.1.5.2.2 19.1.5.3.2 19.1.6.2 19.1.7.1 19.1.9 19.2.6.1 19.2.6.1.1 19.2.6.2 19.2.6.4 19.2.6.5 19.2.6.6 Table 19.1-201 Table 19.1-202 Table 19.1-203 Table 19.1-204 Table 19.1-205 Table 19.1-206 Table 19.2-9R Figure 19.1-2R Figure 19.1-201	3a

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CP COL 1.8(2)

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Resolution of Combined License Items for Chapters 1 - 19

COL Item No.	COL Item	FSAR Location	Resolution Category
COL 19.3(5)	The COL Applicant will identify a milestone for completing a comparison of the as-built SSC HCLPFs to those assumed in DCD Subsection 19.1.5.1. Deviations from the HCLPF values or other assumptions in the seismic margins evaluation shall be analyzed to determine if any new vulnerability has been introduced. The COL Applicant will (1) update the design-specific plant system and accident sequence analysis to incorporate site-specific effects (soil liquefaction, slope failure, etc.) and plant-specific features (safety-related site-specific structures), as applicable, (2) update the SEL with HCLPF values and associated failure modes to adequately reflect the site-specific effects and plant-specific features of the COL site (for soil-related failure modes, the site-specific GMRS can be used for HCLPF calculations), (3) demonstrate that the design-specific plant-level HCLPF capability is maintained in the COL application, and (4) ensure that equipment on the SEL which is qualified by seismic testing will be procured to the appropriate HCLPF capacity.	19.1.5.1.1 19.1.5.1.2 19.1.9 Table 19.1-206	4

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Resolution of Combined License Items for Chapters 1 - 19

COL Item No.	COL Item	FSAR Location	Resolution Category
COL 19.3(6)	The COL Applicant develops or describes an accident management program which includes emergency operating procedures, consideration of risk-significant operator actions listed in DCD Table 19.1-119, training, and human reliability related severe accident guidance programs. Insights gained from the design specific PRA, including insights created by the incorporation of site and plant-specific information available at the COL application phase (for aspects of the design which are not bounded by the Standard Plant PRA), are to be reflected appropriately. The COL Applicant reviews that operator actions remain valid with respect to all applicable events and modes of operation. As detailed design information becomes available and site-specific procedures are developed, the human reliability analysis in the PRA is revised and updated.	19.2.5 19.2.7 Table 19.1-119R	2
COL 19.3(7)	The COL Applicant will provide a milestone for completing the equipment survivability assessment of the as-built equipment required to mitigate severe accidents (electrical penetrations, hydrogen igniters and containment pressure (wide range)) to provide reasonable assurance that they will operate in the environmental conditions resulting from hydrogen burns associated with severe accidents for which they are intended and over the time span for which they are needed.	19.2.3.3.7	3~~a~~c

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Resolution of Combined License Items for Chapters 1 - 19

COL Item No.	COL Item	FSAR Location	Resolution Category
COL 19.3(8)	The COL applicant will describe the uses of PRA in support of licensee programs and identify and describe risk-informed applications being implemented during the COL application, construction and operational phases.	19.1 19.1.1.2.1 19.1.1.3.1 19.1.1.3.2 19.1.1.4 19.1.1.4.1 19.1.1.4.2 19.1.7 Table 19.1-207	1b

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1B.14 References

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1B-1 SECY-11-0032, *Consideration of Cumulative Effects of Regulation in the Rulemaking* Process, March 2, 2011.

1B-2 SECY-11-0093, *Near-Term Report and Recommendation for Agency Actions Following the Events in Japan*, July 12, 2011.

1B-3 SECY-11-0124, *Recommended Actions to be Taken Without Delay from the Near-term Task Force Report*, September 9, 2011.

1B-4 SECY-11-0137, *Prioritization of Recommended Actions to Be Taken in Response to Fukushima Lessons Learned*, October 3, 2011.

1B-5 SECY-12-0025, *Proposed Orders and Requests for Information in Response to Lessons Learned from Japan's March 11, 2011, Great Tohoku Earthquake and Tsunami*, February 17, 2012.

1B-6 SECY-12-0095, *Tier 3 Program Plans and 6-Month Status Update in Response to Lessons Learned from Japan's March 11, 2011, Great Tohoku Earthquake and Subsequent Tsunami*, July 13, 2012.

1B-7 Order EA-12-049, *Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events*, March 12, 2012.

1B-8 Order EA-12-051, *Order Modifying Licenses With Regard to Reliable Spent Fuel Pool Instrumentation*, March 12, 2012.

1B-9 *NRC Request for Information Pursuant to 50.54(f) Recommendations 2.1, 2.3, and 9.3*, March 12, 2012.

1B-10 *Request for Additional Information No. 6527, COLA, Revision 2, RAI Letter Number 261*, June 25, 2012.

1B-11 *Request for Additional Information No. 6929, COLA, Revision 2, RAI Letter Number 269*, December 13, 2012.

1B-12 MUAP-13002, *US-APWR Evaluation and Design Enhancement to Incorporate Lessons Learned from TEPCO's Fukushima Dai-ichi Nuclear Power Station Accident*, Rev.~~0~~1, ~~March~~September 2013. CTS-01564

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Table 1B-201 (Sheet 3 of 7)
Cross Reference to Standard Plant

NTTF No.	Description	FSAR Section	DCD Section	MUAP-13002 Section
4.2	Equipment covered under Title 10 of the Code of Federal Regulations (10CFR) 50.54(hh)(2) - Mitigation Strategies for Beyond-Design-Basis External Events	1.9.5.2 1B.4.2 3.4.1.2 3.4.1.4 13.2.1.1.4 13.5.2.1 13.5.2.2	1.9.5.2 Table 1.9.5-5 Table 1.9.5-8 1.9.6	5.1.2 6.1 6.3 6.4 6.5 6.6 6.7.3 6.8 ~~6.9.2~~ CTS-01564
5.0	Containment Hardened Vents	1B.5.0	----	----
5.1	Reliable hardened vents for Mark I and Mark II containments	1.9.5.2 1B.5.1	1.9.5.2 Table 1.9.5-8	5.3.6
5.2	Reliable hardened vents for other containment designs (long-term evaluation)	1B.5.2	----	5.3.7
6.0	Hydrogen control and mitigation inside containment or in other buildings (long-term evaluation)	1B.6.0	----	5.3.8
7.0	Spent fuel pool makeup capability and instrumentation	1B.7.0	----	----
7.1	Spent Fuel Pool Instrumentation	1.9.5.2 1B.7.1 13.2.1.1.4 13.5.2.2 Table 13.4-201	1.9.5.2 Table 1.9.5-6 Table 1.9.5-8 1.9.6	5.1.3 6.7.1 ~~6.7.2~~ CTS-01564

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Table 1B-201 (Sheet 4 of 7)
Cross Reference to Standard Plant

NTTF No.	Description	FSAR Section	DCD Section	MUAP-13002 Section
7.2	Order licensees to provide safety-related ac electrical power for the spent fuel pool makeup system.	1.9.5.2 1B.7.2	1.9.5.2 Table 1.9.5-8	5.2.1
7.3	Order licensees to revise their technical specifications to address requirements to have one train of onsite emergency electrical power operable for spent fuel pool makeup and spent fuel pool instrumentation when there is irradiated fuel in the spent fuel pool, regardless of the operational mode of the reactor.	1.9.5.2 1B.7.3	1.9.5.2 Table 1.9.5-8	5.2.1
7.4	Order licensees to have an installed seismically qualified means to spray water into the spent fuel pools, including an easily accessible connection to supply the water (e.g., using a portable pump or pumper truck) at grade outside the building.	1.9.5.2 1B.7.4	1.9.5.2 Table 1.9.5-8	5.2.1
7.5	Initiate rulemaking or licensing activities or both to require the actions related to the spent fuel pool described in detailed recommendations 7.1–7.4.	1.9.5.2 1B.7.5	1.9.5.2 Table 1.9.5-8	5.2.1
8.0	Strengthening and integration of emergency operating procedures, severe accident management guidelines (SAMGs), and extensive damage mitigation guidelines	1.9.5.2 1B.8.0 13.5.2.1 13.5.2.2	1.9.5.2 Table 1.9.5-8 1.9.6	5.1.4 ~~6.9.1~~
8.1	Orders to Integrate Programs and Guidance	1B.8.1	----	----
8.2	Standard Technical Specification Administrative Controls	1B.8.2	----	----

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Table 1B-201 (Sheet 5 of 7)
Cross Reference to Standard Plant

NTTF No.	Description	FSAR Section	DCD Section	MUAP-13002 Section
8.3	Licensee Technical Specifications	1B.8.3	----	----
8.4	Realistic Training and Exercises	1B.8.4	----	----
9.0	Emergency Plans for Prolonged SBO and Multiunit Events	1B.9.0	----	----
9.1	Emergency preparedness (EP) enhancements for prolonged station blackout (SBO) and multiunit events (dependent on availability of critical skill sets)	1B.9.1	----	5.3.9
9.2	Emergency preparedness (EP) enhancements for prolonged station blackout (SBO) and multiunit events (dependent on availability of critical skill sets)	1B.9.2	----	5.3.10
9.3	Emergency preparedness regulatory actions	1B.9.3	----	5.2.2
9.3.1	Emergency preparedness regulatory actions (communication and staffing)	1.9.5.2 1B.9.3.1	----	5.1.5
9.3.1.1	Emergency preparedness regulatory actions (communication)	1.9.5.2 1B.9.3.1.1 9.5.2.2.2.2 9.5.2.2.5.1	1.9.5.2 Table 1.9.5-7 Table 1.9.5-8 1.9.6	5.1.5.1 6.10.1
9.3.1.2	Emergency preparedness regulatory actions (staffing)	1.9.5.2 1B.9.3.1.2 13.3.2 13.3.5	1.9.5.2 Table 1.9.5-7 Table 1.9.5-8 1.9.6	5.1.5.2 ~~6.10.2~~
9.3.2	Emergency preparedness regulatory actions	1B.9.3.2	----	5.2.2

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Chapter 2

Chapter 2 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
RCOL2_03.03.02-9	Table 2.0-1R (Sheet[s] 1, [2] of 13) 2.3.1.2.2 2.3.2.3	2.0-2 [2.0-2, 2.0-3] 2.3-13 2.3-37	Response to RAI No. 250 Luminant Letter no.TXNB-12032 Date 09/14/2012	Revised to incorporate RG 1.221.	-
CTS-01514	Table 2.0-1R (Sheets 3, 4,5,6 of 13)	2.0-4 2.0-5 2.0-6 2.0-7	Consistency with DCD as described in Letter. TXNB-12033 (ML12268A413)	Updated to reflect revised X/Q values.	0
CTS-01514	Table 2.3-338 (Sheets 1,3 of 3)	2.3-244 2.3-246	Consistency with DCD as described in Letter. TXNB-12033 (ML12268A413)	Updated to reflect revised source and receptor locations.	0
CTS-01514	Table 2.3-339 (Sheet 1 of 2)	2.3-247	Consistency with DCD as described in Letter. TXNB-12033 (ML12268A413)	Updated to reflect revised X/Q values.	0
CTS-01513	Figure 2.1-201 2.3-380	 - -	Consistency with DCD as described in Letter. TXNB-12033 (ML12268A413)	Updated to reflect standard plant and site-specific layout.	0
RCOL2_02.04.12-9 S04	Acronyms and Abbreviations	2-lxi 2-lxv 2-lxvi	4th Supplemental Response to RAI No. 147 Luminant Letter no.TXNB-13013 Date 4/29/2013	Section was revised to reflect new acronyms and abbreviations used in the groundwater elevation and pathways analysis description.	-

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
RCOL2_02.04.12-9 S04	Table 2.0-1R (Sheet 8 of 13)	2.0-9	4th Supplemental Response to RAI No. 147 Luminant Letter no.TXNB-13013 Date 4/29/2013	Table updated to describe site-specific groundwater levels.	-
RCOL2_02.04.12-9 S04	2.4.12.3 2.4.12.3.1 2.4.12.3.1.1 2.4.12.3.1.1.1 (New Subsection) 2.4.12.3.1.1.2 (New Subsection) 2.4.12.3.1.1.3 (New Subsection) 2.4.12.5	2.4-78 2.4-79 2.4-79 through 2.4-82 2.4-82 through 2.4-85 2.4-85 2.4-86 through 2.4-88	4th Supplemental Response to RAI No. 147 Luminant Letter no.TXNB-13013 Date 4/29/2013	Section was revised to reflect updates to the maximum groundwater elevation and pathways.	-
RCOL2_02.04.12-9 S04	Table 2.4.12-208 (Sheets 1, 2 of 2)	2.4-230 2.4-231	4th Supplemental Response to RAI No. 147 Luminant Letter no.TXNB-13013 Date 4/29/2013	Table was revised to reflect updates to the groundwater monitoring wells installation details.	-
RCOL2_02.04.12-9 S04	Table 2.4.12-211	2.4-239	4th Supplemental Response to RAI No. 147 Luminant Letter no.TXNB-13013 Date 4/29/2013	Table was revised to reflect updatedresults of the groundwater pathways analysis.	-

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
RCOL2_02.04.12-9 S04	Figure 2.4.12-212	-	4th Supplemental Response to RAI No. 147 Luminant Letter no.TXNB-13013 Date 4/29/2013	Figure was revised to reflect updated results of the groundwater pathways analysis.	-
RCOL2_02.04.12-9 S04	Figure 2.4.12-213	-	4th Supplemental Response to RAI No. 147 Luminant Letter no.TXNB-13013 Date 4/29/2013	Figure was revised to reflect updated results of the groundwater pathways analysis.	-
RCOL2_02.04.12-9 S04	Figure 2.4.12-214	-	4th Supplemental Response to RAI No. 147 Luminant Letter no.TXNB-13013 Date 4/29/2013	Figure was revised to reflect updated vertical release pathway.	-
RCOL2_02.04.12-9 S04	Figure 2.4.12-215	-	4th Supplemental Response to RAI No. 147 Luminant Letter no.TXNB-13013 Date 4/29/2013	Figure was updated to show comparisonbetween pre and post construction surface topography.	-
RCOL2_02.04.12-9 S04	Figure 2.4.12-216	-	4th Supplemental Response to RAI No. 147 Luminant Letter no.TXNB-13013 Date 4/29/2013	Figure was added to show cut and engineered fill buildup areas.	-
RCOL2_02.04.12-9 S04	Figure 2.4.12-217	-	4th Supplemental Response to RAI No. 147 Luminant Letter no.TXNB-13013 Date 4/29/2013	Figure was updated to reflect the updated post-construction groundwater conceptual model.	-

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
RCOL2_02.04.12-9 S04	Figure 2.4.12-218	-	4th Supplemental Response to RAI No. 147 Luminant Letter no.TXNB-13013 Date 4/29/2013	Figure was added showing post-construction surface topography.	-
RCOL2_02.04.12-9 S04	Figure 2.4.12-219 (Sheets 1, 2 of 2)	-	4th Supplemental Response to RAI No. 147 Luminant Letter no.TXNB-13013 Date 4/29/2013	Figure was added to show MODFLOW model grid.	-
RCOL2_02.04.12-9 S04	Figure 2.4.12-220	-	4th Supplemental Response to RAI No. 147 Luminant Letter no.TXNB-13013 Date 4/29/2013	Figure was added to reflect results of the groundwater pathways analysis.	-
RCOL2_02.04.12-12 S01	Acronyms and Abbreviations	2-lxvi	Supplemental Response to RAI No. 147 Luminant Letter no.TXNB-13013 Date 4/29/2013	Section was revised to reflect new acronyms and abbreviations used in the groundwater elevation and pathways analysis description.	-
RCOL2_02.04.12-12 S01	2.4.12.2.4 2.4.12.5	2.4-73 through 2.4-76 2.4-86	Supplemental Response to RAI No. 147 Luminant Letter no.TXNB-13013 Date 4/29/2013	Sections were updated to reflect updated groundwater well monitoring results.	-
RCOL2_02.04.12-12 S01	Table 2.4.12-209 (Sheets 1 through 3 of 3)	2.4-232 through 2.4-234	Supplemental Response to RAI No. 147 Luminant Letter no.TXNB-13013 Date 4/29/2013	Table was revised to reflect updatedgroundwater monitoring results.	-

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
RCOL2_02.04.12-12 S01	Table 2.4.12-213 (New Table)	2.4-240	Supplemental Response to RAI No. 147 Luminant Letter no.TXNB-13013 Date 4/29/2013	Table was added to show average rate of rise in non-equilibrium groundwater monitoring wells.	-
RCOL2_02.04.12-12 S01	Figure 2.4.12-208	-	Supplemental Response to RAI No. 147 Luminant Letter no.TXNB-13013 Date 4/29/2013	Figure was update to reflect new site layout and plot plan.	-
RCOL2_02.04.12-12 S01	Figure 2.4.12-209 (Sheets 1 through 20 of 20)	-	Supplemental Response to RAI No. 147 Luminant Letter no.TXNB-13013 Date 4/29/2013	Figure was updated to reflect latest groundwater monitoring results (adding 40 more sheets)	-
RCOL2_02.04.12-12 S01	Figure 2.4.12-210 (Sheets 1 through 4 of 4)	-	Supplemental Response to RAI No. 147 Luminant Letter no.TXNB-13013 Date 4/29/2013	Figure was updated to reflect new site layout and plot plan and updated groundwater monitoring results (adding 2 more sheets)	-
CTS-01521	Table 2.0-1R (Sheet 9 of 13 [10 of 13])	2.0-10 [2.0-11]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Updated table entry to reflect revisions to Section 2.5	1

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01521	2.5.1	2.5-2	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.1.1.4	2.5-16	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.1.1.4.2	2.5-20 [2.5-21]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01521	2.5.1.1.4.2.3	2.5-23	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.1.1.4.3	2.5-23 [2.5-24]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.1.1.4.3.4.2	2.5-28 through 2.5-29	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01521	2.5.1.1.4.3.6	2.5-30	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.1.1.4.3.6.1	2.5-30 [2.5-31]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.1.1.4.3.6.1.1 through 2.5.1.1.4.3.6.1.2	2.5-31 through 2.5-40	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01521	2.5.1.1.4.3.6.2	2.5-40 through 2.5-41	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.1.1.4.3.7	2.5-41	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.1.1.4.3.7.1	2.5-41 through 2.5-42 [2.5-43]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01521	2.5.1.1.4.3.7.2	2.5-43	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.1.1.4.3.7.3	2.5-43 through 2.5-44 [2.5-45]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.1.2.5.1	2.5-55 [2.5-56]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01521	2.5.1.2.5.2	2.5-56	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.1.2.5.6	2.5-58 [2.5-59]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.1.2.5.10.1	2.5-60 [2.5-61]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01521	2.5.1.2.5.10.2.3	2.5-64 [2.5-65]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.1.2.5.10.3	2.5-64 [2.5-65]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	Figure 2.5.1-213	-	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Figure was revised due to CEUS and CPNPP layout update.	1

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01521	Figure 2.5.1-215	-	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Figure was revised due to CEUS and CPNPP layout update.	1
CTS-01521	Figure 2.5.1-230	-	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Figure was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.2	2.5-66	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01521	2.5.2	2.5-67 [2.5-68]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.2.1	2.5-68	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.2.1.1	2.5-68 2.5-69	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01521	2.5.2.1.2	2.5-69 through 2.5-71 [2.5-72 through 2.5-74]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.2.1.3	2.5-71 [2.5-74]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.2.1.3.1	2.5-72 2.5-73 [2.5-74 through 2.5-77]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01521	2.5.2.1.3.2	2.5-73 through 2.5-75 [2.5-77 through 2.5-80]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.2.2	2.5-75 through 2.5-77 [2.5-80 through 2.5-82]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.2.2.1	2.5-77, 2.5-78 [2.5-82 through 2.5-84]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01521	2.5.2.2.1.1	2.5-78, 2.5-79 [2.5-84 through 2.5-85]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.2.2.1.2	2.5-79, 2.5-80 [2.5-85 through 2.5-87]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.2.2.1.3	2.5-80 2.5-81 [2.5-87 2.5-88]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01521	2.5.2.2.1.4 through 2.5.2.2.2.6	2.5-81 through 2.5-84 [2.5-88 through 2.5-99]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.2.3	2.5-93 2.5-94 [2.5-99 through 2.5-101]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.2.4	2.5-94 [2.5-101]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01521	2.5.2.4.1	2.5-94, 2.5-95 [2.5-101 through 2.5-102]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.2.4.2	2.5-95, 2.5-96 [2.5-102 2.5-103]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.2.4.2.1	2.5-96, 2.5-97 [2.5-103 through 2.5-104]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01521	2.5.2.4.2.2	2.5-97 [2.5-105 2.5-105]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.2.4.2.2.1 through 2.5.2.4.2.3.4	2.5-97 through 2.5-113 [2.5-106 through 2.5-121]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.2.4.3	2.5-113, 2.5-114 [2.5-122 2.5-123]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01521	2.5.2.4.4	2.5-114 through 2.5-117 [2.5-123 through 2.5-127]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.2.5	2.5-117, 2.5-118 [2.5-127, 2.5-128]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.2.5.1	2.5-118, 2.5-119 [2.5-128 and 2.5-129]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01521	2.5.2.5.2.1	2.5-119, 2.5-120 [2.5-129 through 2.5-131]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.2.5.2.2	2.5-121 [2.5-131]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.2.5.2.3	2.5-121 through 2.5-123 [2.5-132 through 2.5-134]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01521	2.5.2.6.1	2.5-123 2.5-124 [2.5-134, 2.5-135]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.2.6.1.1	2.5-124 Through 2.5-126 [2.5-135 through 2.5-137]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.2.6.1.2	2.5-126 [2.5-138]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01521	2.5.2.6.2	2.5-127 through 2.5-129 [2.5-139 through 2.5-142]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.2.6.2 (New Subsection 2.5.2.6.3)	2.5-129 [2.5-143 through 2.5-144]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.3.1	2.5-130 2.5-131 [2.5-145] 2.5-146]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01521	2.5.3.2	2.5-131 Through 2.5-131 [2.5-146 2.5-147]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.3.3	2.5-134 [2.5-149]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised due to CEUS and CPNPP layout update.	1
CTS-01521	2.5.7	2.4-242 2.5-246 2.5-249 Through 2.5-252 2.5-255 2.5-256 2.5-259 [2.5-257 2.5-261, 2.5-264 through 2.5-267, 2.5-270 2.5-271, 2.5-274, 2.5-275]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Section was revised to remove unused references and due to CEUS and CPNPP layout update.	1

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01521	Table 2.5.2-201	2.5-299 through 2.5-304 [2.5-315 through 2.5-324]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Table was revised due to CEUS and CPNPP layout update.	1
CTS-01521	Table 2.5.2-202	2.5-305 2.5-306 [2.5-325 through 2.5-328]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Table was revised due to CEUS and CPNPP layout update.	1
CTS-01521	Table 2.5.2-203	2.5-307 2.5-308 [2.5-329 through 2.5-332]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Table was revised due to CEUS and CPNPP layout update.	1

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01521	Table 2.5.2-204	2.5-309 [2.5-333 through 2.5-334]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Table was revised due to CEUS and CPNPP layout update.	1
CTS-01521	Table 2.5.2-205	2.5-310 [2.5-335 through 2.5-336]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Table was revised due to CEUS and CPNPP layout update.	1
CTS-01521	Table 2.5.2-206	2.5-311 [2.5-337 through 2.5-338]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Table was revised due to CEUS and CPNPP layout update.	1

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01521	Table 2.5.2-207	2.5-312 2.5-313 [2.5-339 through 2.5-341]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Table was revised due to CEUS and CPNPP layout update.	1
CTS-01521	Table 2.5.2-208	2.5-314 [2.5-342 through 2.5-343]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Table was revised due to CEUS and CPNPP layout update.	1
CTS-01521	Table 2.5.2-209	2.5-315 [2.5-344 through 2.5-345]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Table was revised due to CEUS and CPNPP layout update.	1

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01521	Table 2.5.2-210	2.5-316 [2.5-346 through 2.5-347]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Table was revised due to CEUS and CPNPP layout update.	1
CTS-01521	Table 2.5.2-211	2.5-317 [2.5-348]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Table was revised due to CEUS and CPNPP layout update.	1
CTS-01521	Table 2.5.2-212	2.5-318 [2.5-349 through 2.5-355]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Table was revised due to CEUS and CPNPP layout update.	1

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01521	Table 2.5.2-213	2.5-319 [2.5-356 through 2.5-357]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Table was revised due to CEUS and CPNPP layout update.	1
CTS-01521	Table 2.5.2-214	2.5-320 2.5-321 [2.5-358 through 2.5-361]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Table was revised due to CEUS and CPNPP layout update.	1
CTS-01521	Table 2.5.2-215	2.5-322 2.5-323 [2.5-362 through 2.5-365]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Table was revised due to CEUS and CPNPP layout update.	1

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01521	Table 2.5.2-216	2.5-324 [2.5-366 through 2.5-368]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Table was revised due to CEUS and CPNPP layout update.	1
CTS-01521	Table 2.5.2-217	2.5-325 [2.5-369 through 2.5-371]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Table was revised due to CEUS and CPNPP layout update.	1
CTS-01521	Table 2.5.2-218	2.5-326 [2.5-372 through 2.5-374]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Table was revised due to CEUS and CPNPP layout update.	1

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01521	Table 2.5.2-219	2.5-327 [2.5-375 through 2.5-377]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Table was revised due to CEUS and CPNPP layout update.	1
CTS-01521	Table 2.5.2-220	2.5-328 [2.5-378]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Table was revised due to CEUS and CPNPP layout update.	1
CTS-01521	Table 2.5.2-221	2.5-329 [2.5-379 through 2.5-381]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Table was revised due to CEUS and CPNPP layout update.	1

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01521	Table 2.5.2-222	2.5-330 [2.5-382]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Table was revised due to CEUS and CPNPP layout update.	1
CTS-01521	Table 2.5.2-223	2.5-331 [2.5-383 through 2.5-385]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Table was revised due to CEUS and CPNPP layout update.	1
CTS-01521	Tables 2.5.2-224 through 2.5.2-237	2.5-332 through 2.5-351 [2.5-386 through 2.5-405]	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Tables were deleted due to CEUS and CPNPP layout update.	1

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01521	Figures 2.5.2-201 through 259 New Figures 2.5.2-260 through 277 Figures are located in UTR files 2, 3, and 4 of 4.	-	To reflect plant layout changes and inclusion of EPRI-CEUS Seismic Catalog, as described in both the Luminant ISCP Letter ML12268A41 and Fukushima RAI 261 response ML12207A599.	Figures were revised due to CEUS and CPNPP layout update.	1
RCOL2_02.04.02-2 S03	Table 2.0-1R (Sheet 8 of 13)	2.0-9	3rd Supplemental Response to RAI No. 139 Luminant Letter no.TXNB-13016 Date 5/13/2013	Table revised to update maximum flood level.	-
RCOL2_02.04.02-2 S03	2.4.2.1 2.4.2.2 2.4.2.3	2.4-18 2.4-18 through 2.4-20 2.4-21 through 2.4-25	3rd Supplemental Response to RAI No. 139 Luminant Letter no.TXNB-13016 Date 5/13/2013	Section revised to update probable maximum precipitation (PMP), probable maximum flood (PMF), and two year coincident wind wave elevation and its effects.	-
RCOL2_02.04.02-2 S03	2.4.3 2.4.3.1 2.4.3.3 2.4.3.4 2.4.3.5 2.4.3.6	2.4-26 2.4-27 2.4-28 2.4-29 through 2.4-31 2.4-31 2.4-32 2.4-32 2.4-33	3rd Supplemental Response to RAI No. 139 Luminant Letter no.TXNB-13016 Date 5/13/2013	Section revised to update water elevation values and regulation guidelines referenced.	-

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
RCOL2_02.04.02-2 S03	2.4.4.1 2.4.4.3	2.4-44 through 2.4-50 2.4-51 2.4-52	3rd Supplemental Response to RAI No. 139 Luminant Letter no.TXNB-13016 Date 5/13/2013	Section revised to update breach flow values and overtopping elevation	-
RCOL2_02.04.02-2 S03	2.4.5 2.4.7 2.4.10 2.4.14 2.4.16	2.4-53 2.4-57 2.4-61 2.4-122 2.4-127 2.4-132	3rd Supplemental Response to RAI No. 139 Luminant Letter no.TXNB-13016 Date 5/13/2013	Section revised to update PMF, maximum flood level, and elevation reference.	-
RCOL2_02.04.02-2 S03	Table 2.4.2-205 Table 2.4.2-206 Table 2.4.2-207 (Sheets 1, 2 of 2) Table 2.4.2-208 Table 2.4.2-209	2.4-157 2.4-158 2.4-159 2.4-160 2.4-161 2.4-162	3rd Supplemental Response to RAI No. 139 Luminant Letter no.TXNB-13016 Date 5/13/2013	Tables have been revised to update PMP values, runoff values, surface water elevations, supercritical velocities.	-
RCOL2_02.04.02-2 S03	Table 2.4.3-201 Table 2.4.3-202 Table 2.4.3-203 (Sheets 1 through 3 of 3) Table 2.4.3-204 Table 2.4.3-205 (Sheets 1 through 3 of 3)	2.4-163 2.4-164 2.4-165 through 2.4-167 2.4-168 2.4-169 through	3rd Supplemental Response to RAI No. 139 Luminant Letter no.TXNB-13016 Date 5/13/2013	Tables have been revised to update watershed PMP values, watershed subbasin characteristics, and Snyder's unit hydrograph characteristics. Tables 2.4.3-203, 2.4.3-204, 2.4.3-205, 2.4.3-208, 2.4.3-209, have been deleted.	-

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
	Table 2.4.3-207 Table 2.4.3-208 Table 2.4.3-209 Table 2.4.3-210	2.4-171 2.4-173 2.4-174 2.4-175 2.4-176			
RCOL2_02.04.02-2 S03	(New tables) Table 2.4.3-211 Table 2.4.3-212 Table 2.4.3-213 Table 2.4.3-214 Table 2.4.3-215	2.4-176	3rd Supplemental Response to RAI No. 139 Luminant Letter no.TXNB-13016 Date 5/13/2013	Tables have been added providing: watershed hourly PMP estimates for the four basins and SCR watershed hourly PMP estimates.	-
RCOL2_02.04.02-2 S03	Figure 2.4.2-202 Figure 2.4.2-203 Figure 2.4.2-204 Figure 2.4.2-205 Figure 2.4.2-206 Figure 2.4.2-207	-	3rd Supplemental Response to RAI No. 139 Luminant Letter no.TXNB-13016 Date 5/13/2013	Figures revised to reflect: latest site grading and drainage plan, update supercritical flow locations, and update PMP depth curves. Figures 2.4.2-205 has been deleted.	-

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
RCOL2_02.04.02-2 S03	Figure 2.4.3-202 Figure 2.4.3-203 Figure 2.4.3-204 Figure 2.4.3-205 Figure 2.4.3-207 Figure 2.4.3-208 Figure 2.4.3-209	-	3rd Supplemental Response to RAI No. 139 Luminant Letter no.TXNB-13016 Date 5/13/2013	Figures were revised to include storm centers, update the sub-basin schematic, update PMF flow and elevation hydrographs, and critical fetch length. Figures 2.4.3-203 and 2.4.3-204 were deleted.	-
RCOL2_02.04.02-2 S03	Figure 2.4.3-211 Figure 2.4.3-212 Figure 2.4.3-213 Figure 2.4.3-214 Figure 2.4.3-215 Figure 2.4.3-216 Figure 2.4.3-217	-	3rd Supplemental Response to RAI No. 139 Luminant Letter no.TXNB-13016 Date 5/13/2013	Figures have been revised to update Snyder's unit hydrographs for basins 1-4. Figures 2.4.3-211 and 2.4.3-212 have been deleted.	-
RCOL2_02.04.02-2 S03	Figure 2.4.3-219 Figure 2.4.3-220 Figure 2.4.3-221	-	3rd Supplemental Response to RAI No. 139 Luminant Letter no.TXNB-13016 Date 5/13/2013	Figures have been added showing overall watershed two-thirds temporal distribution for Basins 1-4.	-

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
	Figure 2.4.3-222 Figure 2.4.3-223				
RCOL2_02.04.02-2 S03	Figure 2.4.4-203	-	3rd Supplemental Response to RAI No. 139 Luminant Letter no.TXNB-13016 Date 5/13/2013	Figure revised to update water surface elevation at Brazos River.	-
RCOL2_02.04.13-5 S02	Acronyms and Abbreviations	2-lx	2nd Supplemental Response to RAI No. 145 Luminant Letter no.TXNB-13018 Date 5/28/2013	Revised to add the Acronyms: contaminated zone (CZ) and Effluent Concentration Limits (ECL)	-
RCOL2_02.04.13-5 S02	2.4.13	2.4-89	2nd Supplemental Response to RAI No. 145 Luminant Letter no.TXNB-13018 Date 5/28/2013	Section revised to include conceptual vertical movement of groundwater to the nearest surfacewater body and aquifer.	-
RCOL2_02.04.13-5 S02	2.4.13.1	2.4-89 2.4-90 2.4-91 2.4-92	2nd Supplemental Response to RAI No. 145 Luminant Letter no.TXNB-13018 Date 5/28/2013	Section revised to correct editorial errors and remove unnecessary acronyms.	-
CTS-01535	2.4.13.1	2.4-91	2nd Supplemental Response to RAI No. 145 Luminant Letter no.TXNB-13018 Date 5/28/2013	Removed unnecessary abbreviation “(NE)” from second sentence of first paragraph.	-

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01536	2.4.13.1	2.4-91	2nd Supplemental Response to RAI No. 145 Luminant Letter no.TXNB-13018 Date 5/28/2013	Revised text to reflect change in Figure number from 2.4.12-207 to 2.4.12-208 in third paragraph.	-
RCOL2_02.04.13-5 S02	2.4.13.2	2.4-92 through 2.4-94	2nd Supplemental Response to RAI No. 145 Luminant Letter no.TXNB-13018 Date 5/28/2013	Section revised to describe the two pathways (vertical & horizontal) that were considered in the postulated tank failure evalued using RESRAD-OFFSITE.	-
RCOL2_02.04.13-5 S02	2.4.13.3 2.4.13.4 2.4.13.4.1	2.4-94 2.4-95 2.4-95 2.4-96 2.4-96 2.4-97	2nd Supplemental Response to RAI No. 145 Luminant Letter no.TXNB-13018 Date 5/28/2013	Subsections were deleted and topics included in these sections were incorporated into 2.4.13.2	-
RCOL2_02.04.13-5 S02	2.4.13.4.2	2.4-97 through 2.4-103 2.4-103 through 2.4-107	2nd Supplemental Response to RAI No. 145 Luminant Letter no.TXNB-13018 Date 5/28/2013	Subsections were deleted and topics included in these sections were incorporated into 2.4.13.2	-
RCOL2_02.04.13-5 S02	2.4.13.2.1 2.4.13.2.1.1 2.4.13.2.1.2 2.4.13.2.2 (New sections)	2.4-103	2nd Supplemental Response to RAI No. 145 Luminant Letter no.TXNB-13018 Date 5/28/2013	Section added to describe the shortest and fastest horizontal flow paths and the vertical flow path.	-
RCOL2_02.04.13-5 S02	2.4.13.5 2.4.13.5.1 2.4.13.5.2	2.4-107 through 2.4-111 2.4-111 2.4-112 2.4-112	2nd Supplemental Response to RAI No. 145 Luminant Letter no.TXNB-13018 Date 5/28/2013	Subsections were deleted and topics included in these sections were incorporated into 2.4.13.2	-

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
	   2.4.13.5.3 2.4.13.5.4 2.4.13.5.5 2.4.13.5.6 2.4.13.5.7	through 2.4-114 2.4-114 through 2.4-116 2.4-116 2.4-117 2.4-117 2.4-117 through 2.4-119 2.4-119 through 2.4-121			
RCOL2_02.04.13-5 S02	2.4.13.3 (New section)	2.4-121	2nd Supplemental Response to RAI No. 145 Luminant Letter no.TXNB-13018 Date 5/28/2013	Subsection included to provide a summary of the limiting and bounding pathways chosen for releases.	-
RCOL2_02.04.13-7 S02	2.4.16	2.4-131	2nd Supplemental Response to RAI No. 145 Luminant Letter no.TXNB-13018 Date 5/28/2013	Subsection was revised to remove reference 2.4-297.	-
RCOL2_02.04.13-5 S02	Table 2.4.13-202 (Sheets 1, 2 of 2)	2.4-242 2.4-243	2nd Supplemental Response to RAI No. 145 Luminant Letter no.TXNB-13018 Date 5/28/2013	Table was revised to show the Radionuclide Concentrations and Unity Values for the Shortest Horizontal Flow Path Scenario.	-

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
RCOL2_02.04.13-5 S02	Table 2.4.13-203	2.4-244	2nd Supplemental Response to RAI No. 145 Luminant Letter no.TXNB-13018 Date 5/28/2013	Table was revised to show the Radionuclide Concentration and Unity Values for the Fastest Horizontal flow Path Scenario.	-
RCOL2_02.04.13-5 S02	Table 2.4.13-204 (Sheets 1, 2 of 2)	2.4-245 2.4-246	2nd Supplemental Response to RAI No. 145 Luminant Letter no.TXNB-13018 Date 5/28/2013	Table was revised to show the Radionuclide Concentrations and Unity Values for the Vertical Flow Path Scenario.	-
RCOL2_02.04.13-5 S02	Table 2.4.13-205 (Sheets 1, 2 of 2)	2.4-247 2.4-248	2nd Supplemental Response to RAI No. 145 Luminant Letter no.TXNB-13018 Date 5/28/2013	Table was revised to show a summary of the sensitivity analyses performed.	-
RCOL2_02.04.13-5 S02	Table 2.4.13-206 (Sheets 1, 2 of 2)	2.4-249 2.4-250	2nd Supplemental Response to RAI No. 145 Luminant Letter no.TXNB-13018 Date 5/28/2013	Table was deleted.	-
RCOL2_02.04.13-5 S02	Table 2.4.13-207 (Sheets 1, 2 of 2)	2.4-251 2.4-252	2nd Supplemental Response to RAI No. 145 Luminant Letter no.TXNB-13018 Date 5/28/2013	Table was deleted.	-
RCOL2_02.04.13-5 S02	Table 2.4.13-208 (Sheets 1, 2 of 2)	2.4-253 2.4-254	2nd Supplemental Response to RAI No. 145 Luminant Letter no.TXNB-13018 Date 5/28/2013	Table was deleted.	-

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
RCOL2_02.04.13-5 S02	Table 2.4.13-209 (Sheets 1, 2 of 2)	2.4-255 2.4-256	2^{nd} Supplemental Response to RAI No. 145 Luminant Letter no.TXNB-13018 Date 5/28/2013	Table was deleted.	-
RCOL2_02.04.13-5 S02	Table 2.4.13-210	2.4-257	2^{nd} Supplemental Response to RAI No. 145 Luminant Letter no.TXNB-13018 Date 5/28/2013	Table was deleted.	-
RCOL2_02.04.13-5 S02	Table 2.4.13-211	2.4-258	2^{nd} Supplemental Response to RAI No. 145 Luminant Letter no.TXNB-13018 Date 5/28/2013	Table was deleted.	-
RCOL2_02.04.13-5 S02	Table 2.4.13-212	2.4-259	2^{nd} Supplemental Response to RAI No. 145 Luminant Letter no.TXNB-13018 Date 5/28/2013	Table was deleted.	-
RCOL2_02.04.13-5 S02	Figure 2.4.13-201 through Figure 2.4.13-207	-	2^{nd} Supplemental Response to RAI No. 145 Luminant Letter no.TXNB-13018 Date 5/28/2013	Figure 2.4.13-201 was revised to update the release locations for the BAT and Horizontal Flow Paths (Fastest & Shortest). Figures 2.4.13-202 through 2.4.13-207 were deleted.	-

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01532	Table 2.0-1R (Sheet 1, 2, 8,9,10 of 13) 2.3.1.2 2.4.2 2.4.2.2 2.4.3 2.5.2	2.0-2 2.0-3 2.0-9 2.0-10 [2.0-11] 2.3-9 2.4-17 2.4-20 2.4-26 [2.4-27] 2.5-66	To address site-specific strategies to mitigate beyond design basis external events per guidance in NRC Order EA-12-049, the DCD added a new COL item (COL 1.9(2)-1) which resulted in an impact to FSAR Ch. 2.	The applicable portions of FSAR Ch. 2 were updated to incorporate COL 1.9(2)-1 and address beyond design basis external events per guidance in NRC Order EA 12-049.	2
CTS-01542	2.4.3	2.4-26 [2.4-27]	Editorial correction	Corrected 749.09ft to 794.09ft.	2
CTS-01544	Table 2.0-1R(Sheet 5 of 13)	2.0-6	Errata	Corrected typo from FSAR R3 UTR R0 of 8-24 hour X/Q value for West HVAC Intake Main Steam Relief Valves.	3
RCOL2_02.05.04-17	Table 2.0-1R (Sheet 10,11,12,13, and 14 of 14) 2.5.4.5.4.6.1 2.5.4.10 Tables 2.5.4-228 to 231	2.0-11 to 13 2.0-17 2.5-215 2.5-225 2.5-232 2.5-234 2.5-491 to 494	Supplemental Response 01 to RAI No. 22, Question 02.05.04-17 (ML093080096).	Revised to reflect changes made to seismic key site parameters. Errata change of wording.	-
RCOL2_02.05.04-26	2.5.2 2.5.4	2.5-134 2.5-158 2.5-162 2.5-169	Supplemental Response to RAI No. 233 Luminant Letter no.TXNB-13029	Section and tables updated to reflect seismic effects of new groundwater level. Figures	

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
	2.5.5 Table 2.5.5-201 Table 2.5.5-203 Figures 2.5.4-201 to 203, 2.5.4-206 to 216 Figures 2.5.5-201, 204 to 219	2.5-170 2.5-182 2.5-192 2.5-196 2.5-197 2.5-203 to 2.5-206 2.5-208 2.5-209 2.5-217 to 2.5-224 2.5-233 2.5-237 to 2.5-241 2.5-244 2.5-245 2.5-247 2.5-495 2.5-497	Date 10/7/2013	updated to reflect new site plan.	
RCOL2_02.05.04-18	2.5.4.10.5	2.5-234	Supplemental Response 01 to RAI 22 Question 02.05.04-18 (ML092820486)	Calculates coefficient of friction.	-

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
RCOL2_02.05.05-1	2.5.5 Table 2.5.5-203 Figures 2.5.5-215 to 219	2.5-245 2.5-247 2.5-497	Supplemental Response 01 to RAI 19, Question 02.05.05-1 (ML09080096).	Sections revised to incorporate latest grading and drainage plan and groundwater elevation of 804ft.	-
RCOL2_02.05.04-22	Figures 2.5.4-246 to 261	-	Supplemental Response 01 to RAI 170, Question 02.05.04-22 [TXNB-10062 (SRI)]	Updated plant layout and geometries in figures.	-
CTS-01563	Table 2.0-1R (Sheet 10[12] through 13[14] of 13[14]) Table 2.3-338 (Sheet 2 of 3) Table 2.3-339 (Sheet 2 of 2) Figure 2.3-382	2.0-11 [2.0-13] through 2.0-14 [2.0-15] 2.3-245 2.3-248	Consistency with DCD Rev. 4	Reflect updates to key site parameters and atmospheric dispersion factors, as well as updating source and receptor locations.	4
CTS-01563	2.3.1.2.2	2.3-13	Errata	Rephrases sentence about hurricane windspeed after landfall.	4
CTS-01563	2.4.3.5 2.4.4.3 2.4.7	2.4-32 [2.4-34, 2.4-35] 2.4-51, 2.4-52 [2.4-55] 2.4-57 [2.4-61]	Errata	Corrects vertical datum used and unit of measurement used.	4

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01563	Table 2.4.12-211	2.4-239 [2.4-273]	Errata	Correct typo for travel time (days)	4

*Page numbers for the attached marked-up pages may differ from the revision 3 page numbers due to text additions and deletions. When the page numbers for the attached pages do differ, the page number for the attached page is shown in brackets.

Table 2.0-1R (Sheet 12 of 14)
Key Site Parameters

	Settlement	Total settlement of R/B complex foundation during construction and operational life[14][15] ~~6~~9.0 in. Differential settlement across R/B complex foundation in any direction during construction and operational life [14][15] ~~2.0~~5.5 in. Maximum differential settlement between buildings during operational life[14][15~~6~~] 0.5 in. Maximum tilt of R/B complex foundation generated during operational life of the plant[14][15~~6~~] 1/2000	Maximum ~~and differential~~ settlement of all the seismic Category I buildings and structures including R/B Complex, PS/B, ESWPT, UHSRS and PSFSV is less than 0.6 inches, while maximum differential settlement is less than 1/2 in.		RCOL2_02.05.04-17 RCOL2_02.05.04-17 CTS-01563 RCOL2_02.05.04-17
CP COL 2.3(3)	Atmospheric dispersion factors (χ/Q values) for Technical Support Center (TSC) HVAC intake for specified release points[2]:				
	Plant Vent[5] 0-8 hrs 8-24 hrs 1-4 days 4-30 days	 1.4×10^{-3} s/m^3 8.0×10^{-4} s/m^3 5.1×10^{-4} s/m^3 3.3×10^{-4} s/m^3	0-2 hrs ~~0~~2-8 hrs 8-24 hrs 1-4 days 4-30 days	1.1×10^{-3} s/m^3 6.9×10^{-4} s/m^3 2.8×10^{-4} s/m^3 2.1×10^{-4} s/m^3 1.3×10^{-4} s/m^3	CTS-01563
CP COL 2.3(3)	Ground-level containment releases[4] 0-8 hrs 8-24 hrs 1-4 days 4-30 days	 1.9×10^{-3} s/m^3 1.1×10^{-3} s/m^3 7.2×10^{-4} s/m^3 4.8×10^{-4} s/m^3	0-2 hrs ~~0~~2-8 hrs 8-24 hr 1-4 days 4-30 days	8.0×10^{-4} s/m^3 5.~~1~~2$\times 10^{-4}$ s/m^3 2.3×10^{-4} s/m^3 1.6×10^{-4} s/m^3 1.1×10^{-4} s/m^3	CTS-01563

Table 2.0-1R (Sheet 13 of 14)
Key Site Parameters

CP COL 2.3(3)

Main steam relief valve and safety valve(6) 0-8 hrs 8-24 hrs 1-4 days 4-30 days	 1.7×10^{-3} s/m^3 9.9×10^{-4} s/m^3 6.3×10^{-4} s/m^3 4.2×10^{-4} s/m^3	0-2 hrs ~~0~~2-8 hrs 8-24 hrs 1-4 days 4-30 days	1.~~3~~4 $\times10^{-3}$ s/m^3 9.6×10^{-4} s/m^3 3.9×10^{-4} s/m^3 2.~~7~~8 $\times10^{-4}$ s/m^3 ~~2.0~~1.9 $\times10^{-4}$ s/m^3	CTS-01563 CTS-01563
Steam line break releases(8) 0-8 hrs 8-24 hrs 1-4 days 4-30 days	 1.4×10^{-3} s/m^3 8.4×10^{-4} s/m^3 5.3×10^{-4} s/m^3 3.5×10^{-4} s/m^3	0-2 hrs ~~0~~2-8 hrs 8-24 hrs 1-4 days 4-30 days	1.3×10^{-3} s/m^3 9.6×10^{-4} s/m^3 3.9×10^{-4} s/m^3 3.2×10^{-4} s/m^3 2.4×10^{-4} s/m^3	CTS-01563
Fuel handling area releases(7) 0-8 hrs 8-24 hrs 1-4 days 4-30 days	 6.7×10^{-4} s/m^3 3.9×10^{-4} s/m^3 2.5×10^{-4} s/m^3 1.7×10^{-4} s/m^3	0-2 hrs ~~0~~2-8 hrs 8-24 hrs 1-4 days 4-30 days	4.4×10^{-4} s/m^3 2.8×10^{-4} s/m^3 1.1×10^{-4} s/m^3 8.5×10^{-5} s/m^3 5.0×10^{-5} s/m^3	CTS-01563
Atmospheric dispersion factors (χ/Q values) for TSC inleak for specified release points(3):				
Plant Vent(5) 0-8 hrs 8-24 hrs 1-4 days 4-30 days	 1.4×10^{-3} s/m^3 8.0×10^{-4} s/m^3 5.1×10^{-4} s/m^3 3.3×10^{-4} s/m^3	0-2 hrs ~~0~~2-8 hrs 8-24 hrs 1-4 days 4-30 days	1.1×10^{-3} s/m^3 6.9×10^{-4} s/m^3 2.8×10^{-4} s/m^3 2.1×10^{-4} s/m^3 1.3×10^{-4} s/m^3	CTS-01563

Table 2.0-1R (Sheet 14 of 14)
Key Site Parameters

	Ground-level containment releases(4)		0-2 hrs	8.0×10^{-4} s/m^3	
	0-8 hrs	1.9×10^{-3} s/m^3	~~0~~2-8 hrs	5.~~1~~2×10^{-4} s/m^3	CTS-01563
	8-24 hrs	1.1×10^{-3} s/m^3	8-24 hrs	2.3×10^{-4} s/m^3	
	1-4 days	7.2×10^{-4} s/m^3	1-4 days	1.6×10^{-4} s/m^3	
	4-30 days	4.8×10^{-4} s/m^3	4-30 days	1.1×10^{-4} s/m^3	
	Main steam relief valve and safety valve(6)		0-2 hrs	1.~~3~~4×10^{-3} s/m^3	CTS-01563
	0-8 hrs	1.7×10^{-3} s/m^3	~~0~~2-8 hrs	9.6×10^{-4} s/m^3	
	8-24 hrs	9.9×10^{-4} s/m^3	8-24 hrs	3.9×10^{-4} s/m^3	
	1-4 days	6.3×10^{-4} s/m^3	1-4 days	2.~~7~~8×10^{-4} s/m^3	CTS-01563
	4-30 days	4.2×10^{-4} s/m^3	4-30 days	~~2.0~~1.9×10^{-4} s/m^3	
	Steam line break releases(8)		0-2 hrs	1.3×10^{-3} s/m^3	
	0-8 hrs	1.4×10^{-3} s/ m^3	~~0~~2-8 hrs	9.6×10^{-4} s/m^3	CTS-01563
	8-24 hrs	8.4×10^{-4} s/ m^3	8-24 hrs	3.9×10^{-4} s/m^3	
	1-4 days	5.3×10^{-4} s/ m^3	1-4 days	3.2×10^{-4} s/m^3	
	4-30 days	3.5×10^{-4} s/ m^3	4-30 days	2.4×10^{-4} s/m^3	
CP COL 2.3(3)	Fuel handling area releases(7)		0-2 hrs	4.4×10^{-4} s/m^3	
	0-8 hrs	6.7×10^{-4} s/m^3	~~0~~2-8 hrs	2.8×10^{-4} s/m^3	CTS-01563
	8-24 hrs	3.9×10^{-4} s/m^3	8-24 hrs	1.1×10^{-4} s/m^3	
	1-4 days	2.5×10^{-4} s/m^3	1-4 daysr	8.5×10^{-5} s/m^3	
	4-30 days	1.7×10^{-4} s/m^3	4-30 days	5.0×10^{-5} s/m^3	

NOTES:

1. The specified missiles are assumed to have a vertical speed component equal to 2/3 of the horizontal speed.

2. These dispersion factors are chosen as the maximum values at all intake points.

In a paper by Kaplan and Demaria, the decay of tropical cyclone winds after landfall was evaluated. The wind speed after landfall is given by the following inland wind decay model:

$$V(t) = V_b + (RV_o - V_b)e^{-\alpha t} - C$$

Where:
V(t) is the wind speed as a function of time,
V_b is 26.7 kt,
R is 0.9,
α is 0.095 hr^{-1},
t is the time after landfall, and
C is a correction factor to account for the inland distance. Where:

$$C = m\left[ln\left(\frac{D}{D_0}\right)\right] + b$$

Where:
D in the inland distance in kilometers,
D_o is 1 km,
$m = c_1{*}t(t_0 - t)$,
$b = d_1{*}t(t_0 - t)$,
c_1 = 0.0109 kt/hr^2,
d_1 = -0.0503 kt/hr^2, and
t_o = 50 hr.

Assuming a maximum landfall wind speed or 208 kt (~240 mph), a translational velocity of 16 kt (18.4 mph), and a distance of 400 miles from the CPNPP site to Galveston, gives a maximum ~~possible~~ wind speed of 61 mph at the CPNPP site. ~~This should be considered as the upper bound of possible hurricane wind speed at the CPNPP site.~~This example shows the significant reduction in hurricane windspeed after landfall. CTS-01563

The Probable Maximum Hurricane (PMH) is discussed in CPNPP UFSAR Subsection 2.3.1.2.2. For the CPNPP site, the PMH sustained (10-minute average) wind speed at 30 ft aboveground is 81 mph (Reference 2.3-205).

The design-basis hurricane parameters used in the design and operation of CPNPP are based on Rev. 0 of RG 1.221. Figure 1 of RG 1.221 indicates that a design-basis hurricane wind speed of 145 mph applies to the CPNPP site. This value is a nominal 3-second gust at 33 ft. above ground over open terrain and has an exceedance probability of 10^{-7} per year (10 million year return period). RCOL2_03.03.02-9

2.3.1.2.3 Tornadoes

During the period January 1, 1950 through July 31, 2006, 158 tornadoes (mean annual frequency of 2.8/yr) occurred within Somervell County and the surrounding

CP COL 2.3(2)

Table 2.3-338 (Sheet 2 of 3)
Main Control Room and TSC HVAC Intake Distances and Directions

TSC HVAC Intake Distances and Directions

Release Point	Distance (m)	Direction to Source (°)
Plant Vent	55.~~5~~0	7~~3~~2.0°
Main Steam Line	70.~~1~~0	10~~9~~8.0°
Fuel Handling Area	11~~1~~2.~~9~~0	6~~3~~2.0°
Relief Valves	62.~~5~~0	8~~9~~8.0°
Safety Valves	63.~~4~~0	9~~4~~3.0°
Containment Shell	46.~~3~~0	8~~3~~2.0°

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Above Grade Elevations of the TSC Intakes

Receptor	Lower Elevation (m)	Upper Elevation (m)
TSC HVAC Intake	23.3	25.4
1E		

Table 2.3-339 (Sheet 2 of 2) Main Control Room and TSC Atmospheric Dispersion Factors (χ/Q) for Accident Dose Analysis

CP COL 2.3(2)

TSC χ/Q (s/m^3) at the TSC HVAC Intake

Time Interval	Plant Vent	Main Steam Line	Fuel Handling Area
0 – 2 hours	1.1E-03	1.3E-03	4.4E-04
2 – 8 hours	6.9E-04	9.6E-04	2.8E-04
8 – 24 hours	2.8E-04	3.9E-04	1.1E-04
1 – 4 days	2.1E-04	3.2E-04	8.5E-05
4 – 30 days	1.3E-04	2.4E-04	5.0E-05

Time Interval	Main Steam Relief Valves	Main Steam Safety Valves	Containment Shell
0 – 2 hours	1.~~3~~4E-03	1.~~3~~4E-03	8.0-E-04
2 – 8 hours	9.3E-04	9.6E-04	5.~~1~~2E-04
8 – 24 hours	3.8E-04	3.9E-04	2.3E-04
1 – 4 days	2.7E-04	2.~~7~~8E-04	1.6E-04
4 – 30 days	1.9E-04	~~2.0~~1.9E-04	1.1E-04

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2.4.3.4 Probable Maximum Flood Flow

Applying the precipitation, described in Subsection 2.4.3.1, with the precipitation losses, described in Subsection 2.4.3.2, to the runoff model, described in Subsection 2.4.3.3, the SCR peak PMF inflow was determined to be ~~319,000~~342,954 cfs. The routed peak discharge from the SCR is ~~206,000~~218,206 cfs. The resulting inflow and outflow hydrographs are shown in Figure 2.4.3-207. Position of the storm and temporal distribution of the PMP is discussed in Subsection 2.4.3.1. Discussion of dam failure is provided in Subsection 2.4.4. There are no significant current or planned upstream structures. No credit is taken for the lowering of flood levels at the site due to downstream dam failure. RCOL2_02.04.02-2 S03

Based on the individual basin controlling PMP, the peak flow for Squaw Creek Basin 2 was determined to be ~~31,300~~38,000 cfs, using the two-thirds temporal distribution at the storm center ~~SC X~~PR 10. The peak flow for Paluxy River Basin 3 was determined to be ~~85~~100,000 cfs, using the two-thirds temporal distribution at the storm center PR ~~Y~~10. The peak flow for Paluxy River Basin 4 was determined to be 9~~45~~54,000 cfs, using the two-thirds temporal distribution at the storm center PR ~~Y~~10. RCOL2_02.04.02-2 S03

The individual basin PMP distributions provide maximum peak flows and the temporal distributions are aligned for all basins. Therefore, the maximum backwater flow is determined using the two-thirds temporal distribution at the storm center SC ~~X~~4 for Basin 1~~ and 2~~, and PR ~~Y~~10 for Basins 2, 3, and 4. The maximum backwater flow on the downstream end of the Squaw Creek Dam is ~~181,880~~212,107 cfs. The associated backwater analysis does not provide the controlling PMF water surface elevation at the site. RCOL2_02.04.02-2 S03 RCOL2_02.04.02-2 S03

2.4.3.5 Water Level Determinations

The PMF runoff, routed through the SCR, results in a peak water surface elevation of ~~793.0 ft msl~~793.43 ft~~ NAVD 88~~ at CPNPP Units 3 and 4. The water surface elevation is determined using the HEC-HMS runoff and routing model as described in Subsection 2.4.3.3. The hydrograph for the SCR is provided in Figure 2.4.3-208. RCOL2_02.04.02-2 S03 CTS-01563

Elevations are provided with reference to the National Geodetic Vertical Datum of 1929 (NGVD 29). The plant site elevation is referenced to the North American Vertical Datum of 1988 (NAVD 88). According to the National Geodetic Survey (Reference 2.4-290), the datum shift of NAVD 88 minus NGVD 29 is equal to between 0 and +0.66 ft for the site. Therefore, it is conservative to account for a maximum conversion of +0.66 ft when comparing water surface elevations determined using NGVD 29 to elevations at the site in NAVD 88. Considering conversion, the SCR maximum water surface elevation of ~~793.66~~794.09 ft NAVD 88 is well below the CPNPP Units 3 and 4 safety-related structures elevation of 822 ft NAVD 88. RCOL2_02.04.02-2 S03

The standard step, unsteady-flow analysis for the Squaw Creek and the Paluxy River watersheds, resulted in a water surface elevation of ~~760.45 ft msl~~768.45 ft ~~NAVD 88~~ on the downstream side of the SCR. The HEC-RAS model described in Subsection 2.4.3.3 was used to translate runoff to the water surface elevation. Considering datum conversion, the resulting elevation of ~~761.11 ft msl~~769.11 ft NAVD 88 is below the elevation of CPNPP Units 3 and 4 safety-related facilities and presents no hazard. In an unlikely event of achieving the water surface elevation described above, possible headcutting on the downstream slope of Squaw Creek could result in failure of the Squaw Creek Dam. However, failure would lower the water surface elevation of the SCR. RCOL2_02.04.02-2 S03 CTS-01563 RCOL2_02.04.02-2 S03

2.4.3.6 Coincident Wind Wave Activity

Fetch length was estimated based on USGS Quadrangles and the PMF maximum water surface elevation of SCR. The critical fetch length was found to be 2.7 mi originating from the east as shown in Figure 2.4.3-209. CPNPP is protected from wind wave activity from the west and south by the local topography. Wave height, setup, and runup are estimated using USACE “Coastal Engineering Manual, EM 1110-2-1100” guidance (Reference 2.4-235).

A two-year annual extreme mile wind speed of 50 mph was estimated based on ANSI/ANS-2.8-1992 as shown in Figure 2.4.3-210. The two-year annual extreme mile wind speed was adjusted for duration, based on the fetch length, level, over land or over water, and stability.The critical duration was found to be about 53 min. This corresponds to an adjusted wind speed of 49.91 mph.

Significant wave height (average height of the maximum 33-1/3 percent of waves) is estimated to be 2.76 ft, crest to trough. The maximum wave height (average height of the maximum 1 percent of waves) is estimated to be 4.59 ft., crest to trough. The corresponding wave period is 2.6 sec.

Slopes of 10:1 and 3:1, horizontal to vertical, in the vicinity of the CPNPP were used to determine the wave setup and runup. Additionally, wind wave activity at the vertical retaining wall was also examined. The runup includes wave setup. Runup for the 10:1 slopes was estimated to be 2.85 ft. Runup for the 3:1 slopes was estimated to be 6.99 ft. Runup at the vertical retaining wall on the north side of CPNPP Units 3 and 4 was estimated to be 16.9~~0~~3 ft. RCOL2_02.04.02-2 S03

Wind setup was estimated using additional USACE Hydrologic Engineering Requirements for Reservoirs, EM 1110-2-1420 guidance (Reference 2.4-236). The maximum wind setup was estimated to be 0.0~~8~~7 ft. The maximum total wind wave activity is estimated to be ~~16.98~~17 ft and occurs at the vertical retaining wall. The PMF and maximum coincident wind wave activity results in a flood elevation of ~~810.64 ft msl~~811.09 ft NAVD 88. ~~Elevations are provided with reference to the National Geodetic Vertical Datum of 1929 (NGVD 29). The plant site elevation is referenced to the North American Vertical Datum of 1988 (NAVD 88). According to the National Geodetic Survey, the datum shift of NAVD 88 minus NGVD 29 is equal to between 0 and +0.66 in for the site. Therefore, it is conservative to~~ RCOL2_02.04.02-2 S03 RCOL2_02.04.02-2 S03 coefficients resulting in a bounding estimate for dam failure considerations. Therefore, a full unsteady flow analysis to determine dam breach flows and resulting water surface elevations with greater certainty is determined to be unnecessary. Downstream reservoirs have no affect on the results of this analysis. Domino-type failures are included coincident with PMF flows and transposed downstream without any attenuation as discussed above. As discussed below the resulting dam failure flood wave has no effect at the site.

2.4.4.3 Water Level at Plant Site

The potential backwater effect from flooding on the Brazos River is examined based on the assumed hydrologic domino-type dam failures coincident with the PMF. As described above, the assumed hydrologic domino-type dam failures of Fort Phantom Hill Dam, the proposed Cedar Ridge Dam, the Lake Stamford Dam, the Morris Sheppard Dam, and the De Cordova Bend Dam coincident with the PMF, is transposed to the confluence of the Paluxy River and the Brazos River without any attenuation. Squaw Creek is a tributary of the Paluxy River. Utilizing HEC-RAS computer software (Reference 2.4-234), the stream course model described in Subsection 2.4.3.3 is used as a basis to determine the water surface elevation at the confluence.

The HEC-RAS stream course model is appended to include cross sections for the Brazos River. The selected cross sections are identified in Figure 2.4.4-202. As discussed in Subsection 2.4.4.3, a Manning's Roughness coefficient of 0.15 is also used for the Brazos River. The peak flows from the HEC-HMS model described in Subsection 2.4.3 for the Paluxy River and Squaw Creek were included as inputs for the Brazos River tributaries. The transposed ~~6~~8,~~73~~380,000 cfs from the dam failure scenario is included as the Brazos River input. The HEC-RAS model was run using steady state conditions to determine the water surface elevation at the confluence. RCOL2_02.04.02-2 S03

The resulting maximum water surface elevation at the confluence of Brazos River and Paluxy River cross section is 76~~0~~8.0~~2~~3 ft ~~mslNAVD 88~~ for the total transposed flow combined with the peak tributary flows as shown in Figure 2.4.4-203. The resulting water surface elevation is below the Squaw Creek Dam crest elevation of 796 ft. Therefore, coincident wind wave activity results would be equivalent to the wind wave activity for SCR (See Subsection 2.4.3.6). In the unlikely event of achieving the water surface elevation described above, possible headcutting on the downstream slope of Squaw Creek Dam could result in failure of the Squaw Creek Dam. However, failure would lower the water surface elevation of SCR. In the event of Squaw Creek Dam failure the fetch length determined by the wind wave activity in Subsection 2.4.3.6 would not be increased. RCOL2_02.04.02-2 S03 CTS-01563

Elevations are provided with reference to the National Geodetic Vertical Datum of 1929 (NGVD 29). The plant site elevation is referenced to the North American Vertical Datum of 1988 (NAVD 88). According to the National Geodetic Survey, the datum shift of NAVD 88 minus NGVD 29 is equal to between 0 and +0.66 ~~in~~ft for the site. Therefore, it is conservative to account for a maximum conversion of CTS-01563

2.4.7 Ice Effects

CP COL 2.4(1) Add the following at the end of DCD Subsection 2.4.7.

According to the EPA STOrage and RETrieval (STORET) database, two gaging stations located on the SCR and its tributaries recorded water temperatures for different periods between 1973 and 1985. The lowest recorded water temperatures range from 41.9°F to 50°F. The lowest recordings, 41.9°F, occurred on February 10, 1982 at station 11555, Squaw Creek and State Highway 144 (SH 144), Northeast of Glen Rose. (Reference 2.4-245)

Gaging station 11856 is located on Brazos River and gaging station 11976 is located on Paluxy River. The gaging station 11856 on Brazos River at U.S. Highway 67 (US 67) recorded water temperatures from 1968 to 1998. The lowest recorded water temperature at this station was 39.02°F. (Reference 2.4-245) The gaging station 11976 on Paluxy River in City Park recorded water temperatures from 1973 to 1996. The lowest recorded water temperature at this station was 39.2°F. (Reference 2.4-245) This data suggests that Squaw Creek water temperatures generally remain above the freezing point. The recordings are summarized in Table 2.4.7-201.

According to the USACE, ice jams occur in 36 states, primarily in the northern tier of the United States. (Reference 2.4-246) (Figure 2.4.7-201) Texas is not included in this coverage. USACE Cold Regions Research and Engineering Laboratory historical ice jam database (Reference 2.4-247) indicates no ice jams for Squaw Creek. However, the USACE ice jam database reports that Brazos River was obstructed by rough ice at Rainbow near Glen Rose, Texas, on January 22-23 and January 25-28, 1940, with flood stage of 20 ft. (Reference 2.4-247)

CPNPP Units 3 and 4 safety-related facilities are located at elevation 822 ft ~~msl~~NAVD 88. The SCR spillway elevation is 775 ft ~~msl~~~~NAVD 88~~ (Reference 2.4-214). The maximum water surface elevation during a probable maximum flood event and coincident wind waves is at ~~810.64 ft msl~~811.09 ft NAVD 88, which is more than 1~~1~~0 ft below the CPNPP Units 3 and 4 safety-related facilities. The possibility of inundating CPNPP Units 3 and 4 safety-related facilities due to an ice jam is remote. RCOL2_02.04.02-2 S03 CTS-01563 RCOL2_02.04.02-2 S03

Meteorological records from the Southern Regional Climate Center (SRCC) were examined for areas in the vicinity of CPNPP Units 3 and 4. Records indicate that December and January have the coldest temperatures. For the available period of record from 1971 to 2000, the climate station at Dallas/Fort Worth has a recorded monthly average minimum temperature of 34°F, occurring in January. (Reference 2.4-248)

According to the USACE, frazil ice forms in supercooled turbulent water in rivers and lakes. (Reference 2.4-246) Anchor ice is defined as frazil ice attached to the river bottom, irrespective of the nature of its formation. The potential for freezing (i.e., frazil or anchor ice) and subsequent ice jams on the Squaw Creek and

RCOL2_02.4.12-9 S04

Table 2.4.12-211
Groundwater Velocities and Travel Times

MODPATH Run	K (ft/d) Engineered Fill	K (ft/d) Glen Rose Bedrock	K (ft/d) Northern Existing Fill	K (ft/d) Eastern Existing Fill	Porosity (%) Engineered Fill	Porosity (%) Glen Rose Bedrock	Porosity (%) Existing Fill	Vertical Anisotropy (Kh/Kv)	Pathway Distance [(3)] (ft)	Hydraulic Gradient [(4)]	Travel Time (d)
Unit 3 - Fastest Horizontal Pathway	468	1.783E-02	1.4	9.9	17	11.9	17	na	1194	0.041	62
Unit 3 - Shortest Horizontal Pathway	468	1.783E-02	1.4	9.9	17	11.9	17	na	1074	0.046	1556
Unit 4 - Fastest Horizontal Pathway	468	1.783E-02	1.4	9.9	17	11.9	17	na	3966	0.012	531
Unit 4 - Shortest Horizontal Pathway	468	1.783E-02	1.4	9.9	17	11.9	17	na	3392	0.014	767~~6~~
Vertical Pathway	468	1.780E-02	na	na	17	11.9	na	10	186	1.19	8115
Sensitivity 1 (Horizontal)	468	3.900E-02	1.4	9.9	17	11.9	17	na	1200	0.041	62
Sensitivity 2 (Horizontal)	468	1.810E-03	1.4	9.9	17	11.9	17	na	1196	0.041	62
Sensitivity 3 (Horizontal)	468	1.783E-02	1.4	9.9	15	5.0	15	na	1194	0.041	55
Sensitivity 4 (Vertical)	468	1.780E-02	na	na	17	5.0	na	10	186	1.19	3410
Sensitivity 5 (Vertical)	468	1.780E-02	na	na	17	11.9	na	5	186	1.19	1932

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na - not applicable

Notes:
1. Groundwater elevation at the BAT was conservatively assumed to be 821 ft msl.
2. For the horizontal pathway analysis, SCR elevation was assumed to be 772 ft msl for all modeling runs.
3. Pathway distance is calculated for the horizontal pathway analysis. For the vertical analysis it is a constant value.
4. Dimensionless. Calculated for difference of hydraulic head from 821 ft msl to 772 ft msl over the pathway distance
   Horizontal Runs - Calculated for difference of hydraulic head from 821 ft msl to 772 ft msl over the horizontal pathway distance
   Vertical Runs - Calculated for difference of hydraulic head from 821 ft msl to 600 ft msl over the vertical pathway distance
5. Horizontal sensitivity runs are based on the pathway with the fastest groundwater travel time.

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⬡ SOURCES

1. Containment Shell to Class 1E electrical room HVAC intake (As Diffuse Area Source)
2. Containment Shell to Main Control Room HVAC Intake and Class 1E electrical room HVAC Intake (As Diffuse Area Source)
3. Containment Shell to Auxiliary Building HVAC Intake and technical support center HVAC intake (As Diffuse Area Source)
4. Containment Shell to Auxiliary Building Door (As Diffuse Area Source)
5. Main Steam Line (Source points are in the west and the east.)
6. Main Steam Relief Valve (Source points are in the west and the east.)
7. Main Steam Safety Valve (Source points are in the west and the east.)
8. Fuel Handling Area
9. Plant Vent

△ RECEPTORS

a. Main Control Room HVAC Intake
b. Auxiliary Building Door
c. Auxiliary Building HVAC Intake and Technical Support Center HVAC Intake
d. Class 1E electrical room HVAC intake

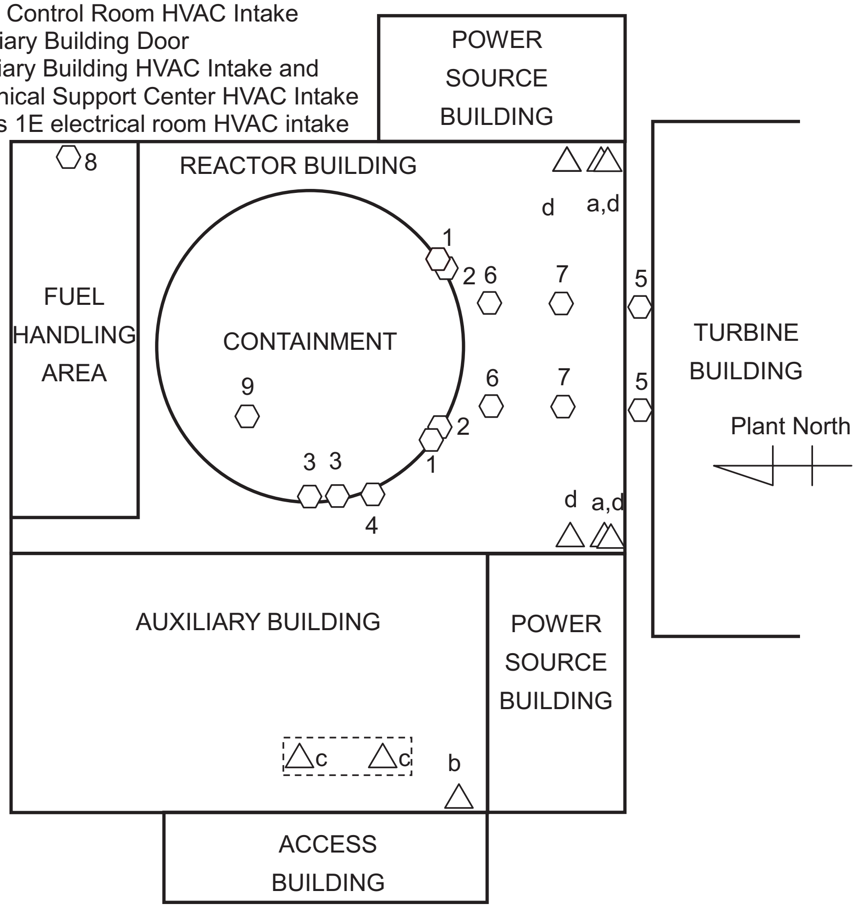

Figure 2.3-382 Control Room Release and Receptor Locations

Chapter 3

Chapter 3 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
RCOL2_03.09.06-22 S01	3.9.6 3.9.10	3.9-2 [3.9-2, 3.9-3] 3.9-6	Supplemental Response to RAI No. 244 Luminant Letter no.TXNB-12021 Date 6/13/2012	Deleted references to NUREG-1482 Rev. 2.	-
RCOL2_14.03.07-38	3.8.4.1.3.2	3.8-6	Response to RAI No. 254 Luminant Letter no.TXNB-12022 Date 6/21/2012	Clarified design criteria.	-
RCOL2_09.02.05-25 S01	3.6.1.3 3.6.4 Table 3.6-201	3.6-1 3.6-2 3.6-3	Supplemental 01 Response to RAI No. 252 Luminant Letter no.TXNB-12031 Date 09/10/2012	Added Table for site-specific high and moderate energy fluid systems.	-
RCOL2_03.03.02-9	3.3 3.3.2.1 (New Subsection) 3.3.2.2.1 (New Subsection) 3.3.2.2.4 3.3.2.3 3.3.3 3.5.1.4 (New Subsection) 3.5.1.5 3.5.2 3.5.4 3.7.3.9 3.8.4.1.3.1 3.8.4.1.3.2	3.3-1 3.3-2, 3.3-3 3.3-3 [3.3-4] 3.5-3 3.5-3 [3.5-4] 3.5-5 [3.5-6] 3.7-11 3.8-4	Response to RAI No. 250 Luminant Letter no.TXNB-12032 Date 09/14/2012	Revised to incorporate RG 1.221.	-

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
	3.8.4.4.3.2 Table 3.8-203 3.12.5.3.6 3.12.7 3LL.2	3.8-5 3.8-6 [3.8-5 through 3.8-7] 3.8-11 [3.8-11, 3.8-12] 3.8-21 3.12-1 3.12-2 3LL-1			
RCOL2_14.0 3.07-38 S01	Table 3.2-201 (Sheets 2, 3 of 3)	3.2-4 3.2-5	Supplemental Response to RAI No. 254 Luminant Letter no.TXNB-12034 Date 09/24/2012	Following SSCs for freeze protection are added to the table: - Drain lines from ESWS piping - ESW piping room unit heaters - UHS transfer piping room unit heaters	-
RCOL2_14.0 3.07-38 S01	Table 3D-201 (Sheets 4 through 11 of 11)	3D-5 through 3D-12	Supplemental Response to RAI No. 254 Luminant Letter no.TXNB-12034 Date 09/24/2012	Following SSCs for freeze protection are added to the table. - ESW piping room unit heaters - UHS transfer piping room unit heaters	-
RCOL2_03.06.01-1	3.6.1.3	3.6-1 [3.6-1 through 3.6-2]	Response to RAI No. 262 Luminant Letter no.TXNB-12035 Date 9/26/2012	Revised COL 3.6(1).	-

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
RCOL2_03.06.01-1	3.6.2.1	3.6-2 [3.6-3]	Response to RAI No. 262 Luminant Letter no.TXNB-12035 Date 9/26/2012	Revised COL 3.6(4).	-
RCOL2_09.05.04-1	3.8.4.1.3.1	3.8-5	Response to RAI No. 265 Luminant Letter no.TXNB-12043 Date 12/18/2012	Description for environmental conditions of ESWPT and a temporary ventilation system are added.	-
CTS-01515	3.5.1.6	3.5-4 [3.5-5]	Consistency with DCD and site-specific changes as described in Letter. TXNB-12033 (ML12268A413)	Updated aircraft hazards evaluation to reflect changes in plant layout.	0
CTS-01512	Figure 3K-201 [Sheet 1, 2 of 2]	3K-2 [3K-3]	Consistency with DCD and site-specific changes as described in Letter. TXNB-12033 (ML12268A413)	Overall General Arrangement plan replaced with the updated version; and minor editorial correction.	0
RCOL2_03.04.01-1	3.4.1.2	3.4-1	Response to RAI No. 275 Luminant Letter no.TXNB-13019 Date 6/18/2013	Revised 3.4.1.2 to address the failure of the outside tanks.	-
CTS-01532	ACRONYMS AND ABBREVIATIONS	3-ix	Design change as described in Luminant ISCP Letter ML12268A413	The acronym for essential service water pipe chase was added.	2
CTS-01532	3.4.1.2	3.4-1	Fukushima-related COL item COL 1.9(3)	Description for the BDB external flood evaluation was added.	2

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01539	3.4.1.3	3.4-2	Design change as described in Luminant ISCP Letter ML12268A413	Description for the flooding evaluation for the site-specific structures and ESWPC was added.	2
CTS-01532	3.4.1.4	3.4-2 [3.4-3]	Fukushima-related COL item COL 1.9(3)	Description for the BDB external flood evaluation was added.	2
CTS-01532	3.4.4	3.4-3 [3.4-4]	The reference is not used any more.	Reference 3.4-201 was deleted.	2
CTS-01532	3.4.4	3.4-3 [3.4-4]	Reference by the addition of Fukushima-related description to Subsection 3.4.1.2.	Reference 3.4-202 was added.	2
CTS-01541	3.5.1.6	3.5-4 [3.5-5]	Correction	Clarified definition of A, effective area of the plant, and corrected the calculated value of N, estimated annual number of aircraft operation	2
CTS-01549	3.7 3.7.1.1 3.7.1.2 3.7.1.3	3.7-1 3.7-2 through 3.7-5 [3.7-6 through 3.7-8] 3.7-5 [3.7-8, 3.7-9] 3.7-6	Design and layout changes as described in the ISCP, Letter TXNB-12033 (ML12268A413)	Revised to reflect updated seismic design and analysis	3

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
		[3.7-9, 3.7-10]			
	3.7.2.1	3.7-7 [3.7-10]			
	3.7.2.3.1	3.7-7 [3.7-10, 3.7-11]			
	3.7.2.3.4 (New 3.7.2.3.2)	3.7-7 [3.7-11]			
	3.7.2.4.1 (New 3.7.2.4.5)	3.7-8 through 3.7-10 [3.7-12 through 3.7-20]			
	3.7.2.8	3.7-10, 3.7-11 [3.7-20, 3.7-21]			
	3.7.3.9	3.7-11 [3.7-21]			
	3.7.4.1	3.7-12 [3.7-22]			
	3.7.5	3.7-14 through 3.7-16 [3.7-24 through 3.7-26]			
	3.7.6 (New)	3.7-16 [3.7-27]			
	Table 3.7.1-3R	3.7-17 [3.7-28]			
	Table 3.7.2-1R	3.7-18, 3.7-19 [3.7-29 through 3.7-31]			

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
	Table 3.7-201	3.7-20 [3.7-32]			
	Table 3.7-202	3.7-21 [3.7-33]			
	Table 3.7-203	3.7-22 [3.7-34, 3.7-35]			
	Table 3.7-204, 3.7-205 (New)	3.7-22 [3.7-36 through 3.7-40]			
	Figure 3.7-201 through 3.7-209	3.7-23 through 3.7-32 [3.7-41 through 3.7-51]			
	Figure 3.7-210 through 3.7-222 (New)	3.7-32 [3.7-52 through 3.7-64]			
CTS-01549	3.8.4.1.3 3.8.4.1.3.1 3.8.4.1.3.2 3.8.4.1.3.3 3.8.4.4.1.4 (New) 3.8.4.4.3 (New 3.8.4.4.4)	3.8-3 3.8-3 through 3.8-5 3.8-5 through 3.8-7 [3.8-8] 3.8-7 [3.8-9] 3.8-8 [3.8-10] 3.8-8 [3.8-10, 3.8-11]	Design and layout changes as described in the ISCP, Letter TXNB-12033 (ML12268A413)	Revised to reflect updated structural design	3

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
	3.8.4.4.3.1 (New 3.8.4.4.4.1)	3.8-8 through 3.8-10 [3.8-11 through 3.8-13]			
	3.8.4.4.3.2 (New 3.8.4.4.4.2)	3.8-10, 3.8-11 [3.8-14, 3.8-15]			
	3.8.4.4.3.3. (New 3.8.4.4.4.3)	3.8-12, 3.8-13 [3.8-16, 3.8-17]			
	3.8.5.1.3.1	3.8-14 [3.8-18, 3.8-19]			
	3.8.5.1.3.2	3.8-14 [3.8-19]			
	3.8.5.1.3.3	3.8-15 [3.8-20]			
	3.8.5.4.4	3.8-15 [3.8-20]			
	3.8.5.5	3.8-15 [3.8-20, 3.8-21]			
	3.8.5.5.2	3.8-16 [3.8-21, 3.8-22]			
	3.8.6	3.8-17, 3.8-18 [3.8-23, 3.8-24]			
	Table 3.8-202, 3.8-203	3.8-20, 3.8-21 [3.8-26 through 3.8-28]			

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
	Table 3.8.5-6R (New) Figure 3.8-201 through 3.8-214	3.8-21 [3.8-29, 3.8-30] 3.8-22 through 3.8-35 [3.8-36 through 3.8-44]			
CTS-01549	Appendix 3KK Cover page ACRONYMS AND ABBREVIATIONS 3KK, 3KK.1 3KK.2 3KK.3 3KK.4 3KK.5 Table 3KK-1 through 3KK-10	- 3KK-iv 3KK-1 [3KK.2] 3KK-1 through 3KK-7 [3KK.8 through 3KK-16] 3KK-7 through 3KK-9 [3KK-16 through 3KK-18] 3KK-9 [3KK-19] 3KK-9, 3KK-10 [3KK-19, 3KK-20] 3KK-11 through 3KK-20 [3KK-21 through	Design and layout changes as described in the ISCP, Letter TXNB-12033 (ML12268A413), and Letters TXNB-12038 (ML12334A026) and TXNB-12030 (ML12243A456)	Revised to reflect updated layout and structural design and seismic analysis for the UHSRS.	3

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
		3KK-38]			
	Table 3KK-11 through 3KK-16 (New)	3KK-20 [3KK-39 through 3KK-50]			
	Figure 3KK-1 through 3KK-4	3KK-21 through 3KK-37 [3KK-51 through 3KK-68]			
	Figure 3KK-5 through 3KK-10	3KK-37 [3KK-69 through 3KK-94]			
CTS-01549	Appendix 3LL Cover page	-	Design and layout changes as described in the ISCP, Letter TXNB-12033 (ML12268A413)	Revised to reflect updated structural design and seismic analysis for the ESWPT.	3
	ACRONYMS AND ABBREVIATIONS	3LL-iv [3LL-v]			
	3LL, 3LL.1	3LL-1			
	3LL.2	3LL-1 through 3LL-5 [3LL-6 through 3LL-12]			
	3LL.3	3LL-5, 3LL-6 [3LL-12, 3LL-13]			
	3LL.4	3LL-6 [3LL-13]			
	3LL-5	3LL-6, 3LL-7 [3LL-13, 3LL-14]			
	Table 3LL-1	3LL-8			

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
	through Table 3LL-17 Figure 3LL-1 through 3LL-9 Figure 3LL-10 through 3LL-29 (New)	through 3LL-24 [3LL-15 through 3LL-46] 3LL-25 through 3LL- 46 [3LL-47 through 3LL-68] 3LL-46 [3LL-69 through 3LL-102]			
CTS-01549	Appendix 3MM Cover page ACRONYMS AND ABBREVIATIONS 3MM, 3MM.1 3MM.2 3MM.3 3MM.4 3MM.5	- 3MM-iv 3MM-1 3MM-1 through 3MM-5 [3MM-6 through 3MM-15] 3MM-5, 3MM-6 [3MM-15, 3MM-16] 3MM-6 [3MM-16, 3MM-17] 3MM-6,	Design and layout changes as described in the ISCP, Letter TXNB-12033 (ML12268A413)	Revised to reflect updated structural design and seismic analysis for the PSFSV.	3

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
		3MM-7 [3MM-17]			
	Table 3MM-1 through 3MM-10	3MM-8 through 3MM-17 [3MM-18 through 3MM-33]			
	Table 3MM-11, 3MM-12 (New)	3MM-17 [3MM-34, 3MM-35]			
	Figure 3MM-1 through 3MM-3	3MM-18 through 3MM-26 [3MM-36 through 3MM-60]			
	Figure 3MM-4 through 3MM-12 (New)	3MM-26 [3MM-61 through 3MM-83]			
CTS-01549	Appendix 3NN Cover page ACRONYMS AND ABBREVIATIONS Appendix 3NN 3NN, 3NN.1 3NN.2	- 3NN-v [3NN-vi] 3NN-1 [3NN-2] 3NN-1 through	Design and layout changes as described in the ISCP, Letter TXNB-12033 (ML12268A413)	Revised to reflect updated DCD structural design and seismic analysis of the R/B Complex	3

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
		3NN-4 [3NN-5- through 3NN-7]			
	3NN.3	3NN-4 through 3NN-7 [3NN-8 through 3NN-15]			
	3NN.4	3NN-7, 3NN-8 [3NN-15, 3NN-17]			
	3NN.5	3NN-8 [3NN-17 , 3NN-18]			
	3NN.6	3NN-8 [3NN-18, 3NN-19]			
	3NN.7 (New)	3NN-9 [3NN-19, 3NN-20]			
	3NN-8(Original 3NN-6)	3NN-9 [3NN-20, 3NN-21]			
	Table 3NN-1 through 3NN-16	3NN-10 through 3NN-26 [3NN-27			

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
		through 3NN-43]			
	Figure 3NN-1 through 3NN-27	3NN-27 through 3NN-53 [3NN-54 through 3NN-96]			
	Figure 3NN-28 through 3NN-50 (New)	3NN-53 [3NN-97 through 3NN-145]			
CTS-01561	Acronyms and Abbreviations	3-ix 3-x	Editorial	Acronyms for ground water level, high bound, Nuclear Engineering Institute, performance based surface response spectra, soil column surface response, single degree of freedom, zero period acceleration were added.	4
CTS-01561	3.2.2	3.2-1	Consistency with DCD Rev. 4	Change of the paragraph number for replacement of the DCD description.	4
CTS-01561	3.2.2.5	3.2-1	Consistency with DCD Rev. 4	Revised the description to have consistency with DCD Rev. 4.	4

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01561	Table 3.2-201 (Sheets 1-3 of 3, Notes)	3.2-3 through 3.2-5, [3.2-6]	Consistency with DCD Rev. 4.	Change the column from “10CFR50 Appendix B (ref. 3.208)” to “Quality Assurance Classification” Revise the notes	4
CTS-01561	3.4.1.3	3.4-2	Consistency with DCD Rev.4	Insert description to address STD COL 3.4(8)	4
CTS-01561	3.4.3	3.4-3 [3.4-4]	Consistency with DCD Rev.4	Insert STD COL 3.4(8)	4
CTS-01561	3.5.4	3.5-5 [3.5-6]	Consistency with DCD Rev.4	CP COL 3.5(6): Replace with “Identify SSCs to be protected, and assess the orientation of the T/B with respect to these essential SSCs”	4
CTS-01561	Table 3.8.5-6R (New)	3.8-21 [3.8-29]	Consistency with DCD Rev. 4	Change “5.7” to “1.2” for Overturning (FS_{ot}) of R/B Complex for Load Combination $D+H+E_s$	4
CTS-01561	Table 3.8.5-6R (New)	3.8-21 [3.8-29]	Consistency with DCD Rev. 4	Delete “2.8” from Sliding (FS_{sl}) of R/B Complex for Load Combination $D+H+E_s$	4

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01561	Table 3.8.5-6R (New)	3.8-21 [3.8-29]	Consistency with DCD Rev. 4	Change "-" to "N/A" for Flotation (FS_{fl}) of R/B Complex for Load Combinations D+H+W, D+H+E_s, and D+H+W_t	4
CTS-01561	Table 3.8.5-6R (New)	3.8-21 [3.8-29]	Consistency with DCD Rev. 4	Change "-" to "N/A" for Overturning (FS_{ot}) and Sliding (FS_{sl}) of R/B Complex for Load Combination D+F_b	4
CTS-01561	Table 3.8.5-6R (New)	3.8-21 [3.8-29]	Consistency with DCD Rev. 4	Change "[Later]" to ">10" for Overturning (FS_{ot}) and Sliding (FS_{sl}) of T/B for Load Combination D+H+W	4
CTS-01561	Table 3.8.5-6R (New)	3.8-21 [3.8-29]	Consistency with DCD Rev. 4	Change "1.4" to "1.2" for Overturning (FS_{ot}) of T/B for Load Combination D+H+E_s	4
CTS-01561	Table 3.8.5-6R (New)	3.8-21 [3.8-29]	Consistency with DCD Rev. 4	Change "[Later]" to ">5" for Overturning (FS_{ot}) and Sliding (FS_{sl}) of T/B for Load Combination D+H+W_t	4
CTS-01561	Table 3.8.5-6R (New)	3.8-21 [3.8-29]	Consistency with DCD Rev. 4	Change "-" to "N/A" for Flotation (FS_{fl}) of T/B for Load Combinations D+H+W, D+H+E_s, and D+H+W_t	4
CTS-01561	Table 3.8.5-6R (New)	3.8-21 [3.8-29]	Consistency with DCD Rev. 4	Change "-" to "N/A" for Overturning (FS_{ot}) and Sliding (FS_{sl}) of T/B for Load Combination D+ F_b	4

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01549	Table 3.8.5-6R (New)	3.8-21 [3.8-29]	Correction	Change “1.19” to “1.9” for Flotation (FS_{fl}) of T/B for Load Combination $D+F_b$	4
CTS-01549	Table 3.8.5-6R (New)	3.8-21 [3.8-29]	Correction	Change “$1.28^{(1)}$” to “$12.8^{(1)}$” for Sliding (FS_{sl}) of UHSRS Load Combination D+H+W	4
CTS-01561	3.11	3.11-1	Editorial	Change “fifth” to “tenth” and correct DCD reference to “DCD Section 3.11” Change “sixth” to “eleventh” and, correct DCD reference to “DCD Section 3.11”. Change “eight” to “thirteenth” and, correct DCD references to “DCD Section 3.11” and “Table 13.4-201”.	4
CTS-01561	Table 3D-201 (Sheet 8[9],9[10] of 11[12])	3D-9 [3D-10] 3D-10 [3D-11]	Editorial	Change “NO” to “No.”	4
CTS-01549	Appendix 3KK Table 3KK-1	3KK-11 [3KK-21]	Maintain consistency with numerical value in source document	Change the unit weight (kcf) for Steel beams, columns, and other structural steel elements from “0.49” to “0.500”	4

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01549	Appendix 3KK Table 3KK-1	3KK-11 [3KK-21]	Maintain consistency with numerical value in source document	Change E (ksi) for Concrete fill from “3,125” to “3,122”	4

*Page numbers for the attached marked-up pages may differ from the revision 3 page numbers due to text additions and deletions. When the page numbers for the attached pages do differ, the page number for the attached page is shown in brackets.

ACRONYMS AND ABBREVIATIONS

A/B	auxiliary building
AC/B	access building
ACI	American Concrete Institute
ARS	acceleration response spectra
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
BE	best estimate
CAV	cumulative absolute velocity
CCWS	component cooling water system
CFR	Code of Federal Regulations
COL	Combined License
COLA	Combined License Application
CPNPP	Comanche Peak Nuclear Power Plant
CSDRS	certified seismic design response spectra
DBFL	design-basis flooding level
DCD	Design Control Document
EQ	environmental qualification
EQSDS	equipment qualification summary data sheet
ESF	engineered safety features
ESW	essential service water
ESWPC	essential service water pipe chase CTS-01539
ESWPT	essential service water pipe tunnel
ESWS	essential service water system
FE	finite element
FIRS	foundation input response spectra
FW	feedwater
GMRS	ground motion response spectra
GWL	ground water level CTS-01561
HB	high bound
IEEE	Institute of Electrical and Electronic Engineers
ILRT	integrated leak rate test
ISI	inservice inspection
ISRS	in-structure response spectra
IST	inservice testing
LB	lower bound
LBB	leak before break
MCR	main control room
MOV	motor operated valve
MS	main steam

ACRONYMS AND ABBREVIATIONS (continued)

N/A	not applicable
NEI	Nuclear Engineering Institute	CTS-01561
NRC	U.S. Nuclear Regulatory Commission
NS	non-seismic
O/B	outside building
OBE	operating-basis earthquake
PAM	post accident monitoring
PBSRS	performance based surface response spectra
PCCV	prestressed concrete containment vessel
PGA	peak ground acceleration
PMP	probable maximum precipitation
PS/B	power source building
PSFSV	power source fuel storage vault
PSI	preservice inspection
QAP	quality assurance program
R/B	reactor building
RCL	reactor coolant loop
RG	Regulatory Guide
RV	reactor vessel
RWSP	refueling water storage pit
SCSR	soil column surface response
SDOF	single degree of freedom
SEI	Structural Engineering Institute
SG	steam generator
SRP	Standard Review Plan
SRSS	square root sum of the squares
SSC	structure, system, and component
SSE	safe-shutdown earthquake
SSI	soil-structure interaction
T/B	turbine building
T/G	turbine generator
UB	upper bound
UHS	ultimate heat sink
UHSRS	ultimate heat sink related structures
ZPA	zero period acceleration

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3.2 CLASSIFICATION OF STRUCTURES, SYSTEMS, AND COMPONENTS

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

3.2.1.2 Classifications

STD COL 3.2(4) Replace last sentence of first paragraph in DCD Subsection 3.2.1.2 with the following.

The site-specific, safety-related systems and components that are designed to withstand the effects of earthquakes without loss of capability to perform their safety function are identified in Table 3.2-201. The industry codes and standards applicable to those components are listed in Table 3.2-202.

3.2.2 System Quality Group Classification

STD COL 3.2(5) Replace the last sentence of the ~~eleventh~~tenth paragraph in DCD Subsection 3.2.2 with the following. CTS-01561

The equipment class and seismic category of the site-specific safety-related and non-safety related fluid systems, components (including pressure retaining), and equipment as well as the applicable industry codes and standards are provided in Table 3.2-201.

3.2.2.5 Other Equipment Classes

STD COL 3.2(6) Replace the third paragraph in DCD Subsection 3.2.2.5 with the following.

DCD methods of equipment classification, quality assurance classification, and seismic categorization of risk-significant, non-safety related SSCs to site-specific, nonsafety-related SSCs based on their ~~safety~~ contribution to plant safety are applied to Table 3.2-201~~role assumed in the PRA and treatment by the D-RAP described in Chapter 17 are applied to Table 3.2-201~~. CTS-01561

CP COL 3.2(4)
CP COL 3.2(5)
CP COL 3.2(6)

Table 3.2-201 (Sheet 1 of 3)

Classification of Site-Specific Mechanical and Fluid Systems, Components, and Equipment

System and Components	Equipment Class	Location	Quality Group	~~10 CFR 50 Appendix B (Reference 3.2-8)~~Quality Assurance Classification(5)	Code and Standards(3)	Seismic Category(4)	Notes
1. ESWS							
Basin blowdown line piping and valves from and excluding essential service water supply header piping up to the following valves: ESWS blowdown main header isolation valve to CWS blowdown main header; EWS-AOV-577	3	ultimate heat sink related structures (UHSRS), essential service water pipe tunnel (ESWPT)	C	~~YES~~Q	3	I	
ESWP discharge strainer backwash line to the UHS basin	3	UHSRS	C	~~YES~~Q	3	I	
ESWP discharge strainer backwash line to the CWS blowdown main header	3	UHSRS, ESWPT	C	~~YES~~Q	3	I	
Essential service water (ESW) supply line piping connected to the fire protection system in the UHSRS, and valves from and excluding ESW supply header piping up to the following isolation valves: ESW-VLV-551A, B, C, D	3	UHSRS	C	~~YES~~Q	3	I	

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CP COL 3.2(4)
CP COL 3.2(5)
CP COL 3.2(6)

Table 3.2-201 (Sheet 2 of 3)

Classification of Site-Specific Mechanical and Fluid Systems, Components, and Equipment

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System and Components	Equipment Class	Location	Quality Group	~~10 CFR 50 Appendix B (Reference 3.2-8)~~Quality Assurance Classification(5)	Code and Standards(3)	Seismic Category(4)	Notes
ESW supply line piping connected to the fire protection system in the reactor building (R/B), and valves from and excluding ESW supply header piping up to the following isolation valves: ESW-VLV-552A, B, C, D	3	R/B	C	~~YES~~Q	3	I	
2. UHS							
UHS transfer pumps	3	UHSRS	C	~~YES~~Q	3	I	
UHS cooling tower fans	3	UHSRS	C	~~YES~~Q	5	I	
UHS basins	3	UHSRS	C	~~YES~~Q	3	I	
Transfer line piping and valves from UHS transfer pumps to basins	3	UHSRS, ESWPT	C	~~YES~~Q	3	I	
ESW return line piping	3	UHSRS, ESWPT	C	~~YES~~Q	3	I	
Drain line branched from ESW return line from branch point from ESW return line up to and including the following drain valves: UHS-VLV-521A,B,C,D	3	UHSRS	C	~~YES~~Q	3	I	
Drain line branched from ESW return line downstream of and excluding the following drain valves: UHS-VLV-521A,B,C,D	9	UHSRS	NA	N~~A~~A	5	Non-seismic (NS)	

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CP COL 3.2(4)
CP COL 3.2(5)
CP COL 3.2(6)

Table 3.2-201 (Sheet 3 of 3)
Classification of Site-Specific Mechanical and Fluid Systems, Components, and Equipment

System and Components	Equipment Class	Location	Quality Group	~~10 CFR 50 Appendix B (Reference 3.2-8)~~Quality Assurance Classification(5)	Code and Standards(3)	Seismic Category(4)	Notes	
UHS basin makeup piping and valves	9	UHSRS	NA	N~~A~~	5	Non-seismic (NS)		CTS-01561
3. UHS ESW pump house ventilation system								
ESW pump room exhaust fans	3	UHSRS	C	~~YES~~Q	5	I		CTS-01561
UHS transfer pump room exhaust fans	3	UHSRS	C	~~YES~~Q	5	I		
UHS ESW pump house supply and exhaust backdraft dampers	3	UHSRS	C	~~YES~~Q	5	I		CTS-01561
ESW pump room unit heaters	3	UHSRS	C	~~YES~~Q	5	I		CTS-01561
UHS transfer pump room unit heaters	3	UHSRS	C	~~YES~~Q	5	I		
ESW Piping Room Unit Heaters	3	UHSRS	C	~~YES~~Q	5	I		RCOL2_14.0 3.07-38 S01
UHS Transfer Piping Room Unit Heaters	3	UHSRS	C	~~YES~~Q	5	I		CTS-01561
4. Startup steam generator (SG) blowdown system								
System components, piping and valves	6	turbine building (T/B), auxiliary building (A/B), outdoors	N/A	~~not applicable (N/A)~~N	6	Note 1		CTS-01561

Notes:

1. Seismic category meeting Table 2 of RG 1.143 (Reference 3.2-10) is applied, in accordance with the SSC classifications described in Section 10.4.8, 11.2, 11.3, and 11.4. Portions of the Equipment Class 6 SSCs on which seismic category II requirements are imposed are designed to comply with both the requirements of RG 1.143 and seismic category II. CTS-01561
2. ~~Not used.~~Seismic category meeting RG 1.189 (Reference 3.2-11) is applied. Portions of the Equipment Class 7 SSCs on which seismic category II requirements are imposed are designed to comply with both the requirements of RG 1.189 and seismic category II.
3. Identification number for "Code and Standards"

   (1) ~~American Society of Mechanical Engineers (~~ASME~~)~~ Code, Section III, Class 1 (Reference 3.2-14) CTS-01561

   (2) ASME Code, Section III, Class 2 (Reference 3.2-14)

   (3) ASME Code, Section III, Class 3 (Reference 3.2-14)

   (4) RG 1.26 (Reference 3.2-13), Table 1, Quality Standards for Class D CTS-01561

   (5) Codes and standards as defined in design bases

   (6) Codes and standards, and guidelines provided in Table 1 of RG 1.143 (Reference 3.2-10), for design of SSCs for Radwaste Facility CTS-01561

   (7) The codes and standards applicable to fire protection systems follow the guidance of RG 1.189 Section 1.7, and National Fire Protection Association 804.
4. ~~Not used~~Seismic category: The designations "I" or "II" indicate that the design requirements of Seismic Category I or II equipment are applied as described in Subsection 3.2.1 and Section 3.7, Seismic Design. Equipment that is not designated "I" or "II" is designated "NS."
5. Quality Assurance Classification: The designation "Q" indicates that the quality assurance requirements of 10 CFR 50, Appendix B, are applied in accordance with the quality assurance program described in Chapter 17. The designation "A" indicates that augmented quality assurance requirements are applied, commensurate with the SSCs contribution to safety or credited for regulatory events for one or more of the following reasons:

   a. Nonsafety-related equipment required to be designed in accordance with special seismic design requirements, such as seismic category II requirements. See note 4.

   b. Nonsafety-related equipment required to be designed in accordance with radioactive waste management system requirements from RG 1.143 for Category RW-IIa, RW-IIb, and RW-IIc [See note 3(6)]. The radioactive waste management system components conform to Regulatory Guide 1.143 Table 1 [see note 3(6)].

   c. Nonsafety-related equipment required to be designed in accordance with fire protection requirements from 10 CFR 50.48 and RG 1.189. A quality assurance program meets the guidance of RG 1.189.

   d. Nonsafety-related equipment not otherwise identified in notes 5(a) though 5(c) and are identified as risk-significant in Table 17.4-1 or credited for regulatory events such as ATWS and SBO. The designation "N" indicates that neither 10CFR50 Appendix B nor augmented quality standards are required.

joints in the exterior wall and base mats subjected to ground water seepage, and membrane waterproofing material at all below-grade exterior wall surfaces. The foundation slab water barrier system consists of crystalline waterproofing compound applied between the base mat and fill concrete/bedrock. The compound will either be spray applied or dry-shake to the fill concrete/bedrock. A cementitious membrane coating made out of a crystalline waterproofing compound is provided on the inside face of the UHS basin outermost walls and foundation slab, including the UHS sump pit, to prevent water migration from the UHS basin into the subgrade.

STD COL 3.4(3) Replace the last sentence in the ninth paragraph in DCD Subsection 3.4.1.2 with the following.

Site-specific potential sources of external flooding such as the cooling tower, service water piping, or circulating water piping are not located near structures containing safety-related SSCs, with the exception of piping entering plant structures. The CWS enters only within the T/B, and any postulated pipe break is prevented from back-flowing into the safety-related R/B by watertight separation. Postulated pipe breaks near structures are prevented from entering the structures by adequate sloped site grading and drainage.

3.4.1.3 Flood Protection from Internal Sources

STD COL 3.4(8) Replace the last sentence in the fourth paragraph of DCD Subsection 3.4.1.3 with **the following.** CTS-01561

Inspection and testing procedures are established prior to fuel load in accordance with manufacturer recommendations so that each water-tight door remains capable of performing its intended function.

STD COL 3.4(7) Replace the last sentence in the last paragraph of DCD Subsection 3.4.1.3 with the following.

Three site-specific ~~safety-related~~ structures (the UHSRS, the PSFSV, the ESWPT) and the essential service water pipe chase (ESWPC) have been evaluated for internal flooding concerns~~: the UHSRS, the ESWPT, and the PSFSV~~. Other site-specific buildings and structures in the plant yard are designated as non safety-related. By definition, their postulated failure due to internal flooding or other postulated events do not adversely affect safety-related SSCs or required safety functions. CTS-01539

CP COL 3.4(4) ***3.4(4)*** *Additional ground water protection*

This COL item is addressed in Subsection 3.4.1.2.

CP COL 3.4(5) ***3.4(5)*** *DBFL and site-specific conditions*

This COL item is addressed in Subsection 3.4.1.2.

STD COL 3.4(6) ***3.4(6)*** *Physical models for performance of hydraulic structures and systems*

This COL item is addressed in Subsection 3.4.2.

STD COL 3.4(7)
CP COL 3.4(7) ***3.4(7)*** *Protection from internal flooding*

This COL item is addressed in Subsection 3.4.1.3 and 3K.1.

STD COL 3.4(8) ***3.4(8)*** *Inspection and testing procedures for water tight doors* CTS-01561

This COL item is addressed in Subsection 3.4.1.3.

3.4.4 References

Add the following reference after the last reference in DCD Subsection 3.4.4.

3.4-201 ~~*A Guide to the Use of Waterproofing, Dampproofing, Protective, and Decorative Barrier Systems for Concrete,* ACI 515.1R-79, American Concrete Institute, Revised 1985~~Not used. CTS-01532

3.4-202 *Diverse and Flexible Coping Strategies (FLEX) implementation Guide, NEI 12-06 Revision 0, August 2012.*

3.5.2 Structures, Systems, and Components to be Protected from Externally Generated Missiles

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CP COL 3.5(5) Replace the second sentence in the second paragraph of DCD Subsection 3.5.2 with the following.

As determined in FSAR Section 2.2, Subsection 3.5.1.5 and Subsection 3.5.1.6, no site-specific hazards for external events produce missiles more energetic than tornado missiles and hurricane missiles identified for the US-APWR standard plant design. The design basis for externally generated missiles is therefore bounded by the standard plant design criteria for tornado-generated missiles and hurricane-generated missiles in ~~DCD~~ Subsection 3.5.1.4. RCOL2_03.03.02-9 RCOL2_03.03.02-9

3.5.4 Combined License Information

Replace the content of DCD Subsection 3.5.4 with the following.

STD COL 3.5(1) ***3.5(1)*** *Prevent unsecured equipment from becoming potential hazard*

This COL item is addressed in Subsections 3.5.1.1.2 and 3.5.1.1.4.

CP COL 3.5(2) ***3.5(2)*** *Maintain P_1 within acceptable limit*

This COL item is addressed in Subsection 3.5.1.3.2.

CP COL 3.5(3) ***3.5(3)*** *Presence of potential hazards and effects in vicinity of site, except aircraft*

This COL item is addressed in Subsection 3.5.1.5.

CP COL 3.5(4) ***3.5(4)*** *Site interface parameters for aircraft crashes and air transportation accidents*

This COL item is addressed in Subsection 3.5.1.6.

CP COL 3.5(5) ***3.5(5)*** *Other potential site-specific missiles*

This COL item is addressed in Subsections 3.5.1.4 and 3.5.2. RCOL2_03.03.02-9

CP COL 3.5(6) ***3.5(6)*** *~~Orientation of T/G of other unit(s)~~Identify SSCs to be protected, and assess the orientation of the T/B with respect to these essential SSCs* CTS-01561

This COL item is addressed in Subsection 3.5.1.3.1.

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Table 3.8.5-6R

CP COL 3.8(31)
CP COL 3.8(32)

Load Combinations and Calculated(12) Minimum Factors of Safety for Stability of Seismic Category I and II Structures

Building/Structure	Load Combination	Overturning (FS_{ot})	Sliding (FS_{sl})	Flotation (FS_{fl})
R/B Complex	D + H + W(8)	>10	>10	~~-~~N/A
	$D + H + E_s$	~~5.7~~1.2	~~2.8~~ See note 11	~~-~~N/A
	$D + H + W_t$(8)	>10	>10	~~-~~N.A
	$D + F_b$(9)	~~-~~N/A	~~-~~N/A	3.8
T/B(10)	D + H + W	~~[Later]~~>10	~~[Later]~~>10	~~-~~N/A
	$D + H + E_s$	~~1.4~~1.2	See note 11	~~-~~N/A
	$D + H + W_t$	~~[Later]~~>5	~~[Later]~~>5	~~-~~N/A
	$D + F_b$	~~-~~N/A	~~-~~N/A	~~1.19~~1.9
PSFSVs(7)	D + H + W(6)	N/A	N/A	-
	$D + H + E_s$	1.50(1), (4)	1.11(1), (4), (5)	-
	$D + H + W_t$(6)	N/A	N/A	-
	$D + F_b$	N/A	N/A	1.32(2)
UHSRS(7)	D + H + W	4.86(1)	~~1.28~~12.8(1)	-
	$D + H + E_s$	2.34(1), (3)	1.30(1), (3)	-
	$D + H + W_t$	4.49(1)	9.16(1)	-
	$D + F_b$	-	-	1.66(2)
ESWPT	D + H + W(6)	N/A	N/A	-
	$D + H + E_s$	1.65	1.47	-
	$D + H + W_t$(6)	N/A	N/A	-
	$D + F_b$	-	-	8.41

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Notes

1. Ground water elevation for the calculation of the buoyancy force is 795 ft.

2. Ground water elevation for the calculation of the buoyancy force due to flotation is 821 ft.

3. The factors of safety for the UHSRS cases including the seismic effect are computed on a time history basis. The coefficient of friction used is taken as 0.6.

4. The factors of safety for the PSFSVs cases are based upon the seismic loads which are

3.11 ENVIRONMENTAL QUALIFICATION OF MECHANICAL AND ELECTRICAL EQUIPMENT

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

CP COL 3.11(3) Replace the last sentence of the ~~fifth~~tenth paragraph in DCD Section 3.11 with the following. CTS-01561

The CPNPP Units 3 and 4 EQ Program implementation milestones are as follows:

Activity	Milestone
Formulate Units 3 and 4 EQ Program	COLA Submittal
Assist with Reactor Vendor/Architect-Engineer/Constructor EQ Program	Combined License
Operational EQ Program established	Unit 3 Fuel Load
Operational EQ Program established	Unit 4 Fuel Load

CP COL 3.11(1) Replace the first sentence of the ~~sixth~~eleventh paragraph in DCD Section 3.11 with the following. CTS-01561

Prior to unit fuel load, the Licensee establishes and implements an Operational EQ program and assembles and maintains the electrical and mechanical EQ records for the life of the plant to fulfill the records retention requirements delineated in 10 CFR 50.49 (Reference 3.11-2) and in compliance with the quality assurance program (QAP) described in Chapter 17.

CP COL 3.11(4) Replace the ~~eighth~~thirteenth paragraph in DCD Section 3.11 with the following. CTS-01561

This subsection addresses EQ implementation in conjunction with the initial design, procurement, construction, startup and testing up to the point of turnover. Implementation of the operational EQ program is included in Table 13.4-201. Periodic tests, calibrations, and inspections which verify that the identified equipment remains capable of fulfilling its intended function are described in the operational EQ program. The features of the US-APWR Equipment Qualification Program Technical Report MUAP-08015 (Reference 3.11-3) are included in the CPNPP Units 3 and 4 EQ Program.

CP COL 3.11(5)
CP COL 3.11(8)

Table 3D-201 (Sheet 9 of 12)

Site-Specific Environmental Qualification Equipment List

Item Num	Equipment Tag	Description	Location PCCV, R/B, A/B, O/B, T/B, UHSRS, ESWPT	Purpose ESF, PAM, Other	Operational Duration	Environmental Conditions Harsh or Mild	Qualification Process E=Electrical M=Mechanical	Seismic Category I, II, Non	Comments
~~63~~71	VRS-TS-874	D - UHS Transfer Pump Room Temperature	UHSRS	Other	2 wks	Mild	E	I	
~~64~~72	VRS-TS-875	D - UHS Transfer Pump Room Temperature	UHSRS	Other	2 wks	Mild	E	I	
~~65~~73	UHS-MPP-001A	A - UHS Transfer Pump	UHSRS	ESF	1 yr	Mild	M	I	
~~66~~74	UHS-MPP-001B	B - UHS Transfer Pump	UHSRS	ESF	1 yr	Mild	M	I	
~~67~~75	UHS-MPP-001C	C - UHS Transfer Pump	UHSRS	ESF	1 yr	Mild	M	I	
~~68~~76	UHS-MPP-001D	D - UHS Transfer Pump	UHSRS	ESF	1 yr	Mild	M	I	
~~69~~77	UHS-MFN-001A	A – UHS Cooling Tower Fan No.1	UHSRS	ESF	1 yr	Mild	M	I	
~~70~~78	UHS-MFN-001B	B – UHS Cooling Tower Fan N~~O~~o.1	UHSRS	ESF	1 yr	Mild	M	I	

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CP COL 3.11(5)
CP COL 3.11(8)

Table 3D-201 (Sheet 10 of 12)

Site-Specific Environmental Qualification Equipment List

Item Num	Equipment Tag	Description	Location PCCV, R/B, A/B, O/B, T/B, UHSRS, ESWPT	Purpose ESF, PAM, Other	Operational Duration	Environmental Conditions Harsh or Mild	Qualification Process E=Electrical M=Mechanical	Seismic Category I, II, Non	Comments
~~71~~79	UHS-MFN-001C	C - UHS Cooling Tower Fan N~~O~~o.1	UHSRS	ESF	1 yr	Mild	M	I	
~~72~~80	UHS-MFN-001D	D - UHS Cooling Tower Fan No.1	UHSRS	ESF	1 yr	Mild	M	I	
~~73~~81	UHS-MFN-002A	A – UHS Cooling Tower Fan No.2	UHSRS	ESF	1 yr	Mild	M	I	
~~74~~82	UHS-MFN-002B	B – UHS Cooling Tower Fan N~~O~~o.2	UHSRS	ESF	1 yr	Mild	M	I	
~~75~~83	UHS-MFN-002C	C - UHS Cooling Tower Fan N~~O~~o.2	UHSRS	ESF	1 yr	Mild	M	I	
~~76~~84	UHS-MFN-002D	D - UHS Cooling Tower Fan No.2	UHSRS	ESF	1 yr	Mild	M	I	
~~77~~85	UHS-MOV-503A	A - UHS Transfer Pump Discharge Valve	UHSRS	ESF	1 yr	Mild	M	I	
~~78~~86	UHS-MOV-503B	B – UHS Transfer Pump Discharge Valve	UHSRS	ESF	1 yr	Mild	M	I	
~~79~~87	UHS-MOV-503C	C – UHS Transfer Pump Discharge Valve	UHSRS	ESF	1 yr	Mild	M	I	
~~80~~88	UHS-MOV-503D	D – UHS Transfer Pump Discharge Valve	UHSRS	ESF	1 yr	Mild	M	I	

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Table 3KK-1

FE Model Material Properties (1), (2)

Component	E (ksi)	Poisson's Ratio	Unit Weight (kcf)	Damping Ratio	Element type
Concrete slabs, walls, beams, and columns	4,031	0.17	0.150	0.04	Thin Shell
Concrete base mats	4,031	0.17	0.150	0.04	Thin Shell
Steel beams, columns, and other structural steel elements	~~30,000~~28,000	0.30	~~0.49~~0.500	0.04	Beam
Concrete fill	3,12~~5~~2	0.17	0.150	0.04	Brick

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Notes:

1) The concrete material properties are adjusted where appropriate to account for cracking as discussed in Appendix Section 3KK.2.
2) Dynamic analysis unit weights are increased where appropriate from those shown above to account for equivalent dead loads and live loads as discussed in Appendix Section 3KK.2.
3) Damping ratio for basin walls below the water elevation is 3% to consider possible reduction in energy dissipation due to presence of water inside the basins (conservative value)

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Chapter 4

Chapter 4 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R

*Page numbers for the attached marked-up pages may differ from the revision 3 page numbers due to text additions and deletions. When the page numbers for the attached pages do differ, the page number for the attached page is shown in brackets.

Chapter 5

Chapter 5 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01560	5.3.1.6.1	5.3-1	Editorial correction	Changed the sentence from “These lead factors and the capsule orientation are shown in DCD Figure 5.3-1” to “These lead factors are applied for CPNPP Unit 3 and 4, and the capsule orientation is shown in DCD Figure 5.3-1.”	4

*Page numbers for the attached marked-up pages may differ from the revision 3 page numbers due to text additions and deletions. When the page numbers for the attached pages do differ, the page number for the attached page is shown in brackets.

5.3 REACTOR VESSEL

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

5.3.1.6 Material Surveillance

STD COL 5.3(2) Replace the second paragraph with the following in DCD Subsection 5.3.1.6.

The reactor vessel material surveillance program is implemented as an operational program. As the reactor vessel materials do not begin to be affected by neutron fluence until the reactor begins critical operation, this program is implemented prior to initial criticality, as identified in Table 13.4-201.

5.3.1.6.1 Surveillance Capsules

STD SUP 5.3(1) Insert the following at the end of the second paragraph in DCD Subsection 5.3.1.6.1.

Test specimens are taken from material used for the reactor vessel beltline.

STD SUP 5.3(2) Insert the following after the first sentence in the fifth paragraph in DCD Subsection 5.3.1.6.1.

The capsules are sealed in an inert environment.

STD COL 5.3(3) Replace the last sentence in the fifth paragraph with the following in DCD Subsection 5.3.1.6.1.

These lead factors are applied for CPNPP Units 3 and 4, and the capsule orientation ~~are~~is shown in DCD Figure 5.3-1. CTS_01560

STD COL 5.3(2) Replace the last sentence in the sixth paragraph with the following in DCD Subsection 5.3.1.6.1.

Chapter 6

Chapter 6 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
RCOL2_06.0 4-15	6.4.4.2	6.4-2 6.4-3	Supplemental 01 Response to RAI No. 240 Luminant Letter no.TXNB-12021 Date 6/13/2012	Figure 1 was added to the response due to inadvertently omitted in the original response. No changed in FSAR due to Supplemental Response to RAI No. 240.	-
RCOL2_06.02.02-5	6.2.2.3.2 6.2.8	6.2-2 6.2-2 [6.2-3]	Response to RAI No. 271 Luminant Letter no.TXNB-13001 Date 01/17/2013	Added discussion of administrative programs to maintain RMI, fiber insulation, and aluminum within design-basis limits.	-
RCOL2_06.02.02-6	Table 6.2.2-2R (Sheet 7 of 22)	6.2-4	Response to RAI No. 272 Luminant Letter no.TXNB-13005 Date 03/04/2013	COL Item 6.2(5) location made more specific (Section 6.2.2.3 to Section 6.2.2.3.2)	-
RCOL2_06.02.02-7	6.2.2.3.2	6.2-1	Response to RAI No. 272 Luminant Letter no.TXNB-13005 Date 03/04/2013	Changes are made to CP 3/4 latent debris sampling program. Sampling in accordance with NEI 04-07 with exceptions noted. Exceptions are based on CP 1/2 operating experience.	-
CTS-01522	6.4.4.2	6.4-2	To reflect the new seismic layout design change.	The MCR intake elevation is updated.	1
RCOL2_06.02.02-7 S01	6.2.2.3.2	6.2-1	Supplemental Response to RAI No. 272 Luminant Letter no.TXNB-13020 Date 6/19/2013	COL applicant commits to full compliance with NEI 04-07 and NRC SE with regard to containment latent debris sampling frequency. This change is reflected in the affected FSAR section.	-

*Page numbers for the attached marked-up pages may differ from the revision 3 page numbers due to text additions and deletions. When the page numbers for the attached pages do differ, the page number for the attached page is shown in brackets.

Chapter 7

Chapter 7 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01565	Table 7.4-201	7.4-2	Design change to UHS Pump House Ventilation System due to UHSRS layout change and due to the addition of countermeasures against freezing. (Response to RAI 254.)	Added rows for “ESW Piping Room Unit Heater” and “UHS Transfer Piping Room Unit Heater” to Table 7.4-201.	4
CTS-01565	7.5.1.6.2	7.5-1 [7.5-1, 7.5-2]	Change to EP Rule (Section IV.E.8.c of Appendix E to 10 CFR 50).	Changed description of EOF displays to state that they can display information for all plants serviced by the EOF simultaneously.	4

*Page numbers for the attached marked-up pages may differ from the revision 3 page numbers due to text additions and deletions. When the page numbers for the attached pages do differ, the page number for the attached page is shown in brackets.

CP COL 7.4(1)

Table 7.4-201

Site-Specific Component Controls for Shutdown

Systems	Components	Normal Shutdown	Safe Shutdown
UHSS	UHS Cooling Tower Fans	Yes	Yes
	UHS Transfer Pump	No	Yes
	UHS Transfer Pump Discharge Valve	No	Yes
	UHS Transfer Line Basin Inlet Valve	No	Yes
	UHS Basin Makeup Control Valve	Yes	No
ESWS	UHS Basin Blowdown Control Valve	Yes	Yes
	ESW Pump Discharge Strainer Backwash Isolation Valve to ESWS blowdown main header	Yes	Yes
	ESWS Blowdown Main Header Isolation Valve to CWS blowdown main header	Yes	Yes
HVAC	ESW Pump Room Exhaust Fan	Yes	Yes
	UHS Transfer Pump Room Exhaust Fan	No	Yes
	ESW Pump Room Unit Heater	Yes	Yes
	UHS Transfer Pump Room Unit Heater	No	Yes
	ESW Piping Room Unit Heater	Yes	Yes
	UHS Transfer Piping Room Unit Heater	No	Yes

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7.5 INFORMATION SYSTEMS IMPORTANT TO SAFETY

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

7.5.1.1 Post-Accident Monitoring

STD COL 7.5(1) Replace the seventh paragraph in DCD Subsection 7.5.1.1 with the following.

Site-specific type D post accident monitoring (PAM) variables related to the UHS and site-specific type E PAM variables for monitoring the meteorological parameters are presented in Table 7.5-201.

7.5.1.6.2 Emergency Operations Facilities

CP COL 7.5(2) Replace the third paragraph in DCD Subsection 7.5.1.6.2 with the following.

The emergency operations facility (EOF) of the Comanche Peak Nuclear Power Plant (CPNPP) Units 3 and 4 is located in the existing nuclear operations support facility, which is west of the reactor building.

The EOF is large enough to provide the following:

- Workspace for the personnel assigned to the EOF
- Space for the new displays and other related equipment associated with CPNPP Units 3 and 4
- Space for unhindered access to communication equipment related to CPNPP Units 3 and 4 by all EOF personnel
- Space for storage of and/or access to plant records and historical data
- A separate room for private U.S. Nuclear Regulatory Commission (NRC) consultations

The EOF working space is currently sized for 45 persons, including federal, state, and local emergency personnel. The existing EOF floor space is approximately 3200 sq. ft. The EOF is designed and equipped to support continuous operations over an extended period of time.

Displays are ~~associated with~~provided for CPNPP Units 3 and 4. Each display is separate from the other displays and is dedicated to displaying information for only one unit. The EOF has the capability to simultaneously display the CTS-01565 information for multiple units or plants that are serviced by the EOF. ~~are common to both units with a unit display selection capability.~~ Post-accident monitoring, bypassed and inoperable status indication, plant alarms, and safety parameter display system information is displayed on non-safety human-system interface equipment in the EOF. The information displayed in the EOF, main control room (MCR), and technical support center (TSC) is identical, although the manner in which it is displayed may vary (e.g., single screen, multiple screens, single monitor, multiple monitors, etc.). The displays and communication related auxiliary equipment is strategically located in the existing EOF. Neither the EOF nor the TSC has plant control capability. CTS-01565

7.5.4 Combined License Information

Replace the content of DCD Subsection 7.5.4 with the following.

CP COL 7.5(1)
STD COL 7.5(1)

7.5(1) *Description of site-specific PAM variables*

This COL item is addressed in Subsection 7.5.1.1 and Table 7.5-201.

CP COL 7.5(2)

7.5(2) *Description of site-specific EOF*

This COL item is addressed in *Subsection 7.5.1.6.2*.

Chapter 8

Chapter 8 Tracking Report Revision List

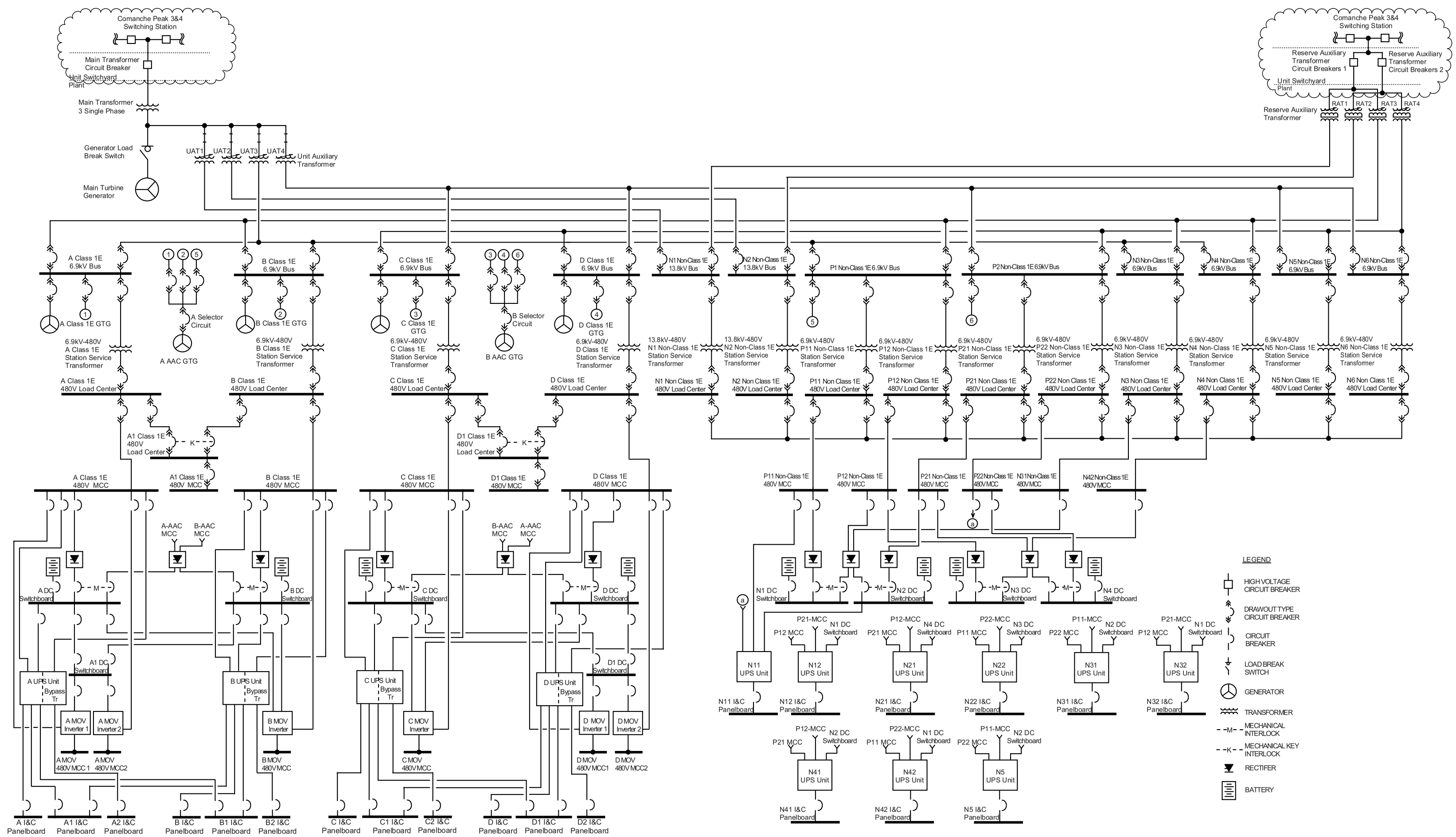
Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
RCOL2_08.01-3	8.1.2.1	8.1-1	Response to RAI No. 249 Luminant Letter no.TXNB-12013 Date 05/16/2012	Subsection 8.1.2.1 was revised to state that the switching station equipment shared between Units 3 and 4 includes the circuit breakers, and that no important to safety SSCs are shared between Units 3 and 4, under any operating scenario (normal or emergency).	-
RCOL2_03.03.02-9	8.2.1.2.1.1	8.2-4	Response to RAI No. 250 Luminant Letter no.TXNB-12032 Date 9/14/2012	Revised to incorporate RG 1.221.	-
RCOL2_08.01-2 S03	8.1.2.1	8.1-1 [8.1-1 through 8.1-2]	3rd Supplemental Response to RAI No. 9 Luminant Letter No.TXNB-13007 Date 03/04/2013	Sentences of switching station moved to section 8.2.2.1 Applicable Criteria.	-
RCOL2_08.01-2 S03	8.2.2.1 (new section)	8.2-10 [8.2-10 through 8.2-11]	3rd Supplemental Response to RAI No. 9 Luminant Letter No.TXNB-13007 Date 03/04/2013	Compliance to GDC 5 of Switching Station added to 8.2.2.1 Applicable Criteria.	-
CTS-01508	Figure 8.3.1-201	8.3-21	Revised to reflect common foundation and the new plant layout	Figure was updated to reflect standard plant and site-specific layout changes.	0
CTS-01508	Figure 8.2-207	8.2-31	Turbine Building and Electrical Building layout change. Figure was updated to reflect standard plant	The road surrounding the Unit 3 and Unit 4 switchyard are changed. Other non-technical editorial changes are made such as removal of dimension line of the building.	1

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
			and site-specific layout changes		
CTS-01508	Figure 8.2-208	8.2-32	Turbine Building and Electrical Building layout change. Figure was updated to reflect standard plant and site-specific layout changes	The road surrounding the Unit 3 and Unit 4 switchyard are changed. Other non-technical editorial changes are made such as removal of dimension line of the building.	1
CTS-01532	Figure 8.1-1R Table 8.3.1-4R (Sheet 1 through 4 of 4) Figure 8.3.1-1R (Sheet 1, 5, 6 of 7[8]) Figure 8.3.1-2R (Sheet 2 of 24)	8.1-2 [8.1-3] 8.3-6 through 8.3-9 8.3-10 through 8.3-12 8.3-13	Reflection of Fukushima-related electrical changes submitted by the US-APWR DCD update tracking report, MUAP-11021, Rev. 4 (ML13154A292)	- AAC selector circuit “Disconnecting Switch” replaced with “Circuit Breaker” - Enhanced PSMS Power Supply Configuration - Modification to the P1/P2 Non-Class 1E 6.9kV Bus Configuration - Removal of primary system power supply panel -Other related changes	2
RCOL2_08.01-3 S01	8.2.1.2.3 8.2.2.1 (New) 8.2.2.1.1 (New) 8.2.4	8.2-10 8.2-13	Supplemental Response to RAI No 249 Luminant Letter no.TXNB-13029 Date 10/7/2013	Addresses the applicability of General Design Criterion 5 to the offsite power system.	-

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01566	Figure 8.1-1R	8.1-2 [8.1-3]	Consistency with DCD Rev. 4	One Line Diagram is revised.	4
CTS-01566	8.3.2.1.1	8.3-2	Consistency with DCD Rev. 4	Changed the numbering of the paragraph from "third" paragraph to the "fifth" paragraph.	4
CTS-01566	Figure 8.3.1-1R (Sheet 1 of 7[8])	8.3-10	Consistency with DCD Rev. 4	One Line Diagram is revised.	4
CTS-01566	Figure 8.3.1-2R (Sheets 18 through 21 of 24)	8.3-17 through 8.3-20	Consistency with DCD Rev. 4	Logic Diagram is revised.	4
CTS-01566	8.4	8.4-1	Consistency with DCD Rev. 4	Changed the numbering of the paragraph from "ninth" paragraph to the "tenth" paragraph.	4

*Page numbers for the attached marked-up pages may differ from the revision 3 page numbers due to text additions and deletions. When the page numbers for the attached pages do differ, the page number for the attached page is shown in brackets.

CTS-01532
CTS-01566



CP COL 8.2(3)

Figure 8.1-1R Simplified One Line Diagram Electric Power System

8.3.1.3.2 Short Circuit Studies

STD COL 8.3(3) Replace the last two sentences of the first paragraph in DCD Subsection 8.3.1.3.2 with the following.

As a result of the studies, maximum short circuit current has been confirmed to satisfy short circuit interrupt rating of circuit breakers indicated in Table 8.3.1-1R.

8.3.1.3.4 Equipment Protection and Coordination Studies

STD COL 8.3(10) Replace the last sentence of the first paragraph in DCD Subsection 8.3.1.3.4 with the following.

Coordination of protective devices is confirmed as part of equipment procurement.

8.3.1.3.5 Insulation Coordination (Surge and Lightning Protection)

CP COL 8.3(11) Replace the last sentence of the first paragraph in DCD Subsection 8.3.1.3.5 with the following.

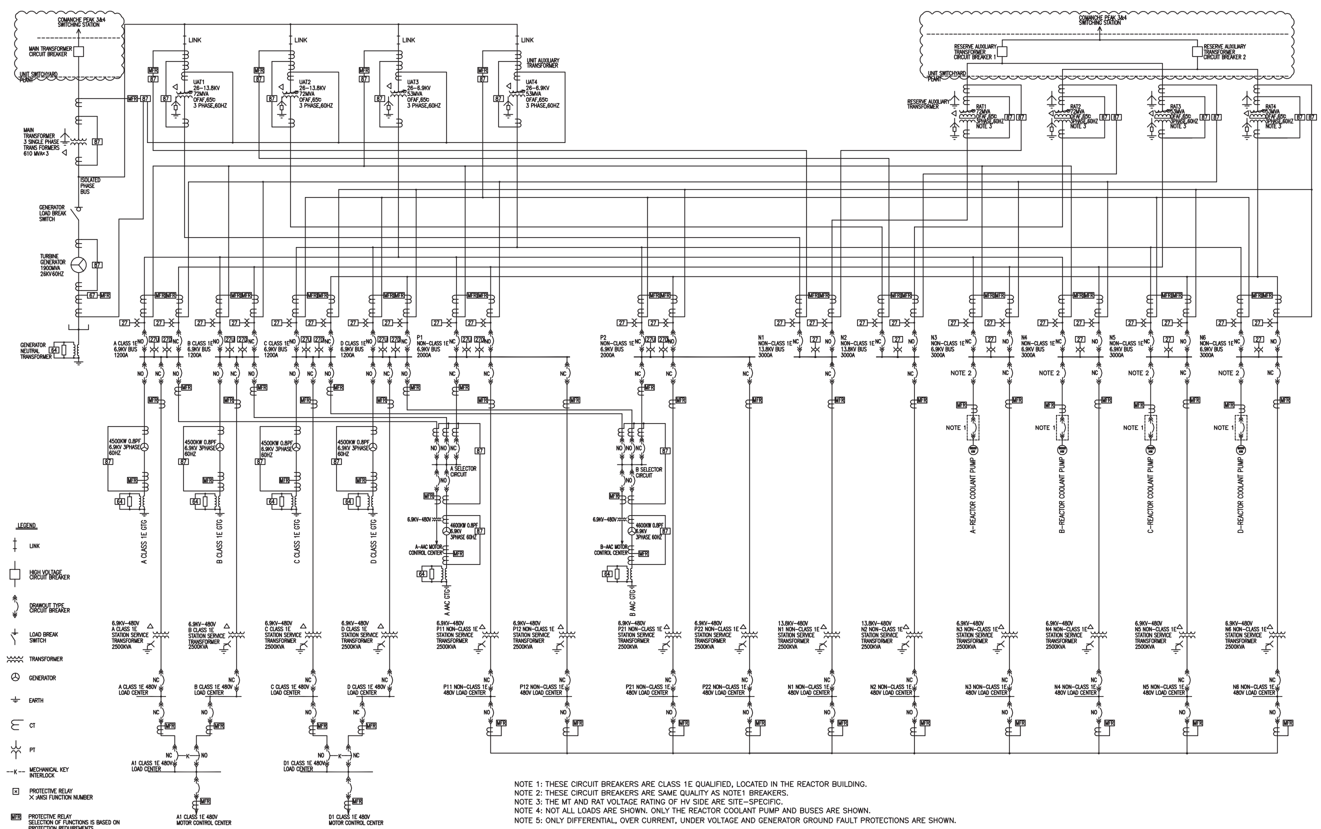
Surge arresters are selected to be compatible with lightning impulse insulation level of the 345 kV offsite power circuit so that the insulation of onsite power system is assured from lightning surge.

8.3.2.1.1 Class 1E DC Power System

STD COL 8.3(8) Replace the last sentence of the ~~third~~fifth paragraph in DCD Subsection 8.3.2.1.1 with the following. CTS-01566

Short circuit analysis for dc power system is addressed in Subsection 8.3.2.3.2.

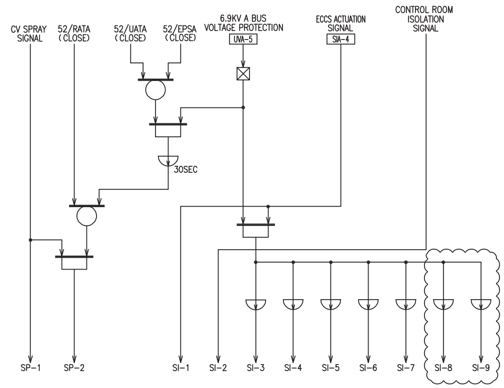
CTS-01532
CTS-01566

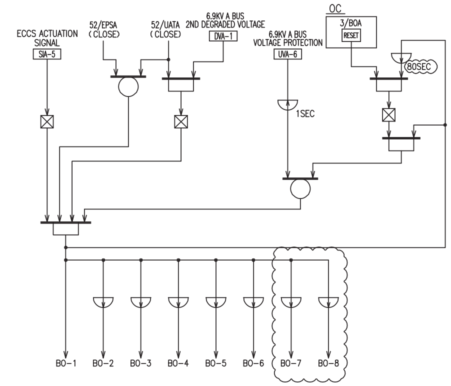


CP COL 8.2(3)

Figure 8.3.1-1R Onsite AC Electrical Distribution System (Sheet 1 of ~~7~~8)
Main One Line Diagram

CTS-01566





STEP NO.	NAME	CONNECTED BUS	TIMER SET VALUE	REMARKS
SP-1	MOV OPERATED BY SP SIGNAL	MCC(A TRAIN)	—	
SP-2	A-CONTAINMENT SPRAY / RESIDUAL HEAT REMOVAL PUMP	6.9KV A-BUS	30SEC	
SI-1	MOV OPERATED BY SI SIGNAL MOTOR CONTROL CENTER EQUIPMENT	MCC(A TRAIN) MCC-A,A1	—	※1
SI-2	MOTOR CONTROL CENTER EQUIPMENT	MCC-A,A1	—	※2
SI-3	A-SAFETY INJECTION PUMP	6.9KV A-BUS	5SEC	
SI-4	A-COMPONENT COOLING WATER PUMP A-ESSENTIAL CHILLED WATER PUMP	6.9KV A-BUS MCC-A	10SEC	
SI-5	A-ESSENTIAL SERVICE WATER PUMP	6.9KV A-BUS	15SEC	

STEP NO.	NAME	CONNECTED BUS	TIMER SET VALUE	REMARKS
SI-6	A-CLASS 1E ELECTRICAL ROOM AIR HANDLING UNIT	480V A-BUS	40SEC	(NOTE2)
SI-7	A-ESSENTIAL CHILLER UNIT	6.9KV A-BUS	50SEC	
SI-8	A-ESSENTIAL SERVICE WATER COOLING TOWER FAN 1	480V A-BUS	60SEC	
SI-9	A-ESSENTIAL SERVICE WATER COOLING TOWER FAN 2	480V A-BUS	70SEC	

STEP NO.	NAME	CONNECTED BUS	TIMER SET VALUE	REMARKS
BO-1	MOTOR CONTROL CENTER EQUIPMENT	MCC-A	—	※3
BO-2	A-CHARGING PUMP	6.9KV A-BUS	5SEC	
BO-3	A-COMPONENT COOLING WATER PUMP	6.9KV A-BUS	10SEC	
BO-4	A-ESSENTIAL SERVICE WATER PUMP A-ESSENTIAL CHILLED WATER PUMP	6.9KV A-BUS MCC-A	15SEC	
BO-5	A-CLASS 1E ELECTRICAL ROOM AIR HANDLING UNIT	480V A-BUS	30SEC	(NOTE2)
BO-6	A-ESSENTIAL CHILLER UNIT	6.9KV A-BUS	40SEC	
BO-7	A-ESSENTIAL SERVICE WATER COOLING TOWER FAN 1	480V A-BUS	50SEC	
BO-8	A-ESSENTIAL SERVICE WATER COOLING TOWER FAN 2	480V A-BUS	60SEC	

※ 1	REMARKS
A-ANNULUS EMERGENCY EXHAUST FILTRATION UNIT FAN	
A-ANNULUS EMERGENCY EXHAUST FILTRATION UNIT	
A-SAFEGUARD COMPONENT AREA AIR HANDLING UNIT	(NOTE2)
A-CLASS 1E BATTERY ROOM EXHAUST FAN	
A-EMERGENCY FEED WATER PUMP(T/D) AREA AIR HANDLING UNIT	(NOTE2)

※ 2	REMARKS
A-MAIN CONTROL ROOM AIR HANDLING UNIT	
A-MAIN CONTROL ROOM EMERGENCY FILTRATION UNIT	
A-MAIN CONTROL ROOM EMERGENCY FILTRATION UNIT FAN	

※ 3	REMARKS
A-MAIN CONTROL ROOM AIR HANDLING UNIT	(NOTE2)
A-SAFEGUARD COMPONENT AREA AIR HANDLING UNIT	(NOTE2)
A-CLASS 1E BATTERY ROOM EXHAUST FAN	
A-EMERGENCY FEED WATER PUMP(T/D) AREA AIR HANDLING UNIT	(NOTE2)

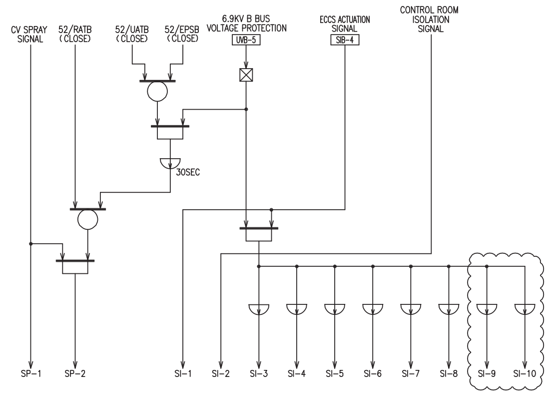
(NOTE1) TRAIN A
(NOTE2) HANDLING UNITS HAVE A FAN AND A REHEATING COIL. AFTER STARTING SIGNAL RECEIVING A FAN STARTS AND A REHEATING UNITS STARTS IF AREA TEMPERATURE MAKES SET VALUE.

SH.NO. 6-1

STDCOL 9.2(20)

Figure 8.3.1-2R Logic Diagrams (Sheet 18 of 24)
Class 1E Train A LOOP and LOCA Load Sequencing

CTS-01566

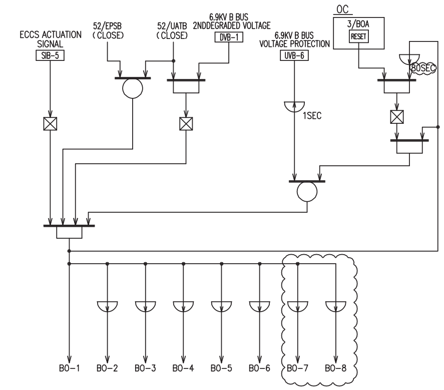


STEP NO.	NAME	CONNECTED BUS	TIMER SET VALUE	REMARKS
SP-1	MOV OPERATED BY SP SIGNAL	MCC(B TRAIN)	—	
SP-2	B-CONTAINMENT SPRAY / RESIDUAL HEAT REMOVAL PUMP	6.9KV B-BUS	30SEC	
SI-1	MOV OPERATED BY SI SIGNAL MOTOR CONTROL CENTER EQUIPMENT	MCC(B TRAIN) MCC-B,A1	—	※1
SI-2	MOTOR CONTROL CENTER EQUIPMENT	MCC-B,A1	—	※2
SI-3	B-SAFETY INJECTION PUMP	6.9KV B-BUS	5SEC	
SI-4	B-COMPONENT COOLING WATER PUMP B-ESSENTIAL CHILLED WATER PUMP	6.9KV B-BUS MCC-B	10SEC	
SI-5	B-ESSENTIAL SERVICE WATER PUMP	6.9KV B-BUS	15SEC	

STEP NO.	NAME	CONNECTED BUS	TIMER SET VALUE	REMARKS
SI-6	B-EMERGENCY FEED WATER PUMP	6.9KV B-BUS	20SEC	
SI-7	B-CLASS 1E ELECTRICAL ROOM AIR HANDLING UNIT	480V B-BUS	40SEC	(NOTE2)
SI-8	B-ESSENTIAL CHILLER UNIT	6.9KV B-BUS	50SEC	
SI-9	B-ESSENTIAL SERVICE WATER COOLING TOWER FAN 1	480V B-BUS	60SEC	
SI-10	B-ESSENTIAL SERVICE WATER COOLING TOWER FAN 2	480V B-BUS	70SEC	

※ 1	REMARKS
B-SAFEGUARD COMPONENT AREA AIR HANDLING UNIT	(NOTE2)
B-CLASS 1E BATTERY ROOM EXHAUST FAN	
B-EMERGENCY FEED WATER PUMP(M/D) AREA AIR HANDLING UNIT	(NOTE2)

※ 2	REMARKS
B-MAIN CONTROL ROOM AIR HANDLING UNIT	



STEP NO.	NAME	CONNECTED BUS	TIMER SET VALUE	REMARKS
BO-1	MOTOR CONTROL CENTER EQUIPMENT	MCC-B	—	※3
BO-2	B-COMPONENT COOLING WATER PUMP	6.9KV B-BUS	10SEC	
BO-3	B-ESSENTIAL SERVICE WATER PUMP B-ESSENTIAL CHILLED WATER PUMP	6.9KV B-BUS MCC-B	15SEC	
BO-4	B-EMERGENCY FEED WATER PUMP	6.9KV B-BUS	20SEC	
BO-5	B-CLASS 1E ELECTRICAL ROOM AIR HANDLING UNIT	480V B-BUS	30SEC	(NOTE2)
BO-6	B-ESSENTIAL CHILLER UNIT	6.9KV B-BUS	40SEC	
BO-7	B-ESSENTIAL SERVICE WATER COOLING TOWER FAN 1	480V B-BUS	50SEC	
BO-8	B-ESSENTIAL SERVICE WATER COOLING TOWER FAN 2	480V B-BUS	60SEC	

※ 3	REMARKS
B-MAIN CONTROL ROOM AIR HANDLING UNIT	(NOTE2)
B-SAFEGUARD COMPONENT AREA AIR HANDLING UNIT	(NOTE2)
B-CLASS 1E BATTERY ROOM EXHAUST FAN	
B-EMERGENCY FEED WATER PUMP(M/D) AREA AIR HANDLING UNIT	(NOTE2)

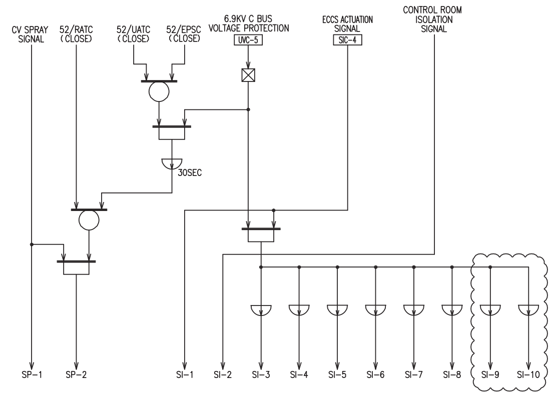
(NOTE1) TRAIN B
(NOTE2) HANDLING UNITS HAVE A FAN AND A REHEATING COIL. AFTER STARTING SIGNAL RECEIVING A FAN STARTS AND A REHEATING UNITS STARTS IF AREA TEMPERATURE MAKES SET VALUE.

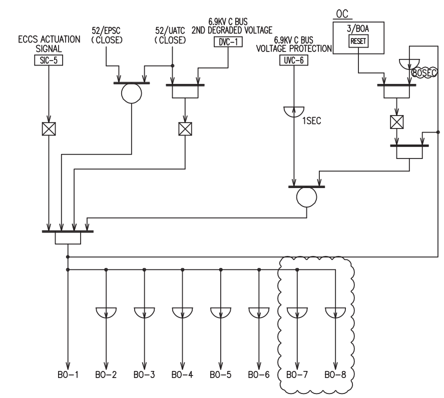
SH.NO. 6-2

STD COL 9.2(20)

Figure 8.3.1-2R Logic Diagrams (Sheet 19 of 24)
Class 1E Train B LOOP and LOCA Load Sequencing

CTS-01566





STEP NO.	NAME	CONNECTED BUS	TIMER SET VALUE	REMARKS	STEP NO.	NAME	CONNECTED BUS	TIMER SET VALUE	REMARKS
SP-1	MOV OPERATED BY SP SIGNAL	MCC(C TRAIN)	—		SI-6	C-EMERGENCY FEED WATER PUMP	6.9KV C-BUS	20SEC	
SP-2	C-CONTAINMENT SPRAY / RESIDUAL HEAT REMOVAL PUMP	6.9KV C-BUS	30SEC		SI-7	C-CLASS 1E ELECTRICAL ROOM AIR HANDLING UNIT	480V C-BUS	40SEC	(NOTE2)
SI-1	MOV OPERATED BY SI SIGNAL MOTOR CONTROL CENTER EQUIPMENT	MCC(C TRAIN) MCC-C,D1	—	※1	SI-8	C-ESSENTIAL CHILLER UNIT	6.9KV C-BUS	50SEC	
SI-2	MOTOR CONTROL CENTER EQUIPMENT	MCC-C,D1	—	※2	SI-9	C-ESSENTIAL SERVICE WATER COOLING TOWER FAN 1	480V C-BUS	60SEC	
SI-3	C-SAFETY INJECTION PUMP	6.9KV C-BUS	5SEC		SI-10	C-ESSENTIAL SERVICE WATER COOLING TOWER FAN 2	480V C-BUS	70SEC	
SI-4	C-COMPONENT COOLING WATER PUMP C-ESSENTIAL CHILLED WATER PUMP	6.9KV C-BUS MCC-C	10SEC						
SI-5	C-ESSENTIAL SERVICE WATER PUMP	6.9KV C-BUS	15SEC						

STEP NO.	NAME	CONNECTED BUS	TIMER SET VALUE	REMARKS
BO-1	MOTOR CONTROL CENTER EQUIPMENT	MCC-C	—	※3
BO-2	C-COMPONENT COOLING WATER PUMP	6.9KV C-BUS	10SEC	
BO-3	C-ESSENTIAL SERVICE WATER PUMP C-ESSENTIAL CHILLED WATER PUMP	6.9KV C-BUS MCC-C	15SEC	
BO-4	C-EMERGENCY FEED WATER PUMP	6.9KV C-BUS	20SEC	
BO-5	C-CLASS 1E ELECTRICAL ROOM AIR HANDLING UNIT	480V C-BUS	30SEC	(NOTE2)
BO-6	C-ESSENTIAL CHILLER UNIT	6.9KV C-BUS	40SEC	
BO-7	C-ESSENTIAL SERVICE WATER COOLING TOWER FAN 1	480V C-BUS	50SEC	
BO-8	C-ESSENTIAL SERVICE WATER COOLING TOWER FAN 2	480V C-BUS	60SEC	

※ 1	REMARKS
C-SAFEGUARD COMPONENT AREA AIR HANDLING UNIT	(NOTE2)
C-CLASS 1E BATTERY ROOM EXHAUST FAN	
C-EMERGENCY FEED WATER PUMP(M/D) AREA AIR HANDLING UNIT	(NOTE2)

※ 2	REMARKS
C-MAIN CONTROL ROOM AIR HANDLING UNIT	

※ 3	REMARKS
C-MAIN CONTROL ROOM AIR HANDLING UNIT	(NOTE2)
C-SAFEGUARD COMPONENT AREA AIR HANDLING UNIT	(NOTE2)
C-CLASS 1E BATTERY ROOM EXHAUST FAN	
C-EMERGENCY FEED WATER PUMP(M/D) AREA AIR HANDLING UNIT	(NOTE2)

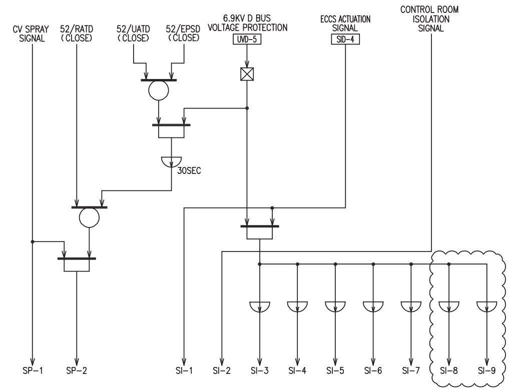
(NOTE1) TRAIN C
(NOTE2) HANDLING UNITS HAVE A FAN AND A REHEATING COIL. AFTER STARTING SIGNAL RECEIVING A FAN STARTS AND A REHEATING UNITS STARTS IF AREA TEMPERATURE MAKES SET VALUE.

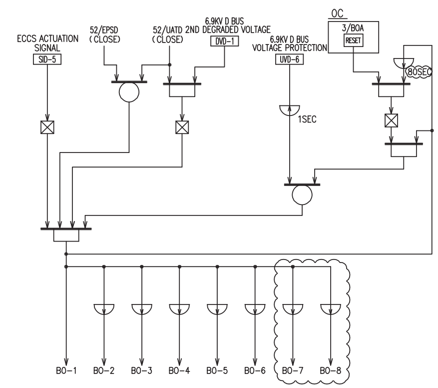
SH.NO. 6-3

STD COL 9.2(20)

Figure 8.3.1-2R Logic Diagrams (Sheet 20 of 24)
Class 1E Train C LOOP and LOCA Load Sequencing

CTS-01566





STEP NO.	NAME	CONNECTED BUS	TIMER SET VALUE	REMARKS
SP-1	MOV OPERATED BY SP SIGNAL	MCC(D TRAIN)	—	
SP-2	D-CONTAINMENT SPRAY / RESIDUAL HEAT REMOVAL PUMP	6.9KV D-BUS	30SEC	
SI-1	MOV OPERATED BY SI SIGNAL MOTOR CONTROL CENTER EQUIPMENT	MCC(D TRAIN) MCC-D,D1	—	※1
SI-2	MOTOR CONTROL CENTER EQUIPMENT	MCC-D,D1	—	※2
SI-3	D-SAFETY INJECTION PUMP	6.9KV D-BUS	5SEC	
SI-4	D-COMPONENT COOLING WATER PUMP D-ESSENTIAL CHILLED WATER PUMP	6.9KV D-BUS MCC-D	10SEC	
SI-5	D-ESSENTIAL SERVICE WATER PUMP	6.9KV D-BUS	15SEC	

STEP NO.	NAME	CONNECTED BUS	TIMER SET VALUE	REMARKS
SI-6	D-CLASS 1E ELECTRICAL ROOM AIR HANDLING UNIT	480V D-BUS	40SEC	(NOTE2)
SI-7	D-ESSENTIAL CHILLER UNIT	6.9KV D-BUS	50SEC	
SI-8	D-ESSENTIAL SERVICE WATER COOLING TOWER FAN 1	480V D-BUS	60SEC	
SI-9	D-ESSENTIAL SERVICE WATER COOLING TOWER FAN 2	480V D-BUS	70SEC	

STEP NO.	NAME	CONNECTED BUS	TIMER SET VALUE	REMARKS
BO-1	MOTOR CONTROL CENTER EQUIPMENT	MCC-D	—	※3
BO-2	B-CHARGING PUMP	6.9KV D-BUS	5SEC	
BO-3	D-COMPONENT COOLING WATER PUMP	6.9KV D-BUS	10SEC	
BO-4	D-ESSENTIAL SERVICE WATER PUMP D-ESSENTIAL CHILLED WATER PUMP	6.9KV D-BUS MCC-D	15SEC	
BO-5	D-CLASS 1E ELECTRICAL ROOM AIR HANDLING UNIT	480V D-BUS	30SEC	(NOTE2)
BO-6	D-ESSENTIAL CHILLER UNIT	6.9KV D-BUS	40SEC	
BO-7	D-ESSENTIAL SERVICE WATER COOLING TOWER FAN 1	480V D-BUS	50SEC	
BO-8	D-ESSENTIAL SERVICE WATER COOLING TOWER FAN 2	480V D-BUS	60SEC	

※ 1	REMARKS
B-ANNULUS EMERGENCY EXHAUST FILTRATION UNIT FAN	
B-ANNULUS EMERGENCY EXHAUST FILTRATION UNIT	
D-SAFEGUARD COMPONENT AREA AIR HANDLING UNIT	(NOTE2)
D-CLASS 1E BATTERY ROOM EXHAUST FAN	
D-EMERGENCY FEED WATER PUMP(T/D) AREA AIR HANDLING UNIT	(NOTE2)

※ 2	REMARKS
D-MAIN CONTROL ROOM AIR HANDLING UNIT	
D-MAIN CONTROL ROOM EMERGENCY FILTRATION UNIT	
D-MAIN CONTROL ROOM EMERGENCY FILTRATION UNIT FAN	

※ 3	REMARKS
D-MAIN CONTROL ROOM AIR HANDLING UNIT	(NOTE2)
D-SAFEGUARD COMPONENT AREA AIR HANDLING UNIT	(NOTE2)
D-CLASS 1E BATTERY ROOM EXHAUST FAN	
D-EMERGENCY FEED WATER PUMP(T/D) AREA AIR HANDLING UNIT	(NOTE2)

(NOTE1) TRAIN D
(NOTE2) HANDLING UNITS HAVE A FAN AND A REHEATING COIL. AFTER STARTING SIGNAL RECEIVING A FAN STARTS AND A REHEATING UNITS STARTS IF AREA TEMPERATURE MAKES SET VALUE.

SH.NO. 6-4

STD COL 9.2(20

Figure 8.3.1-2R Logic Diagrams (Sheet 21 of 24)
Class 1E Train D LOOP and LOCA Load Sequencing

8.4 STATION BLACKOUT

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

CP SUP 8.4(1) Add the following text after the ~~ninth~~tenth paragraph of DCD Subsection 8.4.2.2. CTS-01566

The procedures to cope with SBO are addressed in Section 13.5 and the training is addressed in Section 13.2. In particular, although not specifically referenced, SBO procedures are discussed in FSAR Subsection 13.5.2.1. This subsection addresses Operating and Emergency Operating Procedures as well as the Procedure Generation Package. The Station Blackout Response Guideline, the AC Power Restoration Guideline, and a Severe Weather Guideline are covered by the discussions in FSAR 13.5.2.1.

Chapter 9

Chapter 9 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
RCOL2_09.02.01-7	9.2.1.3	9.2-5 [9.2-6]	Response to RAI No. 251 Luminant Letter no.TXNB-12016 Date 05/31/2012	Added discussion regarding CCW heat exchanger backflush procedure including valve alignment and identification as a maintenance outage train.	-
RCOL2_09.02.01-8	9.2.1.2.2.5	9.2-4	Response to RAI No. 251 Luminant Letter no.TXNB-12016 Date 05/31/2012	Revised to discuss the ESWS piping material and inspection.	-
RCOL2_09.02.01-9	9.2.5.5	9.2-21 [9.2-22 9.2-23]	Response to RAI No. 251 Luminant Letter no.TXNB-12016 Date 05/31/2012	Revised to clarify that level switches are utilized to prevent water hammer and are non safety-related.	
RCOL2_09.0 1.05-1 S01	9.1.5.3 9.1.5 (New Section) 9.1.5.1(New Subsection) 9.1.5.3 (New Subsection) 9.1.5.4 (New Subsection) 9.1.5.6 (New Subsection) 9.1.6	9.1-1 [9.1-1 through 9.1-5] 9.1-2 [9.1-5]	Supplemental 01 Response to RAI No. 52 Luminant Letter no.TXNB-12021 Date 6/13/2012	The heavy load handling program description is enhanced to satisfy the requirements of COL item 9.1 (6).	-
RCOL2_14.03.07-38	9.2.5.2.1 9.2.5.3	9.2-12 [9.2-13] 9.2-18 [9.2-20]	Response to RAI No. 254 Luminant Letter no.TXNB-12022 Date 6/21/2012	Added design criteria for cooling tower spray nozzle sizing. Clarified design criteria.	-
RCOL2_14.02-21	9.2.5.2.1 9.2.5.2.2	9.2-12 [9.2-13] 9.2-15	Response to RAI No. 257 Luminant Letter no.TXNB-12022 Date 6/21/2012	Added discussion about UHS fan speed and direction. Added discussion	-

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
		[9.2-16]		about level switches.	
RCOL2_09.0 4.05-23 S01	9.4.5.3.6	9.4-6	Supplemental 01 RAI No. 243 Luminant Letter no.TXNB-12030 Date 08/29/2012	Added the design information about the wall separating the ESW pump room from the transfer pump room.	-
RCOL2_09.0 4.05-23 S01	Table 9.4-202	9.4-11	Supplemental 01 Response to RAI No. 243 Luminant Letter no.TXNB-12030 Date 08/29/2012	Changed the capacity of UHS ESW Pump House Ventilation System Equipment.	-
RCOL2_09.0 4.05-23 S01	9A.3.101 9A.3.102 9A.3.104 9A.3.105 9A.3.107 9A.3.108 9A.3.110 9A.3.111	9A-2 9A-3 9A-5 9A-6 9A-8 9A-9 9A-10 9A-12 9A-13	Supplemental 01 Response to RAI No. 243 Luminant Letter no.TXNB-12030 Date 08/29/2012	Changed or added fire protection design features for UHS basins, ESW pump rooms and transfer pump rooms.	-
RCOL2_09.02.01-9 S01	9.2.1.2.3.1 9.2.5.2.2 9.2.5.5	9.2-4 9.2-15 [9.2-17] 9.2-22 [9.2-25]	Supplemental 01 Response to RAI No. 251 Luminant Letter no.TXNB-12031 Date 9/10/2012	Removed description of level switches located in the UHS cooling tower riser piping.	-

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
RCOL2_09.02.05-18 S01	9.2.5.2.1	9.2-12	Supplemental 01 Response to RAI No. 252 Luminant Letter no.TXNB-12031 Date 09/10/2012	Added description to discuss UHS cooling tower plume discharge.	-
RCOL2_03.03.02-9	9.2.5.2.1 9.2.5.2.2 9.4.5.3.6 9.4.5.4.6	9.2-12 [9.2-13] 9.2-15 [9.2-17] 9.4-7	Response to RAI No. 250 Luminant Letter no.TXNB-12032 Date 9/14/2012	Revised to incorporate RG 1.221.	-
RCOL2_14.0 3.07-38 S01	9.2.1.3 9.2.5.2.2 9.2.10	9.2-5 9.2-15 9.2-24	Supplemental Response to RAI No. 254 Luminant Letter no.TXNB-12034 Date 09/24/2012	Description is added regarding freeze protection of the UHS and ESWS. Table 9.2.5-201 is added for address of CP COL 9.2(19).	-
RCOL2_14.0 3.07-38 S01	Table 9.2.5-201 (New Table)	9.2-35	Supplemental Response to RAI No. 254 Luminant Letter no.TXNB-12034 Date 09/24/2012	New table is introduced to describe electric power division for clarification.	-
RCOL2_14.0 3.07-38 S01	Figure 9.2.5-1R (Sheets 1, 2 of 2)	9.2-38 9.2-39	Supplemental Response to RAI No. 254 Luminant Letter no.TXNB-12034 Date 09/24/2012	The figure is revised to show the newly introduced drain lines for freeze protection.	-

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
RCOL2_14.0 3.07-38 S01	9.4.5.1.1.6 9.4.5.2.6	9.4-3 9.4-4 through 9.4-6	Supplemental Response to RAI No. 254 Luminant Letter no.TXNB-12034 Date 09/24/2012	Supply areas are added to the UHS ESW Pump House Ventilation System and to for freeze protection of the UHSS and ESWS.	-
RCOL2_14.0 3.07-38 S01	Table 9.4-202	9.4-11	Supplemental Response to RAI No. 254 Luminant Letter no.TXNB-12034 Date 09/24/2012	ESW piping room unit heaters and UHS transfer piping room unit heaters are added to the table.	-
RCOL2_14.0 3.07-38 S01	Table 9.4-203 (Sheet 3 of 6)	9.4-14	Supplemental Response to RAI No. 254 Luminant Letter no.TXNB-12034 Date 09/24/2012	ESW piping room unit heaters and UHS transfer piping room unit heaters are added to the table.	-
RCOL2_14.0 3.07-38 S01	Figure 9.4-201	9.4-18	Supplemental Response to RAI No. 254 Luminant Letter no.TXNB-12034 Date 09/24/2012	The figure is revised to add newly introduced dampers to inlets and exhausts of the ventilation system.	-
RCOL2_09.02.05-18 S02	9.2.5.2.1	9.2-12	Supplemental 02 Response to RAI No. 252 Luminant Letter no.TXNB-12036 Date 11/12/2012	Corrected vertical distance value for distance between UHS CT discharge and other intakes; Revised description to indicate pump house intakes on the south side take advantage of the prevailing wind direction.	-

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
RCOL2_09.02.05-20 S02	9.2.5.2.2	9.2-15	Supplemental 02 Response to RAI No. 252 Luminant Letter no.TXNB-12036 Date 11/12/2012	Revised description to indicate that vortex is not a concern during simultaneous pump operation of ESWP and UHS Transfer Pump.	-
RCOL2_14.03.07-38 S02	9.2.1.3	9.2-5 [9.2-6]	Supplemental 02 Response to RAI No. 254 Luminant Letter no.TXNB-12036 Date 11/12/2012	Revised to include description that ESWPT is below grade and therefore freezing is not a concern.	-
RCOL2_09.02.01-9 S02	9.2.1.2.3.1 9.2.5.5 9.2.10	9.2-4 [9.2-4, 9.2-5] 9.2-21 [9.2-24] 9.2-25 [9.2-29]	Supplemental 02 Response to RAI No. 251 Luminant Letter no.TXNB-12041 Date 12/03/2012	Revise the location of the DCD reference location and add the evaluation of why void detection is not required. Change LMN from “STD COL 9.2(24) to STD COL 9.2(32)”. Delete “9.2.5.5” from 9.2(32) Void dection system.	-
RCOL2_12.03-12.04-11 S04	9.2.6.2 (New section)	9.2-22	Supplemental 04 Response to RAI No. 135 Luminant Letter no.TXNB-12042 Date 12/6/2012	Revised to state that the CST for CPNPP Unit 3 is located on west side of Unit 3 as depicted on Figure 12.3-201, while the CPNPP Unit 4 CST is located on the east side of Unit 4, as depicted on Figure 12.3-202.	-

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
RCOL2_09.0 4.05-26	Table 9.4-201 (Sheet 1 of 2)	9.4-9 [9.4-10]	Response to RAI No. 266 Luminant Letter no.TXNB-12043 Date 12/18/2012	MCR/Class 1E Electrical HVAC Equipment Room In-duct Heater Capacity “Non-heating” is added for Train A and D.	-
RCOL2_09.0 4.05-27	9.4.3.2.2	9.4-2	Response to RAI No. 266 Luminant Letter no.TXNB-12043 Date 12/18/2012	The LMN “CP COL 9.4(4)” and description of supplemental heating is added.	-
RCOL2_09.05.04-1	9.5.4.2.2.1	9.5-21	Response to RAI No. 265 Luminant Letter no.TXNB-12043 Date 12/18/2012	Temperature condition of PSFSV is added.	-
RCOL2_09.04.05-23 S02	9.3.3.2.3 (new section)	9.3-2 [9.3-2 through 9.3-3]	Supplemental S02 Response to RAI No. 243 Luminant Letter no.TXNB-13006 Date 03/04/2013	Design description of floor drain system and liquid detection system were added.	-

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
RCOL2_09.04.05-23 S02	9.4.5.1.1.6 9.4.5.2.6 9.4.5.3.6 9.4.7	9.4-3 9.4-4 [9.4-5] 9.4-7 9.4-8 [9.4-9]	Supplemental S02 Response to RAI No. 243 Luminant Letter no.TXNB-13006 Date 03/04/2013	Temperature range was deleted. A sentence describing the Table 9.4-202 was added. Table numbers were revised correspondence with a new table.	-
RCOL2_09.04.05-23 S02	Table 9.4-202 (replaced table) Table 9.4-203[204] (Sheets 1, 5[7] of 6[8])	9.4-11 [9.4-12] 9.4-12, 9.4-16 [9.4-14, 9.4-20]	Supplemental S02 Response to RAI No. 243 Luminant Letter no.TXNB-13006 Date 03/04/2013	New table was added as Table 9.4-202 and table numbers were revised correspondence with this new table.	-
CTS-01509	Table 9.4-201	9.4-9 9.4-10 [9.4-11]	To reflect impacts on heating and cooling capacity due to layout changes.	Heating and cooling capacity and in-duct heater capacity in Table 9.4-201 have been changed.	0
CTS-01517	Figure 9.5.1-202	9.5-148	Design change as described in Luminant ISCP Letter ML12268A413	Reflected new site plan.	0

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01516	9A.3	9A-1	Correction	Changed “Pumping Station” to “Pump House” in first bullet.	0
CTS-01518	9A.3	9A-1	Design change as described in Supplemental Response to RAI No. 254 (ML12334A026) and the ISCP (ML 12268A413).	Added bullets ESW-Piping Room and UHS-Transfer Piping Room.	0
CTS-01518	9A.3	9A-2	Design change as described in Supplemental Response to RAI No. 254 (ML12334A026) and the ISCP (ML 12268A413).	Changed the DCD Subsection to 9A.3.153.	0
CTS-01518	9A.3.101 [9A.3.201]	9A-2	Design change as described in Supplemental Response to RAI No. 254 (ML12334A026) and the ISCP (ML 12268A413).	Changed Section 9A.3.101 to 9A.3.201 and changed title to FA7-201-01.	0

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01516	9A.3.101 [9A.3.201]	9A-2	Correction	Changed “exceed” to “exceeding”	0
CTS-01516	9A.3.101 [9A.3.201]	9A-2	Correction	Added 3.2.1.j.	0
CTS-01518	9A.3.101 [9A.3.201]	9A-2 [9A-3]	Design change as described in Supplemental Response to RAI No. 254 (ML12334A026) and the ISCP (ML 12268A413).	Deleted “The electrical circuits from other safety trains in this area will be protected by a one-hour fire rated wrap.”	0
CTS-01518	9A.3.202 [New]	9A-3 and [9A-4]	Design change as described in Supplemental Response to RAI No. 254 (ML12334A026) and the ISCP (ML 12268A413).	Added new subsection 9A.3.202, FA7-201-02 A-ESW Piping Room	0

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01518	9A.3.102 [9A.3.203]	9A-3 [9A-5]	Design change as described in Supplemental Response to RAI No. 254 (ML12334A026) and the ISCP (ML 12268A413).	Changed Section 9A.3.102 to 9A.3.203 and changed fire area to FA7-202 to fire zone FA7-202-01.	0
CTS-01516	9A.3.102 [9A.3.203]	9A-3 [9A-5]	Correction	Changed “D” to “C or D.”	0
CTS-01516	9A.3.102 [9A.3.203]	9A-3 [9A-5]	Correction	Changed “exceed” to “exceeding”	0
CTS-01516	9A.3.102 [9A.3.203]	9A-3 [9A-5]	Correction	Added 3.2.1.j.	0

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01518	9A.3.204 [New]	9A-4 [9A-6, 9A-7]	Design change as described in Supplemental Response to RAI No. 254 (ML12334A026) and the ISCP (ML 12268A413).	Added new Subsection 9A.3.204, FA7-202-02 A-UHS Transfer Piping Room.	0
CTS-01518	9A.3.103 [9A.3.205]	9A-4 [9A-7]	Design change as described in Supplemental Response to RAI No. 254 (ML12334A026) and the ISCP (ML 12268A413).	Changed section from 9A.3.103 to 9A.3.205 and changed fire area from FA7-203 to fire zone FA7-203-01.	0
CTS-01518	9A.3.104 [9A.3.206]	9A-5 [9A-8]	Design change as described in Supplemental Response to RAI No. 254 (ML12334A026) and the ISCP (ML 12268A413).	Changed section from 9A.3.104 to 9A.3.206 and changed fire area from FA7-204 to fire zone FA7-204-01.	0
CTS-01516	9A.3.104 [9A.3.206]	9A-5 [9A-8]	Correction	Changed “exceed” to “exceeding”	0

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01516	9A.3.104 [9A.3.206]	9A-5 [9A-9]	Correction	Added 3.2.1.j.	0
CTS-01518	9A.3.104 [9A.3.206]	9A-6 [9A-9]	Design change as described in Supplemental Response to RAI No. 254 (ML12334A026) and the ISCP (ML 12268A413).	Deleted "The electrical circuits from other safety trains in this area will be protected by a one-hour fire rated wrap."	0
CTS-01518	9A.3.207 [New]	9A-6 [9A-10, 9A-11]	Design change as described in Supplemental Response to RAI No. 254 (ML12334A026) and the ISCP (ML 12268A413).	Added new Subsection 9A.3.207, FA7-204-02 B-ESW Piping Room.	0
CTS-01518	9A.3.105 [9A.3.208]	9A-6 [9A-11]	Design change as described in Supplemental Response to RAI No. 254 (ML12334A026) and the ISCP (ML 12268A413).	Changed section from 9A.3.105 to 9A.3.208 and changed fire area from FA7-205 to fire zone FA7-205-01.	0

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01516	9A.3.105 [9A.3.208]	9A-6 [9A-11]	Correction	Changed “D” to “C or D.”	0
CTS-01516	9A.3.105 [9A.3.208]	9A-6 [9A-11]	Correction	Changed “exceed” to “exceeding”	0
CTS-01516	9A.3.105 [9A.3.208]	9A-6 [9A-12]	Correction	Added 3.2.1.j.	0
CTS-01518	9A.3.209 [New]	9A-7 [9A-13, 9A-14]	Design change as described in Supplemental Response to RAI No. 254 (ML12334A026) and the ISCP (ML 12268A413).	Added new Subsection 9A.3.209, FA7-205-02 B-UHS Transfer Piping Room.	0

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01518	9A.3.106 [9A.3.210]	9A-7 [9A-14]	Design change as described in Supplemental Response to RAI No. 254 (ML12334A026) and the ISCP (ML 12268A413).	Changed section from 9A.3.106 to 9A.3.210 and changed fire area from FA7-206 to fire zone FA7-206-01.	0
CTS-01518	9A.3.107 [9A.3.211]	9A-8 [9A-15]	Design change as described in Supplemental Response to RAI No. 254 (ML12334A026) and the ISCP (ML 12268A413).	Changed section from 9A.3.107 to 9A.3.211 and changed fire area from FA7-207 to fire zone FA7-207-01.	0
CTS-01516	9A.3.107 [9A.3.211]	9A-8 [9A-15]	Correction	Changed “exceed” to “exceeding”	0
CTS-01516	9A.3.107 [9A.3.211]	9A-9 [9A-15]	Correction	Added 3.2.1.j.	0

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01518	9A.3.107 [9A.3.211]	9A-9 [9A-16]	Design change as described in Supplemental Response to RAI No. 254 (ML12334A026) and the ISCP (ML 12268A413).	Deleted "The electrical circuits from other safety trains in this area will be protected by a one-hour fire rated wrap."	0
CTS-01518	9A.3.212 [New]	9A-9 [9A-16, 9A-17, 9A-18]	Design change as described in Supplemental Response to RAI No. 254 (ML12334A026) and the ISCP (ML 12268A413).	Added new Subsection 9A.3.212, FA7-207-02 C-ESW Piping Room.	0
CTS-01518	9A.3.108 [9A.3.213]	9A-10 [9A-18]	Design change as described in Supplemental Response to RAI No. 254 (ML12334A026) and the ISCP (ML 12268A413).	Changed section from 9A.3.108 to 9A.3.213 and changed fire area from FA7-208 to fire zone FA7-208-01.	0
CTS-01516	9A.3.108 [9A.3.213]	9A-10 [9A-18]	Correction	Changed "A" to "A or B."	0

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01516	9A.3.108 [9A.3.213]	9A-10 [9A-18]	Correction	Changed “exceed” to “exceeding”	0
CTS-01516	9A.3.108 [9A.3.213]	9A-10 [9A-18]	Correction	Added 3.2.1.j.	0
CTS-01518	9A.3.214 [New]	9A-11 [9A-19, 9A-20]	Design change as described in Supplemental Response to RAI No. 254 (ML12334A026) and the ISCP (ML 12268A413).	Added new Subsection 9A.3.214, FA7-208-02 C-UHS Transfer Piping Room.	0
CTS-01518	9A.3.109 [9A.3.215]	9A-11 [9A-20]	Design change as described in Supplemental Response to RAI No. 254 (ML12334A026) and the ISCP (ML 12268A413).	Changed section from 9A.3.109 to 9A.3.215 and changed fire area from FA7-209 to fire zone FA7-209-01.	0

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01518	9A.3.110 [9A.3.216]	9A-12 [9A-21]	Design change as described in Supplemental Response to RAI No. 254 (ML12334A026) and the ISCP (ML 12268A413).	Changed section from 9A.3.110 to 9A.3.216 and changed fire area from FA7-210 to fire zone FA7-210-01.	0
CTS-01516	9A.3.110 [9A.3.216]	9A-12 [9A-21]	Correction	Changed “exceed” to “exceeding”	0
CTS-01516	9A.3.110 [9A.3.216]	9A-12 [9A-22]	Correction	Added 3.2.1.j.	0
CTS-01518	9A.3.110 [9A.3.216]	9A-13 [9A-23]	Design change as described in Supplemental Response to RAI No. 254 (ML12334A026) and the ISCP (ML 12268A413).	Deleted “The electrical circuits from other safety trains in this area will be protected by a one-hour fire rated wrap.”	0

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01518	9A.3.217 [New]	9A-13 [9A-23, 9A-24]	Design change as described in Supplemental Response to RAI No. 254 (ML12334A026) and the ISCP (ML 12268A413).	Added new Subsection 9A.3.217, FA7-210-02 D-ESW Piping Room.	0
CTS-01516	9A.3.111 [9A.3.218]	9A-13 [9A-24]	Correction	Changed section from 9A.3.111 to 9A.3.218 and changed fire area from FA7-211 to fire zone FA7-211-01.	0
CTS-01516	9A.3.111 [9A.3.218]	9A-13 [9A-24]	Correction	Changed “A” to “A or B.”	0
CTS-01516	9A.3.111 [9A.3.218]	9A-13 [9A-24]	Correction	Changed “exceed” to “exceeding”	0

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01516	9A.3.111 [9A.3.218]	9A-13 [9A-25]	Correction	Added 3.2.1.j.	0
CTS-01518	9A.3.219 [New]	9A-14 [9A-26, 9A-27]	Design change as described in Supplemental Response to RAI No. 254 (ML12334A026) and the ISCP (ML 12268A413).	Added new Subsection 9A.3.219, FA7-211-02 D-UHS Transfer Piping Room.	0
CTS-01518	9A.3.112 [9A.3.220]	9A-14 [9A-27]	Design change as described in Supplemental Response to RAI No. 254 (ML12334A026) and the ISCP (ML 12268A413).	Changed section from 9A.3.112 to 9A.3.220 and changed fire area from FA7-212 to fire zone FA7-212-01.	0
CTS-01518	9A.3.113 [9A.3.221]	9A-15 [9A-28]	Design change as described in Supplemental Response to RAI No. 254 (ML12334A026) and the ISCP (ML 12268A413).	Changed subsection 9A.3.113 to 9A.3.221	0

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01518	9A.3.114 [9A.3.222]	9A-17 [9A-29]	Design change as described in Supplemental Response to RAI No. 254 (ML12334A026) and the ISCP (ML 12268A413).	Changed subsection 9A.3.114 to 9A.3.222	0
CTS-01518	Table 9A-201 [Sheet 1,2 of 2]	9A-19 [9A-31, 9A-32]	Design change as described in Supplemental Response to RAI No. 254 (ML12334A026) and the ISCP (ML 12268A413).	Revised table to include new fire zones.	0
CTS-01518	Table 9A-202 (Sheet 1 through 25 of 25 [Sheet 1 through 33 of 33])	9A-20 – 9A-44 [9A-33 through 9A-65]	Design change as described in Supplemental Response to RAI No. 254 (ML12334A026) and the ISCP (ML 12268A413).	Revised summary sheets associated with Fire Areas FA7-201 through 212 to reflect new fire zone information Revised summary sheets for Fire Zones FA7-301-01 through 13 to reflect revised FHA section.	0
CTS-01518	Table 9A-203 [Sheet 1,2 of 2]	9A-45 [9A-66, 9A-67]	Design change as described in Supplemental Response to RAI No. 254 (ML12334A026) and the ISCP (ML 12268A413).	Revised table to include new fire zones.	0

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01519	Figure 9A-201	9A-46 [9A-68]	Design change as described in Luminant ISCP Letter ML12268A413 and Supplemental Responses to RAIs No. 243 (ML12243A456) and No. 254 (ML12334A026)	Figure is revised to reflect: Integration of the north portions of the ESWPT into the south side of the UHSRS. Integration of adjacent UHSRS (C and D) and (A and B) on a single foundation. ESW Pump House layout changes described in responses to RAIs 243 S01 and 254 S03. New fire areas for ESW Piping Room and UHS Transfer Piping Room	0
CTS-01519	Figure 9A-202	9A-47 [9A-69]	Design change as described in Luminant ISCP Letter ML12268A413 and Supplemental Responses to RAIs No. 243 (ML12243A456) and No. 254 (ML12334A026)	Revised roadway north of Transformer Yard.	0

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
MIC-03-09-00013	9.2.5.2.3	9.2-17 9.2-18 [9.2-20 9.2-21]	Consistency with DCD change	Updated heat loads to be consistent with associated DCD changes.	1
CTS-01529	9.2.5.3	9.2-18 [9.2-21]	Editorial correction	Replaced “type” with “types” in section 9.2.5.3.	1
CTS-01532	9.5.2.2.2.2 9.5.2.2.5.1	9.5-19 9.5-20	Address COL item, COL 1.9(6)	Description was added to address BDBEE design enhancement, including satellite telephone system, ENS transfer to satellite telephone system and external communication links list to satellite telephone links.	2
RCOL2_01.05-3 S01	9.5.2.2.2.2 9.5.2.2.5.1	9.5-19 9.5-20	Supplemental Response to RAI No. 261 Luminant Letter no.TXNB-13026 Date 8/1/2013	Description was added to address BDBEE design enhancement, including satellite telephone system, ENS transfer to satellite telephone system and external communication links list to satellite telephone links.	2

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01543	9.2.1.3 9.2.5.2.1 9.2.5.3 Table 9.2.5-3R Figure 9.2.5-1R 9A.3.202(New) 9A.3.207 (New) 9A.3.212 (New) 9A.3.217 (New)	9.2-5 [9.2-6] 9.2-13 [9.2-15] 9.2-19 [9.2-22] 9.2-33 [9.2-37] 9.2-38, 9.2-39 [9.2-43, 9.2-44] 9A-3 [9A-3, 9A-4] 9A-6 [9A-10] 9A-9 [9A-16, 9A-17] 9A-13 [9A-23]	UHSRS layout changes	Revised UHS Basin dimensions consistent with layout changes.	3
CTS-01562	9.1.5.6	9.1-1 [9.1-4, 9.1-5]	Consistency with DCD Rev.4	Last sentence: Replace “the Subsection 9.1.5.6” with “the Subsection 9.1.5.5”. The last paragraph, first sentence: Replace “the spent fuel pool” with “the spent fuel pit”.	4

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01562	9.2.1.2.1 9.2.1.2.3.1	9.2-2 9.2-4 [9.2-5]	Consistency with DCD.	Revised paragraph numbers from "eleventh" to "twelfth" and "twelfth" to "thirteenth" and "eighth" to "tenth."	4
CTS-01562	9.2.1.2.2.5	9.2-4	Editorial	Revised sentence number from "seventh" to "eighth" and added text "in DCD Subsection 9.2.1.2.2.5" Added text "in DCD Subsection 9.2.1.2.2.5."	4
CTS-01562	9.2.5.2.3	9.2-18 [9.2-21]	Editorial	Added the word "capacity" after "cooling water"	4
CTS-01562	9.2.5.2.3 9.2.5.3	9.2-18 [9.2-21] 9.2-19 [9.2-22]	Correction of UHS basin water volume and UHS heat load values to reflect design progress due to layout changes.	Changed the total required cooling water capacity from "8.40" to "8.55" million gallons	4
CTS-01562	9.2.5.2.3	9.2-18 [9.2-21]	Correction of UHS basin water volume and UHS heat load values to reflect design progress due to layout changes.	Changed total required 30 days cooling water capacity with two-train operation during Safe Shutdown with LOOP condition from "8.3" to "8.42" million gallons	4

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01562	9.2.5.2.3	9.2-18 [9.2-21]	Correction of UHS basin water volume and UHS heat load values to reflect design progress due to layout changes.	Changed the peak heat load for a LOCA case with two train operation peak heat load from “160” to “161” million Btu/hr	4
CTS-01562	9.2.5.3	9.2-19 [9.2-22]	Correction of UHS basin water volume and UHS heat load values to reflect design progress due to layout changes.	Changed the total required cooling water capacity for each cooling tower basin from “2.80” to “2.85” million gallons	4
CTS-01562	9.2.5.3	9.2-19 [9.2-22]	Correction of UHS basin water volume and UHS heat load values to reflect design progress due to layout changes.	Changed the basin volume which does not include the water located in the ESWP intake basin below the cooling tower basin from “2.80” to “2.85”	4
CTS-01562	9.2.5.3	9.2-19 [9.2-22]	Correction of UHS basin water volume and UHS heat load values to reflect design progress due to layout changes.	Changed the minimum required amount of water in each basin at the initiation of a LOOP event from “2.80” to “2.85” million gallons per Technical Specification 3.7.9	4
CTS-01562	9.2.6.2 (New)	9.2-22 [9.2-25]	Corrected reference formatting by adding missing LMN	Added LMN CP SUP 9.2 (1)	4

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01562	Table 9.2.1-2R (Sheet 4 of 5)	9.2-30 [9.2-34]	Consistency with basis document 4BS-CP34-080084, Rev. 10	The description regarding Failure Effect on System Safety Function Capability for the ESWP Discharge Strainer Backwash Isolation Valve to UHS basin was revised to state, "Backwash line to the UHS basin can be isolated by closing the isolation valve that is part of the ESWP Discharge Strainer (SST-001A,B,C,D AND SST-002A, B, C, D).	4
CTS-01562	Table 9.2.5-4R (Sheet 1 of 2)	9.2-34 [9.2-38]	Editorial correction	Changed the word "pomp" to "pump" in the Failure Effect on System Safety Function Capacity description for the UHS Transfer Pump	4
CTS-01562	9.4.5.2.3	9.4-3 [9.4-4]	Consistency with DCD	Changed statement to replace the third sentence from "the second paragraph in DCD Subsection 9.4.5.2.3" to " the third paragraph in DCD Subsection 9.4.5.2.3"	4
CTS-01562	9.4.5.2.5	9.4-4	Consistency with DCD	Changed the statement to replace the sentence in DCD Subsection 9.4.5.2.5 from " the third sentence of the second paragraph" to "the	4

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
				second sentence of the fourth paragraph"	
CTS-01562	Table 9.4-201 (Sheet 1 of 2)	9.4-9 [9.4-10]	Changes to Non-Class 1E Electrical Room Air Handling Unit Cooling Coil Capacity due to changes to the heat gain from battery capacity in Response to RAI No. 871 MHI Letter no. UAP-HF-13103 Date 4/25/2013 ADAMS Accession Number: ML13119A168	Changed Non-Class 1E Electrical Room Air Handling Unit Cooling Coil Capacity from "1,310,000" to "1,350,000" Btu/hr	4
CTS-01562	9.5.9	9.5-22	Consistency with other Sections in COLA	Revised to remove Subsection 9.2.1.2.1 and to replace "Subsection" with "Subsections"	4
CTS-01562	Figure 9.5.1-201 (Sheet 2 of 2)	9.5-147	Changed check valve symbol for consistency with those identified in DCD and COLA	Changed the symbol for the check valve upstream from isolation valve leading to the wet pipe sprinkler	4

*Page numbers for the attached marked-up pages may differ from the revision 3 page numbers due to text additions and deletions. When the page numbers for the attached pages do differ, the page number for the attached page is shown in brackets.

9.1.5.4 Inspection and Testing Requirements

RCOL2_09.01.05-1 S01

Add the following at the end of DCD Subsection 9.1.5.4.

The above requirements are part of the plant inspection program for the OHLHS, which is implemented through procedures. In addition to the above inspections, the procedures reflect the manufacturers' recommendations for inspection and NUREG-0612 recommendations.

The overhead heavy load handling equipment inservice inspection procedures address the following as a minimum:

- Identification of components to be examined
- Examination techniques
- Inspection intervals
- Examination categories and requirements
- Evaluation of examination results

The overhead heavy load handling program, including system inspections, is implemented prior to first fuel load.

Add the following paragraph after DCD Subsection ~~9.1.5.6~~9.1.5.5. CTS-01562

9.1.5.6 Load Handling Procedures

Load handling operations for heavy loads that are handled over, could be handled over, or are in the proximity of irradiated fuel or safe shutdown equipment are controlled by written procedures. As a minimum, procedures are used for handling loads with the spent fuel cask bridge and polar cranes, and for those loads listed in Table 3.1-1 of NUREG-0612. The procedures include and address the following elements:

- Specific equipment required to handle the load (special lifting devices, slings, shackles, turnbuckles, clevises, load cells, etc.).
- Qualification and training of crane operators and riggers in accordance with Chapter 2-3.1 of ASME B30.2, "Overhead and Gantry Cranes."
- Requirements for inspection and acceptance criteria prior to load movement.

- The defined safe load path and provisions to provide visual reference to the crane operator and/or signal person of the safe load path envelope. RCOL2_09.01.05-1 S01
- Specific steps and proper sequence to be followed for handling load.
- Precautions, limitations, prerequisites, and/or initial conditions associated with movement of heavy loads.
- Testing, inspection, acceptance criteria and maintenance of OHLHS. These procedures are in accordance with manufacturer recommendations and are consistent with ANSI B30.2 or with other appropriate and applicable ANSI standards.

Safe load paths are defined for movement of heavy loads to minimize the potential for a load drop on irradiated fuel in the reactor vessel, spent fuel ~~pool~~pit or safe shutdown equipment. Paths are defined clearly in procedures and equipment layout drawings. Equipment layout drawings showing the safe load path are used to define safe load paths in load handling procedures. Deviation from defined safe load paths requires a written alternative procedure approved by the plant safety review committee. CTS-01562

9.1.6 Combined License Information

Replace the content of DCD Subsection 9.1.6 with the following.

9.1(1) *Deleted from the DCD.*

9.1(2) *Deleted from the DCD.*

9.1(3) *Deleted from the DCD.*

9.1(4) *Deleted from the DCD.*

9.1(5) *Deleted from the DCD.*

STD COL 9.1(6) ***9.1(6)*** *The establishment of a Heavy Load Handling Program*

This COL item is addressed in Subsection 9.1.5.~~3.~~ RCOL2_09.01.05-1 S01

9.1(7) *Deleted from the DCD.*

9.1(8) *Deleted from the DCD.*

STD COL 9.1(9) ***9.1(9)*** *The establishment of an inspection procedure of spent fuel rack integrity*

This COL item is addressed in Subsection 9.1.2.1.

Chemicals are added to the basin to control corrosion, scaling, and biological growth. The water chemistry is managed through a Chemistry Control Program such as following a standard Langelier Saturation Index. The chemical injection system is described in Subsection 10.4.5.2.2.8.

Blowdown is used to maintain acceptable water chemistry composition. This is accomplished by tapping each essential service water pump (ESWP) discharge header. Additional description about blowdown is discussed in Subsection 9.2.5.2.

The isolation valve in the backwash line to the CWS blowdown main header (EWS-AOV-577) ~~is interlocked to~~ closes upon receipt of an undervoltage signal, ECCS actuation signal, ESW pump stop signal, or low UHS basin level signal. This action isolates the UHS basin blowdown line to the CWS blowdown main header to preclude system inventory drain down, which could result in water hammer at pump restart. RCOL2_14.02-16 S01

STD COL 9.2(31) Replace the ~~eleventh~~twelfth paragraph in DCD Subsection 9.2.1.2.1 with the following. CTS-01562

Layout of the ESW and UHS piping and equipment, and system operating procedures, ensure that the water pressure remains above saturation conditions for all operating modes.

STD COL 9.2(26) Replace the ~~twelfth~~thirteenth paragraph in DCD 9.2.1.2.1 with the following: CTS-01562

Maintenance and test procedures (see Operating and Maintenance Procedures in Subsection 13.5.2.1) are followed to monitor and flush debris accumulated in the system.

9.2.1.2.2 Component Description

STD COL 9.2(6) Replace the sentence in DCD Subsection 9.2.1.2.2 with the following.

Table 9.2.1-1R shows the design parameters of the major components in the system.

9.2.1.2.2.1 ESWPs

CP COL 9.2(6) Replace the second to fourth sentences of the third paragraph in DCD Subsection 9.2.1.2.2.1 with the following:

Total dynamic head (TDH) of the ESWP is 220 feet. Total calculated system head losses including static lift are approximately 190 feet. This provides ample margin. Available net positive suction head (NPSH) with the lowest expected water level (after 30 days of accident mitigation) in the basin is approximately 40 feet.

isolation valve in the backwash line to the basin ~~is interlocked to~~ opens ~~at~~upon receipt of undervoltage signal or ECCS actuation signal to provide lineup to the basin. Also, in the absence of the above signals, the isolation valve in the backwash line to the basin ~~is interlocked to~~ closes when the ESW pump is stopped to preclude the system inventory drain down which can lead to water hammer at pump restart. Table 9.2.1-2R shows the redundancy for above functions. RCOL2_14.02-16 S01 RCOL2_14.02-16 S01

An automatic vent valve is also installed to sweep out air introduced into the piping system by the vacuum breakers that are installed to prevent water hammer. The drainage is discharged as a floor drain of the UHSRS.

9.2.1.2.2.5 Piping

CP COL 9.2(7) Replace the fourth to ~~seventh~~eighth sentences in DCD Subsection 9.2.1.2.2.5 with the following. RCOL2_09.02.01-8 CTS-01562

~~The lining of inner surface for piping, fittings and flanges of ESWS is polyethylene.~~The rest of the ESWS piping, fittings, and flanges are carbon steel internally lined with polyethylene. Periodic visual inspections of the lining will be conducted to detect cracking, peeling, lining separation, abnormal color, or extraneous incrustation. The inspection will utilize the manholes and hand holes, and the pipe end flanges can be removed if necessary. RCOL2_09.02.01-8

9.2.1.2.3.1 Power Operation

STD COL 9.2(32) ~~Replace the thirteenth sentence of the seventh paragraph in DCD Subsection 9.2.1.2.3.1 with the following:~~Replace the sentence starting with "The COL applicant is" in the seventh paragraph in DCD Subsection 9.2.1.2.3.1 and the subsequent conceptual design information regarding voiding with the following: RCOL2_09.02.01-9 S01 RCOL2_09.02.01-9 S02

~~Level switches are installed in the vertical piping before the cooling tower spray header to annunciate if system inventory reduction occurs. The detail of the detector is described in Subsection 9.2.5.5.~~Based on the following considerations, a void detection system is not required in the ESWS/UHS piping because:

- Operational procedures are in place to minimize the potential for water hammer (such as system filling, venting, and keeping most of the ESWS full of water),
- An analysis has been completed for the ESWS for water hammer impact with no adverse effects identified,

- The piping system has been designed to withstand potential water hammer forces, and
- An evaluation of inadvertent water hammer events has been completed and considered in the design.

In addition, the air in the ESWS is vented from the cooling tower spray nozzles and ESW pump outlet MOVs open slowly so that a rapid increase in water level will not occur. RCOL2_09.02.01-9 S02

STD COL 9.2(7) Replace the sixth sentence of the ~~eighth~~tenth paragraph in DCD Subsection 9.2.1.2.3.1 with the following: CTS-01562

The IST program with detailed criteria, including valve leak rates committed to in the implementation milestones, is identified in Table 13.4-201.

9.2.1.3 Safety Evaluation

STD COL 9.2(1) Replace the sixteenth paragraph in DCD Subsection 9.2.1.3 with the following.

Design of the basin provides adequate submergence of the pumps to assure the NPSH for the pumps. The basin is divided into two levels. One is approximately 12 feet lower than the other, and directly above it is installed the ESWP. The ESWP is designed to operate with the lowest expected water level (after 30 days of accident mitigation). The basins have sufficient water inventory to assure adequate cooling and NPSH for 30 days without makeup. This is discussed further in Subsection 9.2.5.2.

Recovery procedures contained in the Operating and Maintenance Procedures (see Subsection 13.5.2.1) are implemented if the UHS approaches low water level.

CP COL 9.2(2) Replace the seventeenth paragraph in DCD Subsection 9.2.1.3 with the following.

Based on the lowest anticipated ambient temperature, the following countermeasures are provided to prevent the ESW from freezing in the basins or piping:

- The basins are located below grade and thus ground temperature prevents water from freezing.
- In the operating trains, water is continuously circulated which helps to prevent freezing. Ultimate heat sink (UHS) transfer pumps can be used to

Based on the above analyses, the governing case for the maximum required 30 days cooling water capacity is two-train operation during ~~Safe Shutdown with LOOP~~LOCA condition, with a total required cooling water capacity of approximately 8.~~40~~55 million gallons. The total required 30 days cooling water capacity with two-train operation during ~~LOCA~~Safe Shutdown with LOOP condition is approximately ~~8.230~~8.42 million gallons. MIC-03-09-00013 CTS-01562

The safe shutdown conditions with LOOP for two-train operation, requires a peak heat load of 196 million Btu/hr to be dissipated. The LOCA case with two train operation peak heat load is ~~158160~~161 million Btu/hr. Therefore safe shutdown with two train operation peak heat loads are used for cooling tower design. MIC-03-09-00013 CTS-01562

9.2.5.3 Safety Evaluation

CP COL 9.2(22) Replace DCD Subsection 9.2.5.3 with the following.

The results of the UHS capability and safety evaluation are discussed in detail in Subsection 9.2.5.2.3 and in this Subsection. The UHS is capable of rejecting the heat under limiting conditions as discussed in Subsection 9.2.5.2.3.

The UHS is arranged to support separation of the four divisions of ESWS.

System functional capability is maintained assuming one division is unavailable due to on-line maintenance during a design basis accident with a single active failure, with or without a LOOP.

The failure modes and effects analysis for the UHS is included in Table 9.2.5-4R and demonstrates that the UHS satisfies the single failure criteria.

The safety-related SSCs of the UHS and the ESWS are classified as seismic Category I. The site-specific safety-related components are identified in FSAR Table 3.2-201. The non-seismic (NS) SSCs are segregated from the seismic Category I SSCs. Structural failure of the UHS non-safety related SSCs will not adversely impact the seismic category I SSCs. These non-safety SSCs are classified as non-seismic.

Leakage cracks and other types of pipe rupture are not postulated in the safety-related UHS piping because the UHS is a moderate energy fluid system and the piping is designed to comply with BTP 3-4 B(iii)(1)(c) and C as stated in DCD Subsection 3.6.2.1.2.2 and 3.6.2.1.3. RCOL2_09.02.05-25 CTS-01529

The ~~basin is~~UHS basins, cooling towers, fans, motors, and associated equipment are designed to withstand the effect of natural phenomena, such as earthquakes, tornadoes, hurricanes, and floods taken individually, without loss of capability to perform its safety function. RCOL2_14.03.07-38

The ~~basin~~basis for the structural adequacy of the UHSRS is provided in FSAR Sections 3.3, 3.4, 3.5, 3.7, and 3.8. RCOL2_14.03.07-38

Site-specific UHS design features to address limiting hydrology-related events are addressed in Subsection 2.4.8, 2.4.11, and 2.4.14.

The combined volume of water in the three basins is sufficient to provide at least 30 days required cooling capacity.

The total required 30 days cooling water capacity is approximately 8.~~40~~55 million gallons, or approximately 2.85~~0~~ million gallons per cooling tower (CT) basin. This is the minimum volume required in each basin to satisfy the thirty day cooling water supply criteria of RG 1.27. Each basin dimension, not including any column or wall sections, is 12~~0~~1 feet x ~~120~~119 feet. Normal water level is maintained at 31 feet above the basin floor. A water level decrease to 30 feet above the basin floor is alarmed. Allowing 1 foot for sedimentation accumulation at the floor, with a water depth of 29 feet, a usable water volume of approximately 3.12 million gallons is available for each basin before the operator is alerted of abnormal conditions. The CT basin volume of 2.85~~0~~ million gallons does not include the water volume located in the ESWP intake basin below the CT basin. The ESWP pump intake basin water level maintains adequate pump NPSH under design basis conditions. CTS-01562 CTS-01543 CTS-01562

During normal power operation, the UHS basin water temperature is expected to be below 93° F under the worst-case ambient condition (i.e. wet bulb temperature of 83° F based on the 0% annual exceedance value). At the initiation of the LOOP event, each basin contains approximately 3.12 million gallons of water (minimum required is 2.85~~0~~ million gallons per Technical Specification 3.7.9). The heat load peaks (196 million Btu/hr/train) four hours into the accident and then decreases continuously. The heat load is approximately 81 million Btu/hr/train at 24 hours into the accident. Cooling tower water discharge at 95° F and at a flow rate of 12,000 gpm mixing with the large quantity of basin water increases the basin water temperature (initially below 93° F). The basin water temperature increases until an equilibrium is reached. However, since the cooling tower is designed for 95° F discharge water at a peak heat load of 196 million Btu/hr, the basin water temperature will not exceed 95° F. LOCA peak heat loads are less than the safe shutdown peak heat loads. Thus, the safe shutdown analysis bounds the LOCA case. CTS-01562

During accident conditions, including LOCA and LOOP, makeup to the basin is presumed lost. During such conditions, the UHS transfer pump operates to permit the use of three of the four basin water volumes. The power supply for each transfer pump is from a different division than the ESWP and cooling tower in that basin. Therefore, loss of one electrical train does not compromise the ability to satisfy the short-term accident requirements.

A description and provision to prevent freezing of the ESWS and the UHS is provided in Subsection 9.2.1.

9.2.5.4 Inspection and Testing Requirements

CP COL 9.2(23)
CP COL 9.2(30)
Replace the content of DCD Subsection 9.2.5.4 with the following. RCOL2_09.02.05-26

Safety related ~~T~~temperature elements are provided in each basin and temperatures are indicated in the MCR. RCOL2_09.02.05-22

Non safety-related ~~L~~local flow rate and pressure indicators located in each UHS transfer pump discharge header are used for pump performance testing. RCOL2_09.02.05-22

The cooling tower fan is equipped with non safety-related vibration sensors that alarm in the control room in the event of high vibration. RCOL2_09.02.05-22

~~Non safety-related Llevel switches are installed in the vertical piping upstream of the cooling tower spray header to annunciate if system inventory reduction occurs. The factors considered for detector position are the allowable leakage rate for the ESW pump discharge check valve and motor-operated butterfly valve, allowable voiding volume and maintenance durations. These level switches are used to allow the good operating practice of not manually starting the ESW pumps with low level in the header. rather than perform accident mitigation. Thus, the safety classification of these level switches is non safety-related and power is supplied by non-Class 1E power source.~~ RCOL2_09.02.05-22 RCOL2_09.02.01-9 RCOL2_09.02.01-9 S01

CP SUP 9.2 (1)

9.2.6.2 System Description

RCOL2_12.03-12.04-11 S04 CTS-01562

Replace the second paragraph in DCD Subsection 9.2.6.2 with the following.

The condensate storage and transfer system consists of one CST for each unit. The CST for CPNPP Unit 3 is located on the west side of CPNPP Unit 3. CPNPP Unit 4 CST is located on the east side of CPNPP Unit 4. Figures 12.3-201 and 12.3-202 depict this layout. Each CST has two 100% capacity condensate transfer pumps, and associated valves, piping, and instrumentation.

9.2.6.2.4 Condensate Storage Tank

Replace the last sentence of the first paragraph in DCD Subsection 9.2.6.2.4 with the following.

After analysis for level of contamination, the content inside the dike area can be trucked to Waste Management Pond C for disposal; or to the LWMS for treatment and release.

9.2.7.2.1 Essential Chilled Water System

STD COL 9.2(27) Replace the thirteenth paragraph in DCD Subsection 9.2.7.2.1 with the following.

The operating and maintenance procedures regarding water hammer are included in system operating procedures in Subsection 13.5.2.1. A milestone schedule for implementation of the procedures is also included in Subsection 13.5.2.1.

Table 9.2.1-2R (Sheet 4 of 5)

Essential Service Water System Failure Modes and Effects Analysis

Description of Component	Safety Function	Plant Operating Mode	Failure Mode(s)	Method of Failure Detection	Failure Effect on System Safety Function Capability	General Remarks
		B, Accident, safe shutdown – loss of offsite power	B, Fails to open on remote manual demand	B, Position indication in MCR	B, None Same as A	
	Isolates backwash flow to prevent drain down which leads to water hammer at pump restart	A, Accident, safe shutdown – loss of offsite power	A, Fails to close on demand	A, Position indication in MCR	A, None Backwash ~~flow can be isolated by closing ESWP Discharge Strainer Backwash Isolation Valve at pump stop signal.~~line to the UHS basin can be isolated by closing isolation valve that is a part of the ESWP Discharge Strainer (SST-001A, B, C, D and SST-002A, B, C, D) ~~B, None~~ ~~Same as A~~	CTS-01562 CTS-01562
ESWS Blowdown Control Valve (EWS-HCV-010, 011, 012, 013), fail close air operated valve	Closes to isolate blowdown	All	Fails to close upon command	Position indication in MCR	None. Blowdown can be isolated by closing the manual valves (VLV-541A,B,C,D, VLV-543A,B,C,D) Effect of uncontrolled blowdown for 30 minutes on basin inventory is insignificant.	
ESWS Blowdown Main Header Isolation Valve to CWS blowdown main header (EWS AOV-577)	Isolates the backwash line to CWS blowdown main header to keep UHS basin inventory required for cooling the unit for a minimum of 30 days without makeup water	A, Accident, safe shutdown – loss of offsite power	A, Fails to close on demand	A, Position indication in MCR	A, None Backwash line to CWS blowdown main header can be isolated by closing ESWP Discharge Strainer Backwash Isolation Valve to ESWS blowdown main header (EWS-AOV-576A, B, C, D).	

CP COL 9.2(22)

Table 9.2.5-4R (Sheet 1 of 2)

Ultimate Heat Sink System Failure Modes and Effects Analysis

Description of Component	Safety Function	Plant Operating Mode	Failure Mode(s)	Method of failure Detection	Failure Effect on System Safety Function Capability	General Remarks
UHS Cooling Tower Fan (UHS-MFN-001A, B, C, D and UHS-MFN-002A, B, C, D)	Circulates ambient air through cooling tower to cool ESW	All	Fails to start upon command	Fan status indication light in MCR	None, Remaining three 50 percent capacity cooling towers are available. Minimum two towers are required for safe shutdown.	One Train out due to maintenance does not affect safety function, because minimum of two cooling towers are required.
			Trips for any reason	Fan status indication light in MCR	None, Same as the failure mode “Fails to start upon command”.	
UHS Transfer Pump (UHS-MPP-001A, B, C, D)	Transfers 33-1/3 percent of required 30 days cooling water from inoperable basin to two (2) operating basins	Accident, Safe shutdown, Cooldown – loss of offsite power	Fails to start upon command	Pump status light indication in MCR	None, Even if the single failure is assumed to the transfer p~~o~~ump, the cooling tower located at the same basin as the inoperable transfer pump can use own basin water. It is not necessary to transfer this basin water to other basin.	
			Trips for any reason	Pump status light indication in MCR	None, Even if the single failure is assumed to the transfer pump, the cooling tower located at the same basin as the inoperable transfer pump can use its own basin water. It is not necessary to transfer this basin water to other basin.	

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RCOL2_09.02.05-22

9.4.5.2.3 Safeguard Component Area HVAC System

CP COL 9.4(4) Replace the third sentence of the ~~second~~third paragraph in DCD Subsection 9.4.5.2.3 with the following. CTS-01562

The capacity of heating coils that are affected by site specific conditions is shown in Table 9.4-201.

9.4.5.2.4 Emergency Feedwater Pump Area HVAC System

STD COL 9.4(4) Replace the fourth sentence of the second paragraph in DCD Subsection 9.4.5.2.4 with the following.

The capacity of heating coils that are affected by site specific conditions is shown in Table 9.4-201.

9.4.5.2.5 Safety Related Component Area HVAC System

CP COL 9.4(4) Replace the ~~third~~second sentence of the ~~second~~fourth paragraph in DCD Subsection 9.4.5.2.5 with the following. CTS-01562

The capacity of heating coils that are affected by site specific conditions is shown in Table 9.4-201.

CP COL 9.4(6) Add the following new subsection after DCD Subsection 9.4.5.2.5.

9.4.5.2.6 UHS ESW Pump House Ventilation System

Each of the four independent UHS structures consists of a UHS ESW pump house and a water basin with a cooling tower above it. The UHS ESW pump house contains two separate rooms: the ESW pump room and the UHS transfer pump room. Each pump room has an independent ventilation system and each pump room is in a different fire area separated by three-hour fire barriers.

The ESW pump room ventilation has an exhaust fan for cooling and two unit heaters for heating. The UHS transfer pump room has an exhaust fan and one unit heater. In addition, the ESW and UHS transfer piping rooms each have one RCOL2_14.03.07-38 S01

CP COL 9.4(4)

Table 9.4-201 (Sheet 1 of 2)

Equipment Design Data

Main Control Room Air Handling Unit		
Heating Coil Capacity	40 kW	
Auxiliary Building Air Handling Unit		
Cooling Coil Capacity	~~9,200,000~~10,400,000 Btu/hr	CTS-01509
Heating Coil Capacity	~~4,750,000~~5,380,000 Btu/hr (Steam)	
Non-Class 1E Electrical Room Air Handling Unit		
Cooling Coil Capacity	~~1,330,000~~1,3~~1~~50,000 Btu/hr	CTS-01509 CTS-01562
Heating Coil Capacity	Non-heating	
Main Steam / Feedwater Piping Area Air Handling Unit		
Cooling Coil Capacity	450,000 Btu/hr	
Heating Coil Capacity	9 kW	
Technical Support Center Air Handling Unit		
Cooling Coil Capacity	~~550,000~~560,000 Btu/hr	CTS-01509
Heating Coil Capacity	30 kW	
Class 1E Electrical Room Air Handling Unit		
Heating Coil Capacity	~~45~~65 kW - Train A, B ~~65~~85 kW - Train C, D	CTS-01509
Class 1E I&C Room In-duct Heater Capacity	~~18~~20.1 kW - Train A, D ~~16.3~~16.6 kW - Train B, C	
MCR/Class 1E Electrical HVAC Equipment Room In-duct Heater Capacity	2.2 kW - Train ~~B~~A, ~~C~~D Non-heating - Train ~~A~~B, ~~D~~C	RCOL2_09.04.05-26
Remote Shutdown Console Room In-duct Heater Capacity	~~10.9~~9.9 kW	CTS-01509
Class 1E Battery Room In-duct Heater Capacity	~~3.2~~3.4 kW - Train A, B, C 3.7 kW - Train D	
Safeguard Component Area Air Handling Unit		
Heating Coil Capacity	27 kW	
Emergency Feedwater Pump (M/D) Area Air Handling Unit		
Heating Coil Capacity	~~2~~3 kW	CTS-01509

qualified to withstand the environmental conditions is installed in the areas. Additionally, due to the minimum expected temperature within the PSFSV and the fuel pipe/access tunnel, the temperature of the fuel oil is not expected to drop to the fuel oil cloud point. Therefore, unit heaters are not needed to maintain fuel oil temperature within specification. Within each concrete pipe chase is a 3-hour fire rated wall that separates each PS/B from the associated PSFSV. The door and penetrations through each wall are all 3-hour fire rated. One side of each concrete pipe chase is part of a PS/B, which is a normally heated building. RCOL2_09.05.04-1

9.5.4.3 Safety Evaluation

CP COL 9.5(11)

Replace the second sentence of the seventh paragraph in DCD Subsection 9.5.4.3 with the following.

Fuel oil is normally brought in by tank truck for recharging the storage tank. Additionally, if circumstances require, railroad tank cars can be brought in on the site railroad spur. The CPNPP Units 3 and 4 are located approximately 90 miles southwest of the Dallas - Ft. Worth area. Dallas - Ft. Worth is a major commercial area which has distributors of diesel fuel that represent the majority of the major oil companies. The cities, such as Houston, Beaumont etc, within 300 miles from site are capable of supplying diesel fuel oil within seven days.

9.5.9 Combined License Information

Replace the content of DCD Subsection 9.5.9 with the following.

CP COL 9.5(1)
STD COL 9.5(1)

9.5(1) *Fire protection program, fire fighting procedures, and quality assurance*

This *COL item is addressed in Subsections 9.5.1, 9.5.1.3, 9.5.1.6, Table 9.5.1-1R and Table 9.5.1-2R.*

CP COL 9.5(2)
STD COL 9.5(2)

9.5(2) *Site specific fire protection aspects*

This COL item is addressed in Subsections ~~9.2.1.2.1,~~ 9.5.1.2.1, 9.5.1.2.2, 9.5.1.2.3, 9.5.1.2.4, Table 9.5.1-1R, Table 9.5.1-2R, Figure 9.5.1-201, Figure 9.5.1-202 and Appendix 9A. CTS-01562

CP COL 9.5(3)
STD COL 9.5(3)

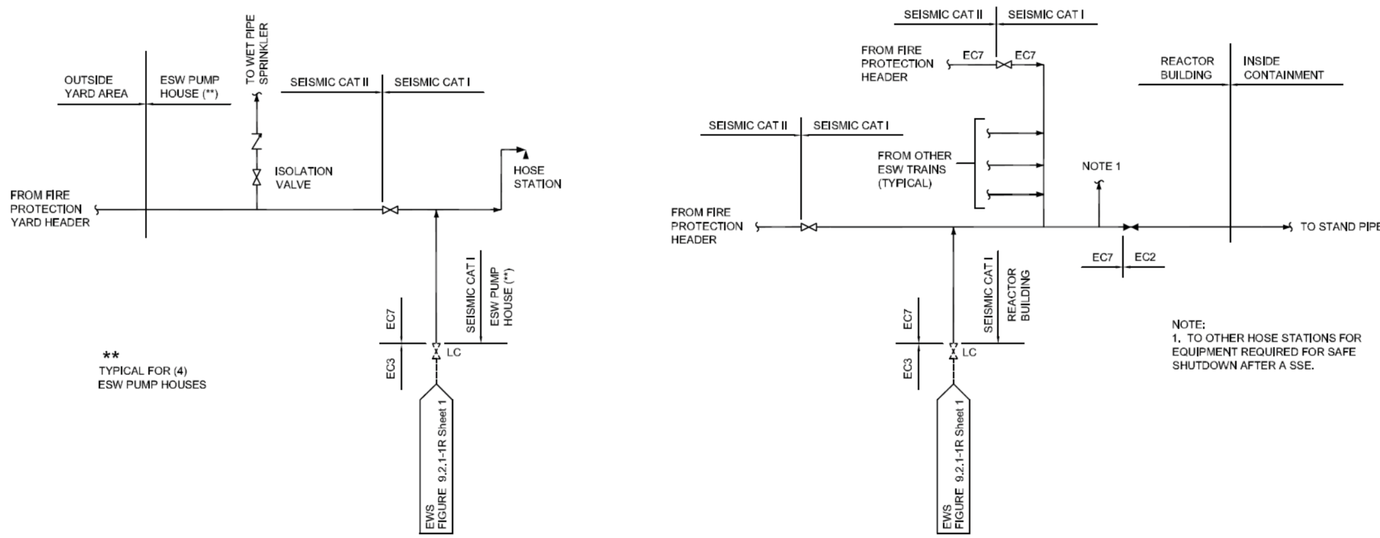
9.5(3) *Apparatus for plant personnel and fire brigades*

This COL item is addressed in Subsection 9.5.1.6.1.8 and Table 9.5.1-2R.

CP COL 9.5(4)
STD COL 9.5(4)

9.5(4) *Communication system interfaces external to the plant (offsite locations)*

CTS-01562



CP COL 9.5(2)

Figure 9.5.1-201 Fire Protection Water Supply System (Sheet 2 of 2)

Chapter 10

Chapter 10 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
RCOL2_12.03-12.04-11 S04	10.4.8.2.1	10.4-7 through 10.4-8	Supplemental 04 Response to RAI No. 135 Luminant Letter no. TXNB-12042 Date 12/6/2012	Revised to refer to Figures 12.3-201 and 12.3-202	-
CTS-01567	10.4.8.2.1	10.4-6	Consistency with DCD Rev.4	Added the description about radioactive waste safety classification.	4
CTS-01567	10.4.8.2.1	10.4-9	Consistency with DCD Rev.4	Revise the paragraph number for replacement of the DCD description.	4
CTS-01567	Table 10.4.8-1R	10.4-15 through 10.4-17	Consistency with DCD Rev.4	Revised the title of Table 10.4.8-2R Changed the words “Design” to “Operating ” for operating values.	4

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01567	Table 10.4.8-2R (New)	10.4-17 [10.4-18]	Consistency with DCD Rev.4	Added Table 10.4.8-2R	4

*Page numbers for the attached marked-up pages may differ from the revision 3 page numbers due to text additions and deletions. When the page numbers for the attached pages do differ, the page number for the attached page is shown in brackets.

10.4.7.7 Water Hammer Prevention

STD COL 10.4(6) Replace the first sentence of 6th paragraph in DCD Subsection 10.4.7.7 with the following.

The operating and maintenance procedures regarding water hammer are included in system operating procedures in Subsection 13.5.2.1. A milestone schedule for implementation of the procedures is also included in Subsection 13.5.2.1.

10.4.8.1.2 Non-safety Power Generation Design Bases

CP COL 10.4(2) Add the following text before the first paragraph in DCD Subsection 10.4.8.1.2.

Throughout this subsection 10.4.8, “waste water system (WWS)" described in DCD 10.4.8 is replaced with "existing waste water management Pond C".

CP COL 10.4(2) Add the following text after the last bullet in DCD Subsection 10.4.8.1.2.

- Discharge secondary side water (after cooling) to existing waste water management Pond C or LWMS during plant start up and abnormal chemistry conditions.
- Monitor the concentration of radioactive material in the cooled blowdown water with startup SG blowdown heat exchanger downstream radiation monitor downstream of startup blowdown heat exchanger.

10.4.8.2.1 General Description

STD COL 10.4(2) Replace the first and second paragraph in DCD Subsection 10.4.8.2.1 with the following.

The steam generator blowdown system (SGBDS) flow diagrams are shown in Figures 10.4.8-1R, 10.4.8-2R, and 10.4.8-201. Classification of equipment and components in the SGBDS is provided in Subsection 3.2. Table 10.4.8-2R describes the radioactive waste safety classification in accordance with RG 1.143 (Reference 10.4-21) for SGBD components. This classification is determined by comparing the radionuclide inventory of each component with A1 and A2 values tabulated in 10 CFR 71, Appendix A (Reference 10.4-22). CTS-01567

The SGBDS equipment and piping are located in the containment, the reactor building, the auxiliary building, the turbine building(T/B), and outdoors.

During normal operation, blowdown rate is approximately 0.5 to 1 % of MSR at rated power. At the 1% of MSR at rated power blowdown rate, both cooling trains are used.

The startup SGBDS is housed in a separate structure located outside the T/B consisting of a concrete foundation and pre-fabricated walls around the startup SGBD equipment. The surface of the startup SGBD housing foundation is slightly sloped to facilitate drainage to a pit with leak detection capabilities and to avoid unintended release to the environment. The concrete foundation, the walls, and the pit are coated with epoxy to facilitate decontamination. Leakage collected in the drainage pit is pumped back to the T/B sumps for collection and analysis. The T/B sump contents are pumped to the LWMS if a significant level of radioactive contamination is present.

STD COL 10.4(2) Add the following text after last bullet of the ~~seventeenth~~sixteenth paragraph in DCD Subsection 10.4.8.2.1. CTS-01567

- High radiation signal from startup SG blowdown water radiation monitor
- High water level in the startup SG blowdown flash tank
- High pressure in the startup SG blowdown flash tank

10.4.8.2.2.4 Steam Generator Drain

CP COL 10.4(5) Replace DCD Subsection 10.4.8.2.2.4 with the following.

Pressurized nitrogen is used to send secondary side water in the steam generators under pressure to the existing waste water management Pond C or the condenser. An approximate 20 psig pressure is maintained. This pressure facilitates draining steam generators without using a pump. If the SG drain temperature exceeds the operating temperature limit of the existing waste water management Pond C prior to discharging to this Pond C, the SG drain is cooled in the Startup SG blowdown Heat Exchanger.

10.4.8.2.3 Component Description

STD COL 10.4(2) Replace the first sentence of first paragraph in DCD Subsection 10.4.8.2.3 with the following.

Table 10.4.8-1R (sheet 1 of 3)

Steam Generator Blowdown System Major Component Design and Operating Parameters

CTS-01567

SG blowdown flash tank			
Type	Vertical cylindrical		
Number of tanks	1		
Capacity (ft^3)	370		
~~Design~~Operating flow rate (lb/hr)	202,000 (1% of MSR at rated power)		CTS-01567
Design pressure (psig)	300		
Design temperature (°F)	410		
Materials of construction	Stainless steel		
SG blowdown regenerative heat exchangers (per heat exchanger)			
Type	Shell and tube		
Number of exchangers	2		
~~Design~~Operating heat duty (Btu/hr)	17.4×10^6		CTS-01567
Operating conditions	Tube side	Shell side	
Fluid	SG blowdown water	Condensate	
Operating temperature - In (°F)	375	129	
- Out (°F)	158	365	
~~Design~~Operating flow rate (lb/hr)	78.4×10^3	72.7×10^3	CTS-01567
Design pressure (psig)	300	560	
Design temperature (°F)	410	410	
Materials of construction	Stainless steel	Carbon steel	
SG blowdown non-regenerative coolers (per cooler)			
Type	Shell and Tube		
Number of coolers	2		
~~Design~~Operating heat duty (Btu/hr)	3.52×10^6		CTS-01567
Operating conditions	Tube side	Shell side	
Fluid	SG blowdown Water	TCS	
Operating temperature - In (°F)	158	100	
- Out (°F)	113	109	
~~Design~~Operating flow rate (lb/hr)	78.4×10^3	392×10^3	CTS-01567
Design pressure (psig)	300	200	
Design temperature (°F)	200	200	
Materials of construction	Stainless steel	Carbon steel	
SG blowdown demineralizers			
Number of demineralizers	4 (two cation bed and two mixed bed)		
Resin amount (ft^3)	230		
~~Design~~Operating flow rate (gpm)	316		CTS-01567
Design pressure (psig)	300		
Design temperature (°F)	200		
Materials of construction	Stainless steel		

Table 10.4.8-1R (sheet 2 of 3)

Steam Generator Blowdown System Major Component Design and Operating Parameters CTS-01567

SG blowdown sample coolers		
Type	Double tube	
Number of coolers	4	
~~Design~~Operating heat duty (Btu/hr)	$209x10^3$	CTS-01567
Operating conditions	Tube side	Shell side
Fluid	SG blowdown water	CCW
Operating temperature		
- In (°F)	557	100
- Out (°F)	113	128
~~Design~~Operating flow rate (lb/hr)	440	7,500 CTS-01567
Design pressure (psig)	1185	200
Design temperature (°F)	568	200
Materials of construction	Stainless steel	Carbon steel
SG blowdown demineralizers inlet filters		
Type	Vertical cylindrical, cartridge	
Number of filters	2	
Operating flow rate (gpm)	316	
Operating temperature (°F)	113	
Design pressure (psig)	300	
Design temperature (°F)	200	
0.8 micron particles retention (%)	98	
Material of construction Filter	Polyproplyene	
Body	Stainless steel	
SG blowdown isolation valves		
Number of valves	8	
Type	Air-operated globe	
Nominal valve size (inch)	4	
Design pressure (psig)	1,185	
Design temperature (°F)	568	
Material of construction Body	Stainless steel	
Construction Code First valve	ASME Section III, Class 2 Seismic category I	
Second valve	ASME Section III, Class 3 Seismic category I	

Table 10.4.8-1R (sheet 3 of 3)

Steam Generator Blowdown System Major Component Design and Operating Parameters CTS-01567

	SG blowdown sample line containment isolation valves		
	Number of valves	4	
	Type	Air-operated globe	
	Nominal valve size (inch)	3/4	
	Design pressure (psig)	1,185	
	Design temperature (°F)	568	
	Material of construction		
	Body	Stainless steel	
	Construction Code	ASME Section III, Class 2 Seismic category I	
CP COL 10.4(2)	**Startup SG blowdown flash tank**		
	Type	Vertical cylindrical	
	Number of tanks	1	
	Capacity (ft^3)	1100	
	~~Design~~ Operating flow rate (lb/hr)	606,000 (3% of MSR at rated power)	CTS-01567
	Design pressure (psig)	200	
	Design temperature (°F)	410	
	Materials of construction	Stainless steel	
CP COL 10.4(2)	**Startup SG blowdown heat exchanger**		
	Type	Shell and tube	
	Number of exchangers	1	
	Startup condition	Tube side	Shell side
	~~Design~~Operating heat duty (Btu/hr)	$71.9x10^6$	CTS-01567
	Fluid	SG blowdown water	Circulating water
	Operating temperature - In (°F)	307	89
	- Out (°F)	140	170
	~~Design~~Operating flow rate (lb/hr)	$431x10^3$	$888x10^3$ CTS-01567
	Abnormal water chemistry conditions	Tube side	Shell side
	~~Design~~Operating heat duty (Btu/hr)	$112x10^6$	CTS-01567
	Fluid	SG blowdown water	Circulating water
	Operating temperature - In (°F)	378	89
	- Out (°F)	140	150
	~~Design~~ Operating flow rate (lb/hr)	$471x10^3$	$184x10^4$ CTS-01567
	Design pressure (psig)	200	150
	Design temperature (°F)	410	200
	Materials of construction	Stainless steel	Carbon steel

CTS-01567

Table 10.4.8-2R

Component Classification

Component	Safety Classification
SG Blowdown Flash Tank	RW IIc
SG Blowdown Regenerative Heat Exchanger	RW IIc
SG Blowdown Non-regenerative Cooler	RW IIc
SG Blowdown Demineralizer	RW IIc
SG Blowdown Demineralizer Inlet Filter	RW IIc
Startup SG blowdown flash tank	RW IIc
Startup SG blowdown heat exchanger	RW IIc

Chapter 11

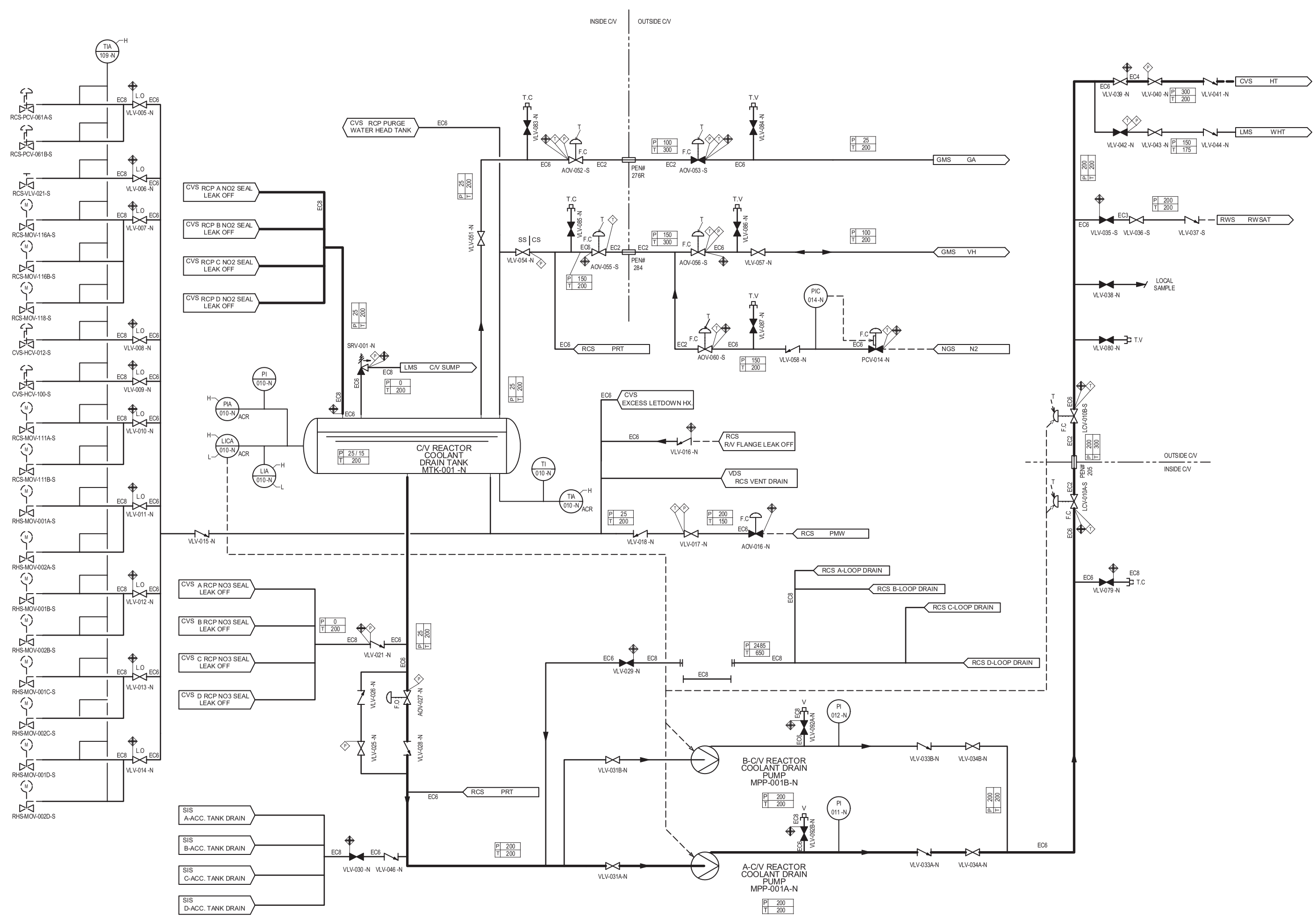
Chapter 11 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
RCOL2_03.03.02-9	11.4.2.3	11.4-3	Response to RAI No. 250 Luminant Letter no.TXNB-12032 Date 9/14/2012	Revised to incorporate RG 1.221.	-
RCOL2_12.03-12.04-11 S04	11.2.3.4	11.2-8	Supplemental 04 Response to RAI No. 135 Luminant Letter no.TXNB-12042 Date 12/6/2012	Clarified the description of the piping run for Unit 3 and Unit 4.	-
CTS-01569	Figure 11.2-201 (Sheet 1 of 10	11.2-24	For consistency with DCD Rev.4 and editorial correction.	Changed the Equipment Class based on the response to DCD RAI 841-6055 Rev.3. Made editorial corrections on the instrument, valve, Equipment Class and design pressure.	4
CTS-01569	Figure 11.2-201 (Sheet 2 of 10	11.2-25	For consistency with DCD Rev.4 and editorial correction.	Changed the Equipment Class based on the response to DCD RAI 667-5235 Rev.0. Made editorial corrections on the pressure boundary code.	4
CTS-01569	Figure 11.2-201 (Sheet 3 of 10	11.2-26	For consistency with DCD Rev.4 and editorial correction.	Changed the description of Non-radioactive drain sump to reflect the DCD changes. Made editorial corrections on the piping line.	4

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01569	Figure 11.2-201 (Sheet 9 of 10	11.2-32	Editorial correction.	Made editorial corrections on the equipment numbers and codes.	4
CTS-01569	Table 11.3-8R (Sheet 2 of 2)	11.3-6	Editorial correction.	Changed the sheet number of a DCD Table.	4
CTS-01569	Figure 11.4-201	11.4-8	Editorial correction.	Made editorial corrections on the instruments.	4

*Page numbers for the attached marked-up pages may differ from the revision 3 page numbers due to text additions and deletions. When the page numbers for the attached pages do differ, the page number for the attached page is shown in brackets.

CTS-01569



CP COL 11.2(6)

Figure 11.2-201 Liquid Waste Management System Piping and Instrumentation Diagram (Sheet 1 of 10)

CTS-01569

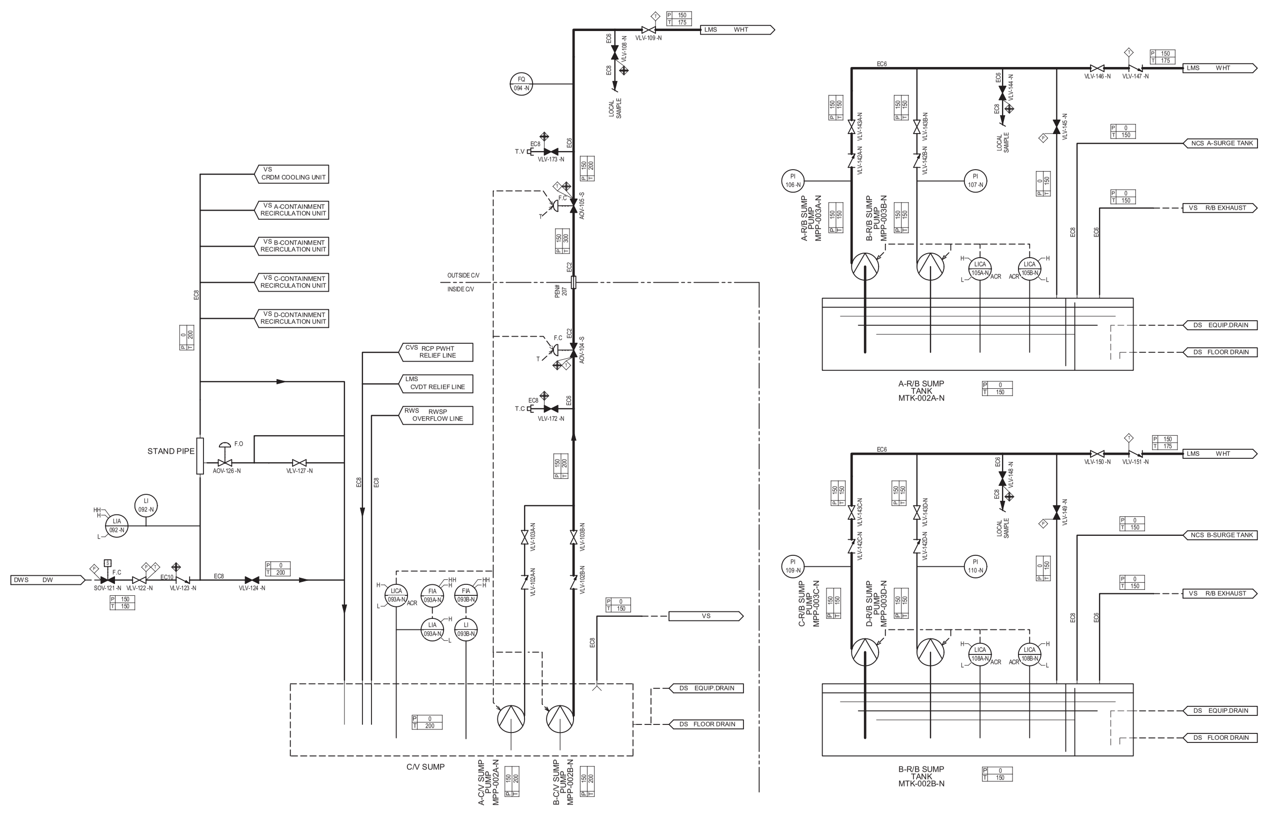
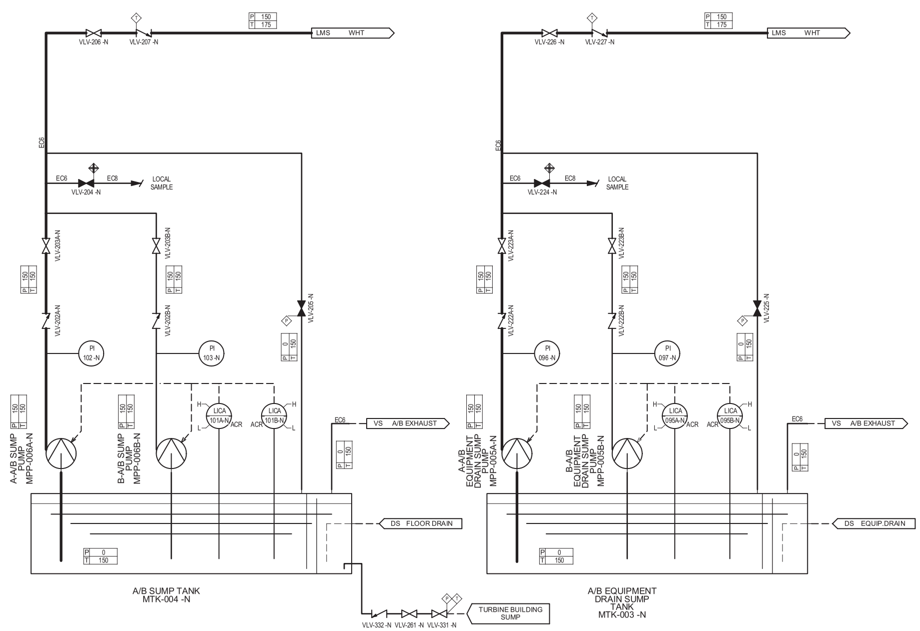


Figure 11.2-201 Liquid Waste Management System Piping and Instrumentation Diagram (Sheet 2 of 10)

CP COL 11.2(6)

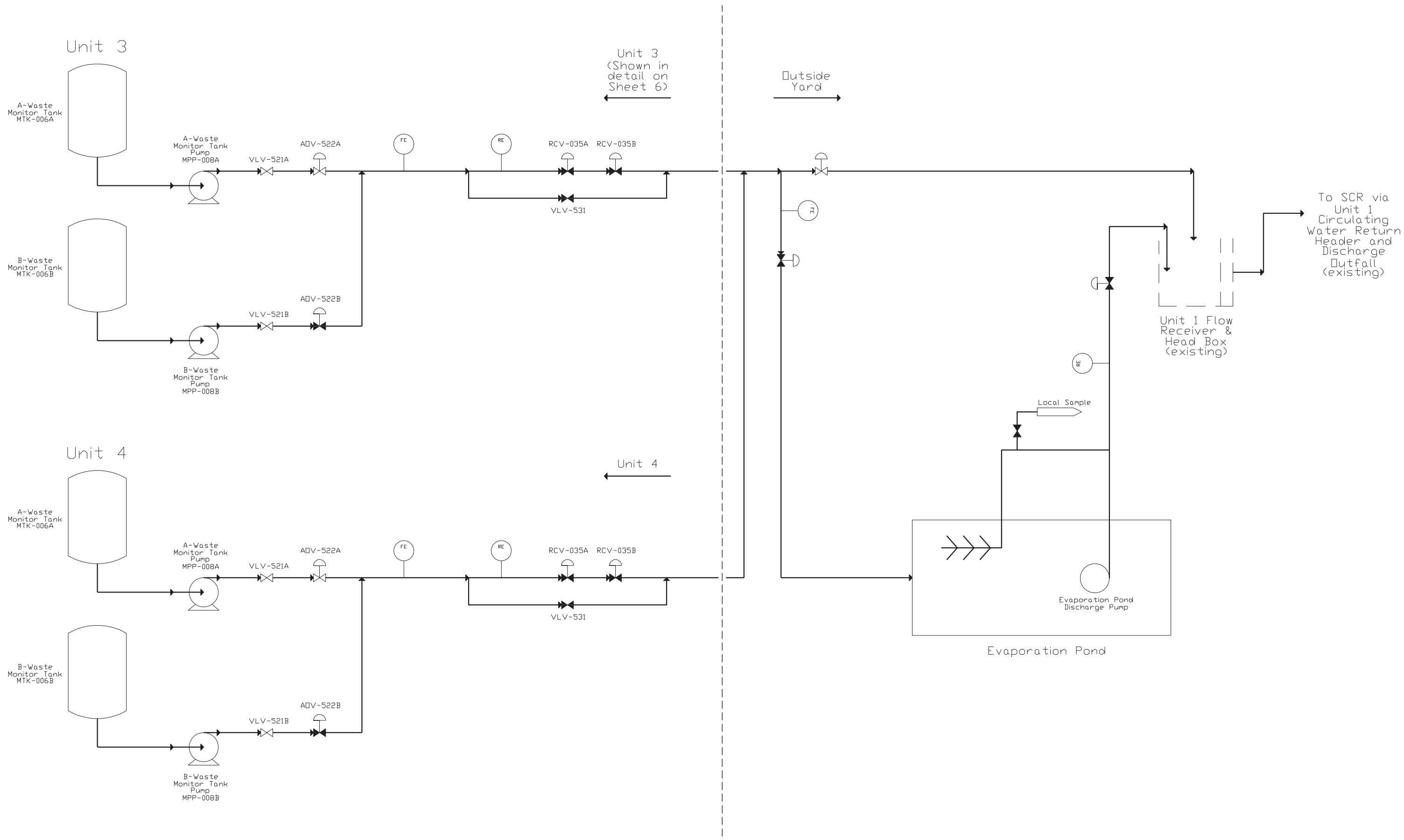
CTS-01569



CP COL 11.2(6)

Figure 11.2-201 Liquid Waste Management System Piping and Instrumentation Diagram (Sheet 3 of 10)

CTS-01569



CP COL 11.2(6)

Figure 11.2-201 Liquid Waste Management System Piping and Instrumentation Diagram (Sheet 9 of 10)

CP COL 11.3(6)

Table 11.3-8R

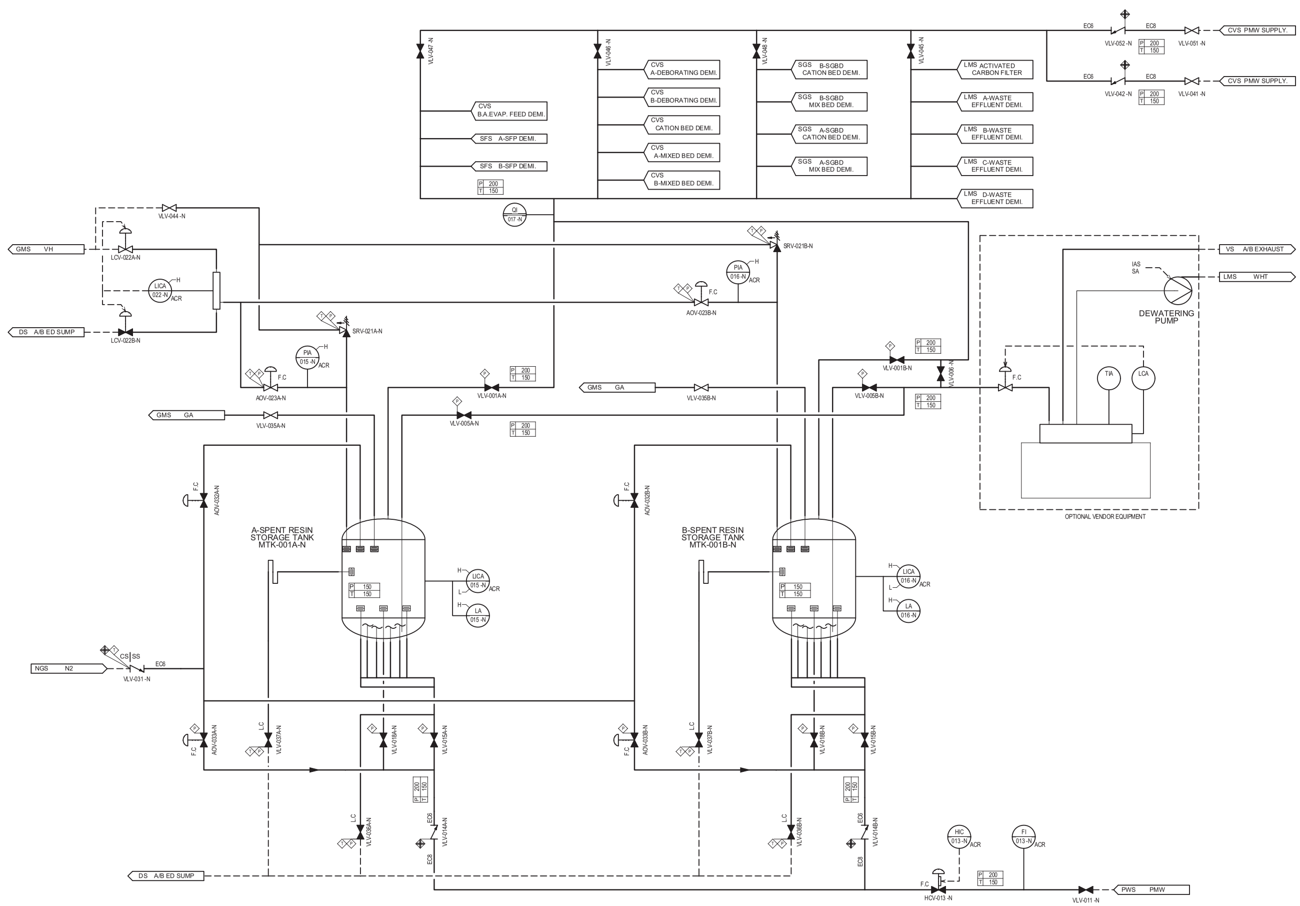
Input Parameters for the GASPAR II Code (Sheet 2 of 2)

Parameter	Value
Source term	DCD Table 11.3-5(2) (Sheet ~~1~~3 ~~to~~of ~~3~~6) CTS-01569
Other parameters	RG 1.109(1)
SCR χ/Q and D/Q values for plant vent release	
No decay, undepleted	6.0×10^{-5} s/m^3
2.26 day decay, undepleted	6.0×10^{-5} s/m^3
8.00 day decay, depleted	5.6×10^{-5} s/m^3
D/Q for maximum individual dose calculation	3.9×10^{-7} m^{-2}

Note:

1. The dose conversion factors from GASPAR II are used instead of those found in RG 1.109 because they have been updated to reflect more current information. NUREG/CR-4653 provides further information on the dose factors used by GASPAR II.
2. Ba-137m is not included in the GASPAR library. Because of its short half-life, 2.552 minutes, Ba-137m has a negligible impact on the offsite doses.

CTS-01569



CP COL 11.4(8)

Figure 11.4-201 Solid Waste Management System Piping and Instrumentation Diagram

Chapter 12

Chapter 12 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
RCOL2_12.03-12.04-11 S04	12.3.6	12.3-4	Supplemental 04 Response to RAI No. 135 Luminant Letter no.TXNB-12042 Date 12/6/2012	Added Figure 12.3-202.	-
RCOL2_12.03-12.04-11 S04	Table 12.3-201 (Sheets 1, 4 of 5)	12.3-6, 12.3-9	Supplemental 04 Response to RAI No. 135 Luminant Letter no.TXNB-12042 Date 12/6/2012	Clarified the description of the piping run for Unit 3 and Unit 4.	-
RCOL2_12.03-12.04-11 S04	Figure 12.3-201	12.3-12	Supplemental 04 Response to RAI No. 135 Luminant Letter no.TXNB-12042 Date 12/6/2012	Clarified the description of the piping run from the T/B to the yard.	-
RCOL2_12.03-12.04-11 S04	Figure 12.3-202 (New Figure)	[12.3-13]	Supplemental 04 Response to RAI No. 135 Luminant Letter no.TXNB-12042 Date 12/6/2012	Revised figure to show that it is now only applicable to CPNPP Unit 3 and added new figure for CPNPP Unit 4 yard piping routing and building penetration schematic.	-
CTS-01510	Figure 12.3-1R (Sheet 1 of 34)	12.3-11	Consistency with DCD as described in Letter. TXNB-12033 (ML12268A413)	Figure was updated to reflect standard plant and site-specific layout changes.	0
CTS-01570	12.1.3	12.1-2	Consistency with DCD Rev.4	RG 8.6 is deleted from the reference by DCD Rev.4 deletion. The change was made because RG 8.6 was withdrawn.	4

*Page numbers for the attached marked-up pages may differ from the revision 3 page numbers due to text additions and deletions. When the page numbers for the attached pages do differ, the page number for the attached page is shown in bracket.

The operational radiation protection program for ensuring that operational radiation exposures are as low as reasonably achievable (ALARA) is discussed in Section 12.5, by utilizing of NEI 07-03A (Reference 12.1-25). The program follows the guidance of RG 8.2, 8.4, ~~8.6,~~ 8.7, 8.9, 8.13, 8.15, 8.25, 8.27, 8.28, 8.29, 8.34, 8.35, 8.36, and 8.38. CTS-01570

STD COL 12.1(6)
STD COL 12.1(7)
STD COL 12.1(8)

Replace the last sentence of third paragraph in DCD Subsection 12.1.3 with the following.

The licensee performs periodic reviews of operational practices to ensure that operating procedures reflect the installation of new or modified equipment, personnel qualification and training are kept current, and facility personnel are following the operating procedures. In accordance with 10 CFR 50.75(g) and 10 CFR 70.25(g) as applicable, records containing facility design and construction, facility design changes, site conditions before and after construction, onsite waste disposal and contamination, and results of radiological surveys, are used to facilitate decommissioning. The guidance of RG 4.21 (Reference 12.1-27) is followed in developing and implementing operational procedures for SSCs which could be potential sources of contamination, with the objective of limiting leakage and the spread of contamination within the plant. These procedures are subject to the requirements of Subsection 13.5.2.2.

12.1.4 Combined License Information

Replace the content of DCD Subsection 12.1.4 with the following.

CP COL 12.1(1) ***12.1(1)*** *Policy considerations regarding plant operations*

This Combined License (COL) item is addressed in Subsections 12.1.1.3.1, 12.1.1.3.2 and 12.1.1.3.3.

12.1(2) *Deleted from the DCD.*

STD COL 12.1(3) ***12.1(3)*** *Following the guidance regarding radiation protection*

This COL item is addressed in Subsection 12.1.3.

12.1(4) *Deleted from the DCD.*

CP COL 12.1(5) ***12.1(5)*** *Radiation protection program*

This COL item is addressed in Section 12.5 and Tables 12.5-201 and 12.5-202.

STD COL 12.1(6) ***12.1(6)*** *Periodic review of operational practices*

This COL item is addressed in Section 12.1.3 and Subsection 12.3.1.3.2.

STD COL 12.1(7) ***12.1(7)*** *Implementation of requirements for record retention*

Chapter 13

Chapter 13 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
RCOL2_13.04-6	Table 13.4-201 (Sheet 6 of 11)	13.4-7	Response to RAI No. 255 Luminant Letter no.TXNB-12013 Date 05/31/2012	Deleted 10 CFR 52.78 has as a Program Source for Item 11, Program Title, “Non licensed Plant Staff Training Program” in FSAR Table 13.4-201.	-
RCOL2_01.05-3	13.3.2 13.3.5 (new section)	13.3-1 13.3-2	Response to RAI No. 261 Luminant Letter no.TXNB-12027 Date 7/24/2012	Added evaluation of emergency staffing in accordance with NEI 12-01 Added reference to the NEI 12-01	-
RCOL2_13.06.01-60	13.6	13.6-1	Response to RAI No. 270 Luminant Letter no.TXNB-13017 Date 5/28/2013	Added a new paragraph to the end of Section 13.6	-
CTS-01532	13.2.1.1.2	13.2-2	Editorial correction	“Subsection” was changed to “Subsection<u>s</u>”.	2
CTS-01532	13.2.1.1.3 (New 13.2.1.1.4)	13.2-2	EA-12-049, Resolution of new COL items 1.9(2)-4, 1.9(2)-5 and 1.9(4)	Added a new section on training on mitigation of BDB external events	2

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
RCOL2_01.05-2 S01	13.2.1.1.3 (New 13.2.1.1.4)	13.2-2	Supplemental Response to RAI No. 261 Luminant Letter no.TXNB-13026 Date 8/1/2013	Added a new section on training on mitigation of BDB external events	2
CTS-01532	13.3.2	13.3-1 [13.3-2]	NTTF recommendation 9.3.1.2, Resolution of new COL item COL 1.9(7)	A paragraph was added on action regarding staffing reevaluation for BDB event.	2
CTS-01532	13.3.4 (New 13.3.5)	13.3-2 [13.3-3]	Associated change with resolution of new COL item COL 1.9(7)	A section was added for reference.	2
CTS-01532	Table 13.4-201 (Sheet 7 of 11)	13.4-8	Resolution of new COL item COL 1.9(4)	LMN STD COL 1.9(4) was added to Item 12.	2
CTS-01532	13.5.2.1	13.5-4	NTTF recommendation 8, Resolution of new COL item COL 1.9(5)	A paragraph was added on action regarding EOP for BDB external events.	2
RCOL2_01.05-2 S01	13.5.2.2	13.5-5 [13.5-6]	Supplemental Response to RAI No. 261 Luminant Letter no.TXNB-13026 Date 8/1/2013	Paragraphs were added on action regarding development of procedures for maintenance, testing and calibration of SFP instruments.	2

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01532	13.5.2.2	13.5-5 [13.5-6]	EA-12-049, EA-12-051, NTTF recommendation 8, Resolution of new COL items 1.9(2)-4, 1.9(2)-5, 1.9(4) and 1.9(5)	Paragraphs were added on action regarding development of procedures for maintenance, testing and calibration for SFP instruments, equipment for BDB events and emergency procedures.	2
CTS-01553	13.1.5 Table 13.1-202 Notes e) Figure 13.1-202 13.2.4 13.3.5 (New) 13.7.2	13.1-14 13.1-22 13.1-24 13.2-3 13.3-2 [13.3-3] 13.7-2	Editorial correction	Revised 13.1.5 References for consistency throughout all sections Made "DEFUELED" lower case for consistency with Chapter 16 Deleted empty row in the "Manager, NuBuild QA" title's cell Revised 13.2.4 References for consistency throughout all Sections Revised 13.3.5 References for consistency throughout all Sections Revised 13.7.2 References for consistency throughout all Sections. Revised Reference	4

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
				13.7-201 (NEI 06-06, Revision 5) ML number from ML091730415, which is the reference to the NRCs comments to Revision 4, to ML092430016.	
CTS-01557	13.5	13.5-1	Consistency with DCD Chapter 13.5	Revised the last paragraph to specify that HFE principles are used to evaluate Operation, Emergency Response, Maintenance, Test, Inspection, and Surveillance procedures as well as procedures provided to Operations and Maintenance personnel to operate the plant safely and respond to abnormal plant conditions.	4

*Page numbers for the attached marked-up pages may differ from the revision 3 page numbers due to text additions and deletions. When the page numbers for the attached pages do differ, the page number for the attached page is shown in brackets.

CP COL 13.1(2) ***13.1(2)*** *Past experience*
This COL item is addressed in Subsection 13.1.1.1.

CP COL 13.1(3) ***13.1(3)*** *Management, engineering, and technical support organizations*
This COL item is addressed in Subsection 13.1.1.2 through 13.1.1.2.5, including Figure 13.1-204.

CP COL 13.1(4) ***13.1(4)*** *Organizational arrangement*
This COL item is addressed in Section 13.1 through Subsection 13.1.1.2.5, including Table 13.1-201 and Figure 13.1-201 through Figure 13.1-204.

CP COL 13.1(5) ***13.1(5)*** *General qualification requirements*
This COL item is addressed in Subsection 13.1.1.3 and 13.1.3.

CP COL 13.1(6) ***13.1(6)*** *Organizational structure for the plant organization, its personnel responsibilities and authorities, and operating shift crews*
This COL item is addressed in Subsection 13.1.1.1, 13.1.2 through 13.1.2.6, including Tables 13.1-201, 13.1-202, and Figures 13.1-202, 13.1-203.

CP COL 13.1(7) ***13.1(7)*** *Education, training, and experience requirements*
This COL item is addressed in Subsection 13.1.3.

13.1.5 References

Add the following references after the last reference in DCD Subsection 13.1.5.

13.1-201 ~~American Nuclear Society,~~ American National Standard for Selection, Qualification, and Training of Personnel for Nuclear Power Plants, American Nuclear Society, ANSI/ANS-3.1-1993, April 1993. CTS-01553 CTS-01553

13.1-202 ~~American Nuclear Society,~~ American National Standard for Selection, Qualification, and Training of Personnel for Nuclear Power Plants, American Nuclear Society, ANSI N18.7-1976/ANS 3.2-1976, “Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants”, February 1976. CTS-01553 CTS-01553

13.1-203 ~~National Academy for Nuclear Training,~~ Guidelines for Initial Training and Qualification of Licensed Operators, National Academy for Nuclear Training, ACAD-09-001, January 2009.

CP COL 13.1(1)
CP COL 13.1(4)
CP COL 13.1(6)

Table 13.1-202

Minimum Shift Crew Composition

Position	Both Units in Modes 1, 2, 3, or 4	One Unit in Modes 1, 2, 3, or 4 and One Unit in Mode 5,6, or Defueled	Both Units in Modes 5, 6, or Defueled
Senior Reactor Operator (SRO)	3	2	1
Reactor Operator (RO)	4	3	2
Shift Technical Advisor (STA)	1	1	1
Nuclear Equipment Operator	4	3	3
Radiation Protection Technician	1	1	1
Chemistry Technician	1	1	0

Notes:

a) Shift Manager - In the table, the SM is one of the SROs. A SM with a dual unit SRO license is assigned to both units when either unit contains fuel. During the absence of the SM from the control room, any currently licensed SRO will be designated to assume the control room command function. The SM does not fulfill the duties as Emergency Coordinator and dose assessor concurrently.

b) Senior Reactor Operator (SRO) - During core alternations on either unit, at least one currently licensed SRO (or SRO limited to fuel handling) will be present and responsible for fuel handling activities with no other concurrent duties assigned.

c) Reactor Operator (RO) - At least one RO is assigned as a relief operator when either unit is in MODE 1, 2, 3, or 4.

d) Nuclear Equipment Operator - Nuclear Equipment Operators are non-licensed.

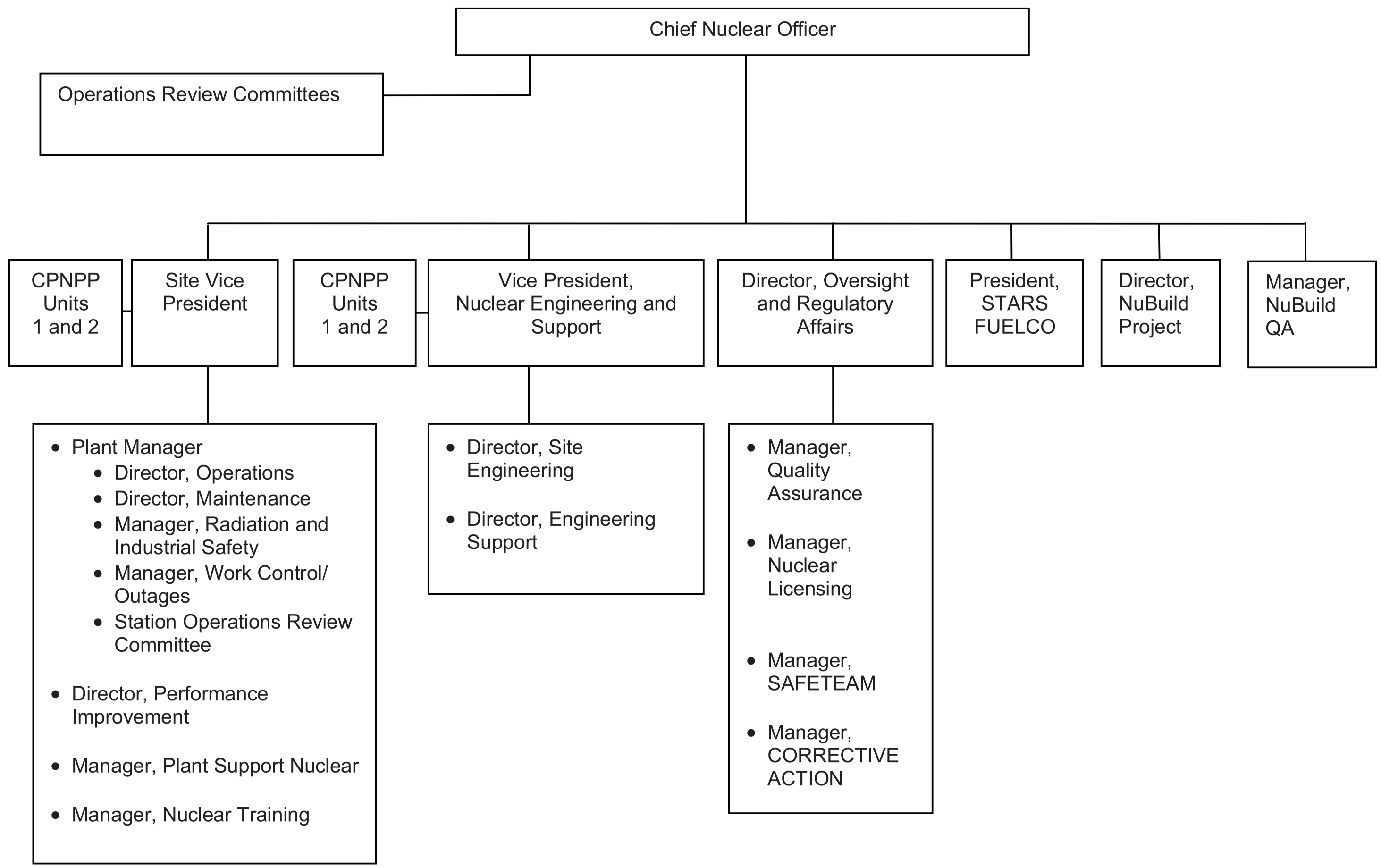
e) Shift Technical Advisor (STA) - An STA is assigned to each shift in all MODES or when ~~DEFUELED~~defueled. The STA position may be filled by an on-shift SRO provided the individual meets the dual role requirements described in the Commission Policy Statement on Engineering Expertise on Shift (50 CFR 43621) and has dose assessment capability. CTS-01553

f) Radiation Protection/Chemistry Technicians - At least one (1) radiation protection technician is onsite at all times when there is fuel in the reactor. At least one (1) chemistry technician is onsite during plant operation modes other than cold shutdown or refueling. The Radiation Protection and Chemistry Technicians may be less than the minimum requirements for a period of 2 hours in order to accommodate unexpected absence, provided immediate action is taken to fill the required position.

g) One of the SRO positions shown in Table 13.1-202, representing the Shift Manager, is shared between CPNPP Units 3 and 4. Also, the STA, Radiation Protection Technician, and Chemistry Technician positions shown in Table 13.1-202 are shared between CPNPP Units 3 and 4.

h) Additional minimum on-shift staffing requirements are contained in the CPNPP Units 3 and 4 Emergency Plan.

CTS-01553



* The position titles provide a functional description only and the actual titles may vary from those used herein.

CP COL 13.1(1)
CP COL 13.1(4)
CP COL 13.1(6)

Figure 13.1-202 Nuclear Generation Organization*

13.2.3 Combined License Information

Replace the content of DCD Subsection 13.2.3 with the following.

STD COL 13.2(1) CP COL 13.2(1)

13.2(1) *Training program*
This COL item is addressed in Section 13.2 and Figure 13.1-205.

STD COL 13.2(2) CP COL 13.2(2)

13.2(2) *Training programs for reactor operators.*
This COL item is addressed in Section 13.2 and Figure 13.1-205.

STD COL 13.2(3) CP COL 13.2(3)

13.2(3) *Training programs for non-licensed plant staff*
This COL item is addressed in Section 13.2 and Figure 13.1-205.

STD COL 13.2(4) CP COL 13.2(4)

13.2(4) *Training programs, including the schedule of each part of the training program for each functional group of employees in the organization*
This COL item is addressed in Section 13.2 and Figure 13.1-205.

STD COL 13.2(5) CP COL 13.2(5)

13.2(5) *Extent to which portions of applicable NRC guidance is used in the facility training program or the justification of exceptions*
This COL item is addressed in Section 13.2 and Figure 13.1-205.

13.2.4 References

Add the following reference after the last reference in DCD Subsection 13.2.4.

13.2-201 Template for an Industry Training Program Description, Nuclear Energy Institute, NEI 06-13A, Revision 2, ~~Nuclear Energy Institute,~~ March 2009. CTS-01553

13.2-202 ~~ACAD 08-001, “~~The Process for Initial Accreditation of Training in the Nuclear Power Industry~~”~~, National Academy for Nuclear Training, ACAD-08-001, January 2008.

CP COL 1.9(7)	13.3-201	Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities, Nuclear Energy Institute, NEI 12-01, Revision 0, ~~Nuclear Energy Institute,~~ May 2012.	RCOL2_01.05-3 CTS-01532 CTS-01553

13.5 PLANT PROCEDURES

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

STD COL 13.5(1) Replace the sentences in the DCD Section 13.5 with the following.

Under the overall responsibility and direction of the Plant Manager, the plant staff is responsible for assuring the safe and efficient operation of the station. All activities that affect safety related structures, systems, and components (SSCs) will be conducted by detailed, written, and approved procedures and instructions. This section identifies the activities that must be conducted by procedures and instructions and provides an appropriate method to develop and approve these procedures and instructions.

~~Operation, Emergency Response, Maintenance, Test, Inspection, and Surveillance procedures will be evaluated by the HFE Program. Also, procedures provided to Operations and Maintenance personnel to maintain plant safety and respond to abnormal plant conditions will be evaluated by the HFE Program (See Subsection 18.1.1.3)~~Operation, Emergency Response, Maintenance, Test, Inspection, and Surveillance procedures will be evaluated using HFE principles. CTS-01557

Procedures provided to Operations and Maintenance personnel to operate the plant safely and respond to abnormal plant conditions are evaluated utilizing the HFE principles outlined in Subsection 18.1.1.3.

13.5.1 Administrative Procedures

STD COL 13.5(1) Replace the content of DCD Subsection 13.5.1 with the following.

The Plant Manager develops and implements written administrative procedures that assign the responsibilities and authorities of the plant staff. These administrative procedures also provide the control measures for the preparation, review, approval, revision, and use of all station procedures and instructions that govern quality related activities. Administrative procedures ensure that station procedures and instructions are reviewed by qualified personnel, approved by authorized personnel, and distributed to and used by the personnel performing the prescribed activity.

The administrative controls used during the operations phase, which are described in this section, are consistent with the provisions of RG 1.33.

13.5.1.1 Administrative Procedures General

Procedures address the following administrative categories:

Category A – Controls

- Procedure review and approval
- Equipment control

the program) due to the differing requirements. CPNPP Units 3 and 4 will not have a laboratory certified by the Department of Health and Human Services (HHS) located on site, but fully intends to contract an HHS-certified laboratory located offsite to perform the FFD testing. As such, 10 CFR Part 26, Subpart F, “Licensee Testing Facilities,” does not apply but Subpart G, “Laboratories Certified by the Department of Health and Human Services,” is applicable to the laboratories used by CPNPP. It is anticipated that all of the processes for collection, review and record keeping for Units 3 and 4 will be consistent with the existing program for Units 1 and 2.

13.7.1 Combined License Information

Replace the content of DCD Subsection 13.7.1 with the following.

STD COL 13.7(1)
CP COL 13.7(1)

13.7(1) *Operating and construction plant fitness-for-duty programs*
This COL item is addressed in Section 13.7.

13.7.2 References

Add the following reference after the last reference in DCD Subsection 13.7.2.

13.7-201 ~~Nuclear Energy Institute, (NEI), NEI 06-06, “~~Fitness for Duty Program Guidance for New Nuclear Power Plant Construction Sites,~~”~~ Nuclear Energy Institute, NEI 06-06, Revision 5, August 2009 (ML09~~1730415~~2430016). CTS-01553 CTS-01553

13.7-202 Comanche Peak Nuclear Power Plant Procedure STA-910, ~~“~~Fitness for Duty Program,~~”~~ Revision II, December 2009. CTS-01553

Chapter 14

Chapter 14 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
RCOL2_09.02.01-6	14.2.12.1.113	14.2-5	Response to RAI No. 251 Luminant Letter no.TXNB-12016 Date 05/31/2012	Revised item A.2 to clarify that ESW pumps and UHS transfer pumps are demonstrated to have adequate NPSH and no vortex formation at minimum basin water level.	-
RCOL2_14.02-21	14.2.12.1.113	14.2-5 14.2-6 [14.2-7]	Response to RAI No. 257 Luminant Letter no.TXNB-12022 Date 6/21/2012	Clarified preoperational test objectives, methods, and acceptance criteria. Added preoperational test acceptance criteria for water hammer prevention.	-
RCOL2_14.02-20	14.2.12.1.113	14.2-5 through 14.2-6 [14.2-5 through 14.2-7]	Response to RAI No. 256 Luminant Letter no.TXNB-12026 Date 7/20/2012	An item is added to the UHSS preoperational test (14.2.12.1.113) to verify the ability of the UHS, in conjunction with the ESWS, CCWS, and RHRS, to cool down the RCS.	-
RCOL2_09.02.01-9 S01	14.2.12.1. 113	14.2-5 through 14.2-6 [14.2-5 through 14.2-7]	Supplemental 01 Response to RAI No. 251 Luminant Letter no.TXNB-12031 Date 9/10/2012	Removed description of level switches located in the UHS cooling tower riser piping.	-

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
RCOL2_14.02-21 S01	14.2.12.1.113	14.2-6	Supplemental Response to RAI No. 257 Luminant Letter no.TXNB-12034 Date 9/24/2012	An items is added to the UHSS preoperational test (14.2.12.1.113) to verify the function of the newly added drain valves for freeze protection.	-
RCOL2_09.02.05-20 S02	14.2.12.1.113	14.2-5 14.2-6	Supplemental 02 Response to RAI No. 252 Luminant Letter no.TXNB-12036 Date 11/12/2012	Revised UHS Preoperational Test to include simultaneous operation of ESWP and UHS Transfer Pump with no interfering vortices.	-
RCOL2_14.02-21 S02	14.2.12.1.113	14.2-6 [14.2-7]	Supplemental 02 Response to RAI No. 257 Luminant Letter no.TXNB-12036 Date 11/12/2012	Corrected to remove reference to electrical heat tracing.	-
RCOL2_09.02.01-9 S02	14.2.12.1.113	14.2-5, 14.2-6 [14.2-5 through 14.2-7]	Supplemental 02 Response to RAI No. 251 Luminant Letter no.TXNB-12041 Date 12/03/2012	Revise the description about water hammer/ voids in the spray header or nozzles.	-
CTS-01555	ACRONYMS AND ABBREVIATIONS	14-iii	Consistency with DCD	Abbreviation of FSS was added	4
CTS-01556	14.2.11	14.2-4	Editorial	Comma inserted to separate `tests' and `analyses'.	4

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01556	14.2.12.1.113	14.2-5	Editorial	Typo corrected adding `t' at the end of `equipmen'.	4
CTS-01556	Table 14.2-201	14.2-9 [14.2-10]	Editorial	Typo corrected adding `t' at the end of `Tes'.	4
CTS-01555	Table 14.2-202 (Sheet 1 of 6) 14.2.12.1.2	14.2-10 [14.2-11]	Consistency with DCD Tier 1	"(2.5.5)" was added to Tier 1 Section	4
CTS-01555	Table 14.2-202 (Sheet 1 of 6) 14.2.12.1.12	14.2-10 [14.2-11]	Consistency with DCD Tier 1	"2.4.6" was changed to "(2.4.6)" at Tier 1 Section	4
CTS-01555	Table 14.2-202 (sheet 1 of 6) 14.2.12.1.17	14.2-10 [14.2-11]	Consistency with DCD Tier 1	"2.5.1" was added to Tier 1 Section	4
CTS-01555	Table 14.2-202 (sheet 2 of 6) 14.2.12.1.26	14.2-11 [14.2-12]	Consistency with DCD Tier 1	"(2.7.1.1)" was changed to "2.7.1.1" at Tier 1 Section	4

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01555	Table 14.2-202 (sheet 2 of 6) 14.2.12.1.28	14.2-11 [14.2-12]	Consistency with DCD Tier 1	"(2.7.1.9)" was deleted at Tier 1 Section.	4
CTS-01555	Table 14.2-202 (sheet 2 of 6) 14.2.12.1.30	14.2-11 [14.2-12]	Consistency with DCD Tier 1	"(2.7.1.9)" was deleted at Tier 1 Section.	4
CTS-01555	Table 14.2-202 (sheet 2 of 6) 14.2.12.1.41	14.2-11 [14.2-12]	Consistency with DCD Tier 1	"2.5.1" was deleted at Tier 1 Section.	4
CTS-01555	Table 14.2-202 (sheet 2[3] of 6) 14.2.12.1. 43	14.2-11 [14.2-13]	Consistency with DCD Tier 1	"(2.6.6)" was deleted at Tier 1 Section.	4
CTS-01555	Table 14.2-202 (sheet 3 of 6) 14.2.12.1. 48	14.2-12 [14.2-13]	Consistency with DCD Tier 1	"2.6.2" was added to Tier 1 Section.	4
CTS-01556	Table 14.2-202 (Sheet 4 of 6) 14.2.12.1.62	14.2-13 [14.2-14]	Editorial	“Leakrate” is revised to “Leak Rate”	4

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01555	Table 14.2-202 (sheet 4 of 6) 14.2.12.1.74	14.2-13 [14.2-14]	Consistency with DCD Tier 1	"(2.5.5)" was deleted at Tier 1 Section.	4
CTS-01555	Table 14.2-202 (sheet 4 of 6) 14.2.12.1.75	14.2-13 [14.2-14]	Consistency with DCD Tier 1	"2.4.1" was added to Tier 1 Section.	4
CTS-01555	Table 14.2-202 (sheet 4 of 6) 14.2.12.1.75	14.2-13 [14.2-14]	Consistency with DCD Tier 1	"(2.5.5)" was changed to "2.5.1" at Tier 1 Section.	4
CTS-01555	Table 14.2-202 (sheet 4 of 6) 14.2.12.1.77	14.2-13 [14.2-14]	Consistency with DCD Tier 1	"(2.7.6.8)" was changed to "2.7.6.8" at Tier 1 Section.	4
CTS-01555	Table 14.2-202 (sheet 5[4] of 6) 14.2.12.1.78	14.2-14	Consistency with DCD Tier 1	"(2.5.5)" was deleted at Tier 1 Section.	4
CTS-01555	Table 14.2-202 (sheet 5[4] of 6) 14.2.12.1.78	14.2-14	Consistency with DCD Tier 1	"(2.7.6.6)" was changed to "2.7.6.6" at Tier 1 Section.	4

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01555	Table 14.2-202 (sheet 5[4] of 6) 14.2.12.1.78	14.2-14	Consistency with DCD Tier 1	"(2.7.6.13)" was changed to "2.7.6.13" at Tier 1 Section.	4
CTS-01555	Table 14.2-202 (sheet 5 of 6) 14.2.12.1.79	14.2-14 [14.2-15]	Consistency with DCD Tier 2	"Absorbers" was changed to "Adsorbers".	4
CTS-01555	Table 14.2-202 (sheet 5 of 6) 14.2.12.1.80	14.2-14 [14.2-15]	Consistency with DCD Tier 1	"(2.7.6.8)" was changed to "2.7.6.8" at Tier 1 Section.	4
CTS-01555	Table 14.2-202 (sheet 6[5] of 6) 14.2.12.1.104	14.2-15	Consistency with DCD Tier 1	"(2.7.3.6)" was changed to "2.7.3.6" at Tier 1 Section.	4
CTS-01555	Table 14.2-202 (sheet 6 of 6) 14.2.12.1.107	14.2-15 [14.2-16]	Consistency with DCD Tier 1	"2.4.2" was added to Tier 1 Section.	4
CTS-01555	Table 14.2-202 (Sheet 6 of 6) 14.2.12.1.113, 14.2.12.1.114	14.2-15 [14.2-16]	Completeness of the table	Two site-specific tests were added to preoperational test column, referring RCOLA Part 10.	4

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01555	Table 14.2-202 (Sheet 6 of 6) 14.2.12.1.118	14.2-15 [14.2-16]	Consistency with DCD Tier 2	Equipment hatch Hoist Preoperational Test was deleted.	4
CTS-01555	Table 14.2-202 (Sheet 6 of 6) Notes	14.2-15 [14.2-16]	Clarification	Notes 1 and 2 were added.	4
CTS-01556	Table 14.2-203	14.2-16 [14.2-17]	Editorial	Column title re-phrased to read "CPNPP Units 3 and 4 Position in Table 13.1-201"	4
CTS-01555	14.3.4.3	14.3-1	Consistency with DCD Tier 2 Section 14.3.4.3 and RCOLA Part 10	Description on ITAAC of site-specific piping systems and components was added.	4
CTS-01556	14.3.4.6	14.3-1	Editorial	Expansion for the term "COLA" was deleted as it was provided earlier in the document.	4
CTS-01556	Table 14A-201	14A-2	Editorial	The term "System" added after "Ultimate Heat Sink (UHS)".	4

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01555	Appendix 14B (New)	14A-2 [Appendix 14B cover page, 14B-i and 14B-1]	Consistency with DCD Tier 2 Appendix 14B	Appendix 14B was added.	4

*Page numbers for the attached marked-up pages may differ from the revision 3 page numbers due to text additions and deletions. When the page numbers for the attached pages do differ, the page number for the attached page is shown in brackets.

ACRONYMS AND ABBREVIATIONS

ac	alternating current
COL	Combined License
COLA	Combined License Application
CPNPP	Comanche Peak Nuclear Power Plant
CRDM	control rod drive mechanism
CVCS	chemical and volume control system
DAS	diverse actuation system
dc	direct current
DCD	Design Control Document
ECCS	emergency core cooling system
ESF	engineered safety features
ESW	essential service water
ESWS	essential service water system
FSAR	Final Safety Analysis Report
FSS	fire protection water supply system CTS-01555
HVAC	heating, ventilation, and air conditioning
ITAAC	inspections, tests, analyses, and acceptance criteria
ITP	initial test program
LOOP	loss of offsite power
MCR	main control room
MFIV	main feedwater isolation valve
MHI	Mitsubishi Heavy Industries, Ltd
MNES	Mitsubishi Nuclear Energy Systems, Inc.
MSIV	main steam isolation valve
NDE	nondestructive examination
non-ESW	non-essential service water
NRC	U.S. Nuclear Regulatory Commission
PMWS	primary makeup water system
PWR	pressurized-water reactor
RCP	reactor coolant pump
RCS	reactor coolant system
RG	Regulatory Guide
RHRS	residual heat removal system
RTD	resistance temperature detector
SDV	safety depressurization valve
SFPCS	spent fuel pit cooling and purification system

CP COL 14.2(7) Replace the first and second sentences of the last paragraph in DCD Subsection 14.2.11 with the following.

An event-based schedule for conducting each major phase of the test program for the Comanche Peak Nuclear Power Plant (CPNPP) Units 3 and 4, relative to the start of fuel loading, will be provided to the NRC six months prior to the start of preoperational testing. The schedule will be periodically updated to reflect actual progress. Schedule preparation will include an assessment of overlapping test program schedules between CPNPP Units 3 and 4 and provide assurance that CPNPP Unit 3 will be given priority during the period when testing and plant staff personnel will be working on both units. Periodic reviews of the schedules for CPNPP Units 3 and 4 will ensure that overlapping test program schedules do not result in significant divisions of responsibilities or dilutions of the staff implementing the test program.

STD COL 14.2(7) Replace the third sentence of the last paragraph in DCD Subsection 14.2.11 with the following.

Preoperational tests which satisfy inspections, tests, analyses, and acceptance criteria (ITAAC) test requirements, and ITAAC test requirements which can be incorporated into preoperational tests, are correlated in Table 14.2-202. This correlation is used to assure that ITAAC test requirements are included in the development of preoperational testing procedures. CTS-01556

14.2.12 Individual Test Descriptions

CP COL 14.2(10) Replace the first sentence of the last paragraph in DCD Subsection 14.2.12 with the following.

Testing outside the scope of the certified design is addressed in Subsections 14.2.12.1.113, and 14.2.12.1.114. Additional testing for the Fire Protection System Preoperational Test is identified in Subsection 14.2.12.1.90.
Table 14.2-201 shows the comprehensive list for the new added subsections.

14.2.12.1 Preoperational Tests

CP COL 14.2(10) Replace the sentence in DCD Subsection 14.2.12.1.83.B.7 with the following.

The condenser or existing waste water management Pond C or LWMS is available to receive discharge from the SG blowdown sampling system.

STD COL 14.2(10) Add new item after item C.7 in DCD Subsection 14.2.12.1.90 as follows.

8. Verify that local offsite fire departments utilize hose threads or adapters capable of connecting with onsite hydrants, hose couplings, and standpipe risers.

Replace DCD Subsections 14.2.12.1.113 and 14.2.12.1.114 with the following.

STD COL 14.2(10)

14.2.12.1.113 Ultimate Heat Sink (UHS) System Preoperational Test

A. Objectives

1. To demonstrate operation of the UHS cooling towers and associated fans, essential service water (ESW) pumps, ~~and~~ UHS transfer pumps, and associated valves. RCOL2_14.02-16 S01 RCOL2_09.02.05-21 RCOL2_09.02.01-6

2. ~~With the basin at minimum level (end of the 30 day emergency period), to demonstrate that the ESW pumps and the UHS transfer pumps maintain design flow rates.~~ To demonstrate that the ESW pumps and the UHS transfer pumps have adequate NPSH and maintain design flow rates without vortex formation with the basin at minimum level (end of the 30-day emergency period).

3. ~~To demonstrate the operation of the UHS transfer pumps.~~ To demonstrate the operation of the UHS basin water level and temperature sensors, logic, and associated control functions; water chemistry monitors, logic, and associated control functions; ESW pump start logic, interlocks, and associated control functions; ESW pump discharge strainer isolation and backwash valves and valve logic; associated makeup and blowdown equipment ~~and spray header level switches and logic~~. RCOL2_14.02-16 S01 RCOL2_14.02-21 RCOL2_09.02.01-9 S01 CTS-01556

4. ~~To demonstrate the operation of the UHS basin water level sensors and basin water level controls, and water chemistry monitors, controls, basin water level logic, and associated blowdown equipment.~~ To demonstrate the absence of any significant water hammer during ESW pump and UHS transfer pump starts and stops with voids in the spray headers or nozzles. RCOL2_14.02-16 S01 RCOL2_14.02-21 RCOL2_09.02.01-9 S02

5. To demonstrate the ability of the UHS, in conjunction with the ESWS, CCWS, and RHRS, to cool down the RCS. RCOL2_14.02-20

6. To demonstrate that simultaneous operation of ESW pumps and UHS transfer pumps will not result in vortices that would interfere with each other. RCOL2_09.02.05-20 S02

Table 14.2-201

Comprehensive Listing of Additional Tests

	Section	Test	
STD COL 14.2(10)	14.2.12.1.90.C.8	Local Fire Department Hose Thread Compatibility Test	CTS-01556
STD COL 14.2(10)	14.2.12.1.113	Ultimate Heat Sink (UHS) Preoperational Test	
STD COL 14.2(10)	14.2.12.1.114	UHS ESW Pump House Ventilation System Preoperational Test	

CP COL 14.2(7)

Table 14.2-202 (Sheet 1 of 6)

Comparison of Tier 2 Preoperational Tests with Tier 1 Test Requirements

Test Description	Tier 2 Section	Tier 1 Section	
Reactor coolant system (RCS) Hot Functional	14.2.12.1.1	2.4.2	
Pressurizer Pressure and Water Level Control	14.2.12.1.2	~~-~~(2.5.5)	CTS-01555
Reactor coolant pump (RCP) Initial Operation	14.2.12.1.3	2.4.2	
Pressurizer Safety Depressurization Valve (SDV)	14.2.12.1.4	2.4.2	
Pressurizer Relief Tank	14.2.12.1.5	-	
RCS	14.2.12.1.6	2.4.2	
Reactor Internals Vibration	14.2.12.1.7	2.4.1	
RCS Cold Hydrostatic	14.2.12.1.8	2.4.1, 2.4.2	
Reactor Control, Rod Control, and Rod Position Indication	14.2.12.1.9	(2.5.5)	
Control rod drive mechanism (CRDM) Motor Generator Set	14.2.12.1.10	-	
CRDM Initial Timing	14.2.12.1.11	-	
Chemical and Volume Control System (CVCS) – Boric Acid Blending	14.2.12.1.12	(2.4.6)	CTS-01555
CVCS – Charging and Seal Water	14.2.12.1.13	2.4.6	
CVCS – Letdown	14.2.12.1.14	2.4.6	
RCS Lithium Addition and Distribution	14.2.12.1.15	-	
Primary Makeup Water System (PMWS)	14.2.12.1.16	-	
Reactor Trip System and engineered safety features (ESF) System Response Time	14.2.12.1.17	~~-~~2.5.1	CTS-01555
Reactor Trip System and ESF System Logic	14.2.12.1.18	2.5.1, 2.7.1.1	
Resistance Temperature Detectors (RTDs)/Thermocouple Cross-Calibration	14.2.12.1.19	-	

Table 14.2-202 (Sheet 2 of 6)

Comparison of Tier 2 Preoperational Tests with Tier 1 Test Requirements

Test Description	Tier 2 Section	Tier 1 Section	
Diverse Actuation System (DAS) Actuation	14.2.12.1.20	2.5.3	
Main Steam Supply System	14.2.12.1.21	2.7.1.2	
Residual Heat Removal System (RHRS)	14.2.12.1.22	2.4.5	
Main Steam Isolation Valve (MSIV), Main Feedwater Isolation Valve (MFIV), and Main Steam Check Valve	14.2.12.1.23	2.7.1.2, 2.7.1.9	
Motor-Driven Emergency Feedwater System	14.2.12.1.24	2.7.1.11	
Turbine-Driven Emergency Feedwater System	14.2.12.1.25	2.7.1.11	
Extraction Steam	14.2.12.1.26	~~(~~2.7.1.1~~)~~	CTS-01555
Turbine - Generator (T/G)	14.2.12.1.27	2.7.1.1	
Condensate System	14.2.12.1.28	~~(2.7.1.9)~~-	CTS-01555
Feedwater System	14.2.12.1.29	2.7.1.9	
Feedwater Heater and Drain Systems	14.2.12.1.30	~~(2.7.1.9)~~-	CTS-01555
Condensate Polishing System	14.2.12.1.31	-	
Main Condenser Evacuation System	14.2.12.1.32	-	
Circulating Water System	14.2.12.1.33	-	
Essential Service Water System (ESWS)	14.2.12.1.34	2.7.3.1	
Main and Unit Auxiliary Transformers	14.2.12.1.35	2.6.1	
Reserve Auxiliary Transformers	14.2.12.1.36	(2.6.1)	
Non-Class 1E Alternating Current (ac) Distribution	14.2.12.1.37	(2.6.1)	
6.9 kV Class 1E System	14.2.12.1.38	2.6.1	
480 V Class 1E Switchgear	14.2.12.1.39	2.6.1	
480 V Class 1E Motor Control Center	14.2.12.1.40	2.6.1	
120 V ac Class 1E	14.2.12.1.41	~~2.5.1,~~ 2.6.3	CTS-01555

Table 14.2-202 (Sheet 3 of 6)

Comparison of Tier 2 Preoperational Tests with Tier 1 Test Requirements

Test Description	Tier 2 Section	Tier 1 Section	
Emergency Lighting System	14.2.12.1.42	2.6.6	
Normal Lighting System	14.2.12.1.43	~~(2.6.6)~~ -	CTS-01555
Class 1E Gas Turbine Generator	14.2.12.1.44	2.6.4	
Class 1E Bus Load Sequence	14.2.12.1.45	2.4.1, 2.4.2, 2.4.4, 2.4.5, 2.4.6, 2.6.1, 2.6.3, 2.6.4, 2.7.1.2, 2.7.1.9, 2.7.1.10, 2.7.1.11, 2.7.3.1, 2.7.3.3, 2.7.3.5, 2.7.5.1, 2.7.5.2, 2.7.5.4, 2.7.6.3, 2.7.6.6, 2.7.6.7, 2.7.6.13, 2.11.2, 2.11.3	
Alternate ac Power Sources for Station Black Out	14.2.12.1.46	2.6.5	
125 V Direct Current (dc) Class 1E	14.2.12.1.47	2.4.1, 2.4.2, 2.4.4, 2.4.5, 2.4.6, 2.6.2, 2.6.3, 2.7.1.2, 2.7.1.9, 2.7.1.10, 2.7.1.11, 2.7.3.1, 2.7.3.3, 2.7.3.5, 2.7.5.1, 2.7.5.2, 2.7.5.4, 2.7.6.3, 2.7.6.6, 2.7.6.7, 2.7.6.13, 2.11.2, 2.11.3	
125 V DC Class 1E Minimum Load Voltage Verification	14.2.12.1.48	~~-~~2.6.2	CTS-01555
125 V DC non-Class 1E	14.2.12.1.49	-	
Dynamic State Vibration Monitoring of Safety Related and High-Energy Piping	14.2.12.1.50	-	
Steady State Vibration Monitoring of Safety Related and High-Energy Piping	14.2.12.1.51	-	
Thermal Expansion Testing	14.2.12.1.52	-	
Class 1E Gas Turbine Generator Sequence – Loss of Offsite Power (LOOP) Sequence and LOOP Sequence with Emergency Core Cooling System (ECCS) Actuation Signal	14.2.12.1.53	2.6.4	

Table 14.2-202 (Sheet 4 of 6)

Comparison of Tier 2 Preoperational Tests with Tier 1 Test Requirements

Test Description	Tier 2 Section	Tier 1 Section	
Safety Injection System (SIS)	14.2.12.1.54	2.4.4	
ECCS Actuation and Containment Isolation Logic	14.2.12.1.55	2.4.4, 2.11.2	
Safety Injection Check Valve	14.2.12.1.56	2.4.4	
Safety Injection Accumulator	14.2.12.1.57	2.4.4	
Containment Spray System	14.2.12.1.58	2.11.3	
Refueling Water Storage System	14.2.12.1.59	-	
Essential Chilled Water System	14.2.12.1.60	2.7.3.5	
Containment Structural Integrity	14.2.12.1.61	2.2	
Containment Local Leak ~~r~~Rate	14.2.12.1.62	2.2, 2.11.2	CTS-01556
Containment Integrated Leak Rate	14.2.12.1.63	2.2	
Containment Hydrogen Monitoring and Control System	14.2.12.1.64	2.11.4	
CRDM Cooling System	14.2.12.1.65	(2.7.5.3)	
Reactor Cavity Cooling System	14.2.12.1.66	(2.7.5.3)	
Containment High Volume Purge System	14.2.12.1.67	2.8, (2.7.5.3)	
Containment Low Volume Purge System	14.2.12.1.68	2.8, (2.7.5.3)	
Containment Fan Cooler System	14.2.12.1.69	(2.7.5.3)	
Annulus Emergency Exhaust System	14.2.12.1.70	2.7.5.2	
RCS Leak Rate	14.2.12.1.71	-	
Loose Parts Monitoring System	14.2.12.1.72	-	
Seismic Monitoring System	14.2.12.1.73	-	
Incore Instrumentation System	14.2.12.1.74	~~(2.5.5)~~ -	CTS-01555
Nuclear Instrumentation System	14.2.12.1.75	2.4.1 ~~(~~2.5.1~~5)~~	
Remote Shutdown	14.2.12.1.76	2.5.2	
Miscellaneous Leakage Detection System	14.2.12.1.77	~~(~~2.7.6.8~~)~~	CTS-01555
Process and Effluent Radiological Monitoring System, Area Radiation Monitoring System and Airborne Radioactivity Monitoring System	14.2.12.1.78	~~(2.5.5), (~~2.7.6.6~~)~~, ~~(~~2.7.6.13~~)~~	

Table 14.2-202 (Sheet 5 of 6)

Comparison of Tier 2 Preoperational Tests with Tier 1 Test Requirements

Test Description	Tier 2 Section	Tier 1 Section	
High-Efficiency Particulate Air Filters and Charcoal Ad~~b~~sorbers	14.2.12.1.79	2.7.5.1, 2.7.5.2	CTS-01555
Liquid Waste Management System	14.2.12.1.80	2.4.7, 2.7.4.1, ~~(~~2.7.6.8~~)~~	
Gaseous Waste Management System	14.2.12.1.81	2.7.4.2	
Solid Waste Management System	14.2.12.1.82	(2.7.4.3)	
Steam Generator Blowdown System	14.2.12.1.83	2.7.1.10	
Sampling System	14.2.12.1.84	2.7.6.7	
Spent Fuel Pit Cooling and Purification System (SFPCS)	14.2.12.1.85	2.7.6.3	
Fuel Handling System	14.2.12.1.86	2.7.6.4	
Component Cooling Water System	14.2.12.1.87	2.7.3.3	
Turbine Component Cooling Water System	14.2.12.1.88	-	
Secondary Side Chemical Injection System	14.2.12.1.89	-	
Fire Protection System	14.2.12.1.90	2.7.6.9	
Instrument Air System	14.2.12.1.91	-	
Station Service Air System	14.2.12.1.92	-	
Boron Recycle System	14.2.12.1.93	-	
Offsite Communication System	14.2.12.1.94	2.7.6.10	
Inplant Communication System	14.2.12.1.95	2.7.6.10	
Safeguard Component Area Heating, Ventilation, and Air Conditioning (HVAC) System	14.2.12.1.96	2.7.5.2	
Emergency Feedwater Pump Area HVAC System	14.2.12.1.97	2.7.5.2	
Class 1E Electrical Room HVAC System	14.2.12.1.98	2.7.5.2	
Auxiliary Building HVAC System	14.2.12.1.99	2.7.5.4, 2.8	
Main Steam/Feedwater Piping Area HVAC System	14.2.12.1.100	2.7.5.4	
Main Control Room (MCR) HVAC System (including MCR Habitability)	14.2.12.1.101	2.7.5.1	
Non-Class 1E Electrical Room HVAC System	14.2.12.1.102	2.7.5.4	
Technical Support Center HVAC System	14.2.12.1.103	2.7.5.4	
Non-Essential Chilled Water System	14.2.12.1.104	(2.7.3.6)	CTS-01555

Table 14.2-202 (Sheet 6 of 6)

Comparison of Tier 2 Preoperational Tests with Tier 1 Test Requirements

Test Description	Tier 2 Section	Tier 1 Section
Vessel Servicing	14.2.12.1.105	2.7.6.5
Safety-Related Component Area HVAC System	14.2.12.1.106	2.7.5.2
Pressurizer Heater and Spray Capability and Continuous Spray Flow Verification	14.2.12.1.107	~~-~~2.4.2
Non-Essential Service Water (non-ESW) System	14.2.12.1.108	-
Condensate Storage Facilities System	14.2.12.1.108	-
Turbine Building Area Ventilation System (General Mechanical Area)	14.2.12.1.110	-
Turbine Building Area Ventilation System (Electric Equipment Area)	14.2.12.1.111	-
UHS System Preoperational Test	14.2.12.1.113(1)	A.1(2)
UHS ESW Pump House Ventilation System Preoperational Test	14.2.12.1.114(1)	A.1(2)
RCPB Leak Detection Systems Preoperational Test	14.2.12.1.115	2.4.7
Equipment and Floor Drainage System Preoperational Test	14.2.12.1.116	2.7.6.8
Compressed Gas System Preoperational Test	14.2.12.1.117	-
~~Equipment Hatch Hoist Preoperational Test~~	~~14.2.12.1.118~~	~~-~~
Pressurizer Surge Line HFT Performance Test	14.2.12.1.119	-

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Notes
General Note: Tier 1 sections in parentheses indicate inspection activities.
1. COLA FSAR
2. COLA Part 10

CP SUP 14.2(1)

Table 14.2-203

Comparison with the Qualification Requirements of the Staffing in ANS-3.1

~~Table 13.1-201,~~ CPNPP Units 3 and 4 Position in Table 13.1-201	Position Title in MUAP-08009	Function Position (ANSI/ANS-3.1-1993 section)
Startup Manager	Test Manager	Startup Test Engineer (4.4.12)
(Not specified.)	Installation Test Manager	Preoperational Test Engineer (4.4.11)
(Not specified.)	Preoperational and Acceptance Test Manager	Preoperational Test Engineer (4.4.11)
(Not specified.)	Operations Startup Manager	Senior Operator (4.4.2)
(Not specified.)	Startup Test Manager	Startup Test Engineer (4.4.12)
(Not specified.)	Test Program Manager	Startup Test Engineer (4.4.12)
Preoperational Test Engineer (supervisory)	Test Engineer	Preoperational Test Engineer (4.4.11)
Startup Test Engineer (supervisory)	Test Engineer	Startup Test Engineer (4.4.12)
Preoperational Test Engineer (nonsupervisory)	Test Engineer	See Note 1.
Startup Test Engineer (nonsupervisory)	Test Engineer	See Note 1.

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Note 1: Qualifications are established by ASME NQA-1-1994 edition, Appendix 2A-1, for Level II personnel.

14.3 INSPECTIONS, TESTS, ANALYSES, AND ACCEPTANCE CRITERIA

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

14.3.4.3 ITAAC for Piping Systems and Components

STD COL 14.3(4) Replace the last sentence of the last paragraph of DCD Subsection 14.3.4.3 with the following:

The COL licensee shall submit ITAAC schedule information to the NRC in accordance with 10 CFR 52.99, which includes a schedule for closing Design Acceptance Criteria. The Design Acceptance Criteria closure process described in DCD Appendix 14B will be utilized to close the Design Acceptance Criteria ITAAC for piping systems and components. The stress analysis, environmental fatigue analysis, LBB analysis and pipe break hazard analysis for the piping systems and components will be completed on a system-by-system basis or a component basis, as applicable, in order to support closure of the Design Acceptance Criteria ITAAC. Information will be made available for NRC review, inspection, and audit on a system-by-system basis or a component basis.

STD SUP 14.3(1) Add the following paragraph after the last paragraph in DCD Subsection 14.3.4.3. CTS-01555

The selection criteria and methodology provided in Section 14.3.4.3 of the referenced DCD are utilized as the site-specific selection criteria and methodology for ITAAC of site-specific piping systems and components. ITAAC for the pipe hazard analysis of the site-specific portion of the piping systems and components are provided in Part 10 of the COLA.

14.3.4.6 ITAAC for Electrical Systems

STD COL 14.3(1) Add the following paragraph after the last paragraph in DCD Subsection 14.3.4.6.

The ITAAC for the site-specific interfaces in the electrical systems are developed to correspond to Section 3.2 of Tier 1 of the referenced DCD. The site-specific interfaces are with the offsite power system. The ITAAC for the interface requirement with the offsite power system are provided in Part 10 of the ~~Combined License Application (~~COLA~~)~~. CTS-01556

Table 14A-201

Conformance Matrix of RG 1.68 Appendix A Guidance versus Added Test Abstracts in the FSAR

	RG 1.68 Appendix A	Section Number	Typical Test	
STD COL 14.2(10)	1.h.(7)	14.2.12.1.114	UHS ESW Pump House Ventilation System Preoperational Test	
STD COL 14.2(10)	1.h.(10)	14.2.12.1.113	Ultimate Heat Sink (UHS) System Preoperational Test	CTS-01556
STD COL 14.2(10)	1.k.(2), 1.k(3)	Not applicable.	Personnel Monitors and Radiation Survey Instruments - tested as part of the Radiation Protection Program described in Section 12.5	
STD COL 14.2(10)	1.n.(14) (a)	14.2.12.1.114	UHS ESW Pump House Ventilation System Preoperational Test	

APPENDIX 14B

DESIGN ACCEPTANCE CRITERIA ITAAC CLOSURE PROCESS

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APPENDIX 14B

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DESIGN ACCEPTANCE CRITERIA ITAAC CLOSURE PROCESS

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APPENDIX 14B DESIGN ACCEPTANCE CRITERIA ITAAC CLOSURE PROCESS

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This appendix of the referenced DCD is incorporated by reference with no departures or supplements.

Chapter 15

Chapter 15 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R

*Page numbers for the attached marked-up pages may differ from the revision 3 page numbers due to text additions and deletions. When the page numbers for the attached pages do differ, the page number for the attached page is shown in brackets.

Chapter 16

Chapter 16 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
RCOL2_16-10 S01	16.1.1.2	16.1-2	Supplemental Response to RAI No. 90 Luminant Letter no.TXNB-13006 Date 03/04/2013	Added basis for initial Ultimate Heat Sink surveillance frequencies.	-
RCOL2_16-10 S01	Table 16-201 (new table)	16.1-2 [16.1-3]	Supplemental Response to RAI No. 90 Luminant Letter no.TXNB-13006 Date 03/04/2013	Added table to list initial Ultimate Heat Sink surveillance frequencies.	-
CTS-01568	Table 16-201	16.1-2 [16.1-3]	To correct credited volume	Changed UHS basin water inventory verification volume	4

*Page numbers for the attached marked-up pages may differ from the revision 3 page numbers due to text additions and deletions. When the page numbers for the attached pages do differ, the page number for the attached page is shown in brackets.

Table 16-201 Initial Surveillance Frequencies for Ultimate Heat Sink RCOL2_16-10 S01

SURVEILLANCE		FREQUENCY
SR 3.7.9.1	Verify each required UHS basin water inventory is ≥ 2,8~~0~~50,000 gallons.	24 hours
SR 3.7.9.2	Verify water temperature of UHS is ≤ 93°F.	24 hours
SR 3.7.9.3	Operate each cooling tower fan for ≥ 15 minutes.	31 days
SR 3.7.9.4	Verify each cooling tower fan starts automatically on an actual or simulated actuation signal.	24 months
SR 3.7.9.5	Verify each UHS transfer pump starts on manual actuation.	24 months
SR 3.7.9.6	Verify each UHS manual, power-operated, and automatic valve in the flow path servicing safety related equipment, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.7.9.7	Verify each UHS automatic valve and each control valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	24 months

RCOL2_16-10 S01

CTS-01568

Chapter 17

Chapter 17 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01545	Table 17.4-201	17.4-5	Errata	Corrected tag ID number for UHS Cooling Tower Fans	3

*Page numbers for the attached marked-up pages may differ from the revision 3 page numbers due to text additions and deletions. When the page numbers for the attached pages do differ, the page number for the attached page is shown in brackets.

Chapter 18

Chapter 18 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R

*Page numbers for the attached marked-up pages may differ from the revision 3 page numbers due to text additions and deletions. When the page numbers for the attached pages do differ, the page number for the attached page is shown in brackets.

Chapter 19

Chapter 19 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
RCOL2_19-19	19.1.5	19.1-9	Response to RAI No. 248 Luminant Letter no.TXNB-12016 Date 05/31/2012	Information for extreme wind bounding assessment added for LPSD and at power operation.	-
RCOL2_19-19	Table 19.1-205 (Sheets 24 through 25 of 35)	19.1-74 through 19.1-75	Response to RAI No. 248 Luminant Letter no.TXNB-12016 Date 05/31/2012	Information added to address risk from extreme winds.	-
RCOL2_03.03.02-9	19.1.5 Table 19.1-205 (Sheet 12, 16, 24 of 35) Table 19.1-206 (Sheet 2 of 2)	19.1-6 19.1-62 19.1-66 19.1-74 19.1-87	Response to RAI No. 250 Luminant Letter no.TXNB-12032 Date 9/14/2012	Revised to incorporate RG 1.221.	-
RCOL2_19-23	19.2.6.4 19.2.6.6	19.2-4	Response to RAI No. 267 Luminant Letter no.TXNB-12043 Date 12/18/2012	Updated values from using more recent dollar values in calculation.	-
RCOL2_19-21	19.1.5	19.1-9, 19.1-10	Response to RAI No. 264 Luminant Letter no.TXNB-12043 Date 12/18/2012	Clarified screening criteria used for external events and results of screening.	-

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
RCOL2_19-21	Table 19.1-205 (Sheets 24 through 25 of 35)	19.1-74 through 19.1-75	Response to RAI No. 264 Luminant Letter no.TXNB-12043 Date 12/18/2012	Updated wording on extreme wind screening discussion.	-
RCOL2_19-22	19.1.5	19.1-5 through 19.1-6, 19.1-10	Response to RAI No. 264 Luminant Letter no.TXNB-12043 Date 12/18/2012	Clarified results of external flooding screening.	-
RCOL2_19-22	Table 19.1-205 (Sheets 27 through 31 of 35)	19.1-77 through 19.1-81	Response to RAI No. 264 Luminant Letter no.TXNB-12043 Date 12/18/2012	Updated wording on external flooding screening discussion.	-
RCOL2_19-24	19.1.2.3 (New Subsection)	19.1-2 [19.1-3]	Response to RAI No. 268 Luminant Letter no.TXNB-12043 Date 12/18/2012	Clarified expectations on requirements to demonstrate technical adequacy.	-
RCOL2_19-24	19.1.4.1.2	19.1-4 [19.1-5, 19.1-6]	Response to RAI No. 268 Luminant Letter no.TXNB-12043 Date 12/18/2012	Capture requirements to update PRA following construction to capture changes.	-

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
RCOL2_19-24	19.3.3	19.3-1 [19.3-1, 19.3-2]	Response to RAI No. 268 Luminant Letter no.TXNB-12043 Date 12/18/2012	Update FSAR location references for PRA update requirements.	-
RCOL2_19-25	19.1 19.1.1.2.1 19.1.1.3.1 (New Subsection) 19.1.1.3.2 (New Subsection)	19.1-1 19.1-1 19.1-1 [19.1-2] 19.1-1 [19.1-2]	Response to RAI No. 268 Luminant Letter no.TXNB-12043 Date 12/18/2012	Updated and expanded FSAR section cross-references for risk informed applications.	-
RCOL2_19-25	19.1.7 (New Subsection)	19.1-13 [19.1-14, 19.1-15]	Response to RAI No. 268 Luminant Letter no.TXNB-12043 Date 12/18/2012	Updated and expanded FSAR section cross-references for risk informed applications.	-
RCOL2_19-25	Table 19.1-207 (Sheets 1, 2 of 2) (New Table)	19.1-89 [19.1-91, 19.1-92]	Response to RAI No. 268 Luminant Letter no.TXNB-12043 Date 12/18/2012	Updated and expanded FSAR section cross-references for risk informed applications.	-

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
RCOL2_19-25	19.3.3	19.3-1	Response to RAI No. 268 Luminant Letter no.TXNB-12043 Date 12/18/2012	Updated and expanded FSAR section cross-references for risk informed applications.	-
DCD_16-117	Table 19.1-119R (Sheets 19, 34)	19.1-21 19.1-36	Response to RAI No. 161 MHI Letter No. UAP-HF-12022 Date 02/08/2012	Incorporated new key insights regarding administrative controls for AAC and demineralized water storage tank during atpower operation and SIS during LPSD operation	-
DCD_19-494	Table 19.1-119R (Sheet 34)	19.1-36	Response to RAI No. 669 MHI Letter No. UAP-HF-12023 Date 02/08/2012	Incorporated a new key insight regarding administrative controls for SIS during LPSD operation	-
CTS-01528	19.2.6.6 Table 19.2-9R	19.2-4 19.2-6	Consistency with RAI 267 Luminant Letter no.TXNB-12043 Date 12/18/2012	Maximum averted cost and SAMA benefit values at the corresponding discount rates were updated.	1
CTS-01546	19.1.4.1.2 Tables 19.1-204	19.1-3 19.1-4 [19.1-5] 19.1-47 through 19.1-50 [19.1-51 through 19.1-55]	Consistency with Response to RAI 254 S01 (ML12269A462)	Added discussion of drain valves at the UHS and updated associated tables and figures for consistency with previous design change	3

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
	19.1-206 (sheet 1 of 2) Figure 19.1-2R (2 of 3)	19.1-86 [19.1-89] 19.1-88 [19.1-93]			
CTS-01541	Table 19.1-205 (Sheet 11 and 12 of 35[37])	19.1-61, 19.1-62 [19.1-63, 19.1-64]	Consistency with FSAR Subsection 3.5.1.6 change	Revised external event screening for aircraft hazards	3
CTS-01548	Table 19.1-205 (sheet 19, 20 [21], 23[24], 25 [27]of 35)	19.1-69 19.1-70 19.1-73 19.1-75 [19.1-71 through 19.1-73, 19.1-76, 19.1-79]	Consistency with response to RAI 264 (ML12355A029)	Updated screening applicability for lightning, hail, air pollution, and dust storm events to be consistent with screening criteria clarified in RAI 264 Question 19-22	3
CTS-01547	Table 19.1-205 (sheet 27 [29], 30 [32], 32 [34], 33 [35], 34 [36] of 37)	19.1-77 19.1-80 19.1-82 19.1-83 19.1-84 [19.1-81, 19.1-84, 19.1-86, 19.1-87, 19.1-88]	Consistency with response to RAI 139 S03 ((ML13154A394, ML13154A361)	Revised external event screening for flooding, dam failures, and ice effects Updated units for surge and seiche flooding and tsunami	3

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
RCOLA2_19-30	19.1.5	19.1-5	Response to RAI No. 277 Luminant Letter no.TXNB-13031 Date 10/8/2013	Changed to wording to match wording in PSA standard.	-
RCOLA2_19-30	19.1.5	19.1-10	Response to RAI No. 277 Luminant Letter no.TXNB-13031 Date 10/8/2013	Removed extraneous wording in justification for screening flood events.	-
CTS-01559	19.1.2.4	19.1-2 [19.1-3]	Editorial	Adjusted wording on insertion	4
CTS-01559	Table 19.1-119R (Sheet 13 of 46[50])	19.1-19 [19.1-21]	Consistency with DCD	Make spent fuel pit nomenclature consistent	4
CTS-01559	Table 19.1-119R (Sheet 14 of 46[50])	19.1-20 [19.1-22]	Consistency with DCD	Added bullet 2 to match DCD.	4
CTS-01559	Table 19.1-119R (Sheet 14 of 46[50])	19.1-20 [19.1-22]	Editorial	Clarified disposition FSAR sections	4
CTS-01559	Table 19.1-119R (Sheet 15 of 46[50])	19.1-21 [19.1-23]	Consistency with DCD	Eliminated double entry in table, clean up wording	4

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01559	Table 19.1-119R (Sheet 17 of 46[50])	19.1-22 [19.1-24]	Consistency with DCD	Added discussion on hydrogen igniters	4
CTS-01559	Table 19.1-119R (Sheet 17 of 46[50])	19.1-22 [19.1-24]	Consistency with DCD	capitalize wording	4
CTS-01559	Table 19.1-119R (Sheet 17 of 46[50])	19.1-22 [19.1-24]	Consistency with DCD	Added discussion on hydrogen igniters	4
CTS-01559	Table 19.1-119R (Sheet 17 of 46[50])	19.1-22 [19.1-24]	Consistency with DCD	Clarification on drain paths for containment post-LOCA water flow	4
CTS-01559	Table 19.1-119R (Sheet 19 of 46[50])	19.1-23 [19.1-25]	Consistency with DCD	Clarification on Incore instrument – vessel arrangement	4
CTS-01559	Table 19.1-119R (Sheet 20 of 46[50])	19.1-24 [19.1-26]	Consistency with DCD	capitalize wording	4
CTS-01559	Table 19.1-119R (Sheet 24 of 46[50])	19.1-28 [19.1-30]	Consistency with DCD	Grammar correction	4

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01559	Table 19.1-119R (Sheet 26 of 46[50])	19.1-30 [19.1-32]	Consistency with DCD	Capitalize wording	4
CTS-01559	Table 19.1-119R (Sheet 27 of 46[50])	19.1-31 [19.1-33]	Consistency with DCD	Deleted item 15	4
CTS-01559	Table 19.1-119R (Sheet 29 of 46[50])	19.1-33 [19.1-35]	Consistency with DCD	Grammar correction	4
CTS-01559	Table 19.1-119R (Sheet 31 of 46[50])	19.1-35 [19.1-37]	Consistency with DCD	Reword item 4 to match DCD	4
CTS-01559	Table 19.1-119R (Sheet 33 of 46[50])	19.1-37 [19.1-39]	Consistency with DCD	Clarified required vent paths for RCS drain down condition	4
CTS-01559	Table 19.1-119R (Sheet 34 of 46[50])	19.1-38 [19.1-40]	Consistency with DCD	Item 20 reworded to add SIS technical specification for mode 6	4
CTS-01559	Table 19.1-119R (Sheet 34 of 46[50])	19.1-38 [19.1-40]	Consistency with DCD	Item 21 and 22 reworded to clarify required conditions for refueling	4

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01559	Table 19.1-119R (Sheet 34[35] of 46[50])	19.1-38 [19.1-41]	Consistency with DCD	Item 23 and 24 added to clarify conditions for refueling	4
CTS-01559	Table 19.1-119R (Sheet 35[36] of 46[50])	19.1-39 [19.1-42]	Consistency with DCD	Item 2 changed to clarify containment closure capability. Item 4 changed to clarify conditions for refueling	4
CTS-01559	Table 19.1-119R (Sheet 36[37] of 46[50])	19.1-40 [19.1-43]	Consistency with DCD	Item 7 and 8 chnaged to list GL 88-17 mid-loop actions.	4
CTS-01559	Table 19.1-119R (Sheet 40[42] of 46[50])	19.1-40 [19.1-44]	Consistency with DCD	Item 8 removed to be consistent with DCD	4
CTS-01559	Table 19.1-119R (Sheet 44 [47] of 46[50])	19.1-43 [19.1-46]	Consistency with the DCD	Clarified flooding assumption in PRA items 4, 8, 9 and 10	4
CTS-01559	Table 19.1-119R (Sheet 44[47, 48] of 46[50])	19.1-43 [19.1-46, 19-1-47]	Consistency with DCD	Added insights 1 and 2	4

Change ID No.	Section	FSAR Rev. 3 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-01559	19.3.3	19.3-1	Updated references to FSAR sections that address COL items	Updated references to FSAR sections that address COL items	4
CTS-01559	APPENDIX 19B (New)	19A-1 [19B Cover page, 19B-1]	Consistency with DCD	Added reference to new DCD section	4

*Page numbers for the attached marked-up pages may differ from the revision 3 page numbers due to text additions and deletions. When the page numbers for the attached pages do differ, the page number for the attached page is shown in brackets.

19.1.1.4.2 Risk-Informed Applications

CP COL 19.3(8)

Replace the content of DCD Subsection 19.1.1.4.2 with the following.

The PRA will be updated to reflect the risk-informed technical specifications in accordance with RG 1.174 and RG 1.177, including Initiative 4b, RMTS, in accordance with NEI 06-09 (Reference 19.1-11) and Initiative 5b, risk-informed method for control of surveillance frequencies in accordance with NEI-04-10 (Reference 19.1-201), as described in Subsection 16.1.1.2.

19.1.2.3 PRA Technical Adequacy

RCOL2_19-24

CP COL 19.3(1)

Replace the content of DCD Subsection 19.1.2.3 with the following.

The quality of the methodologies, processes, analyses, and personnel associated with the site-specific PRA comply with the provisions for nuclear plant quality assurance. Toward this end, the PRA adheres to the recommendations provided in RG 1.200 pertaining to quality and technical adequacy. The US-APWR incorporates the technical elements of an acceptable PRA shown in Table 1 of RG 1.200 (Reference 19.1-9), and is consistent with the technical characteristics and attributes given in Table 2 through Table 10 of RG 1.200.

A peer review against the technical elements of the ASME/ANS RA-Sa-2009 PRA standard and associated addenda as clarified by Regulatory Guide 1.200 will be performed prior to use of the PRA to support risk-informed applications or before initial fuel load.

19.1.2.4 PRA Maintenance and Update

CP COL 19.3(9)

~~Add the following text after the fifth~~Replace the third paragraph in DCD Subsection 19.1.2.4 with the following. CTS-01559

Changes to PRA inputs and discovery of new information will be evaluated to determine whether a PRA maintenance or upgrade is warranted. Changes to the PRA impacting risk insights or key assumptions will be prioritized to ensure that the most significant changes are incorporated as soon as practical and associated

CP COL 19.3(6)

Table 19.1-119R Key Insights and Assumptions (Sheet 13 of 50)

Key Insights and Assumptions	Dispositions
12. Component Cooling Water System	
- The CCWS consists of two independent subsystems. One subsystem consists of trains A & B, and the other subsystem consists of trains C & D, for a total of four trains. Each train has one CCW pump and CCW heat exchanger. Each subsystem is served by one CCW surge tank.	9.2.2.1.1 9.2.2.2
- The CCWS is designed to withstand leakage in one train without loss of the system's safety function.	9.2.2.1.1
- Two motor operated valves are located at the CCW outlet of the RCP thermal barrier Hx and close automatically upon a high flow rate signal at the outlet of this line in the event of in-leakage from the RCS through the thermal barrier Hx, and prevents this in-leakage from further contaminating the CCWS.	9.2.2.2.1.5
- During normal operation, heat loads of the CCWS are RCP, charging pump, letdown heat exchanger, instrument air, spent fuel ~~pool~~ pit cooling heat exchanger, etc.	9.2.2.1.2.1
- Normally open header tie line isolation valves, which are motor-operated valves, is automatically closed upon detection of ECCS actuation signal and under voltage signal or containment spray signal to separate each subsystem into two independent trains.	9.2.2.2.1.5
- CS/RHR heat exchanger outlet valves, which are motor-operated valves, are normally closed and automatically are opened by ECCS actuation signal.	9.2.2.2.1.5
- During normal operation, at least one train in each subsystem is operable. Total of two CCWP and two CCW heat exchangers are in operation. During accident, all CCWPs are automatically actuated by ECCS actuation signals.	9.2.2.2.2.1 9.2.2.2.2.4
- During a severe accident event, it is assumed that the containment fan cooler unit fans are non-operable and that the non-essential chilled water system is unavailable. Valves are provided to manually align the CCW to the containment fan cooler unit cooling coils. This supplies CCW to the cooling coils in the containment fan cooler unit for long term containment cooling.	9.4.6.2.1 19.2.5 13.5.2
- In the case of loss of CCW, a non-essential chilled water system or a fire system is able to connect to the CCWS in order to cool the charging pump and maintain RCP seal water injection.	19.2.5 13.5.2

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Table 19.1-119R Key Insights and Assumptions (Sheet 14 of 50)

Key Insights and Assumptions	Dispositions
13. Essential Service water system	
- The ESWS is arranged into four independent trains (A, B, C, and D). Each train consists of one ESWP, two 100% strainers in the pump discharge line, one 100% strainer upstream of the CCW HX, one CCW HX, one essential chiller unit, and associated piping, valves, instrumentation and controls.	9.2.1 9.2.1.2.1 9.2.1.2.3.1 13.5.2
- The case where ESW pump motors are air-cooled has a small impact on PRA results because the HVAC system for the ESW pump room is reliable due to operator backup.	9.2 13.5.2
- In the case where ESW pump motors are air-cooled, backup actions can avoid excessive room heat up in the event of loss of ESW pump room ventilation. Operational procedures to avoid excessive room heat up will be prepared.	9.2.1.2.2.1 9.2 13.5.2
- During normal operation, two trains are operating and at least one other train is on standby.	9.2.1.2.3.1
- The motor-operated valve provided at the discharge of each ESW pump actuates in conjunction with the pump operation. The discharge valves are opened after the ESW pump start.	9.2.1.2.2.6
- During normal operation, two ESW trains are operating and at least one train is on standby.	9.2.1.2.3.1
- The motor-operated valve is provided at the ESWP discharge of each pump. While the ESW pump is running, the valve remains open. The valve position is monitored in the control room.	9.2.1.2.2.6 9.2.1.2.3.1
- All valves except the pump discharge valves in the flow path are locked open.	9.2.1.2.3.1
- When one ESW train is unavailable due to failure of the discharge line valve to open, operators start the standby ESWP, monitoring pump discharge pressure.	9.2.1.2.3.1 19.2.5 13.5.2

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Table 19.1-119R Key Insights and Assumptions (Sheet 15 of 50)

Key Insights and Assumptions	Dispositions	
14. Onsite Electric Power System		
- The onsite Class 1E electric power systems comprise four independent and redundant trains, each with its own power supply, buses, transformers, and associated controls.	8.3.1.1 8.3.1.1.2.1 8.3.1.1.3	
- One independent Class 1E GTG is provided for each Class 1E train.	8.3.1.1.2.1	
- Non-Class 1E 6.9kV permanent buses P1 and P2 are also connected to the non-Class 1E A-AAC GTG and B-AAC GTG, respectively. The loads which are not safety-related but require operation during LOOP are connected to these buses.	8.3.1.1.1	
- In the event of SBO, power to one Class 1E 6.9kV bus can be restored manually from the AAC GTG.	8.3.1.1.1 8.3.1.1.2.2 8.3.1.1.2.3 19.2.5 13.5.2 8.3.1.1.1 8.4.1.3	
- Common cause failure between ~~c~~Class 1E GTG and non-~~c~~Class 1E GTG is minimized by design characteristics. The AAC power source engine and generator are designed by a different manufacturer than the Class 1E EPS engine and generator, and have diverse starting systems, independent and separate auxiliary and support systems ~~are provided to minimize common cause failure~~.		CTS-01559 CTS-01559
- The ~~non-safety~~non-Class 1E GTG can be started manually when connecting to the ~~cl~~Class 1E bus in the event of SBO.	8.4.1.3	CTS-01559
- Power to the shutdown buses can be restored from the AAC sources within 60 minutes	8.4.1.3 ~~8.4.1.3~~	CTS-01559
- ~~Power to the shutdown buses can be restored from the AAC sources within 60 minutes~~		CTS-01559
- The GTG does not need cooling water system. Cooling of GTG is achieved by air ventilation system	8.3.1.1.3 8.3.1.1.3.10	
- GTG combustion air intake and exhaust system for each of the four GTGs supply combustion air of reliable quality to the gas turbine and exhausts combustion products from the gas turbine to the atmosphere. The air intake also provides ventilation/cooling air to the GTG assembly.	9.5.5 9.5.8	

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Table 19.1-119R Key Insights and Assumptions (Sheet 17 of 50)

Key Insights and Assumptions	Dispositions
16. Containment System	
- The containment prevents or limits the release of fission products to the environment.	3.1.2.7 3.8.1
- Hydrogen control system that consists of igniters is provided to limit the combustible gas concentration. Twenty igniters are required to mitigate a challenge to containment integrity from the spectrum of potential hydrogen detonation scenarios for both at-power and LPSD severe accident sequences. The igniters start with the ECCS actuation signal and are powered by two non-~~c~~Class 1E buses with non-class 1E GTGs as well as dedicated batteries to 11 strategically located igniters.	6.2.5.2
- Alternate containment cooling system using the containment fan cooler units is provided to prevent containment over pressure even in case of containment spray system failure.	9.4.6.2.1 19.2.5 13.5.2
- Reactor cavity flooding system by firewater injection is provided to enhance heat removal from molten core ejected into the reactor cavity. This system is available as a countermeasure against severe accidents even in case of fire.	9.5.1.2.2 19.2.5 13.5.2
- The FSS is also utilized to promote condensation of steam. The FSS is lined up to the containment spray header when the CSS is not functional, and provides water droplet from top of containment. This will temporarily depressurize containment.	9.5.1.2.2 19.2.5 13.5.2
- A set of drain ~~lines~~paths from SG compartment to the reactor cavity is provided in order to achieve reactor cavity flooding. Spray water which flows into the SG compartment drains to the cavity and cools down the molten core after reactor vessel breach.	3.4.1.5.1
- Reactor cavity has a core debris trap area to prevent entrainment of the molten core to the upper part of the containment.	3.8.1 19.2.3.3.4
- Reactor cavity is designed to ensure thinly spreading debris by providing sufficient floor area and appropriate depth.	3.8.1 19.2.3.3.3
- Reactor cavity floor concrete is provided to protect against challenge to liner plate melt through.	3.8.1 19.2.3.3.3
- Main penetrations through containment vessel are isolated automatically with the containment penetration signal even in case of SBO.	6.2.4

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Table 19.1-119R Key Insights and Assumptions (Sheet 19 of 50)

Key Insights and Assumptions	Dispositions
18. Main equipments and instrumentations used for severe accident mitigation are designed to perform their function in the environmental conditions such as containment overpressure and temperature rise following hydrogen combustion.	19.2.3.3.7
19. Instrumentations for detecting core damage with high reliability are provided.	5.3.3.1
20. Risk significant SSCs are identified for the RAP.	17.4
21. ~~Instrumentation piping are installed at upside of the RV.~~The in-core instrumentation is inserted through nozzles located in the RV closure head. No penetrations through the RV are located below the top of the reactor core. This minimizes the potential for a loss of coolant accident by leakage from the reactor vessel, allowing the reactor core to be uncovered.	5.3.3.1
22. Check valves in accumulator, high head injection system, and other systems are in diverse configuration because: - The accumulator does not have any pumps to drive upon a failed closed check valve but other systems have pumps so the forces acting on the valves to open them (even if the valves are similar) are different - The duty cycles in the systems are different. They are cycled at different times when the systems are tested. - Maintenance practices including testing may also be different. Common cause failure between the check valves in accumulator and HHIS is therefore not model in the PRA.	19.1.4.1 Table 19.1-38
23. Surveillance test interval and refueling outages are consistent with Technical Specifications.	Chapter 16
24. The availability and reliability of all trains of safety related systems will be controlled by the maintenance and configuration risk management programs. Availability goals will be set for each train of all safety related systems and their availability will be tracked and compared to these goals.	17.6
25. Administrative controls to ensure the availability of AAC as a back up function to the Class 1E GTGs will be implemented.	13.5.2
26. Administrative controls to ensure the availability of demineralized water storage tank as a back up function to the EFW pits will be implemented.	13.5.2

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Table 19.1-119R Key Insights and Assumptions (Sheet 20 of 50)

Key Insights and Assumptions	Dispositions
Operator actions (At Power)	
1. Operator actions modeled in the PRA are based on symptom oriented procedures. Risk significant operator actions identified in the PRA will be addressed in plant operating procedures including abnormal operating procedure (AOP), emergency operating procedure (EOP), etc.	19.2.5 13.5.2
2. In the operational VDU of US-APWR, the layout of controllers & monitoring alignment in each window are different and this feature would make the operator perceive them as different locations.	18.4 19.2.5 13.5.2
3. In the case of loss of CCW, operators connect a non-essential chilled water system or a fire protection water supply system to the CCWS in order to cool the charging pump and maintain RCP seal water injection. This operator action is risk important. Activities to minimizes the likelihood of human error in the human factors engineering is important in developing procedures, training and other human reliability related programs.	18.6 19.1.4 19.2.5 13.5.2
4. When station blackout occurs, operators connect the alternate ac power to ~~c~~Class 1E bus in order to recovery emergency ac power. This operator action is risk important. Activities to minimizes the likelihood of human error in the human factors engineering is important in developing procedures, training and other human reliability related programs.	18.6 19.2.5 13.5.2
5. If emergency feed water pumps cannot feed water to two intact SGs, operators will attempt to open the cross tie-line of EFW pump discharge line in order to feed water to two more than SGs by one pump.	19.2.5 13.5.2

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Table 19.1-119R Key Insights and Assumptions (Sheet 24 of 50)

Key Insights and Assumptions	Dispositions
29. Operators calibrate containment pressure sensors used for ESF actuation signals (safety) and for alternate containment cooling (non-safety).	19.2.5 13.5.2
30. Action to open Unlocked motor-operated valve is performed in series through the communication between operators in electrical room and in main control room.	18.6
31. MCR crew members consists of the following team members at all times during the evolution of an accident scenario: - Reactor operator (RO) - Senior reactor operator (SR) - Shift technical advisor (STA) The RO operates the plant during normal and abnormal situations, and SRO and STA check the action of the RO. If the RO commits an error during the operation, SRO or STA would correct the circumstances. However, when there is not enough available time to take corrective action, recovery credit is not considered.	19.2.5 13.5.2
32. For operator actions at local area (action that takes place outside control room) auxiliary operators (licnsed and non-licensed) are available: - Auxiliary operator 1 - Auxiliary operator 2 Normally the auxiliary operators are stational in the MCR. If the local manipulation of equipment is required to mitigate accidents or to prevent core damage, the auxiliary operator moves to the appropriate area in the reactor building or auxiliary building, to access equipment such as manual valves. It is assumed that auxiliary operator 1 operates equipment~~s~~ and auxiliary operator 2 checks the actions of auxiliary operator 1. If auxiliary operator 1 commits an error during the operation, auxiliary operator 2 corrects it.	19.2.5 13.5.2
33. Misalignment of remote-operated valves (e.g. motor-operated valves, air-operated valves), pumps and gas turbine generators after test and maintenance will be fixed before initiating events occur. Remote-operated valve open/close positions and control switch positions are monitored in the main control room, so they will be detected in a short time	19.2.5 13.5.2
34. The controls and displays available in the US-APWR control room are superior to conventional control room HSIs and, therefore, human error probabilities in the US-APWR operation would be less than those in conventional plants.	19.2.5 13.5.2

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Table 19.1-119R Key Insights and Assumptions (Sheet 26 of 50)

Key Insights and Assumptions	Dispositions
Operator actions (LPSD)	
1. Operator actions modeled in the PRA are based on symptom oriented procedures. Risk significant operator actions identified in the PRA will be addressed in plant operating procedures including AOP, EOP, etc.	19.2.5 13.5.2
2. Maintenance procedures indicate to check valve positions from the main control room after outages or testing. Valves that have been aligned in the wrong position will be detected and fixed to the correct position within a short period of time.	19.2.5 13.5.2
3. In the operational visual display unit (VDU) of US-APWR, the layout of controllers & monitoring alignment in each window are different and this feature would make the operator perceive them as different locations.	18.4 19.2.5 13.5.2
4. When the RCS is at atmospheric pressure, gravity injection from SFP is effective. Operator will perform the gravity injection by opening the injection flow path from SFP to RCS cold legs, and supplying water from RWSP to SFP.	19.2.5 13.5.2 5.4.7.2.3.6
5. When station blackout occurs, operators connect the alternative ac power with alternate gas turbines to ~~c~~Class 1E bus in order to recover emergency ac power. This operator action is risk important. Activities to minimizes the likelihood of human error in the human factors engineering is important in developing procedures, training and other human reliability related programs.	18.6 19.2.5 13.5.2
6. In the case of loss of CCW/ESW, operators connect the fire suppression system to the CCWS and start the fire suppression pump in order to cool the charging pump and maintain injection to RCS. This operator action is risk important. Activities to minimizes the likelihood of human error in the human factors engineering is important in developing procedures, training and other human reliability related programs.	18.6 19.2.5 13.5.2
7. In the case of loss of decay heat removal functions by RHRS and SGs operators start the charging pump in order to recover water level in the RCS. If water level in the RWSAT, which is the water source of charging pumps, indicates low level the operator will supply RWSP water to the RWSAT by the refueling water recirculation pump. This operator action is risk important. Activities to minimizes the likelihood of human error in the human factors engineering is important in developing procedures, training and other human reliability related programs.	18.6 19.2.5 13.5.2

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Table 19.1-119R Key Insights and Assumptions (Sheet 27 of 50)

Key Insights and Assumptions	Dispositions
8. In case LOCA occurs in RHR line, operator will perform isolation of the RHR hot legs suction isolation valves and stop leakage of RCS coolant from RHRS where LOCA occurs.	19.2.5 13.5.2
9. In case the RCS water level decreases during mid-loop operation and the failure of automatic isolation valve occurs, operator will perform the manual isolation of low-pressure letdown line.	19.2.5 13.5.2
10. When over-draining occurs and the automatic isolation valve fails, with RCS water level – low, operators close the valve on the letdown line in order to stop draining.	19.2.5 13.5.2
11. In the case of loss of decay heat removal functions by RHRS and SGs, operators start the safety injection pump in order to maintain RCS water level. This operator action is risk important. Activities to minimizes the likelihood of human error in the human factors engineering is important in developing procedures, training and other human reliability related programs.	18.6 19.2.5 13.5.2
12. In the case of failure of running RHRS, with RHR flow rate – low, operators open the valves on the standby RHR suction line and discharge line and start the standby RHR pump in order to maintain RHR operating.	19.2.5 13.5.2
13. In the case of leakage of the RWSP water from HHIS piping, CSS/RHR piping or refueling water storage system piping, with drain sump water level – abnormally high, operators close the RWSP suction isolation valves respectively in order to prevent leakage of RWSP water from failed piping.	19.2.5 13.5.2
14. In the case of failure of running CCWS, with CCW flow rate – low, operators start the standby CCW pump in order to maintain CCWS operating.	19.2.5 13.5.2
15. ~~In the case of failure of running ESWS, with CCW flow rate – low, operators start the standby ESW pump in order to maintain ESWS operating.~~	~~19.2.5~~ ~~13.5.2~~
16. When ESW strainer plugs up, with ESW pump pressure – normal, ESW flow rate – low and differential pressure – significant, operators switch from plugged strainer to standby strainer in order to maintain ESWS operating.	19.2.5 13.5.2
17. In the case of loss of decay heat removal functions from RHR, with RCS temperature – high or RCS water level – low, operators feed water to SGs by motor-driven EFW pump, open main steam depressurization valves and close the pressurizer spray vent valve (if the valve is opened) in order to remove decay heat from RCS.	19.2.5 13.5.2

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Table 19.1-119R Key Insights and Assumptions (Sheet 29 of 50)

Key Insights and Assumptions	Dispositions
25. For operator actions at local area (action that takes place outside control room) auxiliary operators (licnsed and non-licensed) are available: - Auxiliary operator 1 - Auxiliary operator 2 Normally the auxiliary operators are stational in the MCR. If the local manipulation of equipment is required to mitigate accidents or to prevent core damage, the auxiliary operator moves to the appropriate area in the reactor building or auxiliary building, to access equipment such as manual valves. It is assumed that auxiliary operator 1 operates equipment~~s~~ and auxiliary operator 2 checks the actions of auxiliary operator 1. If auxiliary operator 1 commits an error during the operation, auxiliary operator 2 corrects it.	19.2.5 13.5.2
26. Misalignment of remote-operated valves (e.g. motor-operated valves, air-operated valves), pumps and gas turbine generators after test and maintenance will be fixed before initiating events occur. Remote-operated valve open/close positions and control switch positions are monitored in the main control room, so they will be detected in a short time.	19.1.6 13.5.2
27. The controls and displays available in the US-APWR control room are superior to conventional control room HSIs and, therefore, human error probabilities in the US-APWR operation would be less than those in conventional plants.	Chapter 18 19.1

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Table 19.1-119R Key Insights and Assumptions (Sheet 31 of 50)

Key Insights and Assumptions	Dispositions
LPSD assumptions	
1. Freeze plug may not be used for US-APWR because the isolation valves are installed considering maintenance and CCWS has been separated individual trains. Therefore, the freeze plug failure is excluded from the potential initiator.	13.5.2
2. Redundant narrow range water level instrument and a mid-range water level instrument are provided to measure mid-loop water level. Installation of a redundant water narrow level instrument enhances reliability of the mid-loop operation. A temporary mid-loop water level sensor that measures the RCS water level with reference to pressure at the reactor vessel head vent line and cross over leg is installed in addition to these permanent water level sensors to cope with surge line flooding events.	5.4.7.2.3.6 Figure 5.1-2
3. When the RCS is mid-loop operation with the closed state, the reflux cooling with the SGs is effective.	19.1.6 19.2.5 13.5.2
4. Various temporary equipment~~s~~ will be possible ~~temporary~~ in the containment during LPSD operation for maintenance. However, it is unlikely that ~~there are few possibilities that~~ these materials reach the RWSP because debris interceptors are installed over the SG compartment floor openings and within the header compartment (see Chapter 6, Subsection 6.2.2).~~fall into the sump because the debris interceptor is installed on the sump of US-APWR.~~ Therefore, potential plugging of the suction strainers due to debris is excluded from the PRA modeling.	6.2.2

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Table 19.1-119R Key Insights and Assumptions (Sheet 33 of 50)

Key Insights and Assumptions	Dispositions
10. The reactivity insertion event due to boron dilution has been judged to be insignificant to risk because of the following factors: - Strict administrative controls are in place to prevent boron dilution - Boron dilution events are highly recoverable - The CVCS design inherently limits te maximum boron duration rate. - The consequences of re-criticality are minor unless they continue for very long.	15.4.6.2 19.2.5 13.5.2
11. Administrative controls ensure the RCS water level, temperature and pressure indication are available during shutdown.	19.2.5 13.5.2
12. ~~Pressurizer safety valves are removed to prevent the damage of SG nozzle dams caused by loss of RHR while SG nozzle dams and the reactor vessel head are placed.~~Either at least three pressurizer safety valves or the pressurizer manway is removed to prevent potential damage of the SG nozzle dams and loss of RCS inventory caused by loss of RHR function and subsequent pressurization while SG nozzle dams and reactor vessel head are in place.	5.4.7.2.3.6
13. Maintenance rule process is implemented to evaluate the risk of configurations being entered during shutdown. These practices assure that removing a number of related systems from service at the same time is carefully considered and virtually never done when the conditional risk impacts are high.	17.6
14. The SG nozzle dam installation level for the US-APWR is higher than in most conventional operating plants. The installation and removal of SG nozzle dams are done when the RCS water level is above the top of the main coolant piping (MCP).	5.4.7.2.3.6
15. The de-tensioning and tensioning of RV head stud bolts are performed at an RCS water level between the flange and the top of the MCP.	5.4.7.2.3.6
16. The installation and removal of the in-core instrumentation system (ICIS) is not done at mid-loop operation but is done when the RCS water level is above the top of the MCP.	5.4.7.2.3.6
17. Loss of SFP cooling is also progress the phenomena and has sufficient time to recovery because of large coolant inventory in the pool.	

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Table 19.1-119R Key Insights and Assumptions (Sheet 34 of 50)

Key Insights and Assumptions	Dispositions
18. Surge line flooding may occur if decay heat removal function is lost during plant operating states where the pressurizer manway is the only vapor release pass from the RCS. Water held up in the pressurizer can erroneous readings of water level indicators measured with reference to the pressurizer. This phenomenon can also prevent gravity injection from the SFP. Measures to prevent accident evolution caused by surge line flooding are important. Adoption of both measures listed below can reduce risk from surge line flooding event. - Installation of an temporary RCP water level sensor that measure the MCP water level with reference to pressure at the reactor vessel head vent line and cross over leg when the RCS is vented at a high elevation. - Operational procedures to perform continuous RCS injections when loss of RHR occurs under conditions where the pressurizer manway is the only vapor release pass from the RCS. The temporary water level will satisfy the following specifications. - Water level can be read outside the containment vessel (CV) in order to be effective during events which involve harsh environment in the CV - Tygon tubing monometer will not be used - Instrumentation piping diameter will be sufficient enough to prevent delay in response	5.4.7.2.3.6 19.2.5 13.5.2
19. Two types of instruments are provided in US-APWR design to measure the temperature representative of the core exit whenever the reactor vessel head is located on top of the reactor vessel. The first one is core exit thermocouples located inside the RV. The second is resistance temperature detectors in the reactor coolant hot leg. These two independent instruments will be available whenever the RCS is in a mid-loop condition and the reactor vessel head is located on top of the reactor vessel.	5.4.7.2.3.6
20. ~~Administrative controls to ensure the availability of a train of the SIS and associated water source (i.e., the RWSP) as an RCS make up function during cold shutdown~~Technical Specification controls to ensure the OPERABILITY of a train of the SIS and associated water source (i.e., RWSP and refueling cavity) as an RCS makeup function during cold shutdown in reduced inventory conditions and during refueling with water level <23 ft above the top of reactor vessel flange.	~~13.5.2~~TS 3.4.8, TS 3.9.6
21. Operating procedural controls to ensure the availability of the refueling cavity level instrument and alarm while the refueling cavity is flooded.	13.5.2
22. Operating procedural controls to ensure the availability of at least one safety-related pump, e.g., a CS/RHR pump, to provide makeup to the refueling cavity when the cavity is flooded.	13.5.2

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Table 19.1-119R Key Insights and Assumptions (Sheet 35 of 50)

Key Insights and Assumptions	Dispositions
23. Administrative controls to ensure that the availability of equipment necessary to achieve containment isolation, specifically, the equipment hatch hoist, lifting rig, and AACs while the containment remains open.	13.5.2
24. All containment penetrations are closed immediately after a loss of all RHR trains.	13.5.2

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Table 19.1-119R Key Insights and Assumptions (Sheet 36 of 50)

Key Insights and Assumptions	Dispositions
Expeditious actions outlined in GL 88-17 The following actions described as expeditious actions in Generic Letter 88-17 (Reference 19.1-54) are important to plant safety and should be implemented prior to operating in a reduced inventory condition. The expeditious actions applicable to the US-APWR design are the followings:	
1. Discuss the Diablo Canyon event, related events, lessons learned, and implications with appropriate plant personnel. Provide training shortly before entering a reduced inventory condition.	13.5.2
2. Implement procedures and administration controls that reasonably assure that containment closure will be achieved prior to the time at which a core uncover could result from a loss of decay heat removal coupled with an inability to initiate alternate cooling or addition of water to the RCS inventory. These procedures and administrative controls should be active and in use prior to entering a reduced RCS inventory condition. Procedures should reflect that the containment is capable of being closed prior to reaching 200 °F in the RCS.	13.5.2
3. Provide at least two independent, continuous temperature indications that are representative of the core exit conditions whenever the RCS is in a mid-loop condition and the reactor vessel head is located on top of the reactor vessel.	13.5.2
Two types of instruments provided in the US-APWR design to measure RV temperature are core exit thermocouples located inside the RV and the resistance temperature detectors in the reactor coolant hot leg.	7.5.1.1.3.1 7.5.1.1.3.3
4. Provide at least two independent, continuous RCS water level indications whenever the RCS is in a reduced inventory condition.	13.5.2
~~Two types of instruments are provided in US-APWR design to measure RCS water level are the middle range RCS water level sensor and the narrow level middle range water level sensor .~~Redundant narrow range level instruments are provided to meet this requirement.	5.4.7.2.3.6
5. Implement procedures and administrative controls that generally avoid operations that deliberately or knowingly lead to perturbations to the RCS and/or to systems that are necessary to maintain the RCS in a stable and controlled condition while the RCS is in a reduced inventory condition.	13.5.2
6. Provide at least two available or operable means of adding inventory to the RCS that are in addition to pumps that are a part of the normal DHR systems.	13.5.2
Means of adding inventory to the RCS in the US-APWR design can be safety injection pumps, charging pump and gravity injection from the SFP.	6.3.2.1.1 5.4.7.2.3.6 9.3.4.2.6.1

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Table 19.1-119R Key Insights and Assumptions (Sheet 37 of 50)

Key Insights and Assumptions	Dispositions
7. Implement procedures and administrative controls that reasonably assure that all hot legs are not blocked simultaneously by nozzle dams unless a vent path is provided that is large enough to prevent pressurization of the upper plenum of the RV. ~~At least three pressurizer safety valves are removed to prevent the damage of SG nozzle dams caused by loss of RHR function while SG nozzle dams and reactor vessel head are placed.~~ ~~In order to reduce the possibility of rapid loss of RCS inventory or core uncovery, removal of the pressurizer safety valves is done during the period between removal of the SG manyays on cold leg side and installation of the SG nozzle dams on hot leg side. Installation of the pressurizer safety valves is performed during a period between removal of the SG nozzle dams on hot leg side and installation of SG manways on cold leg side.~~As noted in GL 88-17 (Reference 19.1-54), there is a possibility of rapid loss of RCS inventory by ejection of water through the cold leg SG manways in the event of a loss of RHR and subsequent RCS pressurization. To minimize this potential, an RCS vent path is required in accordance with GL 88-17. Whenever a cold leg opening is made without the associated cold leg nozzle dam installed, a hot leg SG manway and its associated nozzle dam will be kept open to provide an adequate vent path. Consistent with guidance provided in IN 88-36 (Reference 19.1-55), a hot leg SG manway will be the first manway opened and a hot leg nozzle dam will be the last dam to be installed. CTS-01559	5.4.7.2.3.6 13.5.2
8. Plant personnel calculate a plant-specific time to reach 200 °F in the RCS and time to hatch closure in order to determine if the hatch is "capable of being closed" prior to reaching harsh environment in containment in the event of loss of RHR. CTS-01559	13.5.2

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Table 19.1-119R Key Insights and Assumptions (Sheet 42 of 50)

Key Insights and Assumptions	Dispositions
Internal fire assumption	
1. All fire doors serving as fire barriers between redundant safety train fire compartments are normally closed.	9.5.1
2. For transient combustibles, “three Airline trash bags” has been assumed in each fire compartment.	9.5.1
3. Transient combustibles with total heat release capacity of 93,000 Btu (obtained from NUREG/CR-6850, “AppendixG-table-7LBL-Von Volkinburg, Rubbish Bag” Test results) is assumed for Fire ignition source within Containment Vessel.	9.5.1
4. The Heat Release Rate of various items as specified in Chapter-11 of NUREG/CR-6850 is used.	9.5.1
5. Damage temperature of thermoplastic cables as shown in Appendix-H of NUREG/CR-6850 is used as the target damage temperature.	9.5.1
6. Human error probabilities of post-fire operator actions are assumed as follows.	9.5.1
- No credit has been taken for the operator actions of any equipment in the fire compartment affected by fire.	
- The Fire Brigade is provided to meet the requirements of Regulatory Guide 1.189. Higher stress levels of human actions post-fire are not assumed.	
- The HEP for operations at the remote shutdown console is assumed as 0.1.	
7. One of RCS letdown isolation valves and one of RCS vent line isolation valves are locked close by administrative controls	13.5.2
8. ~~Each yard transformer is separated by a fire barrier.~~	~~8.3.1.18~~

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Table 19.1-119R Key Insights and Assumptions (Sheet 47 of 50)

Key Insights and Assumptions	Dispositions
Internal flood assumption	
1. Drain systems are designed to compensate with flood having flow rate below 100 gpm. Flood with flow rate below 100 gpm will not propagate to other areas due to the drain systems.	3.4.1.3
2. R/B is separated in two divisions (i.e. east area and west area). This design is prevents loss of all safety systems though postulated major floods that leak water over the capacities of flood mitigation systems. East side and west side of reactor building (R/B) are physically separated by flood propagation preventive equipment such as water tight doors. Therefore, flood propagation between east side and west side in the reactor building is not considered.	3.4.1.3 19.2.5 13.5.2
3. Watertight doors are provided for the boundaries between R/B and A/B in the bottom floor and between R/B and T/B in flood area 1F. This measure prevents flood propagation from non-safety building to R/B.	3.4.1.3
4. ~~Flooding of ESW system can to be isolated within 15 minutes.~~ Flooding of ESW system can be isolated within 15 minutes. The leaking train can also be identified by low outlet flow from each CCW HX or decrease in the ESWS header pressure. The leaking ESWS trains are then isolated by shutting down the corresponding ESWS.	
5. Four trains of ESW system have physical separation and flooding in one train does not propagate to other trains.	9.2.1.2.1 13.5.2
6. The components that are environmentally qualified are considered impregnable to spraying or submerge effects. Also component failure by flooding will not result in the loss of an electrical bus.	
7. Penetrations within the boundaries between the restricted area and non-restricted area are sealed and doors or dikes are provided for openings. Therefore, flood propagation, except for major flood events is not considered.	3.4.1.3
8. ~~The administrative controlled flood barriers that separated the reactor building between the east side and the west side are effective. The other water tight doors may be opened during maintenance.~~ A water leak in the break room that adjoins the MCR would be isolated immediately by the operators in the MCR.	~~19.2.5~~ ~~13.5.2~~19.5.3.1
9. ~~The outage states of mitigation systems are important for LPSD risk. From the insight of flooding risk, one train of mitigation system on each side in R/B should be available. So that assumed the available safety injection pumps trains A and C are available during POS 8-1. B and D pumps are assumed out of service.~~ Internal flooding PRA is developed based on internal events PRA models. However, operator actions in flooded areas are not assumed.	~~19.2.5~~ ~~13.5.2~~19.1.4.1
10. ~~A water leak in the break room that adjoins the MCR would be isolated immediately by the operators in the MCR.~~ Operator actions to isolate or mitigate flood source are not assumed except the actions in the MCR and break room.	~~19.5.3.1~~19.1.4.1

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Table 19.1-119R Key Insights and Assumptions (Sheet 48 of 50)

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Key Insights and Assumptions	Dispositions
11. The administrative controlled flood barriers that separated the reactor building between the east side and the west side are effective. The other water tight doors may be opened during maintenance.	13.5.2 19.2.5 (RAI 19-50)
12. The outage states of mitigation systems are important for LPSD risk From the insight of flooding risk, one train of mitigation system on each side in R/B should be available. So that assumed the available safety injection pumps trains A and C are available during POS 8-1. B and D pumps are assumed out of service.	13.5.2 19.2.5

19.3 OPEN, CONFIRMATORY, AND COL ACTION ITEMS IDENTIFIED AS UNRESOLVED

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

19.3.3 Resolution of COL Action Items

Replace the content of DCD Subsection 19.3.3 with the following.

CP COL 19.3(1) ***19.3(1)*** *Update of PRA and SA evaluation for input to RMTS and peer review*

This COL item is addressed in Subsections 19.1.2.3 and 19.1.7.6. RCOL2_19-24

19.3(2) *Deleted from the DCD.*

19.3(3) *Deleted from the DCD.*

CP COL 19.3(4)
STD COL 19.3(4) ***19.3(4)*** *Update of PRA and SA evaluation based on site-specific information*

This COL item is addressed in Subsections 19.1.1.2.1, 19.1.4.1.2, 19.1.4.2.2, 19.1.5, 19.1.5.1.1, 19.1.5.2.2, 19.1.5.3.2, 19.1.6.2, 19.1.7.1, 19.1.9, 19.2.6.1, 19.2.6.1.1, 19.2.6.2, 19.2.6.4, 19.2.6.5 and *19.2.6.6, Tables 19.1-201, 19.1-202, 19.1-203, 19.1-204, 19.1-205, 19.1-206* and *19.2-9R, and Figures 19.1-201 and 19.1-2R.* CTS-01559

CP COL 19.3(5) ***19.3(5)*** *SSC fragilities*

This COL item is addressed in Subsections 19.1.5.1.1, 19.1.5.1.2, 19.1.9 and Table 19.1-206. CTS-01559

STD COL 19.3(6)
CP COL 19.3(6) ***19.3(6)*** *Accident management program*

This COL item is addressed in Subsections 19.2.5, 19.2.7 and Table 19.1-119R. CTS-01559

STD COL 19.3(7) ***19.3(7)*** *Equipment survivability assessment*

This COL item is addressed in Subsection 19.2.3.3.7.

CP COL 19.3(8) ***19.3(8)*** *Licensee programs and risk-informed applications*

This COL item is addressed in Subsections 19.1, 19.1.1.2.1, 19.1.1.3.1, 19.1.1.3.2, 19.1.1.4, 19.1.1.4.1, ~~and~~ 19.1.1.4.2, and 19.1.7, and Table 19.1-207. RCOL2_19-25 CTS-01559

CP COL 19.3(9) ***19.3(9)*** *PRA Maintenance and upgrade programs*

APPENDIX 19B

CTS_01559

SUMMARY OF PSMS RELIABILITY ANALYSIS IN PRA

19B SUMMARY OF PSMS RELIABILITY ANALYSIS IN PRA

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This section of the referenced DCD is incorporated by reference with no departure or supplements.