September 27, 2013

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

Part 10

ITAAC and Proposed License Conditions

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
-	05/31/2012	Updated Section: Appendix A.1 See Luminant Letter no. TXNB-12016 Date 05/31/2012 Incorporated responses to following RAIs No. 251
-	06/21/2012	Updated Section: Appendix A.1 See Luminant Letter no. TXNB-12022 Date 06/21/2012 Incorporated responses to following RAIs No. 254
-	07/16/2012	Updated Section: Appendix A.1 See Luminant Letter no. TXNB-12025 Date 07/16/2012 Incorporated responses to following RAIs No. 56 Supplemental 01
-	07/24/2012	Updated Sections: 2.6, 3 See Luminant Letter no. TXNB-12027 Date 07/24/2012 Incorporated responses to following RAIs No. 261
-	09/14/2012	Updated Sections: Appendix A.1, Appendix A.3 See Luminant Letter no. TXNB-12032 Date 09/14/2012 Incorporated responses to following RAIs No. 250

-	09/24/2012	Updated Sections: Appendix A.1, Appendix A.2 See Luminant Letter no. TXNB-12034 Date 09/24/2012 Incorporated responses to following RAIs No. 254 S01
-	09/26/2012	Updated Sections: 3, Appendix A.7 See Luminant Letter no. TXNB-12035 Date 09/26/2012 Incorporated responses to following RAIs No. 262
0	08/27/2012	Updated Section: Appendix A.2
1	02/26/2013	Updated Section: Appendix A.3
2	03/27/2013	Updated Section: 2.6, 3
-	03/04/2013	Updated Sections: Appendix A.1 See Luminant Letter no. TXNB-13006 Date 03/04/2013 Incorporated responses to following RAIs No. 56 S02
-	04/16/2013	Updated Sections: Appendix A.2 See Luminant Letter no. TXNB-13012 Date 04/16/2013 Incorporated responses to following RAIs No. 273
3	8/1/2013	Updated Section: 2, 2.6, 2.7, 3
4	9/27/2013	Updated Sections: Appendices A.1, A.2, A.3, A.4, A.5 and A.7

Tracking Report Revision List

Change ID No.	Section	ITAAC Rev.3 Page *	Reason for change	Change Summary	Rev. of T/R
RCOL2_09.02.01-10	Appendix A.1 Table A.1-1 (Sheet 6 of 7)	9 16	Response to RAI No. 251 Luminant Letter no.TXNB-12016 Date 05/31/2012	Clarified that water hammer is prevented in the ESWS as well as the UHS, including testing of the as-built.	-
RCOL2_14.03.07-38	Appendix A.1 A.1.1 Table A.1-1 (Sheet 7 of 7)	11 [10] 18 [17]	Response to RAI No. 254 Luminant Letter no.TXNB-12022 Date 6/21/2012	Added ITAAC to address UHS fan qualification against tornado effects. Added ITAAC to address cooling tower spray nozzle size.	-
RCOL2_14.03.03-1 S01	Appendix A.1 A.1.1 Table A.1-1 (Sheet 7 of 7)	11 18	Supplemental 01 Response to RAI No. 56 Luminant Letter no.TXNB-12025 Date 7/16/2012	An additional ITAAC (#21) was added to Table A.1-1 to verify the “design” of ASME Section III Piping and Components.	-
RCOL2_01.05-3	2.6 3	3 7	Response to RAI No. 261 Luminant Letter no.TXNB-12027 Date 7/24/2012	Added description regarding a potential condition to the license. Added a proposed licensing condition.	-

Change ID No.	Section	ITAAC Rev.3 Page *	Reason for change	Change Summary	Rev. of T/R
RCOL2_03.03.02-9	Appendix A.1 A.1.1 Table A.1-1 (Sheet 7 of 7) Appendix A.3 A.3.1 A.3.1.1	 11 18 32 32, 33	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	Figure A.1-1	22	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.	-
RCOL2_14.0 3.07-38 S01	Table A.2-2 (Sheet 1 of 2)	28	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_14.0 3.07-38 S01	Table A.2-3	30	Supplemental Response to RAI No. 254 Luminant Letter no.TXNB-12034 Date 09/24/2012	Alarms, displays and control functions of the following SSCs are added to the table. - ESW piping room unit heaters - UHS transfer piping room unit heaters	-
RCOL2_14.0 3.07-38 S01	Figure A.2-1	31	Supplemental Response to RAI No. 254 Luminant Letter no.TXNB-12034 Date 09/24/2012	The figure is revised to add newly introduced dampers.	-
RCOL2_03.06.01-1	3	7 [8]	Response to RAI No. 262 Luminant Letter no.TXNB-12035 Date 9/26/2012	Revised the Proposed Licensing condition reflecting changes in COL 3.6(1) and 3.6(4).	-

Change ID No.	Section	ITAAC Rev.3 Page *	Reason for change	Change Summary	Rev. of T/R
RCOL2_03.06.01-1	Appendix A.7 A.7.1 A.7.2 Table A.7-1	47 [49]	Response to RAI No. 262 Luminant Letter no.TXNB-12035 Date 9/26/2012	Revised the Design Description and ITAAC reflecting changes in COL 3.6(1) and 3.6(4).	-
CTS-01504	Appendix A.2 Table A.2-1 ITAAC 1.b	25	NRC reviewer comment from a view point of consistency with S-COLA	Added ", considering postulated dynamic effects (i.e., missile and pipe break hazard), internal flooding and fire" to the last sentence of the Acceptance Criteria.	0
CTS-01504	Appendix A.2 Table A.2-1 ITAAC 3.b	26	NRC reviewer comment from a view point of consistency with S-COLA	The last word in the Design Commitment, "cable", changed to "cables"	0
CTS-01504	Appendix A.2 Table A.2-1 ITAAC 3.b	26	NRC reviewer comment from a view point of consistency with S-COLA	Wording in the Acceptance Criteria after "RG 1.75" changed to: ", between the as-built cables of redundant UHS ESW pump house ventilation systems Class 1E divisions"	0

Change ID No.	Section	ITAAC Rev.3 Page *	Reason for change	Change Summary	Rev. of T/R
CTS-01504	Appendix A.2 Table A.2-1 ITAAC 5.a	26	NRC reviewer comment from a view point of consistency with S-COLA	Deleted “exist” and “to” from the Acceptance Criteria.	0
CTS-01504	Appendix A.2 Table A.2-1 ITAAC 6	26 [27]	NRC reviewer comment from a view point of consistency with S-COLA	Deleted “of the parameters” from the Design Commitment.	0
CTS-01504	Appendix A.2 Figure A.2-1	31	NRC reviewer comment from a view point of consistency with S-COLA	Revised the figure to add a backdraft damper at each room inlet/outlet duct.	0
CTS-01511	Appendix A.3, A.3.1	32, 33, 34, 37 [35,38]	To reflect updates on the Technical Report MUAP-10006(Rev3)	The term”R/B complex” is used to collectively PCCV, PS/Bs, and A/Bs.	1
CTS-01511	Appendix A.3 Table A.3-1	35, 36, 37 [38]	To reflect updates on the Technical Report MUAP-10006(Rev3)	The wording in the title of the ITAAC Table A.3-1 is changed replacing “USHRS, ESPWT and PSFSV” with “Plant specific structures”.	1
CTS-01512	Appendix A3 Table A3-2 (sheet 1, 2, 3 [4])	38, 39 and 40 [41, 42]	To reflect changes in Plot Plan and AIA.	Floor elevations and wall thicknesses revised.	1
CTS-01512	Appendix A.3 Figure A.3-1 [Sheet 1 and 2 of 2]	41 [43, 44]	To reflect changes in Plot plan	Overall General Arrangement plan replaced with the updated version; and minor editorial correction.	1

Change ID No.	Section	ITAAC Rev.3 Page *	Reason for change	Change Summary	Rev. of T/R
CTS-01526	2.6	3	Reflection of EP rule change	Added discussion of new License Condition for a detailed shift staffing analysis.	2
CTS-01526	3	7	Reflection of EP rule change	Revised License Condition (v) to address the detailed on-shift staffing assessment performed pursuant to 10 CFR Part 50, Appendix E, Section IV.A.9.	2
RCOL2_14.03.03-1 S02	Appendix A.1 A.1.1	11 [12]	2nd Supplemental Response to RAI No. 56 Luminant Letter no.TXNB-13006 Date 03/04/2013	The single design commitment for piping system and components was divided into two, one for piping system and the other for components.	-
RCOL2_14.03.03-1 S02	Appendix A.1 Table A.1-1 (Sheet 7[7, 8] of 7[8])	18 [19, 20]	2nd Supplemental Response to RAI No. 56 Luminant Letter no.TXNB-13006 Date 03/04/2013	The DC, ITA and AC of the ITAAC for piping system and components were divided into two, one for piping system and the other for components.	-
RCOL2_14.03.07-39	Appendix A.2 A.2.1 Table A.2-1 (Sheets 2 [3], 3 [4] of 3 [4])	24 [25] 26 [28], 27 [29]	Response to RAI No. 273 Luminant Letter no.TXNB-13012 Date 4/16/2013	Add the description of UHS ESW pump house air intakes and outlets are protected from tornado and hurricane missiles. Table A.2-1, item 5.c was revised. Table A.2-1, item 8 was added.	-

Change ID No.	Section	ITAAC Rev.3 Page *	Reason for change	Change Summary	Rev. of T/R
CTS-01533	2	2	Reflection of updated status of proposed license condition development	The 1st, 3rd and 4th sentences of the section were deleted.	3
CTS-01533	2.6 2.7 3	3 6 [8]	Reflection of Fukushima-related RCOLA Part 2 Revision 3 UTR revision 2	Section 2.7 was added. Intent of the paragraph 3 in Section 2.6 was absorbed in the new Section 2.7. Item 2.D(15) was added to Section 3.	3
CTS-01533	3	5, 6	Consistency in description of RCOLA RAI number	Description of RAI numbers in Sources for item 2.D(11), 2.D(12) and 2.D(14) were revised.	3
CTS-01550	Appendix A.1 A.1.1 Table A.1-1 (Sheet 1, 5 6[7, 10]	8 ,10, 11 [9, 12] 12[13] 16, 17, [18, 19, 22]	Consistency with MUAP-DC020, Tier 1 (DCD Tier 1 Revision 4) dated 8/30/2013	Descriptions in Section A.1.1 and Table A.1-1 (ITAAC #1.b, 8, 9.a, 10.a, 11, 12) were revised. Table A.1-1 ITAAC #23 was added.	4
CTS-01551	Appendix A.1 A.1.1 Table A.1-1 (Sheet 3, 4, 7[8, 9, 10] Table A.1-2 Table A.1-3	8, 9, 10, 11[12] 14, 15, 18 [16, 20, 21, 22] 19, 20 [23, 24] 21 [25]	Editorial correction	Descriptions in Section A.1.1, Table A.1-1, Table A.1-2 and Table A.1-3 were revised.	4
CTS-01550	Appendix A.2 A.2.1 Table A.2-1(Sheet 1,2,3 [4])	23 [27] 25, 26, 27 [29, 30, 31, 32]	Consistency with MUAP-DC020, Tier 1 (DCD Tier 1 Revision 4) dated 8/30/2013	Descriptions in Section A.2.1 and Table A.2-1 (ITAAC #1.b, 4, 5.a, 6, 7) were revised.	4

Change ID No.	Section	ITAAC Rev.3 Page *	Reason for change	Change Summary	Rev. of T/R
CTS-01551	Appendix A.2 A.2.1 Table A.2-1 (Sheet 1, 2) Table A.2-2	23 [27] 25, 26, [29, 30] 28, 29 [33, 34]	Editorial correction	Descriptions in Section A.2.1, Table A.2-1 and Table A.2-2 were revised.	4
CTS-01550	Appendix A.3 A.3.1.3 Table A.3-1(Sheet 1, 3[4]) Table A.3-2 (Sheet 1, 2, 3[4])	33, 34, 35, 37, 38, 39, 40, 45 [39, 41, 44, 45, 46, 47, 48]	Consistency with MUAP-DC020, Tier 1 (DCD Tier 1 Revision 4) dated 8/30/2013	Descriptions in Section A.3.1 and Table A.3-1 (ITAAC #1) and in Table A.3-2 (header and note) were revised. Table A.3-1 ITAAC #12 was added.	4
CTS-01551	Appendix A.3 A.3.1 A.3.1.1 A.3.1.3 Table A.3-1 (sheet 1,2, 3, [4]) Table A.3-2(Sheet 1[2]	32, 33,34, 35, 36, 37, 38 [39, 40, 41, 42, 43, 44, 46]	Editorial correction	Descriptions in Section A.3.1, A.3.1.1, A.3.1.3, Table A.3-1 and Table A.3-2 were revised.	4
CTS-01552	Appendix A.3 A.3.1 A.3.1.1 Table A.3-2(sheet 1[2])	32, 33, 38 [37, 46]	Reflect FSAR Chapter 3 changes to be submitted in RCOLA FSAR Rev3 UTR 3 on or before 10/14/2013.	Descriptions in Section A.3.1, A.3.1.1 and in Table A.3-2 were revised to introduce design description of UHS ESWPT and to replace "pipe chase in UHSRS" with "UHS ESWPT."	4
CTS-01550	Appendix A.4 Table A.4-1 (Sheet 2)	45 [54]	Consistency with MUAP-DC020, Tier 1 (DCD Tier 1 Revision 4) dated 8/30/2013	Description in Table A.4-2 (ITAAC #7) was revised.	4

Change ID No.	Section	ITAAC Rev.3 Page *	Reason for change	Change Summary	Rev. of T/R
CTS-01550	Appendix A.5 Table A.5-2	46 [55]	Consistency with MUAP-DC020, Tier 1 (DCD Tier 1 Revision 4) dated 8/30/2013	Description in Table A.5-2 header was revised.	4
CTS-01550	Appendix A.7 A.7.1 Table A.7-1	47 [57, 58]	Consistency with MUAP-DC020, Tier 1 (DCD Tier 1 Revision 4) dated 8/30/2013	Description was added to Section A.7.1. ITAAC #2 was added to Table A.7-1.	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.

PART 10 - APPENDIX A.1

ULTIMATE HEAT SINK SYSTEM (UHSS) AND ESSENTIAL SERVICE WATER SYSTEM (ESWS) (PORTIONS OUTSIDE THE SCOPE OF THE CERTIFIED DESIGN)

A.1.1 Design Description

The ultimate heat sink system (UHSS) is a safety-related system that (1) removes heat from the essential service water system (ESWS) during normal operation, transients, accidents and design-basis events, (2) provides the required cooling for a minimum of 30 days without make-up during all plant operating conditions including normal plant operations, abnormal and accident conditions, (3) provides water to the seismic stand pipe header of the fire protection system to assure manual fire suppression capability following a safe shutdown earthquake. CTS-01551

As shown in Figure A.1-1 and described in Table A.1-2, the major components of the UHSS are four 50 percent capacity mechanical draft cooling towers, one for each ESWS division, and four 33 1/3 percent capacity basins to satisfy the thirty day cooling water supply criteria. In addition, a UHS transfer pump is located in each UHS basin to enable water transfer between UHS basins during accident conditions.

The UHSS is capable of performing required safety functions assuming that one division is out of service for maintenance coincident with the postulated loss of offsite power and any single failure within the UHSS.

The essential service water is cooled by the UHS cooling tower before being returned to the UHS basin. Heat rejection to the environment is effected by direct contact of the hotter essential service water discharging from the ESWS with the UHS cooling tower forced airflow.

Upon the receipt of an ECCS actuation signal, all UHS cooling tower fans automatically start or continue to operate. Upon the receipt of an ECCS actuation signal or UHS basin low water level signal, the UHS basin blowdown control valves automatically close. A water level signal at six inches below the normal water level causes the makeup water control valve to open. A signal at normal water level then causes the makeup control valve to close.

The UHSS can supply at least 18,000 gallons of water to the seismic standpipe system via the ESWS if necessary for manual fire suppression following a safe shutdown earthquake (SSE).

1.a The functional arrangement of the UHSS and ESWS (portions outside the scope of the certified design) is as described in the Design Description of Section A.1.1 and as shown on Figure A.1-1.

1.b Each mechanical division of the UHSS and ESWS (~~Division A, B, C & D~~portions outside the scope of the certified design, as shown in Figure A.1-1) is physically separated from the other divisions, except for the CTS-01550

header portion of the transfer line piping, so as not to preclude accomplishment of the safety function.

2.a.i The ASME Code Section III components of the UHSS and ESWS (portions outside the scope of the certified design), identified in Table A.1-2, are fabricated, installed and inspected in accordance with ASME Code Section III requirements.

2.a.ii The ASME Code Section III components of the UHSS and ESWS (portions outside the scope of the certified design), identified in Table A.1-2, are reconciled with the design requirements.

2.b.i The ASME Code Section III piping of the UHSS and ESWS (portions outside the scope of the certified design), identified in FSAR Table 3.2-201, is fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

2.b.ii The ASME Code Section III piping of the UHSS and ESWS (portions outside the scope of the certified design), including supports, identified in FSAR Table 3.2-201, is reconciled with the design requirements.

3.a Pressure boundary welds in ASME Code Section III components, identified in Table A.1-2, meet ASME Code Section III requirements for non-destructive examination of welds.

3.b Pressure boundary welds in ASME Code Section III piping of the UHSS and ESWS (portions outside the scope of the certified design), identified in FSAR Table 3.2-201, meet ASME Code Section III requirements for non-destructive examination of welds.

4.a The ASME Code Section III components, identified in Table A.1-2, retain their pressure boundary integrity at their design pressure.

4.b The ASME Code Section III piping of the UHSS and ESWS (portions outside the scope of the certified design), identified in FSAR Table 3.2-201, retains its pressure boundary integrity at its design pressure.

5.a The seismic Category I equipment, identified in Table A.1-2, ~~is~~ can withstand seismic design--basis loads without loss of safety function. CTS-01551

5.b The seismic Category I piping of the UHSS and ESWS (portions outside the scope of the certified design), including supports, identified in FSAR Table 3.2-201, can withstand seismic design--basis loads without a loss of its safety function. CTS-01551

6.a The Class 1E components, identified in Table A.1-2, are powered from their respective Class 1E division.

6.b Separation is provided between redundant divisions of Class 1E cables, and between Class 1E cables and non-Class 1E cables.

7. The UHSS is capable of removing the maximum design heat load transferred from the ESWS during normal plant operations, abnormal and accident conditions of the plant.

8. Controls are provided in the MCR to open and close the remotely operated valves identified in Table A.1-2.

9.a The ~~remotely operated~~ valves, identified in Table A.1-2 as having an active safety function can perform an active safety function to change position as indicated in the table~~.~~ under the expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions. CTS-01550

9.b The remotely operated valves identified in Table A.1-2 as having PSMS control perform an active safety function after receiving a signal from PSMS.

9.c After loss of motive power, the remotely operated valves, identified in Table A.1-2, assume the indicated loss of motive power position.

10.a Controls are provided in the MCR to start and stop the pumps and fans identified in Table A.1-3.

10.b The fans identified in Table A.1-2 as having PSMS control perform an~~s~~ active safety function after receiving a signal from PSMS. CTS-01551

11. Alarms and displays identified in Table A.1-3 are provided in the MCR.

12.a Alarms, displays and controls identified in Table A.1-3 are provided in the RSC.

12.b Controls on the RSC operate the as-built pumps, fans and valves identified in Table A.1-3.

13. Each UHS basin has a volume to satisfy the thirty day cooling water supply criteria.

14. The UHS transfer and ESW pumps have sufficient NPSH~~-~~. CTS-01551

15. ESW pump operation does not cause vortex formation at minimum allowed UHSS water level.

16. Water hammer is prevented in the UHSS and the ESWS. RCOL2_09.02.01-10

17. The sum of the ESW pump shutoff head and static head is such that the ESWS design pressure is not exceeded.

18. The UHSS is capable of performing its safety functions under design-basis event conditions and coincident single failure with or without offsite power available. CTS-01551

19. The UHS cooling tower fans, identified in Table A.1-2, can withstand design-basis tornado and hurricane effects, including differential pressure effects and overspeed, without loss of safety function. RCOL2_14.0 3.07-38 RCOL2_03.0 3.02-9 CTS-01551

20. The UHS cooling tower spray nozzles and orifices are sized to prevent clogging due to debris.

21. The ASME Code Section III, Class 3 piping systems ~~and components~~, for the UHSS and ESWS (portions outside the certified design), identified in FSAR Table 3.2-201 are designed to retain their pressure integrity and functional capability under internal design and operating pressures and design-basis loads. RCOL2_14.0 3.03-1 S01 RCOL2_14.0 3.03-1 S02 CTS-01551

22. The ASME Code Section III, Class 3 components, for the UHSS and ESWS (portions outside the certified design), identified in FSAR Table 3.2-201 are designed to retain their pressure integrity and functional capability under internal design and operating pressures and design-basis loads. RCOL2_14.0 3.03-1 S02

23. The pumps identified in Table A.1-2 can perform their safety functions under the expected ranges of fluid flow, pump head, electrical conditions and temperature conditions up to and including design-basis conditions. CTS-01550

A.1.2 Inspections, Tests, Analysis, and Acceptance Criteria

Table A.1-1 describes ITAAC for the UHSS and ESWS portions outside the scope of the certified design.

Appendix A.1

Table A.1-1 (Sheet 1 of 10)

**Ultimate Heat Sink System and Essential Service Water System
(Portions Outside the Scope of the Certified Design)
Inspections, Tests, Analyses, and Acceptance Criteria**

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
1.a The functional arrangement of the UHSS and ESWS (portions outside the scope of the certified design) is as described in the Design Description of Section A.1.1 and as shown on Figure A.1-1.	1.a Inspection of the as-built UHSS and ESWS (portions outside the scope of the certified design) will be performed.	1.a The as-built UHSS and ESWS (portions outside the scope of the certified design) conform to the functional arrangement as described in the Design Description of Section A.1.1 and as shown on Figure A.11.
1.b Each mechanical division of the UHSS and ESWS (~~Division A, B, C & D~~portions outside the scope of the certified design shown in Figure A.1-1) is physically separated from the other divisions, except for the header portion of the transfer line piping, so as not to preclude accomplishment of the safety function.	1.b Inspections and analysis of the as-built UHSS and ESWS system will be performed.	1.b A report exists and concludes that each mechanical division of the as-built UHSS and ESWS (~~Division A, B, C & D~~portions outside the scope of the certified design shown in Figure A.1-1), except for the header portion of the transfer line piping is physically separated from the other divisions of the system by spatial separation, barriers, or enclosures so as to assure that the functions of the safety related systems are maintained considering postulated dynamic effects (i.e., missile and pipe break hazards), internal flooding and fire.
2.a.i The ASME Code Section III components of the UHSS and ESWS (portions outside the scope of the certified design), identified in Table A.1-2, are fabricated, installed and inspected in accordance with ASME Code Section III requirements.	2.a.i Inspection of the as-built ASME Code Section III components of the UHSS and ESWS (portions outside the scope of the certified design) identified in Table A.1-2 will be performed.	2.a.i The ASME Code Section III data report(s) (certified, when required by ASME Code) and inspection reports (including N-5 Data Reports where applicable) exist and conclude that the as-built ASME Code Section III components of the UHSS and ESWS (portions outside the scope of the certified design) identified in Table A.1-2 are fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

CTS-01550

CTS-01550

Appendix A.1

Table A.1-1 (Sheet 3 of 10)

Ultimate Heat Sink System and Essential Service Water System (Portions Outside the Scope of the Certified Design) Inspections, Tests, Analyses, and Acceptance Criteria

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
3.a Pressure boundary welds in ASME Code Section III components, identified in Table A.1-2, meet ASME Code Section III requirements for non-destructive examination of welds.	3.a Inspections of the as-built pressure boundary welds in ASME Code Section III piping identified in Table A.1-2 will be performed in accordance with the ASME Code Section III.	3.a The ASME Code Section III code reports exist and conclude that the ASME Code Section III requirements are met for non-destructive examination of the as-built pressure boundary welds in ASME Code Section III piping identified in Table A.1-2.
3.b Pressure boundary welds in ASME Code Section III piping of the UHSS and ESWS (portions outside the scope of the certified design), identified in FSAR Table 3.2-201, meet ASME Code Section III requirements for non-destructive examination of welds.	3.b Inspections of the as-built pressure boundary welds in ASME Code Section III piping of the UHSS and ESWS (portions outside the scope of the certified design) identified in FSAR Table A.1-2 will be performed in accordance with the ASME Code Section III.	3.b The ASME Code Section III code reports exist and conclude that the ASME Code Section III requirements are met for non-destructive examination of the as-built pressure boundary welds in ASME Code Section III piping of the UHSS and ESWS (portions outside the scope of the certified design) identified in FSAR Table 3.2-201.
4.a The ASME Code Section III components, identified in Table A.1-2, retain their pressure boundary integrity at their design pressure.	4.a A hydrostatic test will be performed on the as-built components, identified in Table A.1-2, required by the ASME Code Section III to be hydrostatically tested.	4.a ASME Code Data Report(s) exist and conclude that the results of the hydrostatic test of the as-built components identified in Table A.1-2 as ASME Code Section III conform to the requirements of the ASME Code Section III.
4.b The ASME Code Section III piping of the UHSS and ESWS (portions outside the scope of the certified design), identified in FSAR Table 3.2-201, retains its pressure boundary integrity at its design pressure.	4.b A hydrostatic test will be performed on the as-built piping of the UHSS and ESWS (portions outside the scope of the certified design), identified in FSAR Table 3.2-201, required by the ASME Code Section III to be hydrostatically tested.	4.b ASME Code Data Report(s) exist and conclude that the results of the hydrostatic test of the as-built piping of the UHSS and ESWS (portions outside the scope of the certified design) identified in FSAR Table 3.2-201 as ASME Code Section III conform to the requirements of the ASME Code Section III.
5.a The seismic Category I equipment, identified in Table A.1-2, can withstand seismic design–basis loads without loss of safety function.	5.a.i Inspections will be performed to verify that the as-built seismic Category I equipment identified in Table A.1-2 is located in a seismic Category I structure.	5.a.i The seismic Category I as-built equipment identified in Table A.1-2 is located in a seismic Category I structure.

CTS-01551

Appendix A.1

Table A.1-1 (Sheet 4 of 10)

Ultimate Heat Sink System and Essential Service Water System (Portions Outside the Scope of the Certified Design) Inspections, Tests, Analyses, and Acceptance Criteria

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria	
	5.a.ii Type tests, analyses, or a combination of type tests and analyses of seismic Category I equipment identified in Table A.1-2 will be performed using analytical assumptions, or will be performed under conditions which bound the seismic design-basis requirements.	5.a.ii A report exists and concludes that the seismic Category I equipment identified in Table A.1-2 can withstand seismic design-basis loads without loss of safety function.	CTS-01551 CTS-01551
	5.a.iii Inspections and analyses will be performed to verify that the as-built seismic Category I equipment, identified in Table A.1-2, including anchorages, is seismically bounded by the tested or analyzed conditions.	5.a.iii A report exists and concludes that the as-built seismic Category I equipment identified in Table A.1-2, including anchorages, is seismically bounded by the tested or analyzed conditions.	
5.b The seismic Category I piping of the UHSS and ESWS (portions outside the scope of the certified design), including supports, identified in FSAR Table 3.2-201, can withstand seismic design-basis loads without a loss of its safety function.	5.b.i Inspections will be performed to verify that the as-built seismic Category I piping of the UHSS and ESWS (portions outside the scope of the certified design), including supports, identified in FSAR Table 3.2-201 are supported by a seismic Category I structure(s).	5.b.i The as-built seismic Category I piping of the UHSS and ESWS (portions outside the scope of the certified design), including supports, identified in FSAR Table 3.2-201 are supported by a seismic Category I structure(s).	CTS-01551
	5.b.ii Inspections and analysis will be performed to verify that the as-built seismic Category I piping of the UHSS and ESWS (portions outside the scope of the certified design), including supports identified in FSAR Table 3.2-201 can withstand seismic design-basis loads without a loss of its safety function.	5.b.ii A report exists and concludes that the as-built seismic Category I piping of the UHSS and ESWS (portions outside the scope of the certified design), including supports, identified in FSAR Table 3.2-201 can withstand seismic design-basis loads without a loss of its safety function.	CTS-01551
6.a The Class 1E components, identified in Table A.1-2, are powered from their respective Class 1E division.	6.a A tests will be performed on each division of the as-built Class 1E equipment identified in Table A.1-2 by providing a simulated test signal only in the Class 1E division under test.	6.a The simulated test signal exists at the as-built Class 1E equipment identified in Table A.1-2.	
6.b Separation is provided between redundant divisions Class 1E cables, and between Class 1E cables and non-Class 1E cables.	6.b Inspections of the as-built Class 1E divisional cables will be performed.	6.b Physical separation or electrical isolation is provided in accordance with RG 1.75, between the as-built cables of redundant Class 1E divisions and between Class 1E cables and non-Class 1E cables.	

Appendix A.1

Table A.1-1 (Sheet 5 of 10)

Ultimate Heat Sink System and Essential Service Water System (Portions Outside the Scope of the Certified Design) Inspections, Tests, Analyses, and Acceptance Criteria

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria	
7. The UHSS is capable of removing the maximum design heat load transferred from the ESWS during normal plant operations, abnormal and accident conditions of the plant.	7. Tests and analyses will be performed to determine the heat removal capability of the as-built UHSS. The analysis will consider that the maximum ESWS supply water temperature is 95° F under the peak heat load condition.	7. A report exists and concludes that the as-built UHSS removes the maximum design heat load transferred from the ESWS during normal plant operations, abnormal and accident conditions of the plant while maintaining a UHSS outlet temperature ≤ 95°F.	
8. Controls are provided in the MCR to open and close the remotely operated valves identified in Table A.1-2.	8.a Tests will be performed ~~on the as-built~~for MCR control capability of the remotely operated valves identified in Table A.1-2 ~~using controls in the as-built MCR~~on the as-built S-VDU.	8.a ~~Controls in the as-built MCR open and close the as-built~~MCR controls for the remotely operated valves identified in Table A.1-2, on the as-built S-VDU provide the necessary output from the PSMS to open and close the respective valves..	CTS-01550 CTS-01550
	8.b Tests will be performed on the as-built remotely operated valves identified in Table A.1-2 using controls on the as-built O-VDU in the MCR.	8.b Controls on the as-built O-VDU in the MCR open and close the as-built remotely operated valves identified in Table A.1-2 with the MCR control function.	
9.a The ~~remotely operated~~ valves, identified in Table A.1-2 as having an active safety function can perform an active safety function to change position as indicated in the table under the expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions.	9.a.i Type tests or a combination of type tests and analyses of the ~~remotely operated~~ valves identified in Table A.1-2 as having an active safety function will be performed that demonstrate the capability of the valve to operate under its design conditions under the expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions.	9.a.i A report exists and concludes that each ~~remotely operated~~ valve identified in Table A.1-2 as having an active safety function changes position as indicated in Table A.1-2 under design conditions under the expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions.	CTS-01550 CTS-01550
	9.a.ii Tests of the as-built valves identified in Table A.1-2 as having an active safety function will be performed under pre-operational differential pressure, temperature, and flow conditions.	9.a.ii Each as-built ~~remotely operated~~ valve identified in Table A.1-2 as having an active safety function changes position as indicated in Table A.1-2 under pre-operational test conditions.	

Appendix A.1

Table A.1-1 (Sheet 6 of 10)

Ultimate Heat Sink System and Essential Service Water System
(Portions Outside the Scope of the Certified Design)
Inspections, Tests, Analyses, and Acceptance Criteria

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria	
	9.a.iii Inspections will be performed of the as-built valves identified in Table A.1-2.	9.a.iii Each as-built valves identified in Table A.1-2 as having an active safety function is bounded by the type tests, or a combination of type tests and analyses.	CTS-01550
9.b The remotely operated valves identified in Table A.1-2 as having PSMS control perform an active safety function after receiving a signal from PSMS.	9.b Tests will be performed on the as-built remotely operated valves identified in Table A.1-2 using a simulated test signal.	9.b The as-built remotely operated valves identified in Table A.1-2 as having PSMS control perform the active function identified in the table after receiving a simulated signal.	
9.c After loss of motive power, the remotely operated valves, identified in Table A.1-2, assume the indicated loss of motive power position.	9.c Tests of the as-built valves identified in Table A.1-2 will be performed under the conditions of loss of motive power.	9.c Upon loss of motive power, each as-built remotely operated valve identified in Table A.1 -2 assumes the indicated loss of motive power position.	
10.a Controls are provided in the MCR to start and stop the pumps and fans identified in Table A.1-3.	10.a.i Tests will be performed ~~on the as-built~~ for MCR capability to start and stop the pumps and fans identified in Table A.1-3 ~~using controls in the MCR~~ on the as-built S-VDU.	10.a ~~Controls in the MCR to start and stop the as-built~~ MCR controls for the pumps and fans identified in Table A.1-3 on the as-built S-VDU provide the necessary output from the PSMS to open and close the respective pumps and fans.	CTS-01550
	10.a.ii Tests will be performed on the as-built pumps and fans identified in Table A.1-3 using controls on the as-built O-VDU in the MCR.	10.a.ii Controls on the as-built O-VDU are provided in the MCR to start and stop the as-built pumps and fans identified in Table A.1-3 with the MCR control function.	
10.b The fans identified in Table A.1-2 as having PSMS control perform as active safety function after receiving a signal from PSMS.	10.b Tests will be performed on the as-built fans identified in Table A.1-2 using simulated signal.	10.b The as-built fans identified in Table A.1 -2 as having PSMS control perform the active function identified in the table after receiving a simulated signal.	
11. Alarms and displays identified in Table A.1-3 are provided in the MCR.	11.a Inspections will be performed on the as-built A-VDU in the MCR for retrievability of the alarms ~~and displays~~ identified in Table A.1-3 ~~the as-built MCR.~~	11.a Alarms ~~and displays~~ identified in Table A.1-3 can be retrieved ~~i~~on the as-built A-VDU in the MCR.	CTS-01550

Appendix A.1

Table A.1-1 (Sheet 7 of 10)

Ultimate Heat Sink System and Essential Service Water System (Portions Outside the Scope of the Certified Design) Inspections, Tests, Analyses, and Acceptance Criteria

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
	11.b Inspections will be performed on the as-built S-VDU and the as-built O-VDU in the MCR for retrievability of the displays identified in Table A.1-3.	11.b Displays identified in Table A.1-3 can be retrieved on the as-built S-VDU and the as-built O-VDU in the MCR.
12. Alarms, displays and controls identified in Table A.1-3 are provided in the RSC.	12.a Inspections will be performed on the as-built O-VDU in the RSC for retrievability of the alarms ~~and displays~~ identified in Table A.1-3 ~~in the as-built RSC~~.	12.a Alarms ~~and displays~~ identified in Table A.1-3 can be retrieved ~~i~~on the as-built O-VDU in the RSC.
	12.b ~~Tests of the as-built RSC control functions identified in Table A.1-3 will be performed.~~ Inspections will be performed on the as-built S-VDU and the as-built O-VDU in the RSC for retrievability of the displays identified in Table A.1-3.	12.b ~~Controls on the RSC operate to open and close the as-built remotely operated valves and to start and stop the as-built pumps and fans identified in Table A.1-3 with an RSC control function..~~ Displays identified in Table A.1-3 can be retrieved on the as-built S-VDU and the as-built O-VDU in the RSC.
	12.c Tests will be performed for RSC control capability of the equipment identified in Table A.1-3 on the as-built S-VDU.	12.c RSC controls for the equipment, identified in Table A.1-3, on the as-built S-VDU provide the necessary output from the PSMS to operate the respective equipment.
	12.d Tests will be performed on the as-built equipment, identified in Table A.1-3, using controls on the as-built O-VDU in the RSC.	12.d Controls on the as-built O-VDU in the RSC operate the as-built equipment identified in Table A.1-3 with an RSC control function.
13. Each UHS basin has a volume to satisfy the thirty day cooling water supply criteria.	13. Inspections will be performed to verify the as-built UHS basins include sufficient volume of water.	13. The usable water volume of the each as-built UHS basin is greater than or equal to 3.12×10^6 gallons at the minimum maintained water level.

CTS-01550

Appendix A.1

Table A.1-1 (Sheet 8 of 10)

Ultimate Heat Sink System and Essential Service Water System (Portions Outside the Scope of the Certified Design) Inspections, Tests, Analyses, and Acceptance Criteria

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria	
14. The UHS transfer and ESW pumps have sufficient NPSH.	14. Tests to measure the as-built suction pressure will be performed. Inspections and analysis to determine NPSH available to each UHS transfer and ESW pump will be performed. The analyses will consider vendor test results of required NPSH and the effects of: • Suction from the UHS basin with water level at the minimum allowed value (after 30 days of accident mitigation) • UHSS design temperature range.	14. A report exists and concludes that the NPSH available to each UHS transfer and ESW pump is greater than the required NPSH.	
15. ESW pump operation does not cause vortex formation at minimum allowed UHSS water level.	15. Test of the as-built ESW pump will be performed.	15. ESW pump operation does not cause vortex formation at minimum allowed UHSS water level.	
16. Water hammer is prevented in the UHSS and the ESWS.	16. Inspection, test and analysis of the as-built UHSSand ESWS will be performed.	16. A report exists and concludes that the as-built UHSS and ESWS is fabricated and installed to prevent water hammer.	RCOL2_09.02.01-10
17. The sum of the ESW pump shutoff head and static head is such that the ESWS design pressure is not exceeded.	17. Inspection, test and analysis of the as-built ESWS will be performed.	17. A report exists and concludes that the sum of the as-built ESW pump shutoff head and static head is such that the ESWS design pressure is not exceeded.	
18. The UHSS is capable of performing its safety functions under design-basis event conditions and coincident single failure with or without offsite power available.	18. Inspection and analysis of the as-built UHSS will be performed.	18. A report exists and concludes that the as-built UHSS is capable of performing its safety functions under design-basis event conditions and coincident single failure with or without offsite power available.	CTS-01551 CTS-01551

Appendix A.1

Table A.1-1 (Sheet 9 of 10)

Ultimate Heat Sink System and Essential Service Water System (Portions Outside the Scope of the Certified Design) Inspections, Tests, Analyses, and Acceptance Criteria

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria	
19. The UHS cooling tower fans, identified in Table A.1-2, can withstand design–basis tornado and hurricane effects, including differential pressure effects and overspeed, without loss of safety function.	19.i Type tests, analyses, or a combination of type tests and analyses will be performed to demonstrate that the UHS cooling tower fans, identified in Table A.1-2, can withstand the design–basis tornado and hurricane effects, including differential pressure effects and overspeed, without loss of safety function.	19.i A report exists and concludes that the UHS cooling tower fans, identified in Table A.1-2, can withstand the design–basis tornado and hurricane effects, including differential pressure effects and overspeed, without loss of safety function.	RCOL2_14.03.07-38 RCOL2_03.03.02-9 CTS-01551
	19.ii Inspections and analyses will be performed to verify that the as-built UHS cooling tower fans identified in Table A.1-2 are bounded by the tested or analyzed conditions.	19.ii A report exists and concludes that the as-built UHS cooling tower fans identified in Table A.1-2 are bounded by the tested or analyzed conditions.	
20. The UHS cooling tower spray nozzles and orifices are sized to prevent clogging due to debris.	20. Inspections of the as-built UHS cooling tower spray nozzles and orifices will be performed.	20. Each as-built UHS cooling tower spray nozzles and orifices has~~ve~~ an orifice size greater than 3mm.	CTS-01551
21. The ASME Code Section III~~I~~, Class 3 piping systems ~~and components~~, for the UHSS and ESWS (portions outside the certified design), identified in FSAR Table 3.2-201 are designed to retain their pressure integrity and functional capability under internal design and operating pressures and design–basis loads.	21. An inspection of the stress report(s) for the ASME Code Section III, Class 3 piping systems ~~and components~~, for the UHSS and ESWS (portions outside the certified design) will be performed.	21. The stress report(s) exist and conclude that the design of the ASME Code Section III, Class 3 piping systems ~~and components~~, for the UHSS and ESWS (portions outside the certified design), identified in FSAR Table 3.2-201 comply~~y~~ies with the requirements of ASME Code Section III.	RCOL2_14.03.03-1 S01 RCOL2_14.03.03-1 S02 CTS-01551
22. The ASME Code Section III, Class 3 components, for the UHSS and ESWS (portions outside the certified design), identified in FSAR Table 3.2-201 are designed to retain their pressure integrity and functional capability under internal design and operating pressures and design–basis loads.	22. An inspection of the stress report(s) for the ASME Code Section III, Class 3 components, for the UHSS and ESWS (portions outside the certified design) will be performed.	22. The stress report(s) exist and conclude that the design of the ASME Code Section III, Class 3 components, for the UHSS and ESWS (portions outside the certified design), identified in FSAR Table 3.2-201 complies with the requirements of ASME Code Section III.	RCOL2_14.03.03-1 S02 CTS-01551

Appendix A.1

Table A.1-1 (Sheet 10 of 10)

Ultimate Heat Sink System and Essential Service Water System (Portions Outside the Scope of the Certified Design) Inspections, Tests, Analyses, and Acceptance Criteria

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
23. The pumps identified in Table A.1-2 can perform their safety functions under the expected ranges of fluid flow, pump head, electrical conditions and temperature conditions up to and including design-basis conditions.	23.a Type tests or a combination of type tests and analyses of each pump identified in Table A.1-2 will be performed to demonstrate the ability of the pump to perform its safety functions under the expected ranges of fluid flow, pump head, electrical conditions and temperature conditions up to and including design-basis conditions.	23.a A report exists and concludes that the pumps identified in Table A.1-2 can perform their safety functions under the expected ranges of fluid flow, pump head, electrical conditions and temperature conditions up to and including design-basis conditions.
	23.b Inspections will be performed of each as-built pump identified in Table A.1-2.	23.b Each as-built pump identified in Table A.1-2 is bounded by the type tests, or a combination of type tests and analyses.

CTS-01550

Appendix A.1

Table A.1-2 (Sheet 1 of 2)
Ultimate Heat Sink System and Essential Service Water System
(Portions Outside the Scope of the Certified Design)
Equipment Characteristics

Equipment Name	Tag No.	ASME Code Section III Class	Seismic Category I	Remotely Operated Valve	Class 1E/Qual. ~~F~~for Harsh Envir.	Active Safety Function	PSMS Control	Loss of Motive Power Position
Ultimate heat sink transfer pumps	UHS-MPP-001 A, B, C, D	3	Yes	-	Yes/No	Start Stop	Remote Manual	-
Ultimate heat sink cooling tower fans	UHS-MFN-001 A, B, C, D, 002 A, B, C, D	-	Yes	-	Yes/No	Start Stop	ECCS Actuation; LOOP Sequence; Remote Manual	-
Ultimate heat sink transfer pump discharge valves	UHS-MOV-503 A, B, C, D	3	Yes	Yes	Yes/No	Transfer Closed Transfer Open	Remote Manual	As is
Ultimate heat sink transfer line basin inlet valves	UHS-MOV-506 A, B, C, D	3	Yes	Yes	Yes/No	Transfer Closed Transfer Open	Remote Manual	As is
Ultimate heat sink basin blowdown control valves	EWS-HCV-010, 011, 012, 013	3	Yes	Yes	Yes/No	Transfer Closed	ECCS actuation, LOOP, Pump stop, UHS basin low water level, Remote manual	Closed
ESWP Discharge Strainer Backwash Isolation Valve to CWS blowdown main header	EWS-AOV-576A, B, C, D	3	Yes	Yes	Yes/No	Transfer Closed	ECCS actuation, LOOP, Pump stop, UHS basin low water level, Remote manual	Closed

CTS-01551

Appendix A.1

Table A.1-2 (Sheet 2 of 2)
Ultimate Heat Sink System and Essential Service Water System
(Portions Outside the Scope of the Certified Design)
Equipment Characteristics

Equipment Name	Tag No.	ASME Code Section III Class	Seismic Category I	Remotely Operated Valve	Class 1E/Qual. ~~F~~for Harsh Envir.	Active Safety Function	PSMS Control	Loss of Motive Power Position
ESWS Blowdown Main Header Isolation Valve to CWS blowdown main header	EWS-AOV-577	3	Yes	Yes	Yes/No	Transfer Closed	ECCS actuation, LOOP, Pump stop, UHS basin low water level, Remote manual	Closed
Ultimate heat sink basin water level	UHS-LT-010A,B,011A,B,012A,B,013A,B	-	Yes	-	Yes/ No	-	-	-
Ultimate heat sink basin -temperature	UHS-TE-010, 011, 012, 013	-	Yes	-	Yes/ No	-	-	-

CTS-01551

CTS-01551

NOTE:

Dash (-) indicates not applicable.

Appendix A.1

Table A.1-3

**Ultimate Heat Sink System and Essential Service Water System
(Portions Outside the Scope of the Certified Design)
Equipment Alarms, Displays, and Control Functions**

Equipment/Instrument Name	MCR/RSC Alarm	MCR/RSC Display	MCR/RSC Control Function	
Ultimate heat sink transfer pumps (UHS-MPP-001A, B, C, D)	No	Yes	Yes	CTS-01551
Ultimate heat sink cooling tower fans (UHS-MFN-001A, B, C, D, 002A, B, C, D)	No	Yes	Yes	CTS-01551
Ultimate heat sink transfer pump discharge valves (UHS-MOV-503A, B, C, D)	No	Yes	Yes	CTS-01551
Ultimate heat sink transfer line basin inlet valves (UHS-MOV-506A, B, C, D)	No	Yes	Yes	CTS-01551
Ultimate heat sink basin blowdown control valves (E~~SW~~WS-HCV-010, 011, 012, 013)	No	Yes	Yes	CTS-01551
Ultimate heat sink basin water level (UHS-LT-010A, B, 011A, B, 012A, B, 013A, B)	Yes	Yes	No	CTS-01551
~~Essential Service Water~~Ultimate heat sink basin ~~water~~ temperature (UHS-TE-010, 011, 012, 013)	Yes	Yes	No	CTS-01551
ESWP Discharge Strainer Backwash Isolation Valve to CWS blowdown main header (EWS-AOV-576A, B, C, D)	No	Yes	Yes	CTS-01551
ESWS Blowdown Main Header Isolation Valve to CWS blowdown main header (EWS-AOV-577)	No	Yes	Yes	CTS-01551

PART 10 - APPENDIX A.2

UHS ESW PUMP HOUSE VENTILATION SYSTEM

A.2.1 Design Description

The UHS ESW pump house ventilation system provides and maintains area design temperature limits in the UHS ESW pump houses during all plant operating, abnormal and accident conditions.

The UHS ESW pump house ventilation system is located within the UHS related structure.

There are four separate and independent UHS ESW pump houses and each has its own ventilation system.

1.a The functional arrangement of the UHS ESW pump house ventilation system is as described in the Design Description of Section A.2.1 and as shown in Figure A.2-1

1.b Each mechanical division of the UHS ESW pump house ventilation system ~~(Division A, B, C & D)~~as shown in Figure A.2-1 is physically separated from the other divisions so as not to preclude accomplishment of the safety function. CTS-01550

2. The seismic Category I equipment, identified in Table A.2-2, can withstand seismic design-~~-~~basis loads without loss of safety function. CTS-01551

3.a Class 1E equipment identified in Table A.2-2 is powered from its respective Class 1E division.

3.b. Separation is provided between redundant divisions of UHS ESW pump house ventilation system Class 1E cables, and between Class 1E cables and non-Class 1E cables. CTS-01551

4. The UHS ESW pump house ventilation system provides heated air via unit heaters and cooled air via exhaust fans to maintain area temperature within design limits in the UHS ESW pump houses during all plant operating conditions including normal plant operations, abnormal and accident conditions of the plant.

5.a. Controls are provided in the MCR to start and stop the UHS ESW pump house ventilation system exhaust fans and unit heaters identified in Table A.2-3.

5.b. The UHS ESW pump house ventilation system exhaust fans and unit heaters identified in Table A.2-2 as having PSMS control, perform an~~s~~ active safety function after receiving a signal from PSMS. CTS-01551

Appendix A.2

Table A.2-1 (Sheet 1 of 4)
UHS ESW Pump House Ventilation System
Inspections, Tests, Analyses, and Acceptance Criteria

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria	
1.a The functional arrangement of the UHS ESW pump house ventilation system is as described in the Design Description of Section A.2.1 and as shown in Figure A.2-1	1.a Inspection of the as-built UHS ESW pump house ventilation system will be performed.	1.a The as-built the UHS ESW pump house ventilation system conforms to the functional arrangement as described in the Design Description of Section A.2.1 and as shown in Figure A.2-1.	
1.b Each mechanical division of the UHS ESW pump house ventilation system ~~(Division A, B, C & D)~~as shown in Figure A.2-1 is physically separated from the other divisions so as not to preclude accomplishment of the safety function.	1.b Inspection and analysis of the as-built UHS ESW pump house ventilation system will be performed.	1.b A report exists and concludes that each mechanical division of the as-built UHS ESW pump house ventilation system is physically separated from other mechanical divisions as shown in Figure A.2-1 by spatial separation, barriers, or enclosures so as to assure that the functions of the safety related systems are maintained considering postulated dynamic effects (i.e., missile and pipe break hazard), internal flooding and fire.	CTS-015 50 CTS-015 04
2. The seismic Category I equipment, identified in Table A.2-2, can withstand seismic design--basis loads without loss of safety function.	2.a Inspections will be performed to verify that the seismic Category I as-built equipment identified in Table A.2-2 is located in a seismic Category I structure.	2.a The seismic Category I as-built equipment identified in Table A.2-2 is located in a seismic Category I structure.	CTS-015 51
	2.b Type tests, analyses, or a combination of type tests and analyses of the seismic Category I equipment identified in Table A.2-2 will be performed using analytical assumptions, or will be performed under conditions, which bound the seismic design--basis requirements.	2.b A report exists and concludes that the seismic Category I equipment identified in Table A.2-2 can withstand seismic design--basis loads without loss of safety function.	CTS-015 51 CTS-015 51
	2.c Inspection and analyses will be performed to verify that the as-built seismic Category I equipment identified in Table A.2-2, including anchorages, is seismically bounded by the tested or analyzed conditions.	2.c A report exists and concludes that the as-built seismic Category I equipment identified in Table A.2-2, including anchorages, is seismically bounded by the tested or analyzed conditions.	

Appendix A.2

Table A.2-1 (Sheet 2 of 4)
UHS ESW Pump House Ventilation System
Inspections, Tests, Analyses, and Acceptance Criteria

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria	
3.a Class 1E equipment identified in Table A.2-2 is powered from its respective Class 1E division.	3.a A test will be performed on each division of the as-built Class 1E equipment identified in Table A.2-2 by providing a simulated test signal only in the Class 1E division under test.	3.a The simulated test signal exists at the as-built Class 1E equipment identified in Table A.2 -2 under test.	
3.b. Separation is provided between redundant divisions of UHS ESW pump house ventilation system Class 1E cables, and between Class 1E cables and non-Class 1E cables.	3.b Inspections of the as-built Class 1E divisional cables will be performed.	3.b Physical separation or electrical isolation is provided in accordance with RG 1.75, between the as-built Class 1E cables of redundant UHS ESW pump house ventilation systems Class 1E divisions ~~the redundant divisions of the as-built UHS ESW pump house ventilation system Class 1E cables~~ and between Class 1E cables and non-Class 1E cables.	CTS-015 04 CTS-015 51
4. The UHS ESW pump house ventilation system provides heated air via unit heaters and cooled air via exhaust fans to maintain area temperature within design limits in the UHS ESW pump houses during all plant operating conditions including normal plant operations, abnormal and accident conditions of the plant.	4. Tests and analyses of the as-built UHS ESW pump house ventilation system will be performed for all four divisions.	4. A report exists and concludes that each of the four divisions of the as-built UHS ESW pump house ventilation system as shown in Figure A.2-1 is capable of providing heated air via unit heaters and cooled air via exhaust fans to maintain area temperature within design limits in the UHS ESW pump houses during all plant operating conditions including normal plant operations, abnormal and accident conditions of the plant with outside ambient design temperature condition (i.e. -5°F - 115 °F).	CTS-015 50
5.a Controls are provided in the MCR to start and stop the UHS ESW pump house ventilation system exhaust fans and unit heaters identified in Table A.2-3.	5.a.i Tests will be performed for MCR control capability of the UHS ESW pump house ventilation system exhaust fans and unit heaters identified in Table A.2-3 on the as-built S-VDU.	5.a.i Controls for the UHS ESW pump house ventilation system exhaust fans and unit heaters identified in Table A.2-3, on the as-built S-VDU in the MCR provide the necessary output from the PSMS to start and stop the respective exhaust fans and unit heaters.	CTS-015 50
	5.a.ii Tests will be performed on the as-built exhaust fans and unit heaters identified in Table A.2-3 using controls on the as-built O-VDU in the ~~as-built~~ MCR.	5.a.ii Controls ~~exist~~ on the as-built O-VDU in the ~~as-built~~ MCR ~~to~~ start and stop the as-built UHS ESW pump house ventilation system exhaust fans and unit heaters identified in Table A.2-3 with the MCR control function.	CTS-015 04 CTS-015 50

Appendix A.2

Table A.2-1 (Sheet 3 of 4)
UHS ESW Pump House Ventilation System
Inspections, Tests, Analyses, and Acceptance Criteria

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria	
5.b. The UHS ESW pump house ventilation system exhaust fans and unit heaters identified in Table A.2-2 as having PSMS control, perform as active safety function after receiving a signal from PSMS.	5.b. Tests will be performed on the as-built UHS ESW pump house ventilation system exhaust fans and unit heaters identified in Table A.2-2 as having PSMS using simulated signals.	5.b. The as-built UHS ESW pump house ventilation system exhaust fans and unit heaters identified in Table A.2-2 as having PSMS control, perform an active safety function identified in the table after receiving a simulated signal.	
5.c. The UHS ESW pump house ventilation system backdraft dampers identified in Table A.2-2 as having a safety function perform a safety function to change position as indicated in the table.	~~5.c. Tests of the as-built UHS ESW pump house ventilation system backdraft dampers identified in Table A.2-2 as having a safety function will be performed.~~ 5.c.i Type tests or a combination of type tests and analysis of the backdraft dampers identified in Table A.2-2 will be performed to verify that the dampers can withstand the affects of tornado wind and atmospheric differential pressure loading or hurricane wind effects and perform their active safety function after being subjected to these forces.	~~5.c. Each as-built UHS ESW pump house ventilation system backdraft damper identified in Table A.2-2 as having a safety function changes position as indicated in the table under design conditions.~~ 5.c.i A report exists and concludes that the backdraft dampers identified in Table A.2-2 can withstand the affects of tornado wind and atmospheric differential pressure loading or hurricane wind effects and perform their active safety function after being subjected to these forces.	RCOL2_14 03.07-39
	5.c.ii Inspections will be performed of the as-built backdraft dampers identified in Table A.2-2.	5.c.ii Each as-built backdraft damper identified in Table A.2-2 is bounded by the type tests or combination of type tests and analysis.	
	5.c.iii Tests will be performed of the as-built backdraft dampers identified in Table A.2-2 to verify freedom of motion.	5.c.iii Each as-built backdraft damper identified in Table A.2-2 has freedom of motion.	
6. Displays ~~of the parameters~~ identified in Table A.2-3 are provided in the MCR.	6. Inspections will be performed on the as-built S-VDU and the as-built O-VDU in the MCR for retrievability of displays identified in Table A.2-3 ~~in the as-built MCR~~.	6. Displays identified in Table A.2-3 can be retrieved on the as-built S-VDU and the as-built O-VDU in the ~~as-built~~ MCR.	CTS-015 04 CTS-015 50
7. Displays and controls identified in Table A.2-3 are provided in the RSC.	7.a Inspections will be performed on the as-built S-VDU and the as-built O-VDU in the RSC for retrievability of the displays identified in Table A.2-3 ~~in the as-built RSC~~.	7.a Displays identified in Table A.2-3 can be retrieved on the as-built S-VDU and the as-built O-VDU in the ~~as-built~~ RSC.	CTS-015 50

Appendix A.2

Table A.2-1 (Sheet 4 of 4)
UHS ESW Pump House Ventilation System
Inspections, Tests, Analyses, and Acceptance Criteria

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
	7.b ~~Tests of the as-built RSC control functions identified in Table A.2-3 will be performed.~~ Tests will be performed for RSC control capability of equipment, identified in Table A.2-3, on the as-built S-VDU.	7.b ~~Controls in the as-built RSC operate the as-built equipment identified in Table A.2-3 with an RSC control function.~~ RSC controls for equipment, identified in Table A.2-3, on the as-built S-VDU provide the necessary output from the PSMS to operate the respective equipment.
	7.c Tests will be performed on the as-built equipment, identified in A.2-3, using controls on the as-built O-VDU in the RSC.	7.c Controls on the as-built O-VDU in the RSC operate the as-built equipment identified in Table A.2-3 with an RSC control function.
8. The UHS ESW pump house air intakes and air outlets are protected from tornado and hurricane missiles.	8.i An analysis will be performed to verify that the UHS ESW pump house air intakes and air outlets are protected from tornado and hurricane missiles.	8.i A report exists and concludes that the UHS ESW pump house air intakes and air outlets are protected from tornado and hurricane missiles.
	8.ii Inspections will be performed of the as-built UHS ESW pump house air intakes and air outlets missile protection features.	8.ii The as-built UHS ESW pump house air intakes and air outlets missile protection features are bounded by the conditions assumed in the analysis.

CTS-01550

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Table A.2-2 (Sheet 1 of 2)
UHS ESW Pump House Ventilation System Equipment Characteristics

Equipment Name	Tag No.	ASME Code Section III Class	Seismic Category I	Remotely Operated Damper	Class 1E/ Qual. ~~F~~for Harsh Envir.	PSMS Control	Active Safety Function	Loss of Motive Power Position	
ESW Pump Room Exhaust Fan	VRS-MFN-601A,B,C,D	-	Yes	-	Yes/No	High Temperature	Start	-	
UHS Transfer Pump Room Exhaust Fan	VRS-MFN-602A,B,C,D	-	Yes	-	Yes/No	High Temperature	Start	-	
ESW Pump Room Unit Heater	VRS-MEH-601A,B,C,D, VRS-MEH-602A,B,C,D	-	Yes	-	Yes/No	Low Temperature	Start	-	
UHS Transfer Pump Room Unit Heater	VRS-MEH-603A,B,C,D	-	Yes	-	Yes/No	Low Temperature	Start	-	
ESW Piping Room Unit Heater	VRS-MEH-604A,B,C,D	-	Yes	-	Yes/No	Low Temperature	Start	-	RCOL2_14.03.07-38 S01
UHS Transfer Piping Room Unit Heater	VRS-MEH-605A,B,C,D	-	Yes	-	Yes/No	Low Temperature	Start	-	
ESW Pump Room Temperature switch	VRS-TS-803,804,805,806 VRS-TS-823,824,825,826 VRS-TS-843,844,845,846 VRS-TS-863,864,865,866	-	Yes	-	Yes/No	-	-	-	
UHS Transfer Pump Room Temperature switch	VRS-TS-812,813,814,815 VRS-TS-832,833,834,835 VRS-TS-852,853,854,855 VRS-TS-872,873,874,875	-	Yes	-	Yes/No	-	-	-	
ESW Pump Room Air Intake Gravity Type Back-draft Damper	VRS-OTD-601 A,B,C,D	-	Yes	-	No/No	-	(1)	-	

CTS-01551

Appendix A.2

Table A.2-2 (Sheet 2 of 2)
UHS ESW Pump House Ventilation System Equipment Characteristics

Equipment Name	Tag No.	ASME Code Section III Class	Seismic Category I	Remotely Operated Damper	Class 1E/ Qual. ~~F~~for Harsh Envir.	PSMS Control	Active Safety Function	Loss of Motive Power Position
ESW Pump Room Air Discharge Gravity Type Backdraft Damper	VRS-OTD-602 A,B,C,D	-	Yes	-	No/No	-	(1)	-
UHS Transfer Pump Room Air Intake Gravity Type Backdraft Damper	VRS-OTD-603 A,B,C,D	-	Yes	-	No/No	-	(1)	-
UHS Transfer Pump Air Discharge Gravity Type Backdraft Dampers	VRS-OTD-604 A,B,C,D	-	Yes	-	No/No	-	(1)	-

CTS-01551

(1) The backdraft dampers have the safety functions to open in the direction of airflow and close by counterbalance when no air flow is present.

PART 10 - APPENDIX A.3

~~PLANT~~SITE-SPECIFIC STRUCTURES

CTS-01551

A.3.1 Design Description

The site-specific structures are comprised of the UHS related structures (UHSRS), the ESW pipe tunnel (ESWPT) and two power source fuel storage vaults (PSFSVs), which are seismic Category I structures. The seismic Category I structures are designed and constructed to withstand design-basis loads without loss of structural integrity. Design-basis loads are:

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CTS-01551

- Normal plant operation (including dead loads, live loads, lateral earth pressure loads, equipment loads, hydrodynamic loads, temperature and equipment vibration)

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- External events (including rain, snow, flood, tornado, hurricane, tornado generated missiles, hurricane generated missiles and safe shutdown earthquake)

RCOL2_03.03.02-9

- Internal events (including flood, pipe rupture, equipment failure, and equipment failure generated missiles).

Seismic ~~e~~Category I buildings and structures~~,~~ including the R/B Complex ~~-PCCV containment internal structure on a common mat, the PS/Bs,~~(which includes the A/B that is a seismic Category II building), the UHSRS, the ESWPT, and each PSFSV~~s~~ are founded directly on solid limestone or on fill concrete. Fill concrete is used as 'dental' fill in any areas where additional removal of materials below the nominal top of limestone is required in order to reach competent limestone.

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CTS-01551

A.3.1.1 UHSRS

The UHSRS consists of ~~an~~four UHS cooling tower enclosures, four UHS ESW pump houses, the UHS ESWPT and ~~an~~four UHS basins. These structures are described below.

CTS-01551
CTS-01552

UHS cooling tower enclosures - Each UHS basin has one cooling tower with two cells. Each cell is enclosed by reinforced concrete structures that house the equipment required to cool the water used by the ESWS. ~~The~~A reinforced concrete wall separates the two cell enclosures. A reinforced concrete wall, running east to west, separates the cell enclosure portion of the basin from the rest of the UHS basin. Air intakes serving the cooling towers are configured to protect the safety-related substructures and components from tornado missiles and hurricane missiles.

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CTS-01551

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UHS ESW pump house - The pump house is an integral part of the UHS basin supported by UHS basin exterior and interior walls. Each pump house contains one ESW pump and one UHS transfer pump with associated auxiliaries. The pump bay (lowest portion of the pump house required for the pump suction) is deeper than the rest of the UHS basin. A reinforced concrete wall divides the pump house basin from the rest of the UHS basin and is configured to prevent postulated direct or deflected design~~-~~-basis tornado missiles and hurricane missiles from impacting safety related components located within the structure. There is a fire barrier between the UHS transfer pump and the UHS ESW pump of each UHS ESW pump house. RCOL2_03.03.02-9 CTS-01551

UHS Basin - There are four basins for each unit and each basin has one cooling tower with two cells. Each basin is constructed of reinforced concrete and serves as a reservoir for the ESWS. Two basins share a common foundation mat and a reinforced concrete wall divides them.

UHS ESWPT - The UHS ESWPT is an underground reinforced concrete structure comprised of two segments that are integrated with the corresponding UHS basins. Each UHS ESWPT segment is divided into two sections by a vertical concrete wall, each section containing ESWS supply and return lines and a portion of the UHS transfer piping. CTS-01552

A.3.1.2 ESWPT

The ESWPT is a reinforced concrete structure that runs from ~~beneath the T/B~~the Essential Service Water Pipe Chase (ESWPC) in the R/B Complex to the UHSRS. The ESWPT is divided into two sections by a concrete wall. Each section contains both ESWS supply and return lines. The ESWPT structure is isolated from other structures to prevent seismic structural interaction. CTS-01511

A.3.1.3 PSFSV

The PSFSVs are reinforced concrete structures, which house the safety-related and non safety-related fuel oil tanks for the emergency power generators. There ~~is~~are two vaults, and ~~one~~each vault for each PS/B is founded on separate reinforced concrete basemats. The vault contains ~~three oil tanks,~~ two safety-related oil tanks and one non safety-related oil tank. Each tank is contained in a separate compartment separated by reinforced concrete walls. The top of the roof slab is at the finished plant grade elevation, with a concrete curb. The curb is provided to prevent vehicular traffic on the roof. CTS-01551

1.a The ~~structural configurations~~physical arrangement of the UHSRS, the ESWPT and each PSFSV are as described in the Design Description of CTS-01550 CTS-01551

Section A.3~~, in Table A.3-2,~~ and as shown in FSAR Figures 3.8-201 through 3.8-214. CTS-01551

1.b The wall and floor thickness of the UHSRS, the ESWPT and each PSFSV are as described in Table A.3-2. CTS-01550

2.a Divisional flood barriers are provided in the UHSRS, the ESWPT and each PSFSV to protect against internal flooding. CTS-01551

2.b Deleted

3. Deleted

4. For the UHSRS, the ESWPT and each PSFSV, external walls below the design-basis flood level are as indicated in Table A.3-2 to protect against water seepage. CTS-01551

5.a Deleted

5.b Deleted

6. Penetrations in the external walls of the UHSRS, the ESWPT and each PSFSV that are at or below design~~-~~-basis flood level are fitted with wate<u>r</u>-tight seals to protect against external flooding. CTS-01551

7. Redundant safe shutdown components and associated electrical divisions ~~of~~in the UHSRS, the ESWPT and each PSFSV are separated by 3-hour rated fire barriers to preserve the capability to safely shutdown the plant following a fire. CTS-01551

8. Penetrations and openings through the fire barriers of the UHSRS, the ESWPT and each PSFSV are protected against fire. CTS-01551

9. The UHRS, the ESWPT and each PSFSV can withstand design-basis loads.

10. SSCs that require evaluation in the seismic fragilities task of a seismic margin analysis have high confidence of low probability of failure (HCLPF) values equal to or greater than the review level earthquake.

11. The R/B Complex, ~~PCCV, PS/Bs,~~ each PSFSV~~s~~, the ESWPT and the UHSRS are founded directly on bedrock or fill concrete. CTS-01511 CTS-01551

12. The UHS ESW pump house ventilation system outside air intakes and exhaust outlets are protected from tornado-generated missiles and hurricane-generated missiles by protective barriers. CTS-01550

Appendix A.3

A.3.2 Inspections, Tests, Analyses, and Acceptance Criteria

Table A.3-1 describes the ITAAC for the ~~UHS related structure (~~UHSRS~~)~~, ~~ESW pipe tunnel (~~the ESWPT~~)~~, and ~~power source fuel storage vault (~~each PSFSV~~)~~. CTS-01551

Appendix A.3

Table A.3-1 (Sheet 1 of 4)
~~UHSRS, ESWPT and PSFSVPlant~~Site ~~s~~Specific ~~s~~Structures Inspections, Tests, Analyses, and Acceptance Criteria

CTS-01511
CTS-01551

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
1.a The ~~structural configurations~~physical arrangement of the UHSRS, the ESWPT and each PSFSV ~~are~~is as described in the Design Description of Section A.3~~, in Table A.3-2,~~ and as shown in FSAR Figures 3.8-201 through 3.8-214.	1.a Inspections will be performed to verify that the as-built UHSRS, the as-built ESWPT and each as-built PSFSV conform to the ~~structural configurations~~physical arrangement as described in the Design Description of Section A.3~~, Table A.3-2,~~ and as shown in Figures 3.8-201 through 3.8-214.	1.a The as-built UHSRS, the as-built ESWPT and each as-built PSFSV conform to the ~~structural configurations~~physical arrangement as described in ~~Table A.3-2~~the Design Description of Section A.3 and as shown in FSAR Figures 3.8-201 through 3.8-214 with the following construction tolerances~~.~~: ~~1)~~ ~~Thickness of exterior walls below plant grade: +12 inches/ -1inch~~ ~~2)~~ ~~Thickness of exterior walls above plant grade, and interior walls: +1/ -1 inch~~ ~~3)~~ ~~Thickness of floors: +1/ -1 inch~~ ~~4)~~ Floor level: +1/-1 inch.
1.b The wall and floor thickness of the UHSRS, the ESWPT and each PSFSV are as described in Table A.3-2.	1.b Inspections will be performed to verify that the as-built wall and floor thickness of the UHSRS, the ESWPT and each PSFSV conform to Table A.3-2.	1.b The as-built nominal wall and floor thickness of the UHSRS, the ESWPT and each PSFSV conform to Table A.3-2, with the following construction tolerances: 1) Thickness of exterior walls below plant grade: +12 inches/-1inch 2) Thickness of exterior walls above plant grade, and interior walls: +1/-1 inch 3) Thickness of floors: +1/-1 inch
2.a Divisional flood barriers are provided in the UHSRS, the ESWPT and each PSFSV to protect against internal flooding as shown in Figure A.3-1.	2.a An inspection will be performed to verify that the as-built divisional flood barriers for the UHSRS, the ESWPT and each PSFSV are as shown in Figure A.3-1 to protect against internal flooding.	2.a For the UHSRS, the ESWPT and each PSFSV, the as-built divisional flood barriers are as shown in Figure A.3-1 to protect against internal flooding.
2.b Deleted	2.b Deleted	2.b Deleted

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Appendix A.3

Table A.3-1 (Sheet 2 of 4)

~~UHSRS, ESWPT and PSFSVPlant~~Site ~~s~~Specific ~~s~~Structures Inspections, Tests, Analyses, and Acceptance Criteria

CTS-01511
CTS-01551

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria	
3. Deleted	3. Deleted	3. Deleted	
4. For the UHSRS, the ESWPT and each PSFSV, external walls below the design-basis flood level are as indicated in Table A.3-2 to protect against water seepage.	4. An inspection will be performed to verify that the as-built external walls below the design-basis flood level for the UHSRS, the ESWPT and each PSFSV are as indicated in Table A.3-2.	4. For the UHSRS, the ESWPT and each PSFSV, the as-built external wall below the design-basis flood level are as indicated in Table A.3-2 to protect against water seepage.	CTS-01551
5.a Deleted	5.a Deleted	5.a Deleted	
5.b Deleted	5.b Deleted	5.b Deleted	
6. Penetrations in the external walls of the UHSRS, the ESWPT and each PSFSV that are at or below design--basis flood level are fitted with water-tight seals to protect against external flooding.	6. An inspection will be performed to verify that as-built penetrations in the external walls of the UHSRS, the ESWPT and each PSFSV that are at or below design--basis flood level are fitted with water-tight seals.	6. The as-built penetrations in the external walls of the UHSRS, the ESWPT and each PSFSV that are at or below design--basis flood level are fitted with water-tight seals to protect against external flooding.	CTS-01551
7. Redundant safe shutdown components and associated electrical divisions ~~of~~in the UHSRS, the ESWPT and each PSFSV are separated by 3-hour rated fire barriers to preserve the capability to safely shutdown the plant following a fire.	7. An inspection of the as-built UHSRS, the as-built ESWPT and each as-built PSFSV will be performed to verify that the as-built 3-hour rated fire barriers are placed as required by the FHA.	7. Redundant safe shutdown components and associated electrical divisions ~~of each~~in the as-built UHSRS, the as-built ESWPT and each as-built PSFSV are separated by 3-hour rated fire barriers to preserve the capability to safely shutdown the plant following a fire. The 3-hour rated as-built fire barriers are placed as required by the FHA.	CTS-01551
8. Penetrations and openings through fire barriers of the UHSRS, the ESWPT and each PSFSV are protected against fire.	8. An inspection of the as-built UHSRS, the as-built ESWPT and each as-built PSFSV will be performed to verify that the as-built penetrations and openings through fire barriers identified in the FHA are sealed or can be closed with fire rated components consistent with the fire resistance rating of the associated barrier.	8. As-built penetrations and openings through fire barriers identified in the FHA of the UHSRS, the ESWPT and ~~the~~each PSFSV are protected against fire with 3-hour fire rated components (e.g. fire doors in door openings and penetration seals) consistent with the fire resistance rating of the associated barrier.	CTS-01551

Appendix A.3

Table A.3-1 (Sheet 3 of 4)
~~UHSRS, ESWPT and PSFSVPlant~~Site ~~s~~Specific ~~s~~Structures Inspections, Tests, Analyses, and Acceptance Criteria

CTS-01511
CTS-01551

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria	
9. The UHRS, the ESWPT and each PSFSV can withstand design-basis loads.	9.i An analysis will be performed to reconcile ~~each~~the as-built UHSRS with the design-basis loads.	9.i Reports exist and conclude that ~~each~~the as-built UHSRS can withstand design-basis loads.	CTS-01551
	9.ii An analysis will be performed to reconcile ~~each~~the as-built ESWPT with the design-basis loads.	9.ii Reports exist and conclude that ~~each~~the as-built ESWPT can withstand design-basis loads.	CTS-01551
	9.iii An analysis will be performed to reconcile each as-built PSFSV with the design-basis loads.	9.iii Reports exist and conclude that each as-built PSFSV can withstand design-basis loads.	CTS-01551
10. SSCs that require evaluation in the seismic fragilities task of a seismic margin analysis have high confidence of low probability of failure (HCLPF) values equal to or greater than the review level earthquake.	10.a Analyses will be performed to verify that the SSCs requiring evaluation in the seismic fragilities task of a seismic margin assessment have HCLPF values equal to or greater than the review level earthquake.	10.a Reports exist and conclude that the SSCs evaluated in the seismic fragilities task of the seismic margin assessment have HCLPF values equal to or greater than the review level earthquake.	
	10.b Inspection and analysis will be performed to verify that as-built SSCs requiring evaluation in the seismic fragilities task of a seismic margin assessment are bounded by conditions used in the seismic margin assessment.	10.b A report exists and concludes that the as-built SSCs requiring evaluation in the seismic fragilities task of a seismic margin assessment are bounded by the conditions used in the seismic margin assessment.	
11. The R/B Complex~~, PCCV, PS/Bs,~~ each PSFSV~~s~~, the ESWPT and the UHSRS are founded directly on bedrock or fill concrete.	11. Inspections will be performed on the as-built foundation beneath the R/B Complex~~, PCCV, PS/Bs,~~ each PSFSV~~s~~, the ESWPT and the UHSRS.	11. Bedrock or fill concrete is used for the as-built foundation beneath the R/B Complex~~, PCCV, PS/Bs,~~ each PSFSV~~s~~, the ESWPT and the UHSRS.	CTS-01511 CTS-01551

Appendix A.3

Table A.3-1 (Sheet 4 of 4)
~~UHSRS, ESWPT and PSFSVPlant~~Site ~~s~~Specific ~~s~~Structures Inspections, Tests, Analyses, and Acceptance Criteria

CTS-01511
CTS-01551

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
12. The UHS ESW pump house ventilation system outside air intakes and exhaust outlets are protected from tornado-generated missiles and hurricane-generated missiles by protective barriers.	12. An inspection will be performed of the as-built protective barriers exterior to the UHS ESW pump house ventilation system outside air intakes and exhaust outlets.	12. The as-built protective barriers exterior to the UHS ESW pump house ventilation system outside air intakes and exhaust outlets are part of the UHSRS outer wall and have the following dimensions: 1) Thickness - greater than or equal to 20 inches for the vertical sections and greater than or equal to 14 inches for the horizontal sections. 2) Width and height - greater than the corresponding dimension of the respective ventilation opening.

CTS-01550

Appendix A.3

Table A.3-2 (Sheet 1 of 4)

Definition of Wall Thicknesses for Safety-Related Structures: UHSRS

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness(2)	Applicable Radiation Shielding Wall (Yes/No)	
Upper Cooling Tower Wall (East and West Walls)	-	From 8456.00' to 885.00'	2'-0"	No	CTS-01512
Upper Cooling Tower Wall (East)	-	From 846.00' to 856.00'	5'-0"	No	CTS-01512
Upper Cooling Tower Wall (West)	-	From 846.00' to 856.00'	3'-0"	No	
Upper Cooling Tower Wall (North and South Walls)	-	From 824.00' to 885.00'	2'-0"	No	
Lower Cooling Tower Wall (North)	-	From 791.00' to 824.00'	34'-0"	No	CTS-01512
Cooling Tower Below Grade Wall (South)	-	From 791.00' to 824.00'	45'-0"	No	CTS-01512
Cooling Tower Below Grade Wall (East)	-	From 791.00' to 846.00'	45'-0"	No	CTS-01512
Cooling Tower Interior Wall	-	From 791.00' to 885.00'	4'-0"	No	CTS-01512
Basin Exterior Wall	-	From 791.00' to 826.00'	45'-0"	No	
Basin Interior Wall	-	From 791.00' to 826.00'	34'-0"	No	
Pump Room Upper Wall (North, and South and West Walls)	-	From 828.00' to 846.00'	2'-0"	No	CTS-01512
Pump Room Upper Wall (West)	-	From 828.00' to 846.00'	5'-0"	No	
Pump Room Upper Wall (East Wall)	-	From 828.00' to 846.00'	3'-0"	No	
Pump Room Lower Wall (North and East Walls)	-	From 77991.00' to 828.00'	34'-0"	No	CTS-01512

NOTE:
Dash (-) indicates not applicable.

CTS-01550

Appendix A.3

Table A.3-2 (Sheet 2 of 4)

Definition of Wall Thicknesses for Safety-Related Structures: UHSRS

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness(2)	Applicable Radiation Shielding Wall (Yes/No)	
Pump Room Lower Wall (North)	-	From 779.00' to 791.00'	5'-0"	No	CTS-01512
Pump Room Lower Wall (East)	-	From 779.00' to 828.00'	~~5~~4'-0"	No	CTS-01551
Pump Room Lower Wall (South and West Walls)	-	From 779.00' to 828.00'	4~~5~~'-0"	No	
Pump Room Extension Walls (East, West and South)	-	From 809.75' to 838.50'	2'-0"	No	CTS-01512
Pump Room Vestibule Wall (West)	-	From 809.75' to 838.50'	2'-0"	No	
Circular Wall at Fan	-	From 856.00' to 863.00'	2'-0"	No	
Mat Slab	-	779.00' and 791.00'	4~~5~~'-0"	No	CTS-01512
Floor and Roof Slabs	-	~~828.00', 836.00', 846.00', 856.00', 876.00', 878.00', 885.00'~~820.00', 822.00' 824.00', 828.00', 833.00', 838.50', 842.00', 846.00', 856.00', 876.00', 885.00'	2'-0"	No	
~~Pipe Chase in UHSRS~~UHS ESWPT Exterior Wall (South)	-	From 793.08' to 809.75'	2'-0"	No	CTS-01552
~~Pipe Chase in UHSRS~~UHS ESWPT Interior Wall	-	From 793.08' to 809.75'	2'-0"	No	CTS-01552
~~Pipe Chase in UHSRS~~UHS ESWPT Roof Slab	-	809.75'	2'-0"	No	CTS-01552
~~Pipe Chase in UHSRS~~UHS ESWPT Mat Slab	-	793.08'	7'-1"	No	CTS-01552

~~NOTE:~~

~~Dash (-) indicates not applicable.~~ CTS-01550

Appendix A.3

Table A.3-2 (Sheet 3 of 4)

Definition of Wall Thicknesses for Safety-Related Structures: ESWPT

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness(2)	Applicable Radiation Shielding Wall (Yes/No)
Outer Wall	-	From 793.08' to 80~~9~~3.75'	2'-0"	No
Interior Wall	-	From 793.08' to 80~~9~~3.75'	1'-0"	No
Roof Slab	-	80~~9~~3.75'	2'-0"	No
Mat Slab	-	793.08'	2'-0"	No

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CTS-01512

~~NOTE:~~
~~Dash ( ) indicates not applicable.~~

CTS-01550

Appendix A.3

Table A.3-2 (Sheet 4 of 4)

Definition of Wall Thicknesses for Safety-Related Structures: PSFSV

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness(2)	Applicable Radiation Shielding Wall (Yes/No)	
Exterior Wall (North)	-	From 788.50' to 822.003~~.60~~'	2'-6"	No	CTS-01512
Exterior Wall (South)	-	From 788.50' to 822.~~6~~00'	2'-6"	No	
Exterior Wall (East Wall of East Vault and West Wall of West Vault)	-	From 788.50' to 822.003~~.60~~'	~~From 2' 6" to~~ 4'-6"	No	
Exterior Wall (West Wall of East Vault and East Wall of West Vault)	-	From 788.50' to 822.003~~.60~~'	2'-6"	No	CTS-01512
Roof Slab	-	From 822.00'~~ to 823.60'~~	2'-0"	No	CTS-01512
Mat Slab	-	788.50'	6'-6"	No	

CTS-01550

NOTES:
1. Dash (-) indicates not applicable.
2. Concrete thickness values are nominal dimensions.

CTS-01550

Appendix A.4

Table A.4-1 (Sheet 2 of 2)
Offsite Power System
(Portions Outside the Scope of the Certified Design)
Inspections, Tests, Analyses, and Acceptance Criteria

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
7. Alarms and displays for monitoring the switchyard equipment status can be retrieved in the MCR.	7.i ~~Inspection will be performed for the retrievability of the as-built switchyard equipment status in the as-built MCR.~~Inspection will be performed on the as-built A-VDU in the MCR for retrievability of alarms for the monitoring of switchyard equipment status.	7.i ~~Alarms and displays for monitoring the switchyard equipment status can be retrieved in the as-built MCR.~~Alarms for the monitoring of switchyard equipment status can be retrieved on the as-built A-VDU in the MCR.
	7.ii Inspection will be performed on the as-built O-VDU in the MCR for retrievability of the displays for the monitoring of switchyard equipment status.	7.ii Displays for the monitoring of switchyard equipment status can be retrieved on the as-built O-VDU in the MCR.
8. If power through the preferred power supply is not available, the offsite electrical system has the capability to automatic fast transfer to the non-preferred power supply if available.	8. Inspection of the as-built offsite electrical system will be performed.	8. The as-built offsite electrical system is automatically transferred to the non-preferred power supply in power is not available through the preferred power supply.
9. The switchyard agreement and protocols between the NPP and the TN system owner/operator assess the risk and probability of a loss of offsite power due to performing maintenance activities on the electrical system.	9. Inspection of the switchyard agreement and protocols between the NPP and the TN owner/operator will be performed.	9. The switchyard agreement and protocols between the NPP and the TN owner/operator assess the risk and probability of a loss of offsite power due to performing maintenance activities on the electrical system.
10. The probability of losing electric power from any of the remaining supplies as a result of, or coincident with, the loss of power generated by the nuclear unit, the loss of power from the TN, or the loss of power from the onsite electric power supplies, is minimized.	10. Analyses of the as-built offsite electrical system for transient stability will be performed.	10. A report exists and concludes that the probability of losing electric power from any of the remaining supplies as a result of, or coincident with the loss of power generated by the nuclear unit, the loss of power from the TN, or the loss of power from the onsite electric power supplies, is minimized.

CTS-01550

Appendix A.5

PART 10 - APPENDIX A.5

PLANT-SPECIFIC PROCESS EFFLUENT RADIATION MONITORING AND SAMPLING (PERMS)

A.5.1 Design Description

The PERMS includes the radiation monitors as identified in Table A.5-2.

A.5.2 Inspections, Tests, Analyses, and Acceptance Criteria

Table A.5-1 specifies the ITAAC for the plant-specific PERMS.

Table A.5-1
Process Effluent Radiation Monitoring and Sampling System
Inspections, Tests, Analyses, and Acceptance Criteria

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
1. The PERMS includes the radiation monitors as identified in Table A.5-2.	1. An inspection will be performed of the as-built radiation monitors identified in Table A.5-2.	1. The as-built PERMS include the radiation monitors as identified in Table A.5-2.

Table A.5-2
Process Effluent Radiation Monitoring and Sampling System
Equipment Characteristics

PERMS Monitor Name	Detector Number	Safety Related	Seismic Category I	Class 1E/ Qual. for Harsh Envir.	Location
Startup Steam Generator Blowdown Heat Exchanger Downstream Radiation Monitor	RMS-RE-110	No	No	No/No	(Note 1)
Evaporation Pond Discharge Radiation Monitor	RMS-RE-111	No	No	No/No	(Note 2)

CTS-01550

Note 1: The monitor is located adjacent to Startup Generator Blowdown Equipment shown in FSAR Figure 1.2-1R (Sheet 2 of 2)

Note 2: The monitor is located adjacent to radwaste evaporator pond shown in FSAR Figure 1.2-1R (Sheet 1 of 2)

PART 10 - APPENDIX A.7

RCOL2_03.06.01-1

PIPE BREAK HAZARDS ANALYSIS

A.7.1 Design Description

1. Safety-related SSCs are designed to be protected against or are qualified to withstand the environmental effects associated with analyses of postulated failures in site-specific moderate-energy piping systems identified in FSAR Table 3.6-201 so that the reactor can be shut down safely and maintained in a safe, cold shutdown condition without offsite power.

2. The site-specific moderate-energy piping systems identified in FSAR Table 3.6-201 are reconciled with the pipe break hazards analyses report(s) to ensure that the safety-related SSCs are protected against or are qualified to withstand the environmental effects associated with postulated failures of these piping systems as necessary to achieve and maintain safe, cold shutdown without offsite power.

CTS-01550

A.7.2 Inspections, Tests, Analyses, and Acceptance Criteria

RCOL2_03.06.01-1

Table A.7-1 describes the ITAAC for the pipe break hazard analysis for postulated failures in site-specific moderate-energy piping systems identified in FSAR Table 3.6-201.

Appendix A.7

RCOL2_03.06.01-1

Table A.7-1
Pipe Break Hazards Analysis
(Portions outside the Scope of the Certified Design)
Inspections, Tests, Analyses, and Acceptance Criteria

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
1. Safety-related SSCs are designed to be protected against or are qualified to withstand the environmental effects associated with analyses of postulated failures in site-specific moderate-energy piping systems identified in FSAR Table 3.6-201 so that the reactor can be shut down safely and maintained in a safe, cold shutdown condition without offsite power.	1. Environmental effects analysis will be performed for the site-specific moderate-energy piping systems identified in FSAR Table 3.6-201. The analysis includes the evaluation for wetting from spray, flooding, room pressurization, and temperature effects, as applicable.	1. Pipe break hazard analysis report(s) exist and conclude that for each postulated piping failure of the site-specific moderate-energy piping systems identified in FSAR Table 3.6-201, the safety-related SSCs are protected against or are qualified to withstand the environmental effects of postulated failure~~s~~ as necessary to achieve and maintain safe, cold shutdown without offsite power.
2. The site-specific moderate-energy piping systems identified in FSAR Table 3.6-201 are reconciled with the pipe break hazards analyses report(s) to ensure that the safety-related SSCs are protected against or are qualified to withstand the environmental effects associated with postulated failures of these piping systems as necessary to achieve and maintain safe, cold shutdown without offsite power.	2. Using the as-designed pipe break hazard analysis report, inspection and reconciliation analysis of the as-built site-specific moderate-energy piping systems and safety-related SSCs will be performed.	2. Pipe break hazard analysis report(s) exist and conclude that the as-built safety-related SSCs are protected against or are qualified to withstand the effects of postulated pipe failures of the as-built site-specific moderate-energy piping systems identified in FSAR Table 3.6-201 as necessary to achieve and maintain safe, cold shutdown without offsite power.

CTS-01550