MITSUBISHI HEAVY INDUSTRIES, LTD.
16-5, KONAN 2-CHOME, MINATO-KU
TOKYO, JAPAN

December 28, 2012

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Attention: Mr. Jeffrey A. Ciocco

Docket No. 52-021
MHI Ref: UAP-HF-12335

Subject: MHI's Amended Response to US-APWR DCD RAI No. 896-6269 Revision 3 (SRP 03.09.06)

References:
1) "Request for Additional Information No. 896-6269 Revision 3, SRP Section 03.09.06 – Functional Design Qualification and Inservice Testing Programs for Pumps, Valves, and Dynamic Restraints –Applicable Section 3.9.6" dated January 30, 2012.
2) "MHI's Response to US-APWR DCD RAI No. 896-6269 Revision 3 (SRP 03.09.06)", MHI Letter No. UAP-HF-12080, dated April 3, 2012 (incorrectly dated as '2011').

With this letter, Mitsubishi Heavy Industries, Ltd. ("MHI") transmits to the U.S. Nuclear Regulatory Commission ("NRC") a document entitled "Amended Response to Request for Additional Information No. 896-6269 Revision 3." The purpose of this revision is to address NRC feedback received by e-mail on October 9, 2012.

Enclosure 1 is an amended response to Question 03.09.06-69 contained within Reference 1. This response supersedes the response previously transmitted in Reference 2 in its entirety.

Please contact Mr. Joseph Tapia, General Manager of Licensing Department, Mitsubishi Nuclear Energy Systems, Inc. if the NRC has questions concerning any aspect of this submittal. His contact information is below.

Sincerely,

Hiroki Nohs for

Yoshiki Ogata,
Director- APWR Promoting Department
Mitsubishi Heavy Industries, LTD.

Enclosure:

1. Amended Response to Request for Additional Information No. 896-6269 Revision 3

D081
NRO

CC: J. A. Ciocco
J. Tapia

Contact Information
Joseph Tapia, General Manager of Licensing Department
Mitsubishi Nuclear Energy Systems, Inc.
1001 19th Street North, Suite 710
Arlington, VA 22209
E-mail: joseph_tapia@mnes-us.com
Telephone: (703) 908 – 8055

Docket No. 52-021
MHI Ref: UAP-HF-12335

Enclosure 1

UAP-HF-12335
Docket No. 52-021

Amended Response to Request for Additional Information
No. 896-6269 Revision 3

December 2012

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

12/28/2012

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.:	**NO. 896-6269 REVISION 3**
SRP SECTION:	**03.09.06 - Functional Design Qualification and Inservice Testing Programs for Pumps, Valves, and Dynamic Restraints**
APPLICATION SECTION:	**3.9.6**
DATE OF RAI ISSUE:	**1/30/2012**

Question No. : 03.09.06-69

US-APWR Design Control Document (DCD) Tier 1 includes Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) for safety-related valves that address their design-basis capability. However, US-APWR DCD Tier 1 does not appear to include ITAAC to verify the functional design and qualification for all safety-related pumps and valves to be capable of performing their intended function for the full range of operating conditions up to design-basis conditions. For such ITAAC, the Design Commitment column should specify that pumps and valves identified in the applicable Tier 1 table will be functionally designed and qualified such that each pump and valve is capable of performing its intended function for a full range of system differential pressure and flow, ambient temperatures, and available voltage (as applicable) under conditions ranging from normal operating to design-basis accident conditions. The Inspections, Tests, and Analyses column should specify that tests or type tests of the pumps and valves listed in the applicable Tier 1 table will be conducted to demonstrate that the pumps and valves function under conditions ranging from normal operating conditions to design-basis accident conditions. The Acceptance Criteria column should specify that a test report exists and concludes that the pumps and valves listed in the applicable Tier 1 table function under conditions ranging from normal operating conditions to design-basis accident conditions. The NRC staff requests that the US-APWR design certification applicant revise the applicable sections of US-APWR DCD Tier 1 to specify ITAAC to verify the functional design and qualification of all safety-related pumps and valves to perform their intended function for a full range of operating conditions up to design-basis conditions.

ANSWER:

Safety-related active mechanical equipment "functional design and qualification" is performed in accordance with DCD Tier 2 Section 3.9.6 and the US-APWR equipment qualification program described in DCD Section 3.11 and Technical Report MUAP-08015. An equipment qualification data summary report documents the qualification data package that assures that safety-related pumps and valves are capable of performing their intended function for the full range of operating conditions up to design-basis conditions.

MHI will revise the US-APWR DCD Tier 1 ITAAC for functional design and qualification of pumps and valves listed in applicable Tier 1 tables to verify their intended function for a full range of operating conditions up to design-basis conditions. Terminology from Regulatory Guide (RG) 1.206, Section C.II.1.2.3,*ITAAC for Piping Systems and Components*, will be used to clarify the conditions to be verified. This RG specifies, in part, that ITAAC verify that installed pumps and valves "...have the capability to perform their intended functions under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions." Existing functional design and qualification ITAAC for valves will be revised to replace the term "under design conditions" in the applicable ITAs and ACs with "under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions." This term will also be added to the Design Commitments of relevant valve ITAAC. As part of these changes, where functional qualification and testing of ITAAC for different valve types are contained in separate ITAAC, these verifications will be combined into a single ITAAC. Additionally, consistency changes will be made to these ITAAC.

To address the functional design and qualification of pumps, a new ITAAC will be added for pumps listed in applicable Tier 1 tables. This change affects DCD Tier 1 Sections 2.4.4, 2.4.5, 2.4.6, 2.6.4, 2.7.1.11, 2.7.3.1, 2.7.3.3, 2.7.3.5, and 2.7.6.3. The form of the new ITAAC is as follows:

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

Note: Underlined values X and Y will be replaced with numbers that are consistent with each applicable ITAAC table numbering.

Impact on DCD

To address function design and qualification of valves, US-APWR DCD Revision 3 Tier 1 Sections 2.4.2, 2.4.4, 2.4.5, 2.4.6, 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, 2.7.6.7, 2.11.2, and 2.11.3 will be revised as described in the answer above and shown on the attached markups. (See Attachment-1.)

To address functional design and qualification of pumps, US-APWR DCD Revision 3 Tier 1 Sections 2.4.4, 2.4.5, 2.4.6, 2.6.4, 2.7.1.11, 2.7.3.1, 2.7.3.3, 2.7.3.5, and 2.7.6.3 are changed as described in the answer above and shown on the attached markups. (See Attachment-1.)

Impact on R-COLA

There is no impact on the R-COLA.

Impact on S-COLA

There is no impact on the S-COLA.

Impact on PRA

There is no impact on the PRA.

Impact on Technical / Topical Reports

There is no impact on the Technical / Topical Reports.

11.b The remotely operated valves identified in Table 2.4.2-2 as having PSMS control perform an active safety function after receiving a signal from PSMS.

12.a The ~~motor-~~remotely operated valves~~,~~ identified in Table 2.4.2-2~~,~~ as having an active safety function can perform an active safety function to change position as indicated in the table under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions. DCD_03.09.06-69 S01

12.b After loss of motive power, the remotely operated valves, identified in Table 2.4.2-2, assume the indicated loss of motive power position.

13.a Controls are provided in the MCR to start and stop the reactor coolant pumps identified in Table 2.4.2-4.

13.b The pumps identified in Table 2.4.2-2 as having PSMS control perform an active safety function after receiving a signal from PSMS.

14. Alarms and displays identified in Table 2.4.2-4 are provided in the MCR.

15. Alarms, displays and controls identified in Table 2.4.2-4 are provided in the RSC.

16. The piping identified in Table 2.4.2-3 as designed for leak-before-break (LBB) meets the LBB criteria, or an evaluation is performed of the protection from the dynamic effects of a rupture of the piping.

17. Controls are provided in the MCR to start and stop the pressurizer heaters identified in Table 2.4.2-4.

2.4.2.2 Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.4.2-5 describes the ITAAC for the RCS.

The ITAAC associated with the RCS equipment, components, and piping that comprise a portion of the CIS are described in Table 2.11.2-2.

Table 2.4.2-5 Reactor Coolant System Inspections, Tests, Analyses, and Acceptance Criteria (Sheet 7 of 10)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria	
12.a The ~~motor-~~remotely operated valves~~,~~ identified in Table 2.4.2-2~~,~~ as having an active safety function can perform an active safety function to change position as indicated in the table under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions.	12.a.i Type tests, or a combination of type tests and analyses, of the ~~motor-~~remotely operated valves identified in Table 2.4.2-2 as having an active safety function will be performed that demonstrate the capability of the valve to operate under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including~~its~~ design-basis conditions.	12.a.i A report exists and concludes that each ~~motor-~~remotely operated valve identified~~changes position as indicated~~ in Table 2.4.2-2 as having an active safety function changes position as indicated in Table 2.4.2-2 under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions.	DCD_03.09.06-69 S01
	12.a.ii Tests of the as-built ~~motor-~~remotely operated valves identified in Table 2.4.2-2 as having an active safety function will be performed under preoperational flow, differential pressure, and temperature conditions.	12.a.ii Each as-built ~~motor-~~remotely operated valve ~~changes position as~~ identified in Table 2.4.2-2 as having an active safety function changes position as indicated in Table 2.4.2-2 under preoperational test conditions.	DCD_03.09.06-69 S01
	12.a.iii Inspections will be performed of the as-built ~~motor-~~remotely operated valves identified in Table 2.4.2-2 as having an active safety function.	12.a.iii Each as-built ~~motor-~~remotely operated valve identified in Table 2.4.2-2 as having an active safety function is bounded by the type tests, or a combination of the type tests and analyses.	DCD_03.09.06-69 S01
12.b After loss of motive power, the remotely operated valves, identified in Table 2.4.2-2, assume the indicated loss of motive power position.	12.b Tests of the as-built remotely operated valves identified in Table 2.4.2-2 will be performed under the conditions of loss of motive power.	12.b Upon loss of motive power, each as-built remotely operated valve identified in Table 2.4.2-2 assumes the indicated loss of motive power position.	

7.a Deleted.

7.b The ECCS provides RCS makeup, boration, and safety injection during design basis events.

7.c The ECCS provides pH adjustment of water flooding the containment following design basis accidents.

7.d The safety injection pumps have sufficient net positive suction head (NPSH).

8. Controls are provided in the MCR to open and close the remotely operated valves identified in Table 2.4.4-~~2~~4. DCD_14.03-5

9.a The ~~motor-operated, air-operated and check~~ valves~~,~~ identified in Table 2.4.4-2 as having an active safety function~~,~~ can perform an active safety function to change position as indicated in the table under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions. DCD_03.09.06-69 S01

9.b After loss of motive power, the remotely operated valves, identified in Table 2.4.4-2, assume the indicated loss of motive power position.

10.a Controls are provided in the MCR to start and stop the safety injection pumps identified in Table 2.4.4-4.

10.b The pumps identified in Table 2.4.4-4 start after receiving an ECCS actuation signal.

10.c A confirmatory-open interlock is provided to automatically open the accumulator discharge valve upon the receipt of an ECCS actuation signal or an above low pressurizer pressure (P11) setpoint signal.

11. Alarms and displays identified in Table 2.4.4-4 are provided in the MCR.

12. Alarms, displays and controls identified in Table 2.4.4-4 are provided in the RSC.

13. The piping identified in Table 2.4.4-3 as designed for LBB meets the LBB criteria, or an evaluation is performed of the protection from the dynamic effects of a rupture of the line.

14.a Deleted.

14.b Deleted.

15. The pumps identified in Table 2.4.4-2 can perform their safety functions under expected ranges of fluid flow, pump head, electrical conditions, and temperature conditions up to and including design-basis conditions. DCD_03.09.06-69 DCD_03.09.06-69 S01

2.4.4.2 Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.4.4-5 describes the ITAAC for the ECCS.

Table 2.4.4-5 Emergency Core Cooling System Inspections, Tests, Analyses, and Acceptance Criteria (Sheet 8 of 11)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria	
9.a The ~~motor-operated, air-operated and check~~ valves~~,~~ identified in Table 2.4.4-2 as having an active safety function~~,~~ can perform an active safety function to change position as indicated in the table under 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 ~~motor-operated and air-operated~~ valves identified in Table 2.4.4-2 as having an active safety function will be performed that demonstrate the capability of the valve to operate under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including ~~its~~ design-basis conditions.	9.a.i A report exists and concludes that each ~~motor-operated and air-operated~~ valve identified in Table 2.4.4-2 as having an active safety function changes position as indicated in Table 2.4.4-2 under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions.	DCD_03.09.06-69 S01 DCD_03.09.06-69 S01
	9.a.ii Tests of the as-built ~~motor-operated and air-operated~~ valves identified in Table 2.4.4-2 as having an active safety function will be performed under preoperational flow, differential pressure, and temperature conditions.	9.a.ii Each as-built ~~motor-operated and air-operated~~ valve identified in Table 2.4.4-2 as having an active safety function changes position as indicated in Table 2.4.4-2 under preoperational test conditions.	
	9.a.iii Inspections will be performed of the as-built ~~motor-operated and air-operated~~ valves identified in Table 2.4.4-2 as having an active safety function.	9.a.iii Each as-built ~~motor-operated and air-operated~~ valve identified in Table 2.4.4-2 as having an active safety function is bounded by the type tests, or a combination of type tests and analyses.	DCD_03.09.06-69 S01
	9.a.iv Deleted ~~Tests of the as-built check valves identified in Table 2.4.4-2 as having an active safety function will be performed under preoperational test pressure, temperature, and fluid flow conditions.~~	9.a.iv Deleted ~~Each as-built check valve identified in Table 2.4.4-2 as having an active safety function changes position as indicated in Table 2.4.4-2 under preoperational test conditions.~~	DCD_03.09.06-69 S01
9.b After loss of motive power, the remotely operated valves, identified in Table 2.4.4-2, assume the indicated loss of motive power position.	9.b. Tests of the as-built remotely operated valves identified in Table 2.4.4-2 will be performed under the conditions of loss of motive power.	9.b Upon loss of motive power, each as-built remotely operated valve identified in Table 2.4.4-2 assumes the indicated loss of motive power position.	

Table 2.4.4-5 Emergency Core Cooling System Inspections, Tests, Analyses, and Acceptance Criteria (Sheet 11 of 11)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
15. The pumps identified in Table 2.4.4-2 can perform their safety functions under expected ranges of fluid flow, pump head, electrical conditions, and temperature conditions up to and including design-basis conditions.	15.i Type tests or a combination of type tests and analyses of each pump identified in Table 2.4.4-2 will be performed to demonstrate the ability of the pump to perform its safety function under expected ranges of fluid flow, pump head, electrical conditions, and temperature conditions up to and including design-basis conditions.	15.i A ~~n equipment qualification data summary~~ report exists and concludes that the pumps identified in Table 2.4.4-2 can perform their safety functions under expected ranges of fluid flow, pump head, electrical conditions, and temperature conditions up to and including design-basis conditions.
	15.ii Inspections will be performed of each as-built pump identified in Table 2.4.4-2.	15.ii Each as-built pump identified in Table 2.4.4-2 is bounded by the type tests, or a combination of type tests and analyses.

DCD_03.09.06-69
DCD_03.09.06-69 S01

9. Controls are provided in the MCR to open and close the remotely operated valves identified in Table 2.4.5-4~~2~~. DCD_14.03-5

10.a The ~~motor-operated and check~~ valves identified in Table 2.4.5-2 as having an active safety function can perform an active safety function to change position as indicated in the table under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions. DCD_03.09.06-69 S01

10.b After loss of motive power, the remotely operated valves, identified in Table 2.4.5-2, assume the indicated loss of motive power position.

11. Controls are provided in the MCR to start and stop the CS/RHR pumps identified in Table 2.4.5-4.

12. Alarms and displays identified in Table 2.4.5-4 are provided in the MCR.

13. Alarms, displays and controls identified in Table 2.4.5-4 are provided in the RSC.

14. The piping identified in Table 2.4.5-3 as designed for LBB meets the LBB criteria, or an evaluation is performed of the protection from the dynamic effects of a rupture of the line.

15.a Deleted

15.b Deleted

16. The pumps identified in Table 2.4.5-2 can perform their safety functions under expected ranges of fluid flow, pump head, electrical conditions, and temperature conditions up to and including design-basis conditions. DCD_03.09.06-69 DCD_03.09.06-69 S01

2.4.5.2 Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.4.5-5 describes the ITAAC for the RHRS. The ITAAC associated with those components shared with the CSS performing their containment spray functions are provided in Subsection 2.11.3.

The ITAAC associated with the RHRS equipment, components, and piping that comprise a portion of the CIS are described in Table 2.11.2-2.

Table 2.4.5-5 Residual Heat Removal System Inspections, Tests, Analyses, and Acceptance Criteria (Sheet 8 of 11)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria	
9. Controls are provided in the MCR to open and close the remotely operated valves identified in Table 2.4.5-4~~2~~.	9.i Tests will be performed for MCR control capability of the remotely operated valves, identified in Table 2.4.5-4, on the as-built S-VDU.	9.i MCR controls for the remotely operated valves, identified in Table 2.4.5-4, on the as-built S-VDU provide the necessary output from the PSMS to open and close the respective valves.	DCD_14.03-5
	9.ii Tests will be performed on the as-built remotely operated valves identified in Table 2.4.5-4~~2~~ using controls on the as-built O-VDU in the ~~as-built~~ MCR.	9.ii Controls on the as-built O-VDU in the ~~as-built~~ MCR open and close the as-built remotely operated valves identified in Table 2.4.5-4~~2~~ with the MCR control function.	DCD_14.03-5
10.a The ~~motor-operated and check~~ valves~~,~~ identified in Table 2.4.5-2 as having an active safety function can perform an active safety function to change position as indicated in the table under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions.	10.a.i Type tests or a combination of type tests and analyses of the ~~motor-operated~~ valves identified in Table 2.4.5-2 as having an active safety function will be performed that demonstrate the capability of the valve to operate under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including ~~its~~ design-basis conditions.	10.a.i A report exists and concludes that each ~~motor-operated~~ valve identified in Table 2.4.5-2 as having an active safety function changes position as indicated in Table 2.4.5-2 under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions.	DCD_03.09.06-69 S01 DCD_03.09.06-69 S01
	10.a.ii Tests of the as-built ~~motor-operated~~ valves identified in Table 2.4.5-2 as having an active safety function will be performed under preoperational flow, differential pressure, and temperature conditions.	10.a.ii Each as-built ~~motor-operated~~ valve identified in Table 2.4.5-2 as having an active safety function changes position as indicated in Table 2.4.5-2 under preoperational test conditions.	DCD_03.09.06-69 S01

Table 2.4.5-5 Residual Heat Removal System Inspections, Tests, Analyses, and Acceptance Criteria (Sheet 9 of 11)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria	
	10.a.iii Inspections will be performed of the as-built ~~motor-operated and air-operated~~ valves identified in Table 2.4.5-2 as having an active safety function.	10.a.iii Each as-built ~~motor-operated and air-operated~~ valve identified in Table 2.4.5-2 as having an active safety function is bounded by the type tests, or a combination of type tests and analyses.	DCD_03.09.06-69 S01
	10.a.iv Deleted ~~Tests of the as-built check valves identified in Table 2.4.5-2 as having an active safety function will be performed under preoperational test pressure, temperature and fluid flow conditions.~~	10.a.iv Deleted ~~Each as-built check valve identified in Table 2.4.5-2 as having an active safety function changes position as indicated in Table 2.4.5-2 under preoperational test conditions.~~	DCD_03.09.06-69 S01
10.b After loss of motive power, the remotely operated valves, identified in Table 2.4.5-2, assume the indicated loss of motive power position.	10.b Tests of the as-built remotely operated valves identified in Table 2.4.5-2 will be performed under the conditions of loss of motive power.	10.b Upon loss of motive power, each as-built remotely operated valve identified in Table 2.4.5-2 assumes the indicated loss of motive power position.	

Table 2.4.5-5 Residual Heat Removal System Inspections, Tests, Analyses, and Acceptance Criteria (Sheet 11 of 11)

	Design Commitment		Inspections, Tests, Analyses		Acceptance Criteria
14.	The piping identified in Table 2.4.5-3 as designed for LBB meets the LBB criteria, or an evaluation is performed of the protection from the dynamic effects of a rupture of the line.	14.	Inspections of the as-built piping identified in Table 2.4.5-3 will be performed based on the evaluation report for LBB or for the evaluation of the protection from dynamic effects of a pipe break, as specified in Section 2.3.	14.	An LBB evaluation report exists and concludes that the LBB acceptance criteria are met by the as-built piping identified in Table 2.4.5-3 and piping materials, or a pipe break hazards analysis report exists and concludes that protection from the dynamic effects of a line break is provided.
15.a	Deleted.	15.a	Deleted.	15.a	Deleted.
15.b	Deleted.	15.b	Deleted.	15.b	Deleted.
16.	The pumps identified in Table 2.4.5-2 can perform their safety functions under expected ranges of fluid flow, pump head, electrical conditions, and temperature conditions up to and including design-basis conditions.	16.i	Type tests or a combination of type tests and analyses of each pump identified in Table 2.4.5-2 will be performed to demonstrate the ability of the pump to perform its safety function under expected ranges of fluid flow, pump head, electrical conditions, and temperature conditions up to and including design-basis conditions.	16.i	A~~n equipment qualification data summary~~ report exists and concludes that the pumps identified in Table 2.4.5-2 can perform their safety functions under expected ranges of fluid flow, pump head, electrical conditions, and temperature conditions up to and including design-basis conditions.
		16.ii	Inspections will be performed of each as-built pump identified in Table 2.4.5-2.	16.ii	Each as-built pump identified in Table 2.4.5-2 is bounded by the type tests, or a combination of type tests and analyses.

DCD_03.09.06-69
DCD_03.09.06-69 S01

4.a The ASME Code Section III components, identified in Table 2.4.6-2, retain their pressure boundary integrity at their design pressure.

4.b The ASME Code Section III piping, identified in Table 2.4.6-3, retains its pressure boundary integrity at its design pressure.

5.a The seismic Category I equipment identified in Table 2.4.6-2 can withstand seismic design basis loads without loss of safety function.

5.b The seismic Category I piping, including supports, identified in Table 2.4.6-3 can withstand seismic design basis loads without a loss of its safety function.

6.a The Class 1E equipment identified in Table 2.4.6-2 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

6.b Class 1E equipment identified in Table 2.4.6-2 is powered from its respective Class 1E division.

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

7. Deleted.

8.a The CVCS provides makeup capability to maintain the RCS volume.

8.b Deleted.

8.c The CVCS supplies seal water to the RCP seals.

9. Controls are provided in the MCR to open and close the remotely operated valves identified in Table 2.4.6-~~4~~2. DCD_14.03-5

10.a The ~~motor operated valves, air operated~~ valves ~~and check valves~~ identified in Table 2.4.6-2 as having an active safety function can perform an active safety function to change position as indicated in the table under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions. DCD_03.09.06-69 S01

10.b After loss of motive power, the remotely operated valves, identified in Table 2.4.6-2, assume the indicated loss of motive power position.

11. Controls are provided in the MCR to start and stop the charging pumps identified in Table 2.4.6-4.

12. Alarms and displays identified in Table 2.4.6-4 are provided in the MCR.

13. Alarms, displays and controls identified in Table 2.4.6-4 are provided in the RSC.

14.a Deleted.

14.b Deleted.

15. The pumps identified in Table 2.4.6-2 can perform their safety functions under expected ranges of fluid flow, pump head, electrical conditions, and temperature conditions up to and including design-basis conditions. DCD_03.09.06-69 DCD_03.09.06-69 S01

2.4.6.2 Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.4.6-5 describes the ITAAC for the CVCS.

The ITAAC associated with the CVCS equipment, components, and piping that comprise a portion of the CIS are described in Table 2.11.2-2.

Table 2.4.6-5 Chemical and Volume Control System Inspections, Tests, Analyses, and Acceptance Criteria (Sheet 5 of 8)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria	
7. Deleted.	7. Deleted.	7. Deleted.	
8.a The CVCS provides makeup capability to maintain the RCS volume.	8.a A test of the as-built CVCS will be performed to measure the makeup flow rate.	8.a Each as-built CVCS charging pump delivers a flow rate to the RCS of greater than or equal to 160 gpm at normal operating pressure of RCS.	
8.b Deleted.	8.b Deleted.	8.b Deleted.	
8.c The CVCS supplies seal water to the RCP seals.	8.c A test of the as-built CVCS will be performed by aligning a flow path to each RCP.	8.c Each as-built CVCS charging pump provides a flow rate of greater than or equal to 8 gpm to each RCP.	
9. Controls are provided in the MCR to open and close the remotely operated valves identified in Table 2.4.6-2.	9.i Tests will be performed for MCR control capability of the remotely operated valves, identified in Table 2.4.6-4, on the as-built S-VDU.	9.i MCR controls for the remotely operated valves, identified in Table 2.4.6-4, on the as-built S-VDU provide the necessary output from the PSMS to open and close the respective valves.	DCD_14.03-5
	9.ii Tests will be performed on the as-built remotely operated valves identified in Table 2.4.6-4~~2~~ using controls on the as-built O-VDU in the ~~as-built~~ MCR.	9.ii Controls on the as-built O-VDU in the ~~as-built~~ MCR open and close the as-built remotely operated valves identified in Table 2.4.6-4~~2~~ with the MCR control function.	DCD_14.03-5 DCD_14.03-5
10.a. The ~~motor-operated valves, air-operated~~ valves ~~and check valves~~ identified in Table 2.4.6-2 as having an active safety function can perform an active safety function to change position as indicated in the table under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions.	10.a.i Type tests or a combination of type tests and analyses of the ~~motor-operated valves and air-operated~~ valves identified in Table 2.4.6-2 as having an active safety function will be performed that demonstrate the capability of the valve to operate under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including ~~its~~ design-basis conditions.	10.a.i A report exists and concludes that each ~~motor-operated and air-operated~~ valve identified in Table 2.4.6-2 as having an active safety function changes position as indicated in Table 2.4.6-2 under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions.	DCD_03.09.06-69 S01 DCD_03.09.06-69 S01

Table 2.4.6-5 Chemical and Volume Control System Inspections, Tests, Analyses, and Acceptance Criteria (Sheet 6 of 8)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria	
	10.a.ii Tests of the as-built ~~motor-operated valves and air-operated~~ valves identified in Table 2.4.6-2 as having an active safety function will be performed under preoperational flow, differential pressure, and temperature conditions.	10.a.ii Each as-built ~~motor-operated and air-operated~~ valve identified in Table 2.4.6-2 as having an active safety function changes position as indicated in Table 2.4.6-2 under preoperational test conditions.	DCD_03.09.06-69 S01
	10.a.iii Inspections will be performed of the ~~as-built motor-operated and air-operated~~ valves identified in Table 2.4.6-2 as having an active safety function.	10.a.iii Each as-built ~~motor-operated and air-operated~~ valve identified in Table 2.4.6-2 as having an active safety function is bounded by the type tests, or a combination of type tests and analyses.	DCD_03.09.06-69 S01
	10.a.iv Deleted~~Tests of the as-built check valves identified in Table 2.4.6-2 as having an active safety function will be performed under preoperational test pressure, temperature, and fluid flow conditions.~~	10.a.iv Deleted~~Each as-built check valve identified in Table 2.4.6-2 as having an active safety function changes position as indicated in Table 2.4.6-2 under preoperational test conditions.~~	DCD_03.09.06-69 S01
10.b After loss of motive power, the remotely operated valves, identified in Table 2.4.6-2, assume the indicated loss of motive power position.	10.b Tests of the as-built remotely operated valves identified in Table 2.4.6-2 will be performed under the conditions of loss of motive power.	10.b Upon loss of motive power, each as-built remotely operated valve identified in Table 2.4.6-2 assumes the indicated loss of motive power position.	
11. Controls are provided in the MCR to start and stop the charging pumps identified in Table 2.4.6-4.	11.i Tests will be performed for MCR control capability of the charging pumps, identified in Table 2.4.6-4, on the as-built S-VDU.	11.i MCR controls for the charging pumps, identified in Table 2.4.6-4, on the as-built S-VDU provide the necessary output from the PSMS to start and stop the respective pumps.	DCD_14.03-5
	11.ii Tests will be performed on the as-built charging pumps identified in Table 2.4.6-4 using controls on the as-built O-VDU in the ~~as-built~~ MCR.	11.ii Controls on the as-built O-VDU in the ~~as-built~~ MCR start and stop the as-built charging pumps identified in Table 2.4.6-4 with the MCR control function.	DCD_14.03-5 DCD_14.03-5

Table 2.4.6-5 Chemical and Volume Control System Inspections, Tests, Analyses, and Acceptance Criteria (Sheet 8 of 8)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
15. The pumps identified in Table 2.4.6-2 can perform their safety functions under expected ranges of fluid flow, pump head, electrical conditions, and temperature conditions up to and including design-basis conditions.	15.i Type tests or a combination of type tests and analyses of each pump identified in Table 2.4.6-2 will be performed to demonstrate the ability of the pump to perform its safety function under expected ranges of fluid flow, pump head, electrical conditions, and temperature conditions up to and including design-basis conditions.	15.i A ~~n equipment qualification data summary~~ report exists and concludes that the pumps identified in Table 2.4.6-2 can perform their safety functions under expected ranges of fluid flow, pump head, electrical conditions, and temperature conditions up to and including design-basis conditions.
	15.ii Inspections will be performed of each as-built pump identified in Table 2.4.6-2.	15.ii Each as-built pump identified in Table 2.4.6-2 is bounded by the type tests, or a combination of type tests and analyses.

DCD_03.09.06-69
DCD_03.09.06-69 S01

4.b The ASME Code Section III piping, identified in Table 2.7.1.2-3, retains its pressure boundary integrity at its design pressure.

5.a The seismic Category I equipment, identified in Table 2.7.1.2-2, can withstand seismic design basis loads without loss of safety function.

5.b The seismic Category I piping, including supports, identified in Table 2.7.1.2-3, can withstand seismic design basis loads without a loss of its safety function.

6.a The Class 1E equipment identified in Table 2.7.1.2-2 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

6.b Class 1E equipment, identified in Table 2.7.1.2-2, is powered from its respective Class 1E division.

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

7. Deleted.

8.a Controls are provided in the MCR to open and close the remotely operated valves identified in Table 2.7.1.2-~~2~~4. DCD_14.03-5

8.b The remotely operated valves identified in Table 2.7.1.2-2 as having PSMS control perform an active safety function after receiving a signal from PSMS.

9.a The ~~motor operated~~remotely operated and check valves identified in Table 2.7.1.2-2 as having an active safety function can perform an active safety function to change position as indicated in the table under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions. DCD_03.09.06-69 S01

9.b ~~The air-operated valves identified in Table 2.7.1.2-2 as having an active safety function perform an active safety function to change position as indicated in the table.~~Deleted

9.c ~~The check valves, identified in Table 2.7.1.2-2 as having an active safety function perform an active safety function to change position as indicated in the table.~~Deleted

9.d After loss of motive power, the remotely operated valves, identified in Table 2.7.1.2-2, assume the indicated loss of motive power position.

9.e ~~The MSIVs identified in Table 2.7.1.2-2 perform an active safety function to change position as indicated in the table.~~Deleted DCD_03.09.06-69 S01

10. Alarms and displays identified in Table 2.7.1.2-4 are provided in the MCR.

11. Alarms, displays, and controls identified in Table 2.7.1.2-4 are provided in the RSC.

Table 2.7.1.2-5 Main Steam Supply System Inspections, Tests, Analyses, and Acceptance Criteria (Sheet 7 of 11)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria	
9.a The ~~motor-operated~~remotely operated and check valves identified in Table 2.7.1.2-2 as having an active safety function can perform an active safety function to change position as indicated in the table under 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 ~~motor-operated~~remotely operated and check valves identified in Table 2.7.1.2-2 as having an active safety function will be performed that demonstrate the capability of the valve to operate under ~~its design-conditions~~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 ~~motor-operated~~remotely operated and check valve identified in Table 2.7.1.2-2 as having an active safety function changes position as identified in Table 2.7.1.2-2 under ~~design-conditions~~expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions.	DCD_03.09.06-69 S01 DCD_03.09.06-69 S01 DCD_03.09.06-69 S01
	9.a.ii Tests of the as-built ~~motor-operated~~remotely operated and check valves identified in Table 2.7.1.2-2 as having an active safety function will be performed under preoperational flow, differential pressure, and temperature conditions.	9.a.ii Each as-built ~~motor-operated~~remotely operated and check valve identified in Table 2.7.1.2-2 as having an active safety function changes position as identified in Table 2.7.1.2-2 under preoperational test conditions.	DCD_03.09.06-69 S01
	9.a.iii Inspections will be performed of the as-built ~~motor-operated~~remotely operated and check valves identified in Table 2.7.1.2-2 as having an active safety function.	9.a.iii Each as-built ~~motor-operated~~remotely operated and check valve identified in Table 2.7.1.2-2 as having an active safety function is bounded by the type tests, or a combination of type tests and analyses.	DCD_03.09.06-69 S01

Table 2.7.1.2-5 Main Steam Supply System Inspections, Tests, Analyses, and Acceptance Criteria (Sheet 8 of 11)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria	
9.b ~~The air-operated valves identified in Table 2.7.1.2-2 as having an active safety function perform an active safety function to change position as indicated in the table.~~Deleted	9.b.i ~~Type tests or a combination of type tests and analyses of the air-operated valves identified in Table 2.7.1.2-2 as having an active safety function will be performed that demonstrate the capability of the valve to operate under its design conditions.~~Deleted	9.b.i ~~A report exists and concludes that each air-operated valve identified in Table 2.7.1.2-2 as having an active safety function changes position as identified in Table 2.7.1.2-2 under design conditions.~~Deleted	DCD_03.09.06-69 S01
	9.b.ii ~~Tests of the as-built air-operated valves identified in Table 2.7.1.2-2 as having an active safety function will be performed under preoperational flow, differential pressure, and temperature conditions.~~Deleted	9.b.ii ~~Each as-built air-operated valve identified in Table 2.7.1.2-2 as having an active safety function changes position as identified in Table 2.7.1.2-2 under preoperational test conditions.~~Deleted	DCD_03.09.06-69 S01
	9.b.iii ~~Inspections will be performed of the as-built air-operated valves identified in Table 2.7.1.2-2 as having an active safety function.~~Deleted	9.b.iii ~~Each as-built air-operated valve identified in Table 2.7.1.2-2 as having an active safety function is bounded by the type tests, or a combination of type tests and analyses.~~Deleted	DCD_03.09.06-69 S01
9.c ~~The check valves, identified in Table 2.7.1.2-2 as having an active safety function perform an active safety function to change position as indicated in the table.~~Deleted	9.c ~~Tests of the as-built check valves identified in Table 2.7.1.2-2 as having an active safety function will be performed under preoperational test pressure, temperature, and fluid flow conditions.~~Deleted	9.c ~~Each as-built check valve identified in Table 2.7.1.2-2 as having an active safety function changes position as identified in Table 2.7.1.2-2 under preoperational test conditions.~~Deleted	DCD_03.09.06-69 S01
9.d After loss of motive power, the remotely operated valves, identified in Table 2.7.1.2-2, assume the indicated loss of motive power position.	9.d Tests of the as-built remotely operated valves identified in Table 2.7.1.2-2 will be performed under the conditions of loss of motive power.	9.d Upon loss of motive power, each as-built remotely operated valve identified in Table 2.7.1.2-2 assumes the indicated loss of motive power position.	

Table 2.7.1.2-5 Main Steam Supply System Inspections, Tests, Analyses, and Acceptance Criteria (Sheet 9 of 11)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria	
9.e ~~The MSIVs identified in Table 2.7.1.2-2 perform an active safety function to change position as indicated in the table.~~Deleted	9.e.i ~~Type tests or a combination of type tests and analyses of the MSIVs identified in Table 2.7.1.2-2 will be performed that demonstrate the capability of the valve to operate under its design conditions.~~Deleted	9.e.i ~~A report exists and concludes that each MSIV identified in Table 2.7.1.2-2 changes position as identified in Table 2.7.1.2-2 under design conditions.~~Deleted	DCD_03.09.06-69 S01
	9.e.ii ~~Tests of the as-built MSIVs identified in Table 2.7.1.2-2 will be performed under preoperational flow, differential pressure, and temperature conditions.~~Deleted	9.e.ii ~~Each as-built MSIV identified in Table 2.7.1.2-2 changes position as identified in Table 2.7.1.2-2 under preoperational test conditions.~~Deleted	DCD_03.09.06-69 S01
	9.e.iii ~~Inspections will be performed of the as-built MSIVs identified in Table 2.7.1.2-2.~~Deleted	9.e.iii ~~Each as-built MSIV identified in Table 2.7.1.2-2 is bounded by the type tests, or a combination of type tests and analyses.~~Deleted	DCD_03.09.06-69 S01
10. Alarms and displays identified in Table 2.7.1.2-4 are provided in the MCR.	10. Inspection will be performed on the as-built A-VDU and on the as-built S-VDU in the MCR for retrievability of the alarms and displays respectively, as identified in Table 2.7.1.2-4 ~~in the as-built MCR~~.	10. Alarms and displays, identified in Table 2.7.1.2-4, can be retrieved on the as-built A-VDU and on the as-built S-VDU respectively in the ~~as-built~~ MCR.	DCD_14.03-6

5.a The seismic Category I equipment identified in Table 2.7.1.9-2 can withstand seismic design basis loads without loss of safety function.

5.b The seismic Category I piping, including supports, identified in Table 2.7.1.9-3 can withstand seismic design basis loads without a loss of its safety function.

6.a The Class 1E equipment identified in Table 2.7.1.9-2 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

6.b Class 1E equipment, identified in Table 2.7.1.9-2, is powered from its respective Class 1E division.

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

7. Deleted

8.a Controls are provided in the MCR to open and close the remotely operated valves identified in Table 2.7.1.9-~~2~~4. DCD_14.03-5

8.b The remotely operated valves identified in Table 2.7.1.9-2 as having PSMS control perform an active safety function after receiving a signal from PSMS.

8.c Main feedwater isolation valves (MFIVs), main feedwater regulation valves (MFRVs), main feedwater bypass regulation valves (MFBRVs), and steam generator water filling control valves (SGWFCVs), identified in Table 2.7.1.9-2, isolate feedwater to limit the mass and energy release to containment.

9.a The valves, identified in Table 2.7.1.9-2 as having an active safety function can perform an active safety function to change position as indicated in the table under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions. DCD_03.09.06-69 S01

9.b After loss of motive power, the remotely operated valves, identified in Table 2.7.1.9-2, assume the indicated loss of motive power position.

10. Alarms and displays identified in Table 2.7.1.9-4 are provided in the MCR.

11. Alarms, displays and controls identified in Table 2.7.1.9-4 are provided in the RSC.

2.7.1.9.2 Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.7.1.9-5 describes the ITAAC for the CFS.

The ITAAC associated with the CFS equipment, components and piping that comprise a portion of the CIS are described in Table 2.11.2-2.

Table 2.7.1.9-5 Condensate and Feedwater System Inspections, Tests, Analyses, and Acceptance Criteria (Sheet 7 of 8)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria	
9.a The valves, identified in Table 2.7.1.9-2 as having an active safety function can perform an active safety function to change position as indicated in the table under 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 ~~air-operated~~ valves ~~and MFIVs~~ identified in Table 2.7.1.9-2 as having an active safety function will be performed that demonstrate the capability of the valve to operate under ~~its design conditions~~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 ~~air-operated~~ valve ~~and each MFIV~~ identified in Table 2.7.1.9-2 as having an active safety function changes position as identified in Table 2.7.1.9-2 under ~~design condition~~expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions.	DCD_03.09.06-69 S01 DCD_03.09.06-69 S01
	9.a.ii Tests of the as-built ~~air-operated~~ valves ~~and MFIVs~~ identified in Table 2.7.1.9-2 as having an active safety function will be performed under preoperational flow, differential pressure, and temperature conditions.	9.a.ii Each as-built ~~air-operated~~ valve ~~and each as-built MFIV~~ identified in Table 2.7.1.9-2 as having an active safety function changes position as identified in Table 2.7.1.9-2 under preoperational test conditions.	DCD_03.09.06-69 S01
	9.a.iii ~~Tests of the as-built check valves identified in Table 2.7.1.9-2 as having an active safety function will be performed under preoperational test pressure, temperature, and fluid flow conditions.~~Deleted	9.a.iii ~~Each as-built check valve identified in Table 2.7.1.9-2 as having an active safety function changes position as indicated in Table 2.7.1.9-2 under preoperational test conditions.~~Deleted	DCD_03.09.06-69 S01
	9.a.iv Inspections will be performed of the as-built ~~air-operated~~ valves ~~and MFIVs~~ identified in Table 2.7.1.9-2 as having an active safety function.	9.a.iv Each as-built ~~air-operated~~ valve ~~and each as-built MFIV~~ identified in Table 2.7.1.9-2 as having an active safety function is bounded by the type tests, or a combination of type tests and analyses.	DCD_03.09.06-69 S01
9.b After loss of motive power, the remotely operated valves, identified in Table 2.7.1.9-2, assume the indicated loss of motive power position.	9.b Tests of the as-built remotely operated valves identified in Table 2.7.1.9-2 will be performed under the conditions of loss of motive power.	9.b Upon loss of motive power, each as-built remotely operated valve identified in Table 2.7.1.9-2 assumes the indicated loss of motive power position.	

5.b The seismic Category I piping, including supports, identified in Table 2.7.1.10-2 can withstand seismic design basis loads without a loss of its safety function.

6. Class 1E equipment, identified in Table 2.7.1.10-1, is powered from its respective Class 1E division.

7. Separation is provided between redundant divisions of SGBDS Class 1E cables and between Class 1E cables and non-Class 1E cables.

8. After loss of motive power, the remotely operated valves, identified in Table 2.7.1.10-1, assume the indicated loss of motive power position.

9. ~~Each mechanical division of the SGBDS (Divisions A, B, C & D) is physically separated from the other divisions with the exception of inside the containment so as not to preclude accomplishment of the safety function~~Deleted. DCD_14.03-10

10. Displays identified in Table 2.7.1.10-3 are provided in the MCR.

11. Displays and controls identified in Table 2.7.1.10-3 are provided in the RSC.

12. The Class 1E equipment identified in Table 2.7.1.10-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

13.a Controls are provided in the MCR to open and close the remotely operated valves identified in Table 2.7.1.10-3.

13.b The remotely operated valves identified in Table 2.7.1.10-1 as having PSMS control perform an active safety function after receiving a signal from PSMS.

14. The ~~air-operated~~ valves~~,~~ identified in Table 2.7.1.10-1~~,~~ as having an active safety function can perform an active safety function to change position as indicated in the table under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions. DCD_03.09.06-69 S01

2.7.1.10.2 Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.7.1.10-4 describes the ITAAC for the SGBDS.

Additional ITAAC associated with the SGBDS equipment, components, and piping that comprise a portion of the CIS are described in Table 2.11.2-2.

Table 2.7.1.10-4 Steam Generator Blowdown System Inspections, Tests, Analyses, and Acceptance Criteria (Sheet 7 of 8)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria	
13.a Controls are provided in the MCR to open and close the remotely operated valves identified in Table 2.7.1.10-3.	13.a.i Tests will be performed for MCR control capability of the remotely operated valves, identified in Table 2.7.1.10-3, on the as-built S-VDU.	13.a.i MCR controls for the remotely operated valves, identified in Table 2.7.1.10-3, on the as-built S-VDU provide the necessary output from the PSMS to open and close the respective valves.	DCD_14.03-5
	13.a.ii Tests will be performed on the as-built remotely operated valves identified in Table 2.7.1.10-3 using controls on the as-built O-VDU in the ~~as-built~~ MCR.	13.a.ii Controls on the as-built O-VDU in the ~~as-built~~ MCR open and close the as-built remotely operated valves identified in Table 2.7.1.10-3 with the MCR control function.	DCD_14.03-5 DCD_14.03-5
13.b The remotely operated valves identified in Table 2.7.1.10-1 as having PSMS control perform an active safety function after receiving a signal from PSMS.	13.b Tests will be performed on the as-built remotely operated valves identified in Table 2.7.1.10-1 as having PSMS control using simulated signals.	13.b The as-built remotely operated valves identified in Table 2.7.1.10-1 as having PSMS control perform the active safety function identified in the table after receiving a simulated signal.	DCD_14.03-5
14. The ~~air-operated~~ valves~~,~~ identified in Table 2.7.1.10-1~~,~~ as having an active safety function can perform an active safety function to change position as indicated in the table under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions.	14.i Type tests or a combination of type tests and analyses of the ~~air-operated~~ valves identified in Table 2.7.1.10-1 as having an active safety function will be performed that demonstrate the capability of the valve to operate under ~~its design conditions~~expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions.	14.i A report exists and concludes that each ~~air-operated~~ valve identified in Table 2.7.1.10-1 as having an active safety function changes position as identified in Table 2.7.1.10-1 under ~~design conditions~~expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions.	DCD_03.09.06-69 S01 DCD_03.09.06-69 S01
	14.ii Tests of the as-built ~~air-operated~~ valves identified in Table 2.7.1.10-1 as having an active safety function will be performed under preoperational flow, differential pressure, and temperature conditions.	14.ii Each as-built ~~air-operated~~ valve ~~changes~~ identified in Table 2.7.1.10-1 as having an active safety function changes position as identified in Table 2.7.1.10-1 under preoperational test conditions.	DCD_03.09.06-69 S01 DCD_14.03.07-65 DCD_14.03.07-65

Table 2.7.1.10-4 Steam Generator Blowdown System Inspections, Tests, Analyses, and Acceptance Criteria (Sheet 8 of 8)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
	14.iii Inspections will be performed of the as-built ~~air-operated~~ valves identified in Table 2.7.1.10-1 as having an active safety function.	14.iii Each as-built ~~air-operated~~ valve identified in Table 2.7.1.10-1 as having an active safety function is bounded by the type tests, or a combination of type tests and analyses.

DCD_03.09.06-69 S01

2.b.i The ASME Code Section III piping of the EFWS, including supports, identified in Table 2.7.1.11-3, is fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

2.b.ii The ASME Code Section III piping of the EFWS, including supports, identified in Table 2.7.1.11-3, is reconciled with the design requirements.

3.a Pressure boundary welds in ASME Code Section III components, identified in Table 2.7.1.11-2, meet ASME Code Section III requirements for non-destructive examination of welds.

3.b Pressure boundary welds in ASME Code Section III piping, identified in Table 2.7.1.11-3, meet ASME Code Section III requirements for non-destructive examination of welds.

4.a The ASME Code Section III components, identified in Table 2.7.1.11-2, retain their pressure boundary integrity at their design pressure.

4.b The ASME Code Section III piping, identified in Table 2.7.1.11-3, retains its pressure boundary integrity at its design pressure.

5.a The seismic Category I equipment identified in Table 2.7.1.11-2 can withstand seismic design basis loads without loss of safety function.

5.b The seismic Category I piping, including supports, identified in Table 2.7.1.11-3 can withstand seismic design basis loads without a loss of its safety function.

6.a The Class 1E equipment identified in Table 2.7.1.11-2 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

6.b Class 1E equipment, identified in Table 2.7.1.11-2, is powered from its respective Class 1E division.

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

7. Deleted.

8.a Controls are provided in the MCR to open and close the remotely operated valves identified in Table 2.7.1.11-~~2~~4. DCD_14.03-5

8.b The remotely operated valves identified in Table 2.7.1.11-2 as having PSMS control perform an active safety function after receiving a signal from PSMS.

9.a The ~~motor operated valves and check~~ valves~~,~~ identified in Table 2.7.1.11-2~~,~~ as having an active safety function can perform an active safety function to change position as indicated in the table under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions. DCD_03.09.06-69 S01

9.b After loss of motive power, the remotely operated valves, identified in Table 2.7.1.11-2, assume the indicated loss of motive power position.

10. Alarms and displays identified in Table 2.7.1.11-4 are provided in the MCR.

11. Alarms, displays and controls identified in Table 2.7.1.11-4 are provided in the RSC.

12. Each EFW pump delivers at least the minimum flow required for removal of core decay heat using the SGs against a SG pressure up to the set pressure of the first stage of main steam safety valve plus 3 percent.

13. The ~~EFWS~~usable volume of each EFWS pit has the capability to permit operation at hot shutdown for eight hours followed by six hours of cooldown to the initiation temperature of the residual heat removal system. DCD_14.03.07-68

14. The EFW pumps have sufficient net positive suction head (NPSH).

15. The EFW control valves limit maximum flow to each SG to less than the EFW pump design value.

16. Deleted.

17. The pumps identified in Table 2.7.1.11-2 as having PSMS control perform an active safety function after receiving a signal from PSMS.

18. Controls are provided in the MCR to start and stop the EFW pumps identified in Table 2.7.1.11-4.

19. The pumps identified in Table 2.7.1.11-2 can perform their safety functions under expected ranges of fluid flow, pump head, electrical conditions, and temperature conditions up to and including design-basis conditions. DCD_03.09.06-69 S01 DCD_03.09.06-69

2.7.1.11.2 Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.7.1.11-5 describes the ITAAC for the EFWS.

The ITAAC associated with the EFWS equipment, components, and piping that comprise a portion of the CIS are described in Table 2.11.2-2.

Table 2.7.1.11-5 Emergency Feedwater System Inspections, Tests, Analyses, and Acceptance Criteria (Sheet 7 of 10)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
9.a The ~~motor-operated valves and check~~ valves~~,~~ identified in Table 2.7.1.11-2~~,~~ as having an active safety function can perform an active safety function to change position as indicated in the table under 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 ~~motor-operated~~ valves identified in Table 2.7.1.11-2 as having an active safety function will be performed that demonstrate the capability of the valve to operate under ~~its design conditions~~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 ~~motor-operated~~ valve identified in Table 2.7.1.11-2 as having an active safety function changes position as indicated in Table 2.7.1.11-2 under ~~design conditions~~expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions.

DCD_03.09.06-69 S01

DCD_03.09.06-69 S01

Table 2.7.1.11-5 Emergency Feedwater System Inspections, Tests, Analyses, and Acceptance Criteria (Sheet 8 of 10)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria	
	9.a.ii Tests of the as-built ~~motor-operated~~ valves identified in Table 2.7.1.11-2 as having an active safety function will be performed under preoperational flow, differential pressure, and temperature conditions.	9.a.ii Each as-built ~~motor-operated~~ valve changes position as indicated in Table 2.7.1.11-2 as having an active safety function under preoperational test conditions.	DCD_03.09.06-69 S01
	9.a.iii Inspections will be performed of the as-built ~~motor-operated~~ valves identified in Table 2.7.1.11-2 as having an active safety function .	9.a.iii Each as-built ~~motor-operated~~ valve identified in Table 2.7.1.11-2 as having an active safety function is bounded by the type tests, or a combination of type tests and analyses.	DCD_03.09.06-69 S01
	9.a.iv ~~Tests of the as-built check valves identified in Table 2.7.1.11-2 as having an active safety function will be performed under preoperational test pressure, temperature, and fluid flow conditions.~~ Deleted	9.a.iv ~~Each as-built check valve identified in Table 2.7.1.11-2 as having an active safety function changes position as indicated in Table 2.7.1.11-2 under preoperational conditions.~~ Deleted	DCD_03.09.06-69 S01
9.b After loss of motive power, the remotely operated valves, identified in Table 2.7.1.11-2, assume the indicated loss of motive power position.	9.b Tests of the as-built remotely operated valves identified in Table 2.7.1.11-2 will be performed under the conditions of loss of motive power.	9.b Upon loss of motive power, each as-built remotely operated valve identified in Table 2.7.1.11-2 assumes the indicated loss of motive power position.	
10. Alarms and displays identified in Table 2.7.1.11-4 are provided in the MCR.	10. Inspections will be performed on the as-built A-VDU and on the as-built S-VDU in the MCR for retrievability of the alarms and displays respectively, as identified in Table 2.7.1.11-4 ~~in the as-built MCR~~.	10. Alarms and displays, identified in Table 2.7.1.11-4, can be retrieved on the as-built A-VDU and on the as-built S-VDU respectively in the ~~as-built~~ MCR.	DCD_14.03-6
11. Alarms, displays and controls identified in Table 2.7.1.11-4 are provided in the RSC.	11.i Inspection will be performed on the as-built O-VDU and on the as-built S-VDU in the RSC for retrievability of the alarms and displays respectively, as identified in Table 2.7.1.11-4 ~~in the as-built RSC~~.	11.i Alarms and displays, identified in Table 2.7.1.11-4, can be retrieved on the as-built O-VDU and on the as-built S-VDU respectively in the ~~as-built~~ RSC.	DCD_14.03-7, 8

Table 2.7.1.11-5 Emergency Feedwater System Inspections, Tests, Analyses, and Acceptance Criteria (Sheet 10 of 10)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria	
15. The EFW control valves limit maximum flow to each SG to less than the EFW pump design value.	15. A test of each as-built EFW pump will be performed to determine system flow vs. SG pressure under preoperational condition. Analyses will be performed to convert the test results to the design conditions.	15. A report exists and concludes that the EFW control valve pre-set open position limits the EFW flow rate to the steam generator to equal to or less than 400 gpm with a SG pressure of 1221 psig .	
16. Deleted.	16. Deleted.	16. Deleted.	
17. The pumps identified in Table 2.7.1.11-2 as having PSMS control perform an active safety function after receiving a signal from PSMS.	17. Tests will be performed on the as-built pumps identified in Table 2.7.1.11-2 using simulated signals.	17. The as-built pumps identified in Table 2.7.1.11-2 as having PSMS control perform the active safety function identified in the table after receiving a simulated signal.	
18. Controls are provided in the MCR to start and stop the EFW pumps identified in Table 2.7.1.11-4.	18.i Tests will be performed for MCR control capability of the EFW pumps, identified in Table 2.7.1.11-4, on the as-built S-VDU.	8.a.i MCR controls for the EFW pumps, identified in Table 2.7.1.11-4, on the as-built S-VDU provide the necessary output from the PSMS to start and stop the respective pumps.	DCD_14.03-5
	18.ii Tests will be performed on the as-built EFW pumps identified in Table 2.7.1.11-4 using controls on the as-built O-VDU in the ~~as-built~~ MCR.	18.ii Controls on the as-built O-VDU in the ~~as-built~~ MCR start and stop the as-built EFW pumps identified in Table 2.7.1.11-4 with the MCR control function.	DCD_14.03-5 DCD_14.03-5
19. The pumps identified in Table 2.7.1.11-2 can perform their safety functions under expected ranges of fluid flow, pump head, electrical conditions, and temperature conditions up to and including design-basis conditions.	19.i Type tests or a combination of type tests and analyses of each pump identified in Table 2.7.1.11-2 will be performed to demonstrate the ability of the pump to perform its safety function under expected ranges of fluid flow, pump head, electrical conditions, and temperature conditions up to and including design-basis conditions.	19.i A report exists and concludes that the pumps identified in Table 2.7.1.11-2 can perform their safety functions under expected ranges of fluid flow, pump head, electrical conditions, and temperature conditions up to and including design-basis conditions.	DCD_03.09.06-69 DCD_03.09.06-69 S01
	19.ii Inspections will be performed of each as-built pump identified in Table 2.7.1.11-2.	19.ii Each as-built pump identified in Table 2.7.1.11-2 is bounded by the type tests, or a combination of type tests and analyses.	DCD_03.09.06-69 S01

5.a The seismic Category I equipment identified in Table 2.7.3.1-2 can withstand seismic design basis loads without loss of safety function.

5.b The seismic Category I piping, including supports, identified in Table 2.7.3.1-3 can withstand seismic design basis loads without a loss of its safety function.

6.a Class 1E equipment identified in Table 2.7.3.1-2 is powered from its respective Class 1E division.

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

7. The ESWS provides cooling water required for the CCW heat exchangers and the essential chiller units of the essential chilled water system (ECWS) during all plant operating conditions, including normal plant operating, abnormal and accident conditions.

8. Controls are provided in the MCR to open and close the remotely operated valves identified in Table 2.7.3.1-~~2~~4. DCD_14.03-5

9.a The ~~remotely operated valves and check~~ valves~~,~~ identified in Table 2.7.3.1-2 as having an active safety function~~,~~ can perform an active safety function to change position as indicated in the table under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions. DCD_03.09.06-69 S01

9.b Upon the receipt of a signal that ESWP has started, the essential service water discharge valve opens automatically. Each pump's discharge valve is interlocked to close when the pump is not running or is tripped.

9.c After loss of motive power, the remotely operated valves, identified in Table 2.7.3.1-2, assume the indicated loss of motive power position.

10.a Controls are provided in the MCR to start and stop the essential service water pumps identified in Table 2.7.3.1-4.

10.b The pumps identified in Table 2.7.3.1-2 as having PSMS control perform an active safety function after receiving a signal from PSMS.

11. Alarms and displays identified in Table 2.7.3.1-4 are provided in the MCR.

12. Alarms, displays, and controls identified in Table 2.7.3.1-4 are provided in the RSC.

13.a Controls are provided in the MCR to place in service or remove from service the strainers identified in Table 2.7.3.1-4.

13.b The strainers identified in Table 2.7.3.1-2 as having PSMS control perform an active safety function after receiving a signal from PSMS.

14. The ESWP discharge strainer backwash isolation valves identified in Table 2.7.3.1-2 as having PSMS control perform an active safety function after receiving a signal from PSMS.

15. The pumps identified in Table 2.7.3.1-2 can perform their safety functions under ~~design conditions~~expected ranges of fluid flow, pump head, electrical conditions, and temperature conditions up to and including design-basis conditions. DCD_03.09.06-69 DCD_03.09.06-69 S01

2.7.3.1.2 Inspections, Tests, Analysis, and Acceptance Criteria

Table 2.7.3.1-5 describes the ITAAC for the ESWS.

Table 2.7.3.1-5 Essential Service Water System Inspections, Tests, Analyses, and Acceptance Criteria (Sheet 7 of 10)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria	
9.a The ~~remotely-operated valves and check~~ valves~~,~~ identified in Table 2.7.3.1-2 as having an active safety function~~,~~ can perform an active safety function to change position as indicated in the table under 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 2.7.3.1-2 as having an active safety function will be performed that demonstrate the capability of the valve to operate under ~~its design conditions~~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 2.7.3.1-2 as having an active safety function changes position as identified in Table 2.7.3.1-2 under ~~design conditions~~expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions.	DCD_03.09.06-69 S01 DCD_03.09.06-69 S01 DCD_03.09.06-69 S01
	9.a.ii Tests of the as-built ~~remotely-operated~~ valves identified in Table 2.7.3.1-2 as having an active safety function will be performed under preoperational flow, differential pressure, and temperature conditions.	9.a.ii Each as-built ~~remotely-operated~~ valve identified in Table 2.7.3.1-2 as having an active safety function changes position as indicated in Table 2.7.3.1-2 under preoperational test conditions.	
	9.a.iii Inspections will be performed of the as-built ~~remotely-operated~~ valves identified in Table 2.7.3.1-2 as having an active safety function.	9.a.iii Each as-built ~~remotely-operated~~ valve identified in Table 2.7.3.1-2 as having an active safety function is bounded by the type tests, or a combination of type tests and analyses.	DCD_03.09.06-69 S01 DCD_03.09.06-69 S01
	9.a.iv ~~Tests of the as-built check valves identified in Table 2.7.3.1-2 as having an active safety function will be performed under preoperational test pressure, temperature, and fluid flow conditions.~~Deleted.	9.a.iv ~~Each as-built check valve identified in Table 2.7.3.1-2 as having an active safety function changes position as indicated in Table 2.7.3.1-2 under preoperational test conditions.~~Deleted.	DCD_03.09.06-69 S01

Table 2.7.3.1-5 Essential Service Water System Inspections, Tests, Analyses, and Acceptance Criteria (Sheet 10 of 10)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria	
13.b The strainers identified in Table 2.7.3.1-2 as having PSMS control perform an active safety function after receiving a signal from PSMS.	13.b Tests will be performed on the as-built strainers identified in Table 2.7.3.1-2 as having PSMS control using simulated signals.	13.b The as-built strainers identified in Table 2.7.3.1-2 as having PSMS control perform the active safety function identified in the table after receiving a simulated signal.	
14. The ESWP discharge strainer backwash isolation valves identified in Table 2.7.3.1-2 as having PSMS control perform an active safety function after receiving a signal from PSMS.	14. A test will be performed on the as-built ESWP discharge strainer backwash isolation valves identified in Table 2.7.3.1-2 as having PSMS control using simulated signals.	14. The as-built ESWP discharge strainer backwash isolation valves identified in Table 2.7.3.1-2 as having PSMS control perform the active safety function identified in the table after receiving a simulated signal.	
15. The pumps identified in Table 2.7.3.1-2 can perform their safety functions under ~~design conditions~~expected ranges of fluid flow, pump head, electrical conditions, and temperature conditions up to and including design-basis conditions.	15.i Type tests or a combination of type tests and analyses of each pump identified in Table 2.7.3.1-2 will be performed to demonstrate the ability of the pump to perform its safety function under ~~design conditions~~expected ranges of fluid flow, pump head, electrical conditions, and temperature conditions up to and including design-basis conditions.	15.i A~~n equipment qualification data summary~~ report exists and concludes that the pumps identified in Table 2.7.3.1-2 can perform their safety functions under ~~design conditions~~expected ranges of fluid flow, pump head, electrical conditions, and temperature conditions up to and including design-basis conditions.	DCD_03.09.06-69 DCD_03.09.06-69 S01
	15.ii Inspections will be performed of each as-built pump identified in Table 2.7.3.1-2.	15.ii Each as-built pump identified in Table 2.7.3.1-2 is bounded by the type tests, or a combination of type tests and analyses.	DCD_03.09.06-69 S01

3.a Pressure boundary welds in ASME Code Section III components, identified in Table 2.7.3.3-2, meet ASME Code Section III requirements for non-destructive examination of welds.

3.b Pressure boundary welds in ASME Code Section III piping, identified in Table 2.7.3.3-3, meet ASME Code Section III requirements for non-destructive examination of welds.

4.a The ASME Code Section III components, identified in Table 2.7.3.3-2, retain their pressure boundary integrity at their design pressure.

4.b The ASME Code Section III piping, identified in Table 2.7.3.3-3, retains its pressure boundary integrity at its design pressure.

5.a The seismic Category I equipment identified in Table 2.7.3.3-2 can withstand seismic design basis loads without loss of safety function.

5.b The seismic Category I piping, including supports, identified in Table 2.7.3.3-3 can withstand seismic design basis loads without a loss of its safety function.

6.a The Class 1E equipment identified in Table 2.7.3.3-2 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

6.b Class 1E equipment identified in Table 2.7.3.3-2 is powered from its respective Class 1E division.

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

7. The CCWS removes heat from various components during all plant operating conditions, including normal plant operating, ~~abnormal and accident conditions~~abnormal, and accident conditions for at least 7 days without surge tank makeup. DCD_09.02.02-49

8.a Controls are provided in the MCR to open and close the remotely operated valves identified in Table 2.7.3.3-~~2~~4. DCD_14.03-5

8.b The valves identified in Table 2.7.3.3-2 as having PSMS control perform an active safety function after receiving a signal from PSMS.

9.a The ~~remotely operated valves and check~~ valves~~,~~ identified in Table 2.7.3.3-2~~,~~ as having an active safety function can perform an active safety function to change position as indicated in the table under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions. DCD_03.09.06-69 S01

9.b After loss of motive power, the remotely operated valves, identified in Table 2.7.3.3-2, assume the indicated loss of motive power position.

10.a Controls are provided in the MCR to start and stop the CCW pumps identified in Table 2.7.3.3-4.

10.b The pumps identified in Table 2.7.3.3-2 as having PSMS control perform an active safety function after receiving a signal from PSMS.

11. Alarms and displays identified in Table 2.7.3.3-4 are provided in the MCR.

12. Alarms, displays and controls identified in Table 2.7.3.3-4 are provided in the RSC.

13. The CCW pumps have sufficient net positive suction head (NPSH).

14. The pumps identified in Table 2.7.3.3-2 can perform their safety functions under ~~design conditions~~expected ranges of fluid flow, pump head, electrical conditions, and temperature conditions up to and including design-basis conditions. DCD_03.09.06-69 DCD_03.09.06-69 S01

2.7.3.3.2 Inspections, Tests, Analysis, and Acceptance Criteria

Table 2.7.3.3-5 describes the ITAAC for the CCWS.

The ITAAC associated with the CCWS equipment, components, and piping that comprise a portion of the CIS are described in Table 2.11.2-2.

Table 2.7.3.3-5 Component Cooling Water System Inspections, Tests, Analyses, and Acceptance Criteria (Sheet 7 of 10)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria	
8.b The valves identified in Table 2.7.3.3-2 as having PSMS control perform an active safety function after receiving a signal from PSMS.	8.b Test will be performed on the as-built remotely operated valves identified in Table 2.7.3.3-2 using simulated signals.	8.b The as-built remotely operated valves identified in Table 2.7.3.3-2 as having PSMS control perform the active safety function identified in the table after receiving a simulated signal.	
9.a The ~~remotely operated valves and check~~ valves~~,~~ identified in Table 2.7.3.3-2~~,~~ as having an active safety function can perform an active safety function to change position as indicated in the table under 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 2.7.3.3-2 as having an active safety function will be performed that demonstrate the capability of the valve to operate under ~~its design conditions~~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 ~~changes position as~~ identified in Table 2.7.3.3-2 as having an active safety function changes position as identified in Table 2.7.3.3-2 under ~~design conditions~~expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions.	DCD_03.09.06-69 S01
	9.a.ii Tests of the as-built ~~remotely operated~~ valves identified in Table 2.7.3.3-2 as having an active safety function will be performed under preoperational flow, differential pressure, and temperature conditions.	9.a.ii Each as-built ~~remotely operated~~ valve ~~changes position as indicated~~identified in Table 2.7.3.3-2 as having an active safety function changes position as identified in Table 2.7.3.3-2 under preoperational test conditions.	DCD_03.09.06-69 S01
	9.a.iii Inspections will be performed of the as-built ~~remotely operated~~ valves identified in Table 2.7.3.3-2 as having an active safety function.	9.a.iii Each as-built ~~remotely operated~~ valve identified in Table 2.7.3.3-2 as having an active safety function is bounded by the type tests, or a combination of type tests and analyses.	DCD_03.09.06-69 S01
	9.a.iv ~~Tests of the as-built check valves identified in Table 2.7.3.3-2 will be performed under preoperational test pressure, temperature, and fluid flow conditions.~~Deleted.	9.a.iv ~~Each as-built check valve changes position as indicated in Table 2.7.3.3-2 under preoperational test conditions.~~Deleted.	DCD_03.09.06-69 S01

Table 2.7.3.3-5 Component Cooling Water System Inspections, Tests, Analyses, and Acceptance Criteria (Sheet 10 of 10)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria	
14. The pumps identified in Table 2.7.3.3-2 can perform their safety functions under ~~design conditions~~expected ranges of fluid flow, pump head, electrical conditions, and temperature conditions up to and including design-basis conditions.	14.i Type tests or a combination of type tests and analyses of each pump identified in Table 2.7.3.3-2 will be performed to demonstrate the ability of the pump to perform its safety function under ~~design conditions~~expected ranges of fluid flow, pump head, electrical conditions, and temperature conditions up to and including design-basis conditions.	14.i A~~n equipment qualification data summary~~ report exists and concludes that the pumps identified in Table 2.7.3.3-2 can perform their safety functions under ~~design conditions~~expected ranges of fluid flow, pump head, electrical conditions, and temperature conditions up to and including design-basis conditions.	DCD_03.09.06-69 DCD_03.09.06-69 S01
	14.ii Inspections will be performed of each as-built pump identified in Table 2.7.3.3-2.	14.ii Each as-built pump identified in Table 2.7.3.3-2 is bounded by the type tests, or a combination of type tests and analyses.	DCD_03.09.06-69 S01

3.a Pressure boundary welds in ASME Code Section III components, identified in Table 2.7.3.5-2, meet ASME Code Section III requirements for non-destructive examination of welds.

3.b Pressure boundary welds in ASME Code Section III piping, identified in Table 2.7.3.5-3, meet ASME Code Section III requirements for non-destructive examination of welds.

4.a The ASME Code Section III components, identified in Table 2.7.3.5-2, retain their pressure boundary integrity at their design pressure.

4.b The ASME Code Section III piping, identified in Table 2.7.3.5-3, retains its pressure boundary integrity at its design pressure.

5.a The seismic Category I equipment, identified in Table 2.7.3.5-2, can withstand seismic design basis loads without loss of safety function.

5.b The seismic Category I piping, including supports, identified in Table 2.7.3.5-3, can withstand seismic design basis loads without a loss of its safety function.

6.a Class 1E equipment, identified in Table 2.7.3.5-2, is powered from its respective Class 1E division.

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

7. The ECWS removes heat from various cooling coils during all plant operating conditions, including normal plant operating, abnormal and accident conditions.

8. The remotely operated valves identified in Table 2.7.3.5-2 as having PSMS control perform an active safety function after receiving a signal from PSMS.

9.a The ~~remotely operated valves and check~~ valves~~,~~ identified in Table 2.7.3.5-2 as having an active safety function~~,~~ can perform an active safety function to change position as indicated in the table under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions. DCD_03.09.06-69 S01

9.b After loss of motive power, the remotely operated valves, identified in Table 2.7.3.5-2, assume the indicated loss of motive power position.

10.a Controls are provided in the MCR to start and stop the ECWS pumps and essential chiller units identified in Table 2.7.3.5-4.

10.b The ECW pumps and essential chiller units identified in Table 2.7.3.5-2 as having PSMS control perform an active safety function after receiving a signal from PSMS.

11. Displays identified in Table 2.7.3.5-4 are provided in the MCR.

12. Displays and controls identified in Table 2.7.3.5-4 are provided in the RSC.

13. The ECW pumps have sufficient net positive suction head (NPSH).

14. The ECW compression tank volume accommodates system thermal expansion and contraction, and 7-day system operation without make-up.

15. The pumps identified in Table 2.7.3.5-2 can perform their safety functions under ~~design conditions~~expected ranges of fluid flow, pump head, electrical conditions, and temperature conditions up to and including design-basis conditions. DCD_03.09.06-69 DCD_03.09.06-69 S01

2.7.3.5.2 Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.7.3.5-5 describes the ITAAC for the ECWS.

Table 2.7.3.5-5 Essential Chilled Water System Inspections, Tests, Analyses, and Acceptance Criteria (Sheet 6 of 9)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria	
9.a The ~~remotely operated valves and check~~ valves, identified in Table 2.7.3.5-2 as having an active safety function~~,~~ can perform an active safety function to change position as indicated in the table under 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 2.7.3.5-2 as having an active safety function will be performed that demonstrate the capability of the valve to operate under ~~its design conditions~~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 2.7.3.5-2 as having an active safety function changes position as indicated in Table 2.7.3.5-2 under ~~design conditions~~expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions.	DCD_03.09.06-69 S01 DCD_03.09.06-69 S01 DCD_03.09.06-69 S01
	9.a.ii Tests of the as-built remotely operated valves and check valves identified in Table 2.7.3.5-2 as having an active safety function will be performed under preoperational flow, differential pressure, and temperature conditions.	9.a.ii Each as-built remotely operated valve and check valve identified in Table 2.7.3.5-2 as having an active safety function changes position as indicated in Table 2.7.3.5-2 under preoperational test conditions.	DCD_03.09.06-69 S01
	9.a.iii Inspections will be performed of the as-built ~~remotely operated~~ valves identified in Table 2.7.3.5-2 as having an active safety function.	9.a.iii Each as-built ~~remotely operated~~ valve identified in Table 2.7.3.5-2 as having an active safety function is bounded by the type tests, or a combination of type tests and analyses.	DCD_03.09.06-69 S01
	9.a.iv ~~Tests of the as-built check valves identified in Table 2.7.3.5-2 as having an active safety function will be performed under preoperational pressure, temperature, and flow conditions.~~Deleted.	9.a.iv ~~Each as-built check valve identified in Table 2.7.3.5-2 as having an active safety function changes position as indicated in Table 2.7.3.5-2 under preoperational test conditions.~~Deleted.	DCD_03.09.06-69 S01
9.b After loss of motive power, the remotely operated valves, identified in Table 2.7.3.5-2, assume the indicated loss of motive power position.	9.b Tests of the as-built remotely operated valves identified in Table 2.7.3.5-2 will be performed under the conditions of loss of motive power.	9.b Upon loss of motive power, each as-built remotely operated valve identified in Table 2.7.3.5-2 assumes the indicated loss of motive power position.	

Table 2.7.3.5-5 Essential Chilled Water System Inspections, Tests, Analyses, and Acceptance Criteria (Sheet 9 of 9)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria	
14. The ECW compression tank volume accommodates system thermal expansion and contraction, and 7-day system operation without make-up.	14. Inspection and analysis of the as-built ECW compression tank size will be performed to verify that the tank volume accommodates system thermal expansion and contraction, and 7-day system operation without makeup.	14. A report exists and concludes that the as-built ECW compression tank accommodates system thermal expansion and contraction, and 7-day system operation without make-up.	DCD_09.02.02-77
15. The pumps identified in Table 2.7.3.5-2 can perform their safety functions under ~~design conditions~~expected ranges of fluid flow, pump head, electrical conditions, and temperature conditions up to and including design-basis conditions.	15.i Type tests or a combination of type tests and analyses of each pump identified in Table 2.7.3.5-2 will be performed to demonstrate the ability of the pump to perform its safety function under ~~design conditions~~expected ranges of fluid flow, pump head, electrical conditions, and temperature conditions up to and including design-basis conditions.	15.i A~~n equipment qualification data summary~~ report exists and concludes that the pumps identified in Table 2.7.3.5-2 can perform their safety functions under ~~design conditions~~expected ranges of fluid flow, pump head, electrical conditions, and temperature conditions up to and including design-basis conditions.	DCD_03.09.06-69 DCD_03.09.06-69 S01
	15.ii Inspections will be performed of each as-built pump identified in Table 2.7.3.5-2.	15.ii Each as-built pump identified in Table 2.7.3.5-2 is bounded by the type tests, or a combination of type tests and analyses.	DCD_03.09.06-69 S01

6. The seismic Category I piping, including supports, identified in Table 2.7.6.3-2 can withstand seismic design basis loads without a loss of its safety function.

7.a Class 1E equipment, identified in Table 2.7.6.3-1, is powered from its respective Class 1E division.

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

8. The SFPCS circulates the SFP water through the SFP heat exchangers to remove the decay heat generated by spent fuel assemblies.

9. Displays identified in Table 2.7.6.3-3 are provided in the MCR.

10. Displays, and controls identified in Table 2.7.6.3-3 are provided in the RSC.

11. Controls are provided in the MCR to start and stop the spent fuel pit pumps identified in Table 2.7.6.3-3.

12. The ~~check~~ valves~~,~~ identified in Table 2.7.6.3-1 as having an active safety function~~,~~ can perform an active safety function to change position as indicated in the table under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions. DCD_03.09.06-69 S01

13. The pumps identified in Table 2.7.6.3-1 can perform their safety functions under ~~design conditions~~expected ranges of fluid flow, pump head, electrical conditions, and temperature conditions up to and including design-basis conditions. DCD_03.09.06-69 DCD_03.09.06-69 S01

2.7.6.3.2 Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.7.6.3-5 describes the ITAAC for the spent fuel pit cooling and purification system.

Table 2.7.6.3-5 Spent Fuel Pit Cooling and Purification System Inspections, Tests, Analyses, and Acceptance Criteria (Sheet 5 of 6)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria	
11. Controls are provided in the MCR to start and stop the spent fuel pit pumps identified in Table 2.7.6.3-3.	11.i ~~Tests will be performed on the as-built spent fuel pit pumps identified in Table 2.7.6.3-3 using controls in the as-built MCR.~~ Tests will be performed for MCR control capability of equipment, identified in Table 2.7.6.3-3, on the as-built S-VDU.	11.i MCR controls for equipment, identified in Table 2.7.6.3-3, on the as-built S-VDU have a capability to operate the respective equipment.	DCD_14.03-5
	11.ii Tests will be performed on the as-built equipment, identified in Table 2.7.6.3-3, using controls on the as-built O-VDU in the MCR.	11.ii Controls on the as-built O-VDU in the ~~as-built~~ MCR start and stop the as-built spent fuel pit pumps identified in Table 2.7.6.3-3.	DCD_14.03-5
12.~~a~~ The ~~check~~ valves~~,~~ identified in Table 2.7.6.3-1 as having an active safety function~~,~~ perform an active safety function to change position as indicated in the table under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions.	12.~~a~~i Tests of the as-built ~~check~~ valves identified in Table 2.7.6.3-1 as having an active safety function will be performed under preoperational test pressure, temperature, and fluid flow conditions.	12.~~a~~i Each as-built ~~check~~ valve identified in Table 2.7.6.3-1 as having an active safety function changes position as indicated in Table 2.7.6.3-1 under preoperational test conditions.	DCD_09.01.03-7 S01 DCD_03.09.06-69 S01 DCD_03.09.06-69 S01
~~12.b The remote-operated valves, identified in Table 2.7.6.3-1 as having an active safety function, perform an active safety function to change position as indicated in the table.~~	12.~~b~~ii ~~Tests of the as-built remote-operated valves identified in Table 2.7.6.3-1 as having an active safety function will be performed under preoperational test pressure, temperature, and fluid flow conditions.~~ Type tests or a combination of type tests and analyses of the valves identified in Table 2.7.6.3-1 as having an active safety function will be performed that demonstrate the capability of the valve to operate under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions.	12.~~b~~ii ~~Each as-built remote-operated valve identified in Table 2.7.6.3-1 as having an active safety function changes position as identified in Table 2.7.6.3-1 under preoperational test conditions.~~ A report exists and concludes that each valve identified in Table 2.7.6.3-1 as having an active safety function changes position as indicated in Table 2.7.6.3-1 under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions	DCD_09.01.03-7 S01 DCD_03.09.06-69 S01

Table 2.7.6.3-5 Spent Fuel Pit Cooling and Purification System Inspections, Tests, Analyses, and Acceptance Criteria (Sheet 6 of 6)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria	
	12.iii Inspections will be performed of the as-built valves identified in Table 2.7.6.3-1 as having an active safety function.	12.iii Each as-built valve identified in Table 2.7.6.3-1 as having an active safety function is bounded by the type tests, or a combination of type tests and analyses.	DCD_03.09.06-69 S01
13. The pumps identified in Table 2.7.6.3-1 can perform their safety functions under ~~design conditions~~expected ranges of fluid flow, pump head, electrical conditions, and temperature conditions up to and including design-basis conditions.	13.i Type tests or a combination of type tests and analyses of each pump identified in Table 2.7.6.3-1 will be performed to demonstrate the ability of the pump to perform its safety function under ~~design conditions~~expected ranges of fluid flow, pump head, electrical conditions, and temperature conditions up to and including design-basis conditions.	13.i A~~n equipment qualification data summary~~ report exists and concludes that the pumps identified in Table 2.7.6.3-1 can perform their safety functions under ~~design conditions~~expected ranges of fluid flow, pump head, electrical conditions, and temperature conditions up to and including design-basis conditions.	DCD_03.09.06-69 DCD_03.09.06-69 S01
	13.ii Inspections will be performed of each as-built pump identified in Table 2.7.6.3-1.	13.ii Each as-built pump identified in Table 2.7.6.3-1 is bounded by the type tests, or a combination of type tests and analyses.	DCD_03.09.06-69 S01

6.a The Class 1E equipment identified in Table 2.7.6.7-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis event without loss of safety function for the time required to perform the safety function.

6.b Class 1E equipment, identified in Table 2.7.6.7-1, is powered from its respective Class 1E division.

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

7. Deleted.

8. The PSS provides the capability of obtaining reactor coolant and containment atmosphere samples.

9. The ~~motor operated valves, air operated valves and check~~ valves~~,~~ identified in Table 2.7.6.7-1~~;~~ can perform an active safety function to change position as indicated in the table under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions. DCD_03.09.06-69 S01

10.a Controls are provided in the MCR to open and close the remotely operated valves identified in Table 2.7.6.7-~~1~~4. DCD_14.03-5

10.b The remotely operated valves identified in Table 2.7.6.7-1 as having PSMS control perform an active safety function after receiving a signal from PSMS.

11. After loss of motive power, the remotely operated valves identified in Table 2.7.6.7-1 assume the indicated loss of motive power position.

12. Displays identified in Table 2.7.6.7-4 are provided in the MCR.

13. Displays and controls identified in Table 2.7.6.7-4 are provided in the RSC.

2.7.6.7.2 Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.7.6.7-5 describes the ITAAC for process and post-accident sampling system.

The ITAAC associated with the PSS components, and piping that comprise a portion of the CIS are described in Table 2.11.2-2.

Table 2.7.6.7-5 Process and Post-accident Sampling System Inspections, Tests, Analyses, and Acceptance Criteria (Sheet 5 of 7)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria	
6.c Separation is provided between redundant divisions of PSS Class 1E cables, and between Class 1E cables and non-Class 1E cables.	6.c Inspections of the as-built Class 1E divisional cables will be performed.	6.c Physical separation or electrical isolation is provided in accordance with RG 1.75, between the as-built cables of redundant PSS Class 1E divisions and between Class 1E cables and non-Class 1E cables.	
7. Deleted.	7. Deleted.	7. Deleted.	
8. The PSS provides the capability of obtaining reactor coolant and containment atmosphere samples.	8. Tests of the as-built system will be performed to obtain samples of the reactor coolant and containment atmosphere.	8. The as-built PSS obtains reactor coolant and containment atmosphere samples.	
9. The ~~motor-operated valves, air-operated valves and check~~ valves~~,~~ identified in Table 2.7.6.7-1 as having an active safety function can perform an active safety function to change position as indicated in the table under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions.	9.i Type tests or a combination of type tests and analyses of the ~~motor-operated valves and air-operated~~ valves identified in Table 2.7.6.7-1 as having an active safety function will be performed that demonstrate the capability of the valve to operate under ~~its design conditions~~expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions.	9.i A report exists and concludes that each ~~motor-operated valve and air-operated~~ valve identified in Table 2.7.6.7-1 as having an active safety function changes position as identified in Table 2.7.6.7-1 under ~~design conditions~~expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions.	DCD_03.09.06-69 S01 DCD_03.09.06-69 S01
	9.ii Tests of the as-built ~~motor-operated valves and air-operated~~ valves identified in Table 2.7.6.7-1 as having an active safety function will be performed under preoperational flow, differential pressure, and temperature conditions.	9.ii Each as-built ~~motor-operated valve and air-operated~~ valve identified in Table 2.7.6.7-1 as having an active safety function changes position as identified in Table 2.7.6.7-1 under preoperational test conditions.	DCD_03.09.06-69 S01

Table 2.7.6.7-5 Process and Post-accident Sampling System Inspections, Tests, Analyses, and Acceptance Criteria (Sheet 6 of 7)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria	
	9.iii Inspections will be performed of the as-built ~~motor-operated and air-operated~~ valves identified in Table 2.7.6.7-1 as having an active safety function.	9.iii Each as-built ~~motor-operated and air-operated~~ valve identified in Table 2.7.6.7-1 as having an active safety function is bounded by the type tests, or a combination of type tests and analyses.	DCD_03.09.06-69 S01
	9.iv ~~Tests of the as-built check valves identified in Table 2.7.6.7-1 as having an active safety function will be performed under preoperational test pressure, temperature, and fluid flow conditions.~~ Deleted.	9.iv ~~Each as-built check valve identified in Table 2.7.6.7-1 as having an active safety function changes position as indicated in Table 2.7.6.7-1 under preoperational test conditions.~~ Deleted.	DCD_03.09.06-69 S01
10.a Controls are provided in the MCR to open and close the remotely operated valves identified in Table 2.7.6.7-~~1~~4.	10.a.i Tests will be performed for MCR control capability of the remotely operated valves, identified in Table 2.7.6.7-4, on the as-built S-VDU.	10.a.i MCR controls for the remotely operated valves, identified in Table 2.7.6.7-4, on the as-built S-VDU provide the necessary output from the PSMS to open and close the respective valves.	DCD_14.03-5
	10.a.ii Tests will be performed on the as-built remotely operated valves identified in Table 2.7.6.7-~~1~~4 using the controls on the as-built O-VDU in the ~~as-built~~ MCR.	10.a.ii Controls on the as-built O-VDU in the ~~as-built~~ MCR open and close the as-built remotely operated valves identified in Table 2.7.6.7-~~1~~4 with the MCR control function.	DCD_14.03-5 DCD_14.03-5
10.b The remotely operated valves identified in Table 2.7.6.7-1 as having PSMS control perform an active safety function after receiving a signal from PSMS.	10.b Tests will be performed on the as-built remotely operated valves identified in Table 2.7.6.7-1 as having PSMS control using simulated signals.	10.b The as-built remotely operated valves identified in Table 2.7.6.7-1 as having PSMS control, perform the active function identified in the table after receiving a simulated signal.	
11. After loss of motive power, the remotely operated valves identified in Table 2.7.6.7-1 assume the indicated loss of motive power position.	11. Tests of the as-built remotely operated valves identified in Table 2.7.6.7-1 will be performed under the conditions of loss of motive power.	11. Upon loss of motive power, each as-built remotely operated valve identified in Table 2.7.6.7-1 assumes the indicated loss of motive power position.	

and following a design basis accident without loss of safety function for the time required to perform the safety function.

6.b Class 1E equipment, identified in Table 2.11.2-1, is powered from its respective Class 1E division.

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

7. The remotely operated valves identified in Table 2.11.2-1 as having PSMS control perform an active safety function after receiving a signal from PSMS.

8. CIV closure times are established to limit potential releases of radioactivity to amounts as low as reasonably achievable.

9. The Containment Isolation System (CIS) provides a safety-related function of containment isolation to prevent or limit the release of fission products to the environment in the event of an accident.

10. Controls are provided in the MCR to open and close the remotely operated valves identified in Table 2.11.2-3.

11.a Displays identified in Table 2.11.2-3 are provided in the MCR.

11.b Displays and controls identified in Table 2.11.2-3 are provided in the RSC.

12. The ~~motor operated, air operated and check~~ valves~~,~~ identified in Table 2.11.2-1 as having an active safety function~~,~~ can perform an active safety function to change position as indicated in the table under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions. DCD_03.09.06-69 S01

13. After loss of motive power, the remotely operated valves, identified in Table 2.11.2-1, assume the indicated loss of motive power position.

14. Containment penetrations are ~~isolated~~ capable of automatically isolating on their respective PSMS control signals during an SBO event with alternate ac power sources unavailable. DCD_14.03.11-49

15. Remotely operated CIVs located inside and outside the containment in series on the same penetration are powered from different Class 1E divisions.

2.11.2.2 Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.11.2-2 describes the ITAAC for the CIS.

The MSIVs and MSBIVs ITAAC for closure times and testing in response to a closure signal are described in ITAAC Table 2.7.1.2-5 Items 8.b and 14.

Table 2.11.2-2 Containment Isolation System Inspections, Tests, Analyses, and Acceptance Criteria (Sheet 9 of 11)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria	
11.b Displays and controls identified in Table 2.11.2-3 are provided in the RSC.	11.b.i Inspection will be performed on the as-built S-VDU in the RSC for retrievability of the displays identified in Table 2.11.2-3 ~~in the as-built RSC~~.	11.b.i Displays identified in Table 2.11.2-3 can be retrieved on the as-built S-VDU in the ~~as-built~~ RSC.	DCD_14.03-7, 8
	11.b.ii Tests will be performed for RSC control capability of equipment, identified in Table 2.11.2-3, on the as-built S-VDU.	11.b.ii RSC controls for equipment, identified in Table 2.11.2-3, on the as-built S-VDU provide the necessary output from the PSMS to operate the respective equipment.	DCD_14.03-7, 8 DCD_14.03-7, 8
	11.b.iii ~~Tests of the as-built RSC control functions identified in Table 2.11.2-3 will be performed.~~ Tests will be performed on the as-built equipment, identified in Table 2.11.2-3, using controls on the as-built O-VDU in the RSC.	11.b.iii Controls on the as-built O-VDU in the ~~as-built~~ RSC operate each as-built equipment identified in Table 2.11.2-3 with an RSC control function.	DCD_14.03-7, 8
12. The ~~motor-operated, air-operated and check~~ valves~~,~~ identified in Table 2.11.2-1 as having an active safety function~~,~~ can perform an active safety function to change position as indicated in the table under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions.	12.a Type tests or a combination of type tests and analyses of the ~~motor-operated and air-operated~~ valves identified in Table 2.11.2-1 as having an active safety function will be performed that demonstrate the capability of the valve to operate under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including ~~its~~ design-basis conditions.	12.a A report exists and concludes that each ~~motor-operated and air-operated~~ valve ~~changes position as~~ identified in Table 2.11.2-1 as having an active safety function changes position as indicated in Table 2.11.2-1 under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions.	DCD_03.09.06-69 S01
	12.b Tests of the as-built ~~motor-operated and air-operated~~ valves identified in Table 2.11.2-1 as having an active safety function will be performed under preoperational flow, differential pressure, and temperature conditions.	12.b Each as-built ~~motor-operated and air-operated~~ valve~~s changes position as~~ identified~~indicated~~ in Table 2.11.2-1 as having an active safety function changes position as indicated in Table 2.11.2-1 under preoperational test conditions.	DCD_03.09.06-69 S01

Table 2.11.2-2 Containment Isolation System Inspections, Tests, Analyses, and Acceptance Criteria (Sheet 10 of 11)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria	
	12.c Inspections will be performed of the as-built ~~motor-operated and air-operated~~ valves identified in Table 2.11.2-1 as having an active safety function.	12.c Each as-built ~~motor-operated and air-operated~~ valve identified in Table 2.11.2-1 as having an active safety function is bounded by the type tests, or a combination of type tests and analyses.	DCD_03.09.06-69 S01
	12.d Deleted~~Tests of the as-built check valves with active safety functions identified in Table 2.11.2-1 will be performed under preoperational test pressure, temperature, and fluid flow conditions.~~	12.d Deleted~~Each as-built check valve change position as indicated in Table 2.11.2-1 under preoperational test conditions.~~	DCD_03.09.06-69 S01
13. After loss of motive power, the remotely operated valves, identified in Table 2.11.2-1, assume the indicated loss of motive power position.	13. Tests of the as-built remotely operated valves identified in Table 2.11.2-1 will be performed under the conditions of loss of motive power.	13. Upon loss of motive power, each as-built remotely operated valve identified in Table 2.11.2-1 assumes the indicated loss of motive power position.	
14. Containment penetrations are capable of automatically isolating on their respective PSMS control signals during an SBO event with alternate ac power sources unavailable.	14. Tests of the as-built valves will be performed to verify the valves are capable of automatically isolating on their respective PSMS control signals during the conditions of an SBO event with alternate ac power sources unavailable.	14. Each of the following as-built valves automatically isolate on their respective PSMS control signals identified in Table 2.11.2-1 during the conditions of an SBO event with alternate ac power sources unavailable CVS-MOV-203, 204 LMS-AOV-104, 105 IAS-MOV-002 VCS-AOV-306, 307, 356, 357	DCD_14.03.11-49

2.11.3-3, is fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

2.b.ii The ASME Code Section III piping of the CSS, including supports and design features described in the design basis to limit potential gas accumulation, identified in Table 2.11.3-3 is reconciled with the design requirements. DCD_05.04.07-11

3.a Pressure boundary welds in ASME Code Section III components, identified in Table 2.11.3-2, meet ASME Code Section III requirements for non-destructive examination of welds.

3.b Pressure boundary welds in ASME Code Section III piping, identified in Table 2.11.3-3, meet ASME Code Section III requirements for non-destructive examination of welds.

4.a The ASME Code Section III components, identified in Table 2.11.3-2, retain their pressure boundary integrity at their design pressure.

4.b The ASME Code Section III piping, identified in Table 2.11.3-3, retains its pressure boundary integrity at its design pressure.

5.a The seismic Category I equipment, identified in Table 2.11.3-2, can withstand seismic design basis loads without loss of safety function.

5.b The seismic Category I piping, including supports, identified in Table 2.11.3-3 can withstand seismic design basis loads without a loss of its safety function.

6.a Class 1E equipment identified in Table 2.11.3-2 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

6.b The Class 1E equipment, identified in Table 2.11.3-2, is powered from its respective Class 1E division.

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

7.a Deleted.

7.b The CSS provides containment spray during design basis accidents.

7.c The CS/RHR pumps have sufficient net positive suction head (NPSH).

8.a Controls are provided in the MCR to open and close the remotely operated valves identified in Table 2.11.3-~~4~~2. DCD_14.03-5

9.a The ~~motor-operated valves and check~~ valves~~,~~ identified in Table 2.11.3-2 as having an active safety function~~,~~ can perform an active safety function to change position as DCD_03.09.06-69 S01

indicated in the table under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions. DCD_03.09.06-69 S01

9.b After loss of motive power, the remotely operated valves, identified in Table 2.11.3-2, assume the indicated loss of motive power position.

10.a The CS/RHR pump starts after receiving a containment spray actuation signal.

10.b The containment spray header containment isolation valves identified in Table 2.11.3-2 open upon receipt of a containment spray actuation signal.

10.c An interlock is provided for each division of CS/RHR to preclude the simultaneous opening of both the RHR discharge line containment isolation valves identified in Table 2.4.5-2 and the corresponding containment spray header containment isolation valves identified in Table 2.11.3-2.

10.d An interlock is provided for each division of CS/RHR to allow opening of the containment spray header containment isolation valves identified in Table 2.11.3-2 only if either of the corresponding two in-series CS/RHR pump hot leg isolation valves identified in Table 2.4.5-2 is closed.

11. Alarms and displays identified in Table 2.11.3-4 are provided in the MCR.

12. Alarms, displays and controls identified in Table 2.11.3-4 are provided in the RSC.

13. ~~The pumps identified in Table 2.11.3-2 perform their safety functions under design conditions.~~ DCD_03.09.06-69 DCD_03.09.06-69 S01

2.11.3.2 Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.11.3-5 describes the ITAAC for the CSS. ITAAC Item 7 in Table 2.4.4-5 describes ITAAC for ECC/CS suction strainer performance.

The ITAAC associated with the CSS equipment, components, and piping that comprise a portion of the CIS are described in Table 2.11.2-2.

Table 2.11.3-5 Containment Spray System Inspections, Tests, Analyses, and Acceptance Criteria (Sheet 7 of 9)

Design Commitment		Inspections, Tests, Analyses		Acceptance Criteria		
9.a	The ~~motor-operated valves and check~~ valves~~,~~ identified in Table 2.11.3-2 as having an active safety function~~,~~ can perform an active safety function to change position as indicated in the table under 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 ~~motor-operated~~ valves identified in Table 2.11.3-2 as having an active safety function will be performed that demonstrate the capability of the valve to operate under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including~~its~~ design-basis conditions.	9.a.i	A report exists and concludes that each ~~motor-operated~~ valve identified ~~changes position as indicated~~ in Table 2.11.3-2 as having an active safety function changes position as indicated in Table 2.11.3-2 under expected ranges of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design-basis conditions.	DCD_03.09.06-69 S01
		9.a.ii	Tests of the as-built ~~motor-operated~~ valves identified in Table 2.11.3-2 as having an active safety function will be performed under preoperational flow, differential pressure, and temperature conditions.	9.a.ii	Each as-built ~~motor-operated~~ valve identified~~changes position as indicated~~ in Table 2.11.3-2 as having an active safety function changes position as indicated in Table 2.11.3-2 under preoperational test conditions.	DCD_03.09.06-69 S01 DCD_03.09.06-69 S01
		9.a.iii	Inspections will be performed of the as-built ~~motor-operated~~ valves identified in Table 2.11.3-2 as having an active safety function.	9.a.iii	Each as-built ~~motor-operated~~ valve identified in Table 2.11.3-2 as having an active safety function is bounded by the type tests, or a combination of type tests and analyses.	DCD_03.09.06-69 S01
		9.a.iv	~~Tests of the as-built check valves with active safety functions identified in Table 2.11.3-2 as having an active safety function will be performed under preoperational test pressure, temperature, and fluid flow conditions.~~Deleted	9.a.iv	~~Each as-built check valve changes position as indicated in Table 2.11.3-2 as having an active safety function under preoperational conditions.~~Deleted	DCD_03.09.06-69 S01
9.b	After loss of motive power, the remotely operated valves, identified in Table 2.11.3-2, assume the indicated loss of motive power position.	9.b.	Tests of the as-built valves identified in Table 2.11.3-2 will be performed under the conditions of loss of motive power.	9.b	Upon loss of motive power, each as-built remotely operated valve identified in Table 2.11.3-2 assumes the indicated loss of motive power position.	

2.11.3-5 Containment Spray System Inspections, Tests, Analyses, and Acceptance Criteria (Sheet 10 of 10)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria	
12. Alarms, displays and controls identified in Table 2.11.3-4 are provided in the RSC.	12.i Inspections will be performed on the as-built O-VDU and on the as-built S-VDU in the RSC for retrievability of the alarms and displays respectively, as identified in Table 2.11.3-4 ~~in the as-built RSC~~.	12.i Alarms and displays, identified in Table 2.11.3-4, can be retrieved on the as-built O-VDU and on the as-built S-VDU respectively in the ~~as-built~~ RSC.	DCD_14.03-7, 8
	12.ii Tests will be performed for RSC control capability of equipment, identified in Table 2.11.3-4, on the as-built S-VDU.	12.ii RSC controls for equipment, identified in Table 2.11.3-4, on the as-built S-VDU provide the necessary output from the PSMS to operate the respective equipment.	DCD_14.03-7, 8
	12.iii ~~Tests of the as-built RSC control functions identified in Table 2.11.3-4 will be performed.~~ Tests will be performed on the as-built equipment, identified in Table 2.11.3-4, using controls on the as-built O-VDU in the RSC.	12.iii Controls on the as-built O-VDU in the ~~as-built~~ RSC operate the as-built equipment identified in Table 2.11.3-4 with an RSC control function.	DCD_14.03-7, 8
~~13. The pumps identified in Table 2.11.3-2 perform their safety functions under design conditions.~~	~~13. Type tests or a combination of type tests and analyses of each pump identified in Table 2.11.3-2 will be performed to demonstrate the ability of the pump to perform its safety function under design conditions.~~	~~13. An equipment qualification data summary report exists and concludes that the pumps identified in Table 2.11.3-2 perform their safety functions under design conditions.~~	DCD_03.09.06-69 DCD_03.09.06-69 S01