ArevaEPRDCPEm Resource

From: WILLIFORD Dennis (AREVA) [Dennis.Williford@areva.com]
Sent: Thursday, February 02, 2012 9:48 AM
To: Tesfaye, Getachew
Cc: BENNETT Kathy (AREVA); CRIBB Arnie (EXTERNAL AREVA); DELANO Karen (AREVA); HATHCOCK Phillip (AREVA); ROMINE Judy (AREVA); RYAN Tom (AREVA); HUDSON Greg (AREVA); MEACHAM Robert (AREVA)
Subject: DRAFT Response to U.S. EPR Design Certification Application RAI No. 506 (5456), FSAR Ch. 14, Questions 14.03.05-27, -30 and -41
Attachments: RAI 506 Response US EPR DC - DRAFT 3.pdf

Getachew,

Attached are DRAFT responses to Questions 14.03.05-27, 14.03.05-30 and 14.03.05-41 for RAI No. 506 (FSAR Ch. 14) in advance of the February 21, 2012 final date.

Let me know if the staff has any questions or if this response can be sent as final.

Thanks,

Dennis Williford, P.E.
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
7207 IBM Drive, Mail Code CLT 2B
Charlotte, NC 28262
Phone: 704-805-2223
Email: Dennis.Williford@areva.com

From: WILLIFORD Dennis (RS/NB)
Sent: Thursday, January 19, 2012 10:48 AM
To: Getachew.Tesfaye@nrc.gov
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); LENTZ Tony (External RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 506 (5456), FSAR Ch. 14, Supplement 5

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the 18 questions in RAI No. 506 on September 28, 2011. Supplement 1 response was submitted on November 8, 2011 to provide technically correct and complete responses to 12 of the 18 questions. Supplement 2 response was submitted on November 17, 2011 to provide a revised response to Question 14.03.05-29. Supplement 3 response was submitted on December 1, 2011 to provide a revised schedule for 3 questions. Supplement 4 response was submitted on January 13, 2012 to provide technically correct and complete responses to 2 questions.

The schedule for a technically correct and complete final response to the remaining 4 questions has been changed as provided below.

Question #	Response Date
RAI 506 — 14.03.05-27	**February 21, 2012**

RAI 506 — 14.03.05-30	**February 21, 2012**
RAI 506 — 14.03.05-39	**February 21, 2012**
RAI 506 — 14.03.05-41	**February 21, 2012**

Sincerely,

Dennis Williford, P.E.
U.S. EPR Design Certification Licensing Manager
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Charlotte, NC 28262
Phone: 704-805-2223
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From: WILLIFORD Dennis (CORP/QP)
Sent: Friday, January 13, 2012 12:39 PM
To: Getachew.Tesfaye@nrc.gov
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); LENTZ Tony (External RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 506 (5456), FSAR Ch. 14, Supplement 4

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the 18 questions in RAI No. 506 on September 28, 2011. Supplement 1 response was submitted on November 8, 2011 to provide technically correct and complete responses to 12 of the 18 questions. Supplement 2 response was submitted on November 17, 2011 to provide a revised response to Question 14.03.05-29. Supplement 3 response was submitted on December 1, 2011 to provide a revised schedule for 3 questions.

The attached file, "RAI 506 Supplement 4 Response US EPR DC.pdf" provides a technically correct and complete final response to 2 questions. Appended to this file are affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which support the response to RAI 506 Questions 14.03.05-28 and 14.03.05-35.

The following table indicates the respective pages in the response document, "RAI 506 Supplement 4 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 506 — 14.03.05-28	2	3
RAI 506 — 14.03.05-35	4	4

The schedule for a technically correct and complete final response to the remaining 4 questions is unchanged as provided below.

Question #	Response Date
RAI 506 — 14.03.05-27	January 19, 2012

RAI 506 — 14.03.05-30	January 19, 2012
RAI 506 — 14.03.05-39	January 19, 2012
RAI 506 — 14.03.05-41	January 19, 2012

Sincerely,

Dennis Williford, P.E.
U.S. EPR Design Certification Licensing Manager
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From: WILLIFORD Dennis (RS/NB)
Sent: Thursday, December 01, 2011 3:07 PM
To: Getachew.Tesfaye@nrc.gov
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); LENTZ Tony (External RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 506 (5456), FSAR Ch. 14, Supplement 3

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the 18 questions in RAI No. 506 on September 28, 2011. Supplement 1 response was submitted on November 8, 2011 to provide technically correct and complete responses to 12 of the 18 questions. Supplement 2 response was submitted on November 17, 2011 to provide a revised response to Question 14.03.05-29.

The schedule for providing a response to Questions 14.03.05-27, 14.03.05-28 and 14.03.05-35 has been revised as provided below. The schedule for a response to the other 3 questions remains unchanged.

Question #	**Response Date**
RAI 506 — 14.03.05-27	**January 19, 2012**
RAI 506 — 14.03.05-28	**January 19, 2012**
RAI 506 — 14.03.05-30	January 19, 2012
RAI 506 — 14.03.05-35	**January 19, 2012**
RAI 506 — 14.03.05-39	January 19, 2012
RAI 506 — 14.03.05-41	January 19, 2012

Sincerely,

Dennis Williford, P.E.
U.S. EPR Design Certification Licensing Manager
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7207 IBM Drive, Mail Code CLT 2B
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Phone: 704-805-2223
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From: WILLIFORD Dennis (RS/NB)
Sent: Thursday, November 17, 2011 12:11 PM
To: Getachew.Tesfaye@nrc.gov
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); LENTZ Tony (External RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 506 (5456), FSAR Ch. 14, Supplement 2

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the 18 questions in RAI No. 506 on September 28, 2011. Supplement 1 response to RAI 506 was submitted on November 8, 2011 to provide technically correct and complete responses to 12 of the 18 questions.

The attached file, "RAI 506 Supplement 2 Response US EPR DC.pdf" provides a technically correct and complete revised final response to Question 14.03.05-29. The response has not changed from that provided in Supplement 1, however two additional affected pages from the U.S. EPR Final Safety Analysis Report were omitted from the earlier transmittal.

Appended to this file are affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which support the response to Question 14.03.05-29.

The following table indicates the respective pages in the response document, "RAI 506 Supplement 2 Response US EPR DC.pdf," that contain AREVA NP's revised response to the subject question.

Question #	Start Page	End Page
RAI 506 — 14.03.05-29	2	2

The schedule for a technically correct and complete response to the remaining 6 questions is unchanged as provided below.

Question #	Response Date
RAI 506 — 14.03.05-27	December 9, 2011
RAI 506 — 14.03.05-28	December 9, 2011
RAI 506 — 14.03.05-30	January 19, 2012
RAI 506 — 14.03.05-35	December 9, 2011
RAI 506 — 14.03.05-39	January 19, 2012
RAI 506 — 14.03.05-41	January 19, 2012

Sincerely,

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Charlotte, NC 28262
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Email: Dennis.Williford@areva.com

From: WILLIFORD Dennis (RS/NB)
Sent: Tuesday, November 08, 2011 4:24 PM
To: Getachew.Tesfaye@nrc.gov
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); LENTZ Tony (External RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 506 (5456), FSAR Ch. 14, Supplement 1

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the 18 questions in RAI No. 506 on September 28, 2011.
The attached file, "RAI 506 Supplement 1 Response US EPR DC.pdf" provides a technically correct and complete final response to 12 of the 18 questions.

Appended to this file are affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which support the response to Questions 14.03.05-25, 14.03.05-26, 14.03.05-29, 14.03.05-31, 14.03.05-32, 14.03.05-33, 14.03.05-34, 14.03.05-36, 14.03.05-37, 14.03.05-38, 14.03.05-40 and 14.03.05-42.

The following table indicates the respective pages in the response document, "RAI 506 Supplement 1 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 506 — 14.03.05-25	2	2
RAI 506 — 14.03.05-26	3	3
RAI 506 — 14.03.05-29	4	4
RAI 506 — 14.03.05-31	5	5
RAI 506 — 14.03.05-32	6	6
RAI 506 — 14.03.05-33	7	7
RAI 506 — 14.03.05-34	8	8
RAI 506 — 14.03.05-36	9	9
RAI 506 — 14.03.05-37	10	10
RAI 506 — 14.03.05-38	11	11
RAI 506 — 14.03.05-40	12	12
RAI 506 — 14.03.05-42	13	13

The schedule for a technically correct and complete response to the remaining 6 questions has been revised as provided below.

Question #	Response Date
RAI 506 — 14.03.05-27	December 9, 2011
RAI 506 — 14.03.05-28	December 9, 2011
RAI 506 — 14.03.05-30	January 19, 2012

RAI 506 — 14.03.05-35	December 9, 2011
RAI 506 — 14.03.05-39	January 19, 2012
RAI 506 — 14.03.05-41	January 19, 2012

Sincerely,

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From: WILLIFORD Dennis (RS/NB)
Sent: Wednesday, September 28, 2011 5:19 PM
To: Getachew.Tesfaye@nrc.gov
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); LENTZ Tony (External RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 506 (5456), FSAR Ch. 14

Getachew,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 506 Response US EPR DC.pdf," provides a schedule since a technically correct and complete response to the 18 questions cannot be provided at this time.

The following table indicates the respective pages in the response document, "RAI 506 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 506 — 14.03.05-25	2	2
RAI 506 — 14.03.05-26	3	3
RAI 506 — 14.03.05-27	4	4
RAI 506 — 14.03.05-28	5	5
RAI 506 — 14.03.05-29	6	6
RAI 506 — 14.03.05-30	7	7
RAI 506 — 14.03.05-31	8	8
RAI 506 — 14.03.05-32	9	9
RAI 506 — 14.03.05-33	10	10
RAI 506 — 14.03.05-34	11	11
RAI 506 — 14.03.05-35	12	12
RAI 506 — 14.03.05-36	13	13
RAI 506 — 14.03.05-37	14	14
RAI 506 — 14.03.05-38	15	15
RAI 506 — 14.03.05-39	16	16
RAI 506 — 14.03.05-40	17	17

RAI 506 — 14.03.05-41	18	18
RAI 506 — 14.03.05-42	19	19

A complete answer is not provided for the 18 questions. The schedule for a technically correct and complete response to these questions is provided below.

Question #	Response Date
RAI 506 — 14.03.05-25	November 8, 2011
RAI 506 — 14.03.05-26	November 8, 2011
RAI 506 — 14.03.05-27	November 8, 2011
RAI 506 — 14.03.05-28	November 8, 2011
RAI 506 — 14.03.05-29	November 8, 2011
RAI 506 — 14.03.05-30	November 8, 2011
RAI 506 — 14.03.05-31	November 8, 2011
RAI 506 — 14.03.05-32	November 8, 2011
RAI 506 — 14.03.05-33	November 8, 2011
RAI 506 — 14.03.05-34	November 8, 2011
RAI 506 — 14.03.05-35	November 8, 2011
RAI 506 — 14.03.05-36	November 8, 2011
RAI 506 — 14.03.05-37	November 8, 2011
RAI 506 — 14.03.05-38	November 8, 2011
RAI 506 — 14.03.05-39	November 8, 2011
RAI 506 — 14.03.05-40	November 8, 2011
RAI 506 — 14.03.05-41	November 8, 2011
RAI 506 — 14.03.05-42	November 8, 2011

Sincerely,

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From: Tesfaye, Getachew [mailto:Getachew.Tesfaye@nrc.gov]
Sent: Tuesday, August 30, 2011 1:31 PM
To: ZZ-DL-A-USEPR-DL
Cc: Mills, Daniel; Zhang, Deanna; Morton, Wendell; Spaulding, Deirdre; Mott, Kenneth; Truong, Tung; Zhao, Jack; Jackson, Terry; Jaffe, David; Canova, Michael; Colaccino, Joseph; ArevaEPRDCPEm Resource
Subject: U.S. EPR Design Certification Application RAI No. 506 (5456), FSAR Ch. 14

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on August 12, 2011, and discussed with your staff on August 25 and 29, 2011. Draft RAI Question

14.03.05-38 has been modified as a result of those discussions. The schedule we have established for review of your application assumes technically correct and complete responses within 30 days of receipt of RAIs. For any RAIs that cannot be answered within 30 days, it is expected that a date for receipt of this information will be provided to the staff within the 30 day period so that the staff can assess how this information will impact the published schedule.

Thanks,

Getachew Tesfaye
Sr. Project Manager
NRO/DNRL/NARP
(301) 415-3361

Hearing Identifier: AREVA_EPR_DC_RAIs
Email Number: 3731

Mail Envelope Properties (2FBE1051AEB2E748A0F98DF9EEE5A5D4AA0A66)

Subject: DRAFT Response to U.S. EPR Design Certification Application RAI No. 506 (5456), FSAR Ch. 14, Questions 14.03.05-27, -30 and -41
Sent Date: 2/2/2012 9:47:34 AM
Received Date: 2/2/2012 9:47:54 AM
From: WILLIFORD Dennis (AREVA)

Created By: Dennis.Williford@areva.com

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Tracking Status: None
"ROMINE Judy (AREVA)" <Judy.Romine@areva.com>
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Tracking Status: None

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Files	**Size**	**Date & Time**
MESSAGE	14755	2/2/2012 9:47:54 AM
RAI 506 Response US EPR DC - DRAFT 3.pdf	1540874	

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

Response to

Request for Additional Information No. 506(5456), Revision 0

8/30/2011

U. S. EPR Standard Design Certification
AREVA NP Inc.
Docket No. 52-020
SRP Section: 14.03.05 - Instrumentation and Controls - Inspections, Tests, Analyses, and Acceptance Criteria
Application Section: 2.4

QUESTIONS for Instrumentation, Controls and Electrical Engineering 1 (AP1000/EPR Projects) (ICE1)

Question 14.03.05-27:

Provide a listing of the safety functions of the Safety Information and Control System (SICS) and clarify how the ITAAC map to those safety functions.

10 CFR 52.47(b)(1) requires inspections, tests, analyses, and acceptance criteria that are necessary and sufficient to provide reasonable assurance that, if the inspections, tests, and analyses are performed and the acceptance criteria met, a facility that incorporates the design certification has been constructed and will be operated in conformity with the design certification, the provisions of the Act, and the Commission's rules and regulations. U.S. EPR FSAR, Tier 1, Section 2.4.2, includes ITAAC entries for all listed design description of the SICS but the actual "safety functions" are not listed. Item 4.10 for SICS refers to safety functions, but these functions are not detailed in the Tier 1 information for this system. Provide a listing of the safety functions of the SICS and clarify how the ITAAC map to those safety functions.

Response to Question 14.03.05-27:

The safety-related functions of the SICS are identified in U.S. EPR FSAR Tier 2, Table 7.1-3. These functions are:

1. Manual reactor trip.
2. Manual engineered safety features actuation.
3. Control of safety-related systems to reach and maintain safe shutdown (such as manual grouped controls for safety automation system and manual component controls via the priority and actuation control system).
4. Indication of Type A, B, and C PAM variables (note that not all PAM Type B and C variables are safety-related)

These functions, along with associated ITAAC, will be added to U.S. EPR FSAR Tier 1, Section 2.4.2, as shown in the attached markups.

FSAR Impact:

U.S. EPR FSAR Tier 1, Section 2.4.2 will be revised as described in the response and indicated on the enclosed markup.

Question 14.03.05-30:

Clarify how the ITAAC in Tier 1 Section 2.4.5 verify the listed safety functions of the Priority and Actuation Control System.

10 CFR 52.47(b)(1) requires inspections, tests, analyses, and acceptance criteria that are necessary and sufficient to provide reasonable assurance that, if the inspections, tests, and analyses are performed and the acceptance criteria met, a facility that incorporates the design certification has been constructed and will be operated in conformity with the design certification, the provisions of the Act, and the Commission's rules and regulations. Tier 1, Section 2.4.5, includes ITAAC entries for all listed design description of the PACS, but it is unclear whether the actual safety functions are verified by ITAAC. Specifically, how does the ITAAC verify that the PACS prioritizes actuation requests from I&C systems, performs essential equipment protection, performs drive actuation, and performs drive monitoring? If other ITAAC, including those of mechanical systems, are used to verify PACS safety functions, demonstrate how those ITAAC verify the safety functions of PACS.

Response to Question 14.03.05-30:

U.S. EPR FSAR Tier 1, Section 2.4.5, Item 4.1 states that the primary safety function of the priority and actuator control system (PACS) is to prioritize commands from the instrumentation and controls (I&C) systems so that the protection system (PS) and diverse actuation system (DAS) have the highest level of priority.

U.S. EPR FSAR Tier 1, Section 2.4.5 and Tier 2, Sections 7.1 and 7.8 will be revised to indicate that commands from the PS and DAS have the same priority over the other signals received by the PACS.

In addition to prioritizing actuation requests, U.S. EPR FSAR Tier 1, Section 2.4.5, Design Description states that the safety-related functions of the PACS are to perform essential equipment protection, drive actuation and drive monitoring. U.S. EPR FSAR Tier 1 will be revised to standardize design commitments and ITAAC to address the safety-related functions of PACS. The standard PACS ITAAC format is shown in Table 14.03.05-30-1, and the design commitments and ITAAC being revised are listed in Table 14.03.05-30-2.

FSAR Impact:

U.S. EPR FSAR Tier 1, Chapter 2 and Tier 2, Sections 7.1 and 7.8 will be revised as described in the response and indicated on the enclosed markup.

Table 14.03.05-30-1—Standard Format for PACS ITAAC

Commitment	Inspections, Tests, Analyses	Acceptance Criteria
Equipment listed as being controlled by a PACS module in Table X.X.X-X respond to the state requested and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.	A test will be performed using test signals.	Equipment listed as being controlled by a PACS module in Table X.X.X-X responds to the state requested and provides drive monitoring signals back to the PACS module. The PACS module protects the equipment by terminating the output command upon the equipment reaching the requested state.

Table 14.03.05-30-2—Revised PACS ITAAC

U.S. EPR FSAR Tier 1 Section	Design Commitment and ITAAC number
2.2.1	4.3
2.2.2	4.3
2.2.3	4.3
2.2.4	4.3
2.2.5	4.3
2.2.6	4.3
2.2.7	4.3
2.3.1	4.3
2.3.3	4.2
2.5.4	4.3
2.6.1	4.3
2.6.3	4.3
2.6.6	4.3
2.6.7	4.3
2.6.8	4.3
2.6.9	4.3
2.6.13	4.3
2.7.1	4.3
2.7.5	4.3
2.7.11	4.3
2.8.2	4.3
2.8.6	4.3
2.8.7	4.3
3.5	4.3

Question 14.03.05-41:

Provide a design description and ITAAC testing item in U.S. EPR FSAR, Tier 1, to address self-test functionality for the Safety Automation System (SAS).

IEEE Std. 603-1998, Clause 5.7 requires, in part, that the capability for testing and calibration of safety system equipment shall be provided while retaining the capability of the safety systems to accomplish their safety functions. The capability for testing and calibration of safety system equipment shall be provided during power operation and shall duplicate, as closely as practicable, performance of the safety function. 10 CFR 52.47(b)(1) requires, in part, that ITAAC are necessary and sufficient to provide reasonable assurance that if the ITAAC are performed and the acceptance criteria met, a facility that incorporates the design certification has been constructed and will be operated in conformity with the design certification, the provisions of the Act, and the Commission's rules and regulations. SRP Section 14.3.5 provides guidance to meet the requirements of 10 CFR 52.47(b)(1).

U.S. EPR FSAR, Tier 1, Section 2.4.4, contains the design description of SAS. The design description does not include details concerning self-test functionality for SAS similar to that of the PS stated in Section 2.4.1, ITAAC Item 4.26. There is no ITAAC item for testing SAS self-testing functionality shown on Tier 1, Table 2.4.4-6, Interim Revision 3 mark-ups. Technical Report ANP-10315, Section 2.2.6, states that the TXS inherent and engineered monitoring features, also collectively referred to as “self-testing features”, applies to both the PS and SAS. In addition, IEEE Std. 603-1998, Clause 5.7, applies to SAS as well, therefore requiring a verification of design functionality of SAS self-testing features considering the applicant is taking credit for self-testing features of the SAS to meet the requirements of Clause 5.7. The staff requests the applicant add self-testing features to the design description of Tier 1, Section 2.4.4, and an ITAAC item in Tier 1, Section 2.4.4, for SAS.

Response to Question 14.03.05-41:

U.S. EPR FSAR Tier 1, Section 2.4.4 will be revised to include an ITAAC item 4.20 to address self-test functionality for the SAS.

Technical Report ANP-10315 will be revised to include the credited self-testing features in SAS. The Technical Report revision for this RAI is included in the Response to RAI 505, Question 07.01-44.

FSAR Impact:

U.S. EPR FSAR, Tier 1, Section 2.4.4 will be revised as described in the response and indicated on the enclosed markup.

Technical Report ANP-10315, Revision 1 will be revised as described in the response. ANP-10315, Revision 2 will be submitted by separate letter after completion of the Responses to RAI 505 and RAI 506.

U.S. EPR Final Safety Analysis Report Markups

3.19 Each RCP contains an oil collection system.

3.20 RCS piping shown as ASME Code Section III on Figure 2.2.1-1 is designed in accordance with ASME Code Section III requirements.

3.21 RCS piping shown as ASME Code Section III on Figure 2.2.1-1 is ~~installed~~ reconciled in accordance with an ASME Code Section III ~~Design Report~~design requirements.

3.22 Pressure boundary welds in RCS piping shown as ASME Code Section III on Figure 2.2.1-1 ~~are in accordance with~~meet ASME Code Section III non-destructive examination requirements.

3.23 RCS piping shown as ASME Code Section III on Figure 2.2.1-1 retains pressure boundary integrity at design pressure.

3.24 RCS piping shown as ASME Code Section III on Figure 2.2.1-1 is fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

3.25 Components listed in Table 2.2.1-1 as ASME Code Section III, other than RPV internals, are designed in accordance with ASME Code Section III requirements.

3.26 Components listed in Table 2.2.1-1 as ASME Code Section III, other than RPV internals, are ~~fabricated~~ reconciled in accordance with ASME Code Section III design requirements.

3.27 Pressure boundary welds on components listed in Table 2.2.1-1 as ASME Code Section III, other than RPV internals, ~~are in accordance with~~meet ASME Code Section III non-destructive examination requirements.

3.28 Components listed in Table 2.2.1-1 as ASME Code Section III, other than RPV internals, retain pressure boundary integrity at design pressure.

3.29 The RCP flywheel maintains its structural integrity during an overspeed event.

3.30 Components listed in Table 2.2.1-1 as ASME Code Section III are fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

4.0 Instrumentation and Controls (I&C) Design Features, Displays, and Controls

4.1 Displays listed in Tables 2.2.1-2—Equipment and Valve Actuator Power Supplies and Controls and 2.2.1-3—Instrumentation Power Supplies, Classification, and Displays are ~~retrievable~~ indicated in the main control room (MCR) and remote shutdown station (RSS~~) as listed in Tables 2.2.1-2 and 2.2.1-3~~.

4.2 Controls on the PICS in the MCR and the RSS perform the function listed ~~The RCS equipment controls are provided in the MCR and RSS as listed~~ in Table 2.2.1-2.

4.3 Equipment listed as being controlled by a priority and actuator control system (PACS) module in Table 2.2.1-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the

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equipment by terminating the output command upon the equipment reaching the requested state.

4.4 Instrumentation providing input to the uncertainty in power supports the power uncertainty assumed in the safety analysis.

5.0 Electrical Power Design Features

5.1 The components designated as Class 1E listed in Tables 2.2.1-2 and 2.2.1-3 are powered from the Class 1E divisions as listed in Tables 2.2.1-2 and 2.2.1-3 in a normal or alternate feed condition.

5.2 Deleted.

5.3 The power supply arrangement is such that only two ~~emergency diesels~~EDGs are required to operate to supply power to the minimum number of PZR heaters.

6.0 Environmental Qualifications

6.1 Components designated as harsh environment in Table 2.2.1-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.2.1-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~

6.2 Instrumentation ~~in~~ designated as harsh environment in Table 2.2.1-3~~, that are designated as harsh environment,~~ will display as listed in Table 2.2.1-3 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~

7.0 Equipment and System Performance

7.1 Class 1E valves listed in Table 2.2.1-2 ~~can perform the~~ will function to change position as listed in Table 2.2.1-1 under system operating conditions.

7.2 The RCPs have rotational inertia to provide coastdown flow of reactor coolant as listed in Table 2.2.1-4 on loss of power to the pump motors.

7.3 The RCPs provide flow.

7.4 RCP standstill seal system (SSSS) can be engaged when the RCP is stopped.

7.5 The PZR safety relief valves (PSRVs) open.

7.6 The PSRVs listed in Table 2.2.1-2 open below the maximum setpoint assumed in the safety analyses.

7.7 The PSRVs provide relief capacity.

7.8 Each RCP ~~supply circuit~~ breaker and ~~switchgear feeder circuit~~ RCP bus breaker is tripped by a protection system signal.

Table 2.2.1-5—Reactor Coolant System ITAAC (11 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
4.1	Displays listed in Tables 2.2.1-2 and 2.2.1-3 are ~~retrievable~~ indicated in the MCR and ~~RSS as listed in Tables 2.2.1-2 and 2.2.1-~~3.	a. Tests will be performed in the MCR using test signals. ~~Tests will be performed for the retrievability of the displays in the MCR or the RSS as listed in Tables 2.2.1-2 and 2.2.1-3.~~ b. Tests will be performed in the RSS using test signals.	a. ~~The d~~Displays listed in Tables 2.2.1-2 and 2.2.1-3 are indicated ~~as being retrievable in the MCR can be retrieved~~ in the MCR. b. ~~The d~~Displays listed in Tables 2.2.1-2 and 2.2.1-3 are indicated ~~as being retrievable in the RSS can be retrieved~~ in the RSS.
4.2	Controls on the PICS in the MCR and the RSS perform the function listed~~The RCS equipment controls are provided in the MCR and RSS as identified~~ in Table 2.2.1-2.	a. Tests will be performed using controls on the PICS in the MCR. b. Tests will be performed using controls on the PICS in the RSS.~~Tests will be performed for the existence of control signals from the MCR and the RSS to the equipment listed in Table 2.2.1-2.~~	a. ~~The~~ Controls listed on the PICS in the MCR perform the function listed in Table 2.2.1-2~~as being in the MCR exist in the MCR~~. b. ~~The c~~Controls on the PICS in the RSS perform the function listed in Table 2.2.1-2~~as being in the RSS exist in the RSS~~.
4.3	Equipment listed as being controlled by a PACS module in Table 2.2.1-2 responds to the state requested~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.	A test will be performed using test signals.	Equipment listed as being controlled by a PACS module in Table 2.2.1-2 responds to the state requested~~by the test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.

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3.9 IRWSTS piping shown as ASME Code Section III on Figure 2.2.2-1 is ~~installed~~ reconciled in accordance with an ASME Code Section III ~~Design Report~~design requirements.

3.10 Pressure boundary welds in IRWSTS piping shown as ASME Code Section III on Figure 2.2.2-1 are ~~in accordance with~~meet ASME Code Section III non-destructive examination requirements.

3.11 IRWSTS piping shown as ASME Code Section III on Figure 2.2.2-1 retains pressure boundary integrity at design pressure.

3.12 IRWSTS piping shown as ASME Code Section III on Figure 2.2.2-1 is fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

3.13 Components listed in Table 2.2.2-1 as ASME Code Section III are designed in accordance with ASME Code Section III requirements.

3.14 Components listed in Table 2.2.2-1 as ASME Code Section III are ~~fabricated~~ reconciled in accordance with ASME Code Section III design requirements.

3.15 Pressure boundary welds on components listed in Table 2.2.2-1 as ASME Code Section III ~~are in accordance with~~meet ASME Code Section III non-destructive examination requirements.

3.16 Components listed in Table 2.2.2-1 as ASME Code Section III retain pressure boundary integrity at design pressure.

3.17 Components listed in Table 2.2.2-1 as ASME Code Section III are fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

3.18 Containment isolation valves are located close to containment penetrations.

4.0 Instrumentation and Controls (I&C) Design Features, Displays, and Controls

4.1 Displays listed in Table 2.2.2-2—IRWSTS Equipment I&C and Electrical Design are ~~retrievable~~ indicated in the main control room (MCR) and the remote shutdown station (RSS) ~~as listed in Table 2.2.2-2~~.

4.2 ~~The IRWSTS equipment~~ Controls on the PICS in the MCR and the RSS perform the function ~~controls are provided in the MCR and the RSS as~~ listed in Table 2.2.2-2.

4.3 Equipment listed as being controlled by a priority and actuator control system (PACS) module in Table 2.2.2-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.

4.4 Deleted.~~IRWST has level indication.~~

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Table 2.2.2-3—In-Containment Refueling Water Storage Tank System ITAAC (9 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
	2.2.2-2. 14.03.05-30	b. Tests will be performed using controls on the PICS in the RSS.~~Tests will be performed for the existence of control signals from the MCR and the RSS to the equipment listed in Table 2.2.2-2.~~	b. ~~The c~~Controls on the PICS in the RSS perform the function listed in Table 2.2.2-2~~ as being in the RSS exist in the RSS~~.
4.3	Equipment listed as being controlled by a PACS module in Table 2.2.2-2 responds to the state requested~~ by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.	A test will be performed using test signals.	Equipment listed as being controlled by a PACS module in Table 2.2.2-2 responds to the state requested~~ by the signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.
4.4	Deleted.~~IRWST has level indication.~~	Deleted.~~A test will be performed.~~	Deleted.~~a. IRWST level instruments included in Table 2.2.2-2 provide level indication in the MCR.~~ ~~b. IRWST level instruments included in Table 2.2.2-2 provide level indication in the RSS~~.
5.1	The components designated as Class 1E in Table 2.2.2-2 are powered from the Class 1E division as listed in Table 2.2.2-2 in a normal or alternate feed condition.	a. Testing will be performed ~~for components designated as Class 1E in Table 2.2.2-2~~ by providing a test signal in each normally aligned division.	a. The test signal provided in the normally aligned division is present at the respective Class 1E components identified in Table 2.2.2-2.

3.9 Deleted.

3.10 SIS/RHRS piping shown as ASME Code Section III on Figure 2.2.3-1 is designed in accordance with ASME Code Section III requirements.

3.11 SIS/RHRS piping shown as ASME Code Section III on Figure 2.2.3-1 is ~~installed~~ reconciled in accordance with ~~an~~ ASME Code Section III ~~Design Report~~design requirements.

3.12 Pressure boundary welds in SIS/RHRS piping shown as ASME Code Section III on Figure 2.2.3-1 are ~~in accordance with~~meet ASME Code Section III non-destructive examination requirements.

3.13 SIS/RHRS piping shown as ASME Code Section III on Figure 2.2.3-1 retains pressure boundary integrity at design pressure.

3.14 SIS/RHRS piping shown as ASME Code Section III on Figure 2.2.3-1 is fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

3.15 Components listed in Table 2.2.3-1 as ASME Code Section III are designed in accordance with ASME Code Section III requirements.

3.16 Components listed in Table 2.2.3-1 as ASME Code Section III are ~~fabricated~~ reconciled in accordance with ASME Code Section III design requirements.

3.17 Pressure boundary welds on components listed in Table 2.2.3-1 as ASME Code Section III ~~are in accordance with~~meet ASME Code Section III non-destructive examination requirements.

3.18 Components listed in Table 2.2.3-1 as ASME Code Section III retain pressure boundary integrity at design pressure.

3.19 Components listed in Table 2.2.3-1 as ASME Code Section III are fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

3.20 Containment isolation valves are located close to containment penetrations.

4.0 Instrumentation and Controls (I&C) Design Features, Displays, and Controls

4.1 Displays listed in Table 2.2.3-2—SIS/RHRS Equipment I&C and Electrical Design are ~~retrievable~~ indicated in the main control room (MCR) and the remote shutdown station (RSS) ~~as listed in Table 2.2.3-2~~.

4.2 Controls on the PICS in the MCR and the RSS perform the function ~~The SIS/RHRS equipment controls are provided in the MCR and the RSS as~~ listed in Table 2.2.3-2.

4.3 Equipment listed as being controlled by a priority and actuator control system (PACS) module in Table 2.2.3-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the

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equipment by terminating the output command upon the equipment reaching the requested state.

4.4 ~~The~~ Interlocks for the SIS/RHRS ~~has~~ initiate the following ~~system interlocks~~:

- Opening of the accumulator injection path.
- Opening authorization of the residual heat removal system suction path from the reactor coolant system.
- Opening authorization of the hot-leg safety injection path.

5.0 Electrical Power Design Features

5.1 The components designated as Class 1E in Table 2.2.3-2 are powered from the Class 1E division as listed in Table 2.2.3-2 in a normal or alternate feed condition.

5.2 Deleted.

6.0 Environmental Qualifications

6.1 Components designated as harsh environment in Table 2.2.3-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.2.3-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~

7.0 Equipment and System Performance

7.1 The SIS/RHRS heat exchangers listed in Table 2.2.3-1 have the capacity to transfer the design heat load to the component cooling water system.

7.2 The accumulators listed in Table 2.2.3-1 provide a required storage volume.

7.3 Each accumulator line has a minimum head loss coefficient (fL/D + K).

7.4 The pumps listed in Table 2.2.3-1 have net positive suction head available (NPSHA) that is greater than net positive suction head required (NPSHR) at system run-out flow.

7.5 The SIS/RHRS delivers water to the reactor coolant system for core cooling.

7.6 Deleted.~~The SIS/RHRS delivers water to the reactor coolant system within the system run-out flow rate and pump shutoff head for core cooling due to design basis events.~~

7.7 Class 1E valves listed in Table 2.2.3-2 ~~can perform the~~ will function to change position as listed in Table 2.2.3-1 under system operating conditions.

7.8 The SIS/RHRS provides for flow testing of the SIS/RHRS pumps during plant operation.

7.9 Safety injection pumped flow will be delivered to the RCS before the maximum elapsed time.

Table 2.2.3-3—Safety Injection System and Residual Heat Removal System ITAAC (10 Sheets)

	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
4.1	Displays listed in Table 2.2.3-2 are indicated in the MCR and the RSS~~as identified in Table 2.2.3-2~~.	a. Tests will be performed in the MCR using test signals. ~~Tests will be performed for the retrievability of the displays in the MCR or the RSS as listed in Table 2.2.3-2.~~ b. Tests will be performed in the RSS using test signals.	a. ~~The d~~Displays listed in Table 2.2.3-2 ~~are indicated~~ are indicated ~~as being retrieved in the MCR can be retrieved~~ in the MCR. b. ~~The d~~Displays listed in Table 2.2.3-2 are indicated ~~as being retrieved in the RSS can be retrieved~~ in the RSS.
4.2	Controls on the PICS in the MCR and the RSS perform the function listed ~~Controls exist in the MCR and the RSS as identified~~ in Table 2.2.3-2.	a. Tests will be performed using controls on the PICS in the MCR. b. Tests will be performed using controls on the PICS in the RSS.~~Tests will be performed for the existence of control signals from the MCR and the RSS to the equipment listed in Table 2.2.3-2.~~	a. ~~The c~~Controls on the PICS in the MCR perform the function listed in Table 2.2.3-2~~ as being in the MCR exist in the MCR~~. b. ~~The c~~Controls on the PICS in the RSS perform the function.~~listed in Table 2.2.3-2 as being in the RSS exist in the RSS.~~
4.3	Equipment listed as being controlled by a PACS module in Table 2.2.3-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.	A test will be performed using test signals.	Equipment listed as being controlled by a PACS module in Table 2.2.3-2 responds to the state requested ~~by the signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.

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3.9 EFWS piping shown as ASME Code Section III on Figure 2.2.4-1 is designed in accordance with ASME Code Section III requirements.

3.10 EFWS piping shown as ASME Code Section III on Figure 2.2.4-1 is ~~installed~~ reconciled in accordance with ~~an~~ ASME Code Section III ~~Design Report~~design requirements.

3.11 Pressure boundary welds in EFWS piping shown as ASME Code Section III on Figure 2.2.4-1 ~~are in accordance with~~meet ASME Code Section III non-destructive examination requirements.

3.12 EFWS piping shown as ASME Code Section III on Figure 2.2.4-1 retains pressure boundary integrity at design pressure.

3.13 EFWS piping shown as ASME Code Section III on Figure 2.2.4-1 is fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

3.14 Components listed in Table 2.2.4-1 as ASME Code Section III are designed in accordance with ASME Code Section III requirements.

3.15 Components listed in Table 2.2.4-1 as ASME Code Section III are ~~fabricated~~ reconciled in accordance with ASME Code Section III design requirements.

3.16 Pressure boundary welds on components listed in Table 2.2.4-1 as ASME Code Section III ~~are in accordance with~~meet ASME Code Section III non-destructive examination requirements.

3.17 Components listed in Table 2.2.4-1 as ASME Code Section III retain pressure boundary integrity at design pressure.

3.18 Components listed in Table 2.2.4-1 as ASME Code Section III are fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

3.19 Containment isolation valves are located close to containment penetrations.

4.0 Instrumentation and Controls (I&C) Design Features, Displays, and Controls

4.1 Displays listed in Table 2.2.4-2—EFWS Equipment I&C and Electrical Design are ~~retrievable~~ indicated in the main control room (MCR) and the remote shutdown station (RSS) ~~as listed in Table 2.2.4-2~~.

4.2 Controls on the PICS in the MCR and the RSS perform the function ~~The EFWS equipment controls are provided in the MCR and the RSS as~~ listed in Table 2.2.4-2.

4.3 Equipment listed as being controlled by a priority and actuator control system (PACS) module in Table 2.2.4-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.

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Table 2.2.4-3—Emergency Feedwater System ITAAC (7 Sheets)

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Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
4.3	Equipment listed as being controlled by a PACS module in Table 2.2.4-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.	A test will be performed using test signals.	Equipment listed as being controlled by a PACS module in Table 2.2.4-2 responds to the state requested ~~by the test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.
5.1	The components designated as Class 1E in Table 2.2.4-2 are powered from the Class 1E division as listed in Table 2.2.4-2 in a normal or alternate feed condition.	a. Testing will be performed ~~for components designated as Class 1E in Table 2.2.4-2~~ by providing a test signal in each normally aligned division. b. Testing will be performed ~~for components designated as Class 1E in Table 2.2.4-2~~ by providing a test signal in each division with the alternate feed aligned to the divisional pair.	a. The test signal provided in the normally aligned division is present at the respective Class 1E components identified in Table 2.2.4-2. b. The test signal provided in each division with the alternate feed aligned to the divisional pair is present at the respective Class 1E components identified in Table 2.2.4-2.
5.2	Deleted.	Deleted.	Deleted.

3.6 Deleted.

3.7 Deleted.

3.8 Deleted.

3.9 FPCPS piping shown as ASME Code Section III on Figure 2.2.5-1 is designed in accordance with ASME Code Section III requirements.

3.10 FPCPS piping shown as ASME Code Section III on Figure 2.2.5-1 is ~~installed~~ reconciled in accordance with ~~an~~ ASME Code Section III ~~Design Report~~design requirements.

3.11 Pressure boundary welds in FPCPS piping shown as ASME Code Section III on Figure 2.2.5-1 ~~are in accordance with~~meet ASME Code Section III non-destructive examination requirements.

3.12 FPCPS piping shown as ASME Code Section III on Figure 2.2.5-1 retains pressure boundary integrity at design pressure.

3.13 FPCPS piping shown as ASME Code Section III on Figure 2.2.5-1 is fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

3.14 Components listed in Table 2.2.5-1 as ASME Code Section III are designed in accordance with ASME Code Section III requirements.

3.15 Components listed in Table 2.2.5-1 as ASME Code Section III are ~~fabricated~~ reconciled in accordance with ASME Code Section III design requirements.

3.16 Pressure boundary welds on components listed in Table 2.2.5-1 as ASME Code Section III ~~are in accordance with~~meet ASME Code Section III non-destructive examination requirements.

3.17 Components listed in Table 2.2.5-1 as ASME Code Section III retain pressure boundary integrity at design pressure.

3.18 Components listed in Table 2.2.5-1 as ASME Code Section III are fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

3.19 Containment isolation valves are located close to containment penetrations.

4.0 Instrumentation and Controls (I&C) Design Features, Displays, and Controls

4.1 Displays listed in Table 2.2.5-2—FPCPS Equipment I&C and Electrical Design are ~~retrievable~~ indicated in the main control room (MCR) and the remote shutdown station (RSS) ~~as listed in Table 2.2.5-2~~.

4.2 Controls on the PICS in the MCR and the RSS perform the function~~The FPCPS equipment controls are provided in the MCR and the RSS as~~ listed in Table 2.2.5-2.

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4.3 Equipment listed as being controlled by a priority and actuator control system (PACS) module in Table 2.2.5-2 responds to the state requested ~~by a test signal~~ and provides

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drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.

5.0 Electrical Power Design Features

5.1 The components designated as Class 1E in Table 2.2.5-2 are powered from the Class 1E division as listed in Table 2.2.5-2 in a normal or alternate feed condition.

5.2 Deleted.

6.0 Environmental Qualifications

6.1 Components designated as harsh environment in Table 2.2.5-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.2.5-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~

7.0 Equipment and System Performance

7.1 The fuel pool cooling system heat exchangers listed in Table 2.2.5-1 each have the capacity to transfer the design heat load to the component cooling water system.

7.2 The pumps listed in Table 2.2.5-1 have net positive suction head available (NPSHA) that is greater than net positive suction head required (NPSHR) at system run-out flow.

7.3 Class 1E valves listed in Table 2.2.5-2 ~~can perform the~~ will function to change position as listed in Table 2.2.5-1 under system operating conditions.

7.4 The pumps listed in Table 2.2.5-1 each have the capacity to provide flow to the FPCS heat exchangers.

7.5 Containment isolation valves listed in Table 2.2.5-1 close within the containment isolation response time following initiation of a containment isolation signal.

7.6 The FPCS design provides for maintaining the spent fuel pool water level above the spent fuel.

8.0 Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.2.5-3 lists the FPCPS ITAAC.

Table 2.2.5-3—Fuel Pool Cooling and Purification System ITAAC (7 Sheets)

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Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
4.3	Equipment listed as being controlled by a PACS module in Table 2.2.5-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.	A test will be performed using test signals.	Equipment listed as being controlled by a PACS module in Table 2.2.5-2 responds to the state requested ~~by the signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.
5.1	The components designated as Class 1E in Table 2.2.5-2 are powered from the Class 1E division as listed in Table 2.2.5-2 in a normal or alternate feed condition.	a. Testing will be performed ~~for components designated as Class 1E in Table 2.2.5-2~~ by providing a test signal in each normally aligned division. b. Testing will be performed ~~for components designated as Class 1E in Table 2.2.5-2~~ by providing a test signal in each division with the alternate feed aligned to the divisional pair.	a. The test signal provided in the normally aligned division is present at the respective Class 1E components identified in Table 2.2.5-2. b. The test signal provided in each division with the alternate feed aligned to the divisional pair is present at the respective Class 1E components identified in Table 2.2.5-2.
5.2	Deleted.	Deleted.	Deleted.

3.7 Deleted.

3.8 Deleted.

3.9 Deleted.

3.10 CVCS piping shown as ASME Code Section III on Figure 2.2.6-1 is designed in accordance with ASME Code Section III requirements.

3.11 CVCS piping shown as ASME Code Section III on Figure 2.2.6-1 is installed in accordance with an ASME ~~Code~~ reconciled Section III Design Report.

3.12 Pressure boundary welds in CVCS piping shown as ASME Code Section III on Figure 2.2.6-1 ~~are in accordance with~~meet ASME Code Section III non-destructive examination requirements.

3.13 CVCS piping shown as ASME Code Section III on Figure 2.2.6-1 retains pressure boundary integrity at design pressure.

3.14 CVCS piping shown as ASME Code Section III on Figure 2.2.6-1 is fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

3.15 Components listed in Table 2.2.6-1 as ASME Code Section III are designed in accordance with ASME Code Section III requirements.

3.16 Components listed in Table 2.2.6-1 as ASME Code Section III are ~~fabricated~~ reconciled in accordance with ASME Code Section III design requirements.

3.17 Pressure boundary welds on components listed in Table 2.2.6-1 as ASME Code Section III ~~are in accordance with~~meet ASME Code Section III non-destructive examination requirements.

3.18 Components listed in Table 2.2.6-1 as ASME Code Section III retain pressure boundary integrity at design pressure.

3.19 Components listed in Table 2.2.6-1 as ASME Code Section III are fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

3.20 Containment isolation valves are located close to containment penetrations.

4.0 Instrumentation and Controls (I&C) Design Features, Displays, and Controls

4.1 Displays listed in Table 2.2.6-2—CVCS Equipment I&C and Electrical Design are ~~retrievable~~ indicated in the main control room (MCR) and the remote shutdown station (RSS) ~~as listed in Table 2.2.6-2~~.

4.2 Controls on the PICS in the MCR and the RSS perform the function ~~The CVCS equipment controls are provided in the MCR and the RSS as~~ listed in Table 2.2.6-2.

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4.3 Equipment listed as being controlled by a priority and actuator control system (PACS) module in Table 2.2.6-2 responds to the state requested ~~by a test signal~~ and provides

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drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.

4.4 ~~The~~ Interlocks for the CVCS initiate ~~has~~ the following ~~system interlocks~~:

- Isolation of the charging pump suction from the volume control tank and normal letdown path during a boron dilution event by closure of valves 30KBA21AA001, 30KBA21AA009, and 30KBA25AA017.
- Isolation of the charging line by closure of valves 30KBA34AA002, 30KBA34AA012, and 30KBA35AA001.
- Isolation of the letdown line on a safety injection actuation signal by closure of valves 30KBA10AA001 and 30KBA10AA002.

5.0 Electrical Power Design Features

5.1 The components designated as Class 1E in Table 2.2.6-2 are powered from the Class 1E division as listed in Table 2.2.6-2 in a normal or alternate feed condition.

5.2 Deleted.

6.0 Environmental Qualifications

6.1 Components designated as harsh environment in Table 2.2.6-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.2.6-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~

7.0 Equipment and System Performance

7.1 Deleted.

7.2 Class 1E valves listed in Table 2.2.6-2 ~~can perform the~~ will function to change position as listed in Table 2.2.6-1 under system operating conditions.

7.3 Containment isolation valves listed in Table 2.2.6-1 close within the containment isolation response time following initiation of a containment isolation signal.

7.4 The CVCS system run-out flow does not exceed the design maximum allowable.

7.5 The CVCS charging pumps listed in Table 2.2.6-1 provide the required seal water flow for operation of the reactor coolant pumps.

8.0 Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.2.6-3 lists the CVCS ITAAC.

Table 2.2.6-3—Chemical and Volume Control System ITAAC
(7 Sheets)

	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
4.1	Displays listed in Table 2.2.6-2 are indicated ~~exist or can be retrieved~~ in the MCR and the RSS ~~as identified in Table 2.2.6-2~~.	a. Tests will be performed in the MCR using test signals. ~~Tests will be performed for the retrievability of the displays in the MCR or the RSS as listed in Table 2.2.6-2.~~ b. Tests will be performed in the RSS using test signals.	a. ~~The d~~Displays listed in Table 2.2.6-2 are indicated ~~as being retrieved in the MCR can be retrieved~~ in the MCR. b. ~~The d~~Displays listed in Table 2.2.6-2 are indicated ~~as being retrieved in the RSS can be retrieved~~ in the RSS.
4.2	Controls on the PICS in the MCR and the RSS perform the function listed ~~Controls exist in the MCR and the RSS as identified~~ in Table 2.2.6-2.	a. Tests will be performed using controls on the PICS in the MCR. b. Tests will be performed using controls on the PICS in the RSS. ~~Tests will be performed for the existence of control signals from the MCR and the RSS to the equipment listed in Table 2.2.6-2.~~	a. ~~The c~~Controls on the PICS in the MCR perform the function listed in Table 2.2.6-2. ~~as being in the MCR exist in the MCR.~~ b. ~~The c~~Controls on the PICS in the RSS perform the function listed in Table 2.2.6-2 ~~as being in the RSS exist in the RSS~~.
4.3	Equipment listed as being controlled by a PACS module in Table 2.2.6-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.	A test will be performed using test signals.	Equipment listed as being controlled by a PACS module in Table 2.2.6-2 responds to the state requested ~~by the signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.

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3.8 Deleted.

3.9 Deleted.

3.10 EBS piping shown as ASME Code Section III on Figure 2.2.7-1 is designed in accordance with ASME Code Section III requirements.

3.11 EBS piping shown as ASME Code Section III on Figure 2.2.7-1 is ~~installed~~ reconciled in accordance with an ASME Code Section III Design Report.

3.12 Pressure boundary welds in EBS piping shown as ASME Code Section III on Figure 2.2.7-1 ~~are in accordance with~~meet ASME Code Section III non-destructive examination requirements.

3.13 EBS piping shown as ASME Code Section III on Figure 2.2.7-1 retains pressure boundary integrity at design pressure.

3.14 EBS piping shown as ASME Code Section III on Figure 2.2.7-1 is fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

3.15 Components listed in Table 2.2.7-1 as ASME Code Section III are designed in accordance with ASME Code Section III requirements.

3.16 Components listed in Table 2.2.7-1 as ASME Code Section III are ~~fabricated~~ reconciled in accordance with ASME Code Section III design requirements.

3.17 Pressure boundary welds on components listed in Table 2.2.7-1 as ASME Code Section III ~~are in accordance with~~meet ASME Code Section III non-destructive examination requirements.

3.18 Components listed in Table 2.2.7-1 as ASME Code Section III retain pressure boundary integrity at design pressure.

3.19 Components listed in Table 2.2.7-1 as ASME Code Section III are fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

3.20 Containment isolation valves are located close to containment penetrations.

4.0 Instrumentation and Controls (I&C) Design Features, Displays, and Controls

4.1 Displays listed in Table 2.2.7-2—EBS Equipment I&C and Electrical Design are ~~retrievable~~ indicated in the main control room (MCR) and the remote shutdown station (RSS) ~~as listed in Table 2.2.7-2~~.

4.2 Controls on the PICS in the MCR and the RSS perform the function~~The EBS equipment controls are provided in the MCR and the RSS as~~ listed in Table 2.2.7-2.

4.3 Equipment listed as being controlled by a priority and actuator control system (PACS) module in Table 2.2.7-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the

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equipment by terminating the output command upon the equipment reaching the requested state.

5.0 Electrical Power Design Features

5.1 The components designated as Class 1E in Table 2.2.7-2 are powered from the Class 1E division as listed in Table 2.2.7-2 in a normal or alternate feed condition.

5.2 Deleted.

6.0 Environmental Qualifications

6.1 Components designated as harsh environment in Table 2.2.7-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.2.7-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~

7.0 Equipment and System Performance

7.1 The pumps listed in Table 2.2.7-1 have net positive suction head available (NPSHA) that is greater than net positive suction head required (NPSHR) at system run-out flow.

7.2 Class 1E valves listed in Table ~~-~~2.2.7-2 ~~can perform the~~ will function to change position as listed in Table 2.2.7-1 under system operating conditions.

7.3 The EBS provides for flow testing of the EBS pumps during plant operation.

7.4 Containment isolation valves listed in Table 2.2.7-1 close within the containment isolation response time following initiation of a containment isolation signal.

8.0 Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.2.7-3 lists the EBS ITAAC.

Table 2.2.7-3—Extra Borating System ITAAC (7 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
	14.03.05-30	b. Tests will be performed using controls on the PICS in the RSS. ~~Tests will be performed for the existence of control signals from the MCR and the RSS to the equipment listed in Table 2.2.7-2.~~	b. ~~The c~~Controls on the PICS in the RSS perform the function listed in Table 2.2.7-2 ~~as being in the RSS exist in the RSS~~.
4.3	Equipment listed as being controlled by a PACS module in Table 2.2.7-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.	A test will be performed using test signals.	Equipment listed as being controlled by a PACS module in Table 2.2.7-2 responds to the state requested ~~by the test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.
5.1	The components designated as Class 1E in Table 2.2.7-2 are powered from the Class 1E division as listed in Table 2.2.7-2 in a normal or alternate feed condition.	a. Testing will be performed ~~for components designated as Class 1E in Table 2.2.7-2~~ by providing a test signal in each normally aligned division. b. Testing will be performed ~~for components designated as Class 1E in Table 2.2.7-2~~ by providing a test signal in each division with the alternate feed aligned to the divisional pair.	a. The test signal provided in the normally aligned division is present at the respective Class 1E components identified in Table 2.2.7-2. b. The test signal provided in each division with the alternate feed aligned to the divisional pair is present at the respective Class 1E components identified in Table 2.2.7-2.
5.2	Deleted.	Deleted.	Deleted.

2.3 Severe Accident Systems

2.3.1 Combustible Gas Control System

1.0 Description

The combustible gas control system (CGCS) prevents damage to the containment or emergency equipment in the event of an accident with ensuing mass and energy release. In addition, for a severe accident with core degradation, the system inhibits potential damage by controlling the combustible gas concentration in containment.

The CGCS provides the following safety-related function:

- Mixing of the containment atmosphere.

The CGCS provides the following non-safety-related functions:

- Controlling combustible gas concentrations.
- Maintaining containment structural integrity by limiting the pressure to within the containment design pressure resulting from a combustible gas ignition from the most severe accident.
- Maintaining the two zone separation between accessible and equipment space.

2.0 Arrangement

2.1 The location of the CGCS equipment is as listed in Table 2.3.1-1.

3.0 Mechanical Design Features

3.1 Components identified as Seismic Category I in Table 2.3.1-1 can withstand seismic design basis loads without a loss of the function listed in Table 2.3.1-1.

4.0 Instrumentation and Controls (I&C) Design Features, Displays and Controls

4.1 Displays listed in Table 2.3.1-2—CGCS Equipment I&C and Electrical Design are ~~retrievable~~ indicated in the ~~main control room (~~MCR~~)~~ and the ~~remote shutdown station (~~RSS~~) as listed in Table 2.3.1-2~~.

4.2 Controls on the PICS in the MCR and the RSS perform the function listed ~~The CGCS equipment controls are provided in the MCR and the RSS as listed~~ in Table 2.3.1-2.

4.3 Equipment listed as being controlled by a priority and actuator control system (PACS) module in Table 2.3.1-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.

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Table 2.3.1-3—Combustible Gas Control System ITAAC
(3 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
4.2	Controls on the PICS in the MCR and the RSS perform the function listed ~~Controls exist in the MCR and the RSS as identified~~ in Table 2.3.1-2.	a. Tests will be performed using controls on the PICS in the MCR. b. Tests will be performed using controls on the PICS in the RSS.~~Tests will be performed for the existence of control signals from the MCR and the RSS to the equipment listed in Table 2.3.1-2.~~	a. ~~The c~~Controls on the PICS in the MCR perform the function listed in Table 2.3.1-2~~ as being in the MCR exist in the MCR~~. b. ~~The c~~Controls on the PICS in the RSS perform the function listed in Table 2.3.1-2~~ as being in the RSS exist in the RSS~~.
4.3	Equipment listed as being controlled by a PACS module in Table 2.3.1-2 responds to the state requested~~ by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.	A test will be performed using test signals.	Equipment listed as being controlled by a PACS module in Table 2.3.1-2 responds to the state requested~~ by the test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.
5.1	Hydrogen mixing dampers listed in Table 2.3.1-1 fail open on loss of power.	Tests ~~Testing~~ will be performed ~~for the hydrogen mixing dampers listed in Table 2.3.1-1 to fail open on loss of power~~.	Following loss of power, the hydrogen mixing dampers listed in Table 2.3.1-1 fail open.

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3.7 Deleted.

3.8 Deleted.

3.9 SAHRS piping shown as ASME Code Section III on Figure 2.3.3-1 is designed in accordance with ASME Code Section III requirements.

3.10 SAHRS piping shown as ASME Code Section III on Figure 2.3.3-1 is ~~installed~~ reconciled in accordance with an ASME Code Section III Design Report.

3.11 Pressure boundary welds in SAHRS piping shown as ASME Code Section III on Figure 2.3.3-1 ~~are in accordance with~~meet ASME Code Section III non-destructive examination requirements.

3.12 SAHRS piping shown as ASME Code Section III on Figure 2.3.3-1 retains pressure boundary integrity at design pressure.

3.13 SAHRS piping shown as ASME Code Section III on Figure 2.3.3-1 is fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

3.14 Components listed in Table 2.3.3-1 as ASME Code Section III are designed in accordance with ASME Code Section III requirements.

3.15 Components listed in Table 2.3.3-1 as ASME Code Section III are ~~fabricated~~ reconciled in accordance with ASME Code Section III design requirements.

3.16 Pressure boundary welds on components listed in Table 2.3.3-1 as ASME Code Section III ~~are in accordance with~~ meet ASME Code Section III non-destructive examination requirements.

3.17 Components listed in Table 2.3.3-1 as ASME Code Section III retain pressure boundary integrity at design pressure.

3.18 Components listed in Table 2.3.3-1 as ASME Code Section III are fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

3.19 Containment isolation valves are located close to containment penetrations.

4.0 I&C Design Features, Displays and Controls

4.1 Controls on the PICS in the MCR and the RSS perform the function listed ~~The SAHRS equipment controls are provided in the MCR as listed~~ in Table 2.3.3-2—SAHRS Equipment I&C and Electrical Design.

4.2 Equipment listed as being controlled by a priority and actuator control system (PACS) module in Table 2.3.3-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.

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Table 2.3.3-3—Severe Accident Heat Removal System ITAAC (6 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
4.1	Controls on the PICS in the MCR and the RSS perform the function listed ~~Controls exist in the MCR as identified~~ in Table 2.3.3-2.	a. Tests will be performed using controls on the PICS in the MCR. b. Tests will be performed using controls on the PICS in the RSS.~~Tests will be performed for the existence of control signals from the MCR to the equipment listed in Table 2.3.3-2.~~	a. ~~The c~~Controls on the PICS in the MCR perform the function listed in Table 2.3.3-2~~ as being in the MCR exist in the MCR~~. b. Controls on the PICS in the RSS perform the function listed in Table 2.3.3-2.
4.2	Equipment listed as being controlled by a PACS module in Table 2.3.3-2 responds to the state requested~~ by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.	A test will be performed using test signals.	Equipment listed as being controlled by a PACS module in Table 2.3.3-2 responds to the state requested~~ by the test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.
5.1	The components designated as Class 1E in Table 2.3.3-2 are powered from the Class 1E division as listed in Table 2.3.3-2 in a normal or alternate feed condition.	a. Testing will be performed ~~for components designated as Class 1E in Table 2.3.3-2~~ by providing a test signal in each normally aligned division. b. Testing will be performed ~~for components designated as Class 1E in Table 2.3.3-2~~ by providing a test signal in each division with the alternate feed aligned to the divisional pair.	a. The test signal provided in the normally aligned division is present at the respective Class 1E components identified in Table 2.3.3-2. b. The test signal provided in each division with the alternate feed aligned to the divisional pair is present at the respective Class 1E components identified in Table 2.3.3-2.
5.2	Deleted.	Deleted.	Deleted.

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2.4.2 Safety Information and Control System

1.0 Description

The safety information and control system (SICS) is provided as a safety-related human machine interface (HMI) and is specifically designed to provide the operator with the necessary inventory of controls and indications for the following:

- Mitigation of anticipated operational occurrences (AOO) (main control room (MCR)).
- Mitigation of postulated accidents (MCR).
- Reach and maintain safe shutdown (MCR and remote shutdown station (RSS)).
- Mitigation of anticipated operational occurrences (AOO) concurrent with a software common cause failure of the PS (MCR).
- Mitigation of postulated accidents (PA) concurrent with a software common cause failure of the PS (MCR).
- Mitigation of severe accidents (MCR).

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The SICS provides the following safety-related functions:

- Manual reactor trip.
- Manual ESF actuation.
- Control of safety-related systems to reach and maintain safe shutdown.
- Indication of Type A, B, and C PAM variables.

2.0 Arrangement

2.1 The location of the SICS equipment is ~~located~~ as listed in Table 2.4.2-1—Safety Information and Control System Equipment.

2.2 Deleted.~~.~~

2.3 Deleted.

2.4 Physical separation exists between Class 1E SICS equipment and non-Class 1E equipment.

2.5 Physical separation exists between ~~the~~ Class 1E electrical divisions that power the controls and indications of the SICS.

3.0 Mechanical Design Features

3.1 Equipment identified as Seismic Category I in Table 2.4.2-1 can withstand seismic design basis loads without loss of safety function.

4.0 I&C Design Features, Displays and Controls

4.1 The capability to transfer control of the SICS from the MCR to the RSS exists in a fire area separate from the MCR. The transfer switches are each associated with a single division of the safety-related control and allow transfer of control without entry into the MCR.

4.2 Electrical isolation ~~exists~~ is provided between the Class 1E electrical divisions that power the controls and indications of the SICS as listed in Table 2.4.2-1.

4.3 Electrical isolation is provided on connections between the safety-related parts of the SICS and non-Class 1E equipment.

4.4 Class 1E SICS equipment listed in Table 2.4.2-1 can ~~perform its safety~~ function when subjected to electromagnetic interference (EMI), radio-frequency interference (RFI), electrostatic discharges (ESD), and power surges.

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4.5 The SICS provides controls for manual actuation of reactor trip in the MCR and RSS.~~Deleted.~~

4.6 Electrical isolation is provided on connections between the RSS and the MCR for the SICS.

4.7 The SICS provides controls in the MCR for the manual actuation of the ESF functions listed in Table 2.4.2-2—Manually Actuated ESF Functions.~~Deleted.~~

4.8 The SICS provides indications of Type A, B, and C PAM variables in the MCR.~~Deleted.~~

4.9 The SICS provides, in the MCR, manual controls and indications necessary to reach and maintain safe shutdown following an AOO or PA.~~Deleted..~~

4.10 The SICS is designed so that safety-related functions required for an ~~anticipated operational occurrence (~~AOO~~)~~ or ~~postulated accident (~~PA~~)~~ are performed in the presence of the following:

- Single detectable failures within the SICS.
- Failures caused by the single failure.
- Failures and spurious system actions that cause or are caused by the AOO or PA requiring the safety function.

4.11 Locking mechanisms are provided on the SICS doors in the MCR and RSS. Opened SICS doors in the RSS are indicated in the MCR.~~Deleted.~~

Table 2.4.2-2—Manually Actuated ESF Functions

Containment Isolation (Stage 1)
Containment Isolation (Stage 2)
CVCS Charging Isolation
CVCS Isolation on Anti-Dilution Mitigation
EDG Actuation
EFWS Actuation
EFWS Isolation
Extra Borating System Isolation
Hydrogen Mixing Dampers Opening
CRACS Isolation and Filtering
Main Feedwater (MFW) Full Load Isolation
Main Steam Isolation
MSRIV Opening
MSRT Isolation
Partial Cooldown Actuation
PSRV Opening
RCP Trip
SG Isolation
SIS Actuation
Turbine Trip

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Table 2.4.2-~~2~~4—Safety Information and Control System ITAAC (~~5~~ 6 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
4.3	Electrical isolation is provided on connections between the safety-related parts of the SICS and non-Class 1E equipment.	a. Analyses will be performed to determine the test specification for electrical isolation devices on connections between the safety-related parts of the SICS and non-Class 1E equipment.	a. A test plan ~~exists that~~ provides the test specification for determining whether a device is capable of preventing the propagation of credible electrical faults on connections between the safety-related parts of the SICS and non-Class 1E equipment.
		b. Type tests, analyses, or a combination of type tests and analyses will be performed on the electrical isolation devices between the safety-related parts of the SICS and non-Class 1E equipment.	b. A report ~~exists and~~ concludes that the Class 1E isolation devices used between the safety-related parts of the SICS and non-Class 1E equipment. prevent the propagation of credible electrical faults.
		c. Inspections will be performed on connections between the safety-related parts of the SICS and non-Class 1E equipment.	c. Class 1E electrical isolation devices exist on connections between the safety-related parts of the SICS and non-Class 1E equipment.
4.4	Class 1E SICS equipment listed in Table 2.4.2-1 can ~~perform its safety~~ function when subjected to EMI, RFI, ESD, and power surges.	Type tests or type tests and analysis ~~of these~~ will be performed ~~for the Class 1E equipment listed in Table 2.4.1-1~~.	~~A report exists and concludes that the e~~Equipment identified as Class 1E in Table 2.4.2-1 can ~~perform its safety~~ function when subjected to EMI, RFI, ESD, and power surges.
4.5	~~Deleted.~~The SICS provides controls for manual actuation of reactor trip in the MCR and RSS.	a. Tests will be performed in the MCR using SICS controls in the MCR.~~Deleted.~~	a. The reactor trip breakers and reactor trip contactors are opened following manual actuation from SICS in the MCR.
		b. Tests will be performed in the RSS using SICS controls in the RSS.	b. The reactor trip breakers and reactor trip contactors are opened following manual actuation from SICS in the RSS.~~Deleted.~~

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Table 2.4.2-~~2~~4—Safety Information and Control System ITAAC (~~5~~ 6 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
4.6	Electrical isolation is provided on connections between the RSS and the MCR for the SICS.	a. Analyses will be performed to determine the test specification for electrical isolation devices on connections between the RSS and the MCR for the SICS.	a. A test plan ~~exists that~~ provides the test specification for determining whether a device is capable of preventing the propagation of credible electrical faults on connections between the RSS and the MCR for the SICS.
		b. Type tests, analyses, or a combination of type tests and analyses will be performed on the electrical isolation devices between the RSS and the MCR for the SICS.	b. A report ~~exists and~~ concludes that the Class 1E isolation devices used between the RSS and the MCR for the SICS prevent the propagation of credible electrical faults.
		c. Inspections will be performed on connections between the RSS and the MCR for the SICS.	c. Class 1E electrical isolation devices exist on connections between the RSS and the MCR for the SICS.
4.7	The SICS provides controls in the MCR for manual actuation of the ESF functions listed in Table 2.4.2-2.~~Deleted.~~	Tests will be performed in the MCR using SICS controls in the MCR. ~~Deleted.~~	The ESF functions shown in Table 2.4.2-2 are actuated following manual actuation from SICS in the MCR.~~Deleted.~~
4.8	The SICS provides indication of Type A, B, and C PAM variables in the MCR.~~Deleted.~~	Tests will be performed in the MCR using test signals.~~Deleted.~~	Type A, B, and C PAM variables are indicated on SICS in the MCR.~~Deleted.~~
4.9	The SICS provides, in the MCR, manual controls and indications necessary to reach and maintain safe shutdown following an AOO or PA.~~Deleted.~~	a. An analysis will be performed.~~Deleted.~~	a. A report identifies the manual controls and indications necessary to reach and maintain safe shutdown in the MCR following an AOO or PA.~~Deleted.~~
		b. Tests will be performed using controls on the SICS in the MCR.	b. Controls on the SICS in the MCR are verified to be functional.
		c. Tests will be performed in the MCR using test signals.	c. Displays on the SICS are indicated in the MCR.

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- By introducing and varying, a substitute input of the same nature as the measured variable.
- By cross-checking between channels that bear a known relationship to each other.
- By specifying equipment that is stable and the period of time it retains its calibration during post-accident conditions.

4.16 Deleted.

4.17 Hardwired disconnects exist between the service unit (SU) and each divisional monitoring and service interface (MSI) of the SAS. The hardwired disconnects prevent the connection of the SU to more than a single division of the SAS.

4.18 The SAS performs the automatic functions listed in Table 2.4.4-5—Safety Automation System Automatic Functions.

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4.19 During data communication, the SAS function processors receive only the pre-defined messages for that specific function processor. Other messages are ignored.

4.20 SAS self-test features are capable of detecting faults consistent with the requirements of the SAS.

4.21 SAS connections to the SICS are hardwired for manual grouped controls.

4.22 SAS manual grouped controls and indications are available on the SICS in the MCR.

4.23 Permissive P15 provides operating bypass capability for the following SAS functions:

- Safety Injection and Heat Removal System - Automatic Trip of LHSI Pump (in RHR Mode) on Low Delta Psat.
- Safety Injection and Heat Removal System - Automatic Trip of LHSI Pump (in RHR Mode) on Low Loop Level.

5.0 Electrical Power Design Features

5.1 ~~Class 1E SAS~~The components designated as Class 1E in Table 2.4.4-1 are powered from a Class 1E division as listed in Table 2.4.4-1 in a normal or alternate feed condition.

6.0 Environmental Qualification

6.1 Components listed as Class 1E in Table 2.4.4-1 can perform their function under normal environmental conditions, AOOs, and accident and post-accident environmental conditions.

~~6.0~~7.0 System Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.4.4-6 lists the SAS ITAAC.

Table 2.4.4-6—Safety Automation System ITAAC (11 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
4.19	During data communication, the SAS function processors receive only the pre-defined messages for that specific function processor. Other messages are ignored.	a. An analysis will be performed. b. A test will be performed.	a. A report determines the test specification for the SAS function processors to verify that only pre-defined messages for that specific function processor and other messages are ignored. b. A report concludes that the SAS function processors receive only the pre-defined messages for that specific function processor. Other messages are ignored.
4.20	SAS self-test features are capable of detecting faults consistent with the requirements of the SAS.	a. Analyses will be performed to determine the faults that require detection through self-test features. b. Type tests, analyses or a combination of type tests and analyses will be performed to verify that faults requiring detection through self-test features are detected by the SAS equipment.	a. A report identifies the faults that require detection through self-test features. b. A report concludes that the SAS equipment is capable of detecting faults required to be detected by self-test features.
4.21	SAS connections to the SICS are hardwired for manual grouped controls.	Inspections will be performed.	SAS connections to the SICS are hardwired for manual grouped controls.
4.22	SAS manual grouped controls and indications are available on the SICS in the MCR.	a. Inspections will be performed. b. Tests will be performed using test signals.	a. SAS manual grouped controls and indications are available on the SICS in the MCR. b. SAS equipment is capable of operating manual grouped control functions from the SICS in the MCR.

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2.4.5 Priority and Actuator Control System

1.0 Description

The priority and actuator control system (PACS) is a safety-related system.

The PACS provides the following safety-related functions:

- Prioritizes actuation requests from I&C systems.
- Performs essential equipment protection.
- Performs drive actuation.
- Performs drive monitoring.

2.0 Arrangement

2.1 The location of the PACS equipment is ~~located~~ as listed in Table 2.4.5-1—Priority and Actuator Control System Equipment.

2.2 Physical separation exists between ~~the four~~ divisions of the PACS as listed in Table 2.4.5-1.

2.3 Physical separation exists between Class 1E PACS equipment and non-Class 1E equipment.

3.0 Mechanical Design Features

3.1 Equipment identified as Seismic Category I in Table 2.4.5-1 can withstand seismic design basis loads without loss of safety function.

4.0 I&C Design Features, Displays and Controls

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4.1 Protection system (PS) and Diverse Actuation System (DAS) signals received by each priority module override other signals received by the priority module.

4.2 Electrical isolation is provided on connections between Class 1E PACS equipment and non-Class 1E equipment.

4.3 Class 1E PACS equipment listed in Table 2.4.5-1 can ~~perform its safety~~ function when subjected to electromagnetic interference (EMI), radio-frequency interference (RFI), electrostatic discharges (ESD), and power surges.

4.4 The input wiring from other I&C systems to the PACS is properly connected.

4.5 The capability for testing of the PACS is provided while retaining the capability of the PACS to accomplish its safety function. PACS divisions in test are indicated in the MCR.

Table 2.4.5-3—Priority and Actuator Control System ITAAC
(5 Sheets)

	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
3.1	Equipment identified as Seismic Category I in Table 2.4.5-1 can withstand seismic design basis loads without loss of safety function.	a. Type tests, analyses or a combination of type tests and analyses will be performed on the equipment listed as Seismic Category I in Table 2.4.5-1 using analytical assumptions, or under conditions, which bound the Seismic Category I design requirements. b. Inspections will be performed of the Seismic Category I equipment listed in Table 2.4.5-1 to verify that the equipment including anchorage is installed as specified per seismic qualification report (SQDP, EQDP, or analyses) requirements~~on the construction drawings~~.	a. Tests/analysis reports ~~exist and~~ conclude that the equipment listed as Seismic Category I in Table 2.4.5-1 can withstand seismic design basis loads without loss of safety function. b. Inspection reports ~~exist and~~ conclude that the Seismic Category I equipment listed in Table 2.4.5-1 including anchorage is installed as specified per seismic qualification report (SQDP, EQDP, or analyses) requirements~~on the construction drawings~~.
4.1	PS and DAS signals received by each priority module override other signals received by the priority module	~~Tests~~ A test will be performed using test signals. ~~that verify PS signals received by each priority modules override other signals received by the priority module~~.	~~Test results exist and conclude that the~~The PS and DAS signals received by each priority module override ~~other~~ signals received by the priority modules.

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3.24 Components listed in Table 2.5.4-1 as ASME Code Section III retain pressure boundary integrity at design pressure.

3.25 Components listed in Table 2.5.4-1 as ASME Code Section III are fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

4.0 I&C Design Features, Alarms, Displays and Controls

4.1 Displays listed in Table 2.5.4-2 and Table 2.5.4-3 are ~~retrievable~~ indicated in the main control room (MCR) and the remote shutdown station (RSS) ~~as listed in Table 2.5.4-2 and Table 2.5.4-3~~.

4.2 Controls on the PICS in the MCR and the RSS perform the function listed in Table 2.5.4-2. ~~EDG equipment controls are provided in the MCR and RSS as listed in Table 2.5.4-2 and Table 2.5.4-3.~~

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4.3 Equipment listed as being controlled by a priority and actuator control system (PACS) module in Table 2.5.4-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.

5.0 Electrical Considerations

5.1 The EDG control power is provided by the EUPS system from the respective division.

5.2 The components ~~identified~~ designated as Class 1E in Table 2.5.4-2 are powered from the Class 1E division listed in Table 2.5.4-2.

5.3 Each EDG output rating is greater than the analyzed loads assigned in the respective emergency power supply system (EPSS) division and loads capable of being connected to the EPSS division through the alternate feed.

5.4 Valves listed in Table 2.5.4-2 fail to the position as shown in Table 2.5.4-2 on loss of power.

6.0 Equipment and System Performance

6.1 Each EDG is started by a protection system loss of offsite power (LOOP) signal from the respective EPSS division medium voltage bus.

6.2 Each EDG is started by a protection system safety injection system (SIS) actuation signal.

6.3 Each EDG will start and connect to the respective EPSS division medium voltage bus in an undervoltage condition concurrent with a SIS actuation signal.

6.4 The EDG lubricating oil system heat exchangers listed in Table 2.5.4-1 have the capacity to transfer the design heat load to the essential service water system.

6.5 Class 1E valves listed in Table 2.5.4-2 ~~can perform the~~ will function to change position as listed in Table 2.5.4-1 under system operating conditions.

Table 2.5.4-4—Emergency Diesel Generator ITAAC
(9 Sheets)

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	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
4.3	Equipment listed as being controlled by a PACS module in Table 2.5.4-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.	A test will be performed using test signals.	Equipment listed as being controlled by a PACS module in Table 2.5.4-2 responds to the state requested ~~by the signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.
5.1	The EDG control power is provided by the EUPS system from the respective division.	A test will be performed ~~on each EDG system~~ by providing a test signal in only one division.	The test signal exists in only the EDG system under test when a test signal is applied in each EDG system.
5.2	The components ~~identified~~ designated as Class 1E in Table 2.5.4-2 are powered from the Class 1E division listed in Table 2.5.4-2.	A test will be performed ~~for components identified as Class 1E in Table 2.5.4-2~~ by providing a test signal in each division.	The test signal provided in each division is present at the respective Class 1E components identified in Table 2.5.4-2.
5.3	Each EDG output rating is greater than the analyzed loads assigned in the respective EPSS ~~division and loads capable of being connected to the EPSS division through the alternate feed~~.	a. An analysis will be performed. b. A test will be performed.	a. Analysis concludes each ~~specified~~ EDG output rating is greater than the analyzed loads assigned in the respective EPSS divisions. ~~and loads capable of being connected to the EPSS division through the alternate fee~~ b. Each ~~installed~~ EDG provides an output power capacity greater than the analyzed loads.
5.4	Valves listed in Table 2.5.4-2 fail to the position as shown in Table 2.5.4-2 on loss of power.	Tests ~~Testing~~ will be performed ~~for the valves listed in Table 2.5.4-2 to verify the position of valves on loss of power~~.	Following ~~the~~ loss of power, the valves listed in Table 2.5.4-2 fail to the position as shown in Table 2.5.4-2.

2.3 Physical separation exists between the CRACS air intake, iodine filtration, air recirculation, and air conditioning trains as listed in Table 2.6.1-1.

3.0 Mechanical Design Features

3.1 Deleted.

3.2 Class 1E dampers ~~Equipment~~ listed in Table 2.6.1-1 will ~~can perform the~~ function to change position as listed in Table 2.6.1-1 under system operating conditions.

3.3 Components identified as Seismic Category I in Table 2.6.1-1 can withstand seismic design basis loads without a loss of the function listed in Table 2.6.1-1.

3.4 Components listed in Table 2.6.1-1 as ASME AG-1 Code are designed in accordance with ASME AG-1 Code requirements.

3.5 Components listed in Table 2.6.1-1 as ASME AG-1 Code are fabricated in accordance with ASME AG-1 Code requirements, including welding requirements.

3.6 Components listed in Table 2.6.1-1 as ASME AG-1 Code are installed, inspected and tested in accordance with ASME AG-1 Code requirements.

4.0 Displays and Controls

4.1 Displays listed in Table 2.6.1-2—Main Control Room Air Conditioning System Equipment I&C and Electrical Design, are ~~retrievable~~ indicated in the main control room (MCR) and the remote shutdown station (RSS) ~~as listed in Table 2.6.1-2~~.

4.2 Controls on the PICS in the MCR and the RSS perform the function listed in Table 2.6.1-2. ~~The CRACS equipment controls are provided in the MCR and RSS as listed in Table 2.6.1-2.~~

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4.3 Equipment listed as being controlled by a priority and actuator control system (PACS) module in Table 2.6.1-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.

5.0 Electrical Power Design Features

5.1 The equipment designated as Class 1E in Table 2.6.1-2 are powered from the Class 1E division as listed in Table 2.6.1-2 in a normal or alternate feed condition.

5.2 Deleted.

6.0 Equipment and System Performance

6.1 The CRACS maintains a positive pressure in the CRE area relative to the outside environment and adjacent areas, while operating in a design basis accident alignment.

6.2 Upon receipt of a containment isolation signal (CIS), the iodine filtration train will start automatically, outside air supply to the CRE area is diverted through the iodine filtration

Table 2.6.1-3—Main Control Room Air Conditioning System ITAAC (7 Sheets)

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	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
4.3	Equipment listed as being controlled by a PACS module in Table 2.6.1-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.	A test will be performed using a test signal.	Equipment listed as being controlled by a PACS module in Table 2.6.1-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.
5.1	The components designated as Class 1E in Table 2.6.1-2 are powered from the Class 1E division as listed in Table 2.6.1-2 in a normal or alternate feed condition.	a. Testing will be performed ~~for the components designated as Class 1E in Table 2.6.1-2~~ by providing a test signal in each normally aligned division. b. Testing will be performed ~~for the components designated as Class 1E in Table 2.6.1-2~~ by providing a test signal in each division with the alternate feed aligned to the divisional pair.	a. The test signal provided in the normally aligned division is present at the respective Class 1E components identified in Table 2.6.1-2. b. The test signal provided in each division with the alternate feed aligned to the divisional pair is present at the respective Class 1E components identified in Table 2.6.1-2.
5.2	Deleted.	Deleted.	Deleted.
6.1	The CRACS maintains a positive pressure in the CRE area relative to the outside environment and adjacent areas, while operating in a design basis accident alignment.	A test~~s~~ will be performed ~~to verify that the CRACS maintains a positive pressure in the CRE area relative to the outside environment and adjacent areas, while operating in a design basis accident alignment~~.	The ~~test confirms that the~~ CRACS maintains a positive pressure of greater than or equal to 0.125 inches water gauge in the CRE area relative to the outside environment and adjacent areas, while operating in a design basis accident alignment.

3.3 Components identified as Seismic Category I in Table 2.6.3-1 can withstand seismic design basis loads without a loss of the function listed in Table 2.6.3-1.

3.4 Components listed in Table 2.6.3-1 as ASME AG-1 Code are designed in accordance with ASME AG-1 Code requirements.

3.5 Components listed in Table 2.6.3-1 as ASME AG-1 Code are fabricated in accordance with ASME AG-1 Code requirements, including welding requirements.

3.6 Components listed in Table 2.6.3-1 as ASME AG-1 Code are installed, inspected and tested in accordance with ASME AG-1 Code requirements.

4.0 Displays and Controls

4.1 Displays listed in Table 2.6.3-2—Annulus Ventilation System Equipment I&C and Electrical Design, are ~~retrievable~~ indicated in the main control room (MCR) and the remote shutdown station (RSS) ~~as listed in Table 2.6.3-2~~.

4.2 Controls on the PICS in the MCR and the RSS perform the function listed in Table 2.6.3-2. ~~The AVS equipment controls exist in the MCR and RSS as listed in Table 2.6.3-2.~~

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4.3 Equipment listed as being controlled by a priority and actuator control system (PACS) module in Table 2.6.3-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.

5.0 Electrical Power Design Features

5.1 The equipment designated as Class 1E in Table 2.6.3-2 are powered from the Class 1E division as listed in Table 2.6.3-2 in a normal or alternate feed condition.

5.2 Deleted.

6.0 Environmental Qualifications

6.1 Components designated as harsh environment in Table 2.6.3-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.6.3-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions. ~~in the environments that exist during and following design basis events.~~

7.0 Equipment and System Performance

7.1 The AVS provides a negative pressure between the inner and outer containment shells during postulated accidents.

7.2 Upon receipt of containment isolation signal, the following actions occur automatically:

- Isolation of the normal operation train by closing the isolation dampers listed in Table 2.6.3-1 for Normal Operation Train.

Table 2.6.3-3—Annulus Ventilation System ITAAC
(4 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
4.1	Displays listed in Table 2.6.3-2 are ~~retrievable~~ indicated in the MCR and ~~the~~ RSS ~~as listed in Table 2.6.3-2~~.	a. Tests will be performed in the MCR using test signals.~~Tests will be performed for the retrieve-ability of the displays in the MCR as listed in Table 2.6.3-2.~~	a. ~~The d~~Displays listed in Table 2.6.3-2 are indicated ~~as being retrieved in the MCR can be retrieved~~ in the MCR.
		b. Tests will be performed in the RSS using test signals.~~Tests will be performed for the retrieve-ability of the displays in the RSS as listed in Table 2.6.3-2.~~	b. ~~The d~~Displays listed in Table 2.6.3-2 are indicated ~~as being retrieved in the RSS can be retrieved~~ in the RSS.
4.2	Controls on the PICS in the MCR and the RSS perform the function listed in Table 2.6.3-2.~~Controls exist in the MCR and the RSS as identified in Table 2.6.3-2.~~	a. Test will be performed ~~for the existence of control signals from~~ using controls on the PICS in the MCR ~~to the equipment listed in Table 2.6.3-2~~.	a. ~~The c~~Controls on the PICS in the MCR perform the function listed in Table 2.6.3-2 ~~as being in the MCR exist in the MCR~~.
		b. Test will be performed ~~for the existence of control signals from~~ using controls on the PICS in the RSS ~~to the equipment listed in Table 2.6.3-2~~.	b. ~~The c~~Controls on the PICS in the RSS perform the function listed in Table 2.6.3-2 ~~as being in the RSS exist in the RSS~~.
4.3	Equipment listed as controlled by a PACS module in Table 2.6.3-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.	A test will be performed using test signals.	Equipment listed as being controlled by a PACS module in Table 2.6.3-2 responds to the state requested ~~by the test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.

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- Confines the volume of the containment by maintaining negative pressure and removing iodine released in the event of a fuel handling accident in the Reactor Building.

2.0 Arrangement

2.1 The functional arrangement of the SBVS is as shown on the following figures:

- Figure 2.6.6-1—Safeguard Building Controlled-Area Ventilation System Air Supply Functional Arrangement.
- Figure 2.6.6-2—Safeguard Building Controlled-Area Ventilation System Exhaust Air Functional Arrangement.

2.2 The location of the SBVS equipment is as listed in Table 2.6.6-1—Safeguard Building Controlled-Area Ventilation System Equipment Mechanical Design.

2.3 Physical separation exists between ~~the~~ SBVS iodine filtration trains located in the Fuel Building as listed in Table 2.6.3-1.

3.0 Mechanical Design Features

3.1 Deleted.

3.2 Class 1E dampers ~~Equipment~~ listed in Table 2.6.6-1 will ~~can perform the~~ function to change position as listed in Table 2.6.6-1 under system operating conditions.

3.3 Components identified as Seismic Category I in Table 2.6.6-1 can withstand seismic design basis loads without a loss of the function listed in Table 2.6.6-1.

3.4 Components listed in Table 2.6.6-1 as ASME AG-1 Code are designed in accordance with ASME AG-1 Code requirements.

3.5 Components listed in Table 2.6.6-1 as ASME AG-1 Code are fabricated in accordance with ASME AG-1 Code requirements, including welding requirements.

3.6 Components listed in Table 2.6.6-1 as ASME AG-1 Code are installed, inspected and tested in accordance with ASME AG-1 Code requirements.

4.0 Displays and Controls

4.1 Displays listed in Table 2.6.6-2—Safeguard Building Controlled-Area Ventilation System Equipment I&C and Electrical Design, are ~~retrievable~~ indicated in the main control room (MCR) and the remote shutdown station (RSS) ~~as listed in Table 2.6.6-2~~.

4.2 Controls on the PICS in the MCR and the RSS perform the function listed in Table 2.6.6-2. ~~The SBVS equipment controls that are provided in the MCR and RSS are as listed in Table 2.6.6-2.~~

4.3 Equipment listed as being controlled by a priority and actuator control system (PACS) module in Table 2.6.6-2 responds to the state requested ~~by a test signal~~ and provides

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drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.

5.0 Electrical Power Design Features

5.1 The equipment designated as Class 1E in Table 2.6.6-2 are powered from the Class 1E division as listed in Table 2.6.6-2 in a normal or alternate feed condition.

5.2 Deleted.

6.0 Environmental Qualifications

6.1 Components designated as harsh environment in Table 2.6.6-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.6.6-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~

6.2 Deleted.

7.0 Equipment and System Performance

7.1 Upon receipt of a containment isolation signal, the SBVS maintains a negative pressure in the hot mechanical rooms of the Safeguard Buildings relative to the adjacent areas.

7.2 Deleted.

7.3 Upon receipt of a high radiation signal in the FB, both SBVS iodine filtration trains start automatically, the isolation dampers open, and the accident air is directed through the SBVS iodine filtration trains.

7.4 Upon receipt of a containment isolation signal, the SBVS is isolated from the SBVSE and NAVBS by automatically closing the air supply and exhaust isolation dampers, both SBVS iodine filtration trains start automatically, and the FB and SB exhaust air is directed through the iodine filtration trains to maintain a negative pressure inside the FB and hot mechanical area of the SB.

7.5 The SBVS provides recirculation cooling to maintain design temperatures in the hot mechanical rooms in the Safeguard Buildings, while operating in a design basis accident alignment.

8.0 Inspections, Tests, Analyses and Acceptance Criteria

Table 2.6.6-3 lists the SBVS ITAAC.

Table 2.6.6-3—Safeguard Building Controlled-Area Ventilation System ITAAC (7 Sheets)

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	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
4.3	Equipment listed as being controlled by a PACS module in Table 2.6.6-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.	A test will be performed using test signals.	Equipment listed as being controlled by a PACS module in Table 2.6.6-2 responds to the state requested ~~by the test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.
5.1	The components designated as Class 1E in Table 2.6.6-2 are powered from the Class 1E division as listed in Table 2.6.6-2 in a normal or alternate feed condition.	a. Testing will be performed ~~for the components designated as Class 1E in Table 2.6.6-2~~ by providing a test signal in each normally aligned division. b. Testing will be performed ~~for the components designated as Class 1E in Table 2.6.6-2~~ by providing a test signal in each division with the alternate feed aligned to the divisional pair.	a. The test signal provided in the normally aligned division is present at the respective Class 1E components identified in Table 2.6.6-2. b. The test signal provided in each division with the alternate feed aligned to the divisional pair is present at the respective Class 1E components identified in Table 2.6.6-2.
5.2	Deleted.	Deleted.	Deleted.

- Figure 2.6.7-4—Electrical Division of Safeguard Building Ventilation System Division 2 and Division 3 Air Supply and Exhaust Functional Arrangement.

2.2 The location of the SBVSE equipment is as listed in Table 2.6.7-1—Electrical Division of Safeguard Building Ventilation System Equipment Mechanical Design.

2.3 Physical separation exists between ~~the safety- related trains~~ divisions of the SBVSE as listed in Table 2.6.7-1.

3.0 Mechanical Design Features

3.1 Deleted.

3.2 Class 1E dampers ~~Equipment~~ listed in Table 2.6.7-1 will ~~can perform the~~ function~~s~~ to change position as listed in Table 2.6.7-1 under system operating conditions.

3.3 Components identified as Seismic Category I in Table 2.6.7-1 can withstand seismic design basis loads without a loss of the function listed in Table 2.6.7-1.

3.4 Components listed in Table 2.6.7-1 as ASME AG-1 Code are designed in accordance with ASME AG-1 Code requirements.

3.5 Components listed in Table 2.6.7-1 as ASME AG-1 Code are fabricated in accordance with ASME AG-1 Code requirements, including welding requirements.

3.6 Components listed in Table 2.6.7-1 as ASME AG-1 Code are installed, inspected and tested in accordance with ASME AG-1 Code requirements.

4.0 Displays and Controls

4.1 Displays listed in Table 2.6.7-2—Electrical Division of Safeguard Building Ventilation System Equipment I&C and Electrical Design, are ~~retrievable~~ indicated in the main control room (MCR) and the remote shutdown station (RSS) ~~as listed in Table 2.6.7-2~~.

4.2 Controls on the PICS in the MCR and the RSS perform the function listed in Table 2.6.6-2.~~The SBVSE equipment controls exist in the MCR and RSS as listed in Table 2.6.7-2.~~

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4.3 Equipment listed as being controlled by a priority and actuator control system (PACS) module in Table 2.6.7-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.

5.0 Electrical Power Design Features

5.1 The equipment designated as Class 1E in Table 2.6.7-2 are powered from the Class 1E division as listed in Table 2.6.7-2 in a normal or alternate feed condition.

5.2 Deleted.

Table 2.6.7-3—Electrical Division of Safeguard Building Ventilation System ITAAC (5 Sheets)

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	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
4.3	Equipment listed as controlled by a PACS module in Table 2.6.7-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.	Tests will be performed using test signals.	Equipment listed as being controlled by a PACS module in Table 2.6.7-2 responds to the state requested ~~by the test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.
5.1	The components designated as Class 1E in Table 2.6.7-2 are powered from the Class 1E division as listed in Table 2.6.7-2 in a normal or alternate feed condition.	a. Testing will be performed ~~for the components designated as Class 1E in Table 2.6.7-2~~ by providing a test signal in each normally aligned division. b. Testing will be performed ~~for the components designated as Class 1E in Table 2.6.7-2~~ by providing a test signal in each division with the alternate feed aligned to the divisional pair.	a. The test signal provided in the normally aligned division is present at the respective Class 1E components identified in Table 2.6.7-2. b. The test signal provided in each division with the alternate feed aligned to the divisional pair is present at the respective Class 1E components identified in Table 2.6.7-2.
5.2	Deleted.	Deleted.	Deleted.

4.0 Displays and Controls

4.1 Displays listed in Table 2.6.8-3—Containment Ventilation System Equipment I&C and Electrical Design are ~~retrievable~~ indicated in the main control room (MCR) and the remote shutdown station (RSS) ~~as listed in Table 2.6.8-3~~.

4.2 Controls on the PICS in the MCR and the RSS perform the function listed in ~~The CBVS equipment controls that are provided in the MCR and RSS are as listed in~~ Table 2.6.8-3.

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4.3 Equipment listed as being controlled by a priority and actuator control system (PACS) module in Table 2.6.8-3 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.

4.4 Deleted. ~~The CBVS provides containment pressure indication.~~

5.0 Electrical Power Design Features

5.1 The equipment designated as Class 1E in Table 2.6.8-3 are powered from the Class 1E division as listed in Table 2.6.8-3 in a normal or alternate feed condition.

5.2 Deleted.

6.0 Environmental Qualifications

6.1 Components designated as harsh environment in Table 2.6.8-3~~, that are designated as harsh environment,~~ will perform the function listed in Tables 2.6.8-1 and 2.6.8-2 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions. ~~in the environments that exist during and following design basis events.~~

7.0 Equipment and System Performance

7.1 The CBVS low flow purge exhaust subsystem exhausts through a CBVS iodine filtration train.

7.2 Containment isolation valves listed in Table 2.6.8-1 close within the containment isolation response time following initiation of a containment isolation signal.

8.0 Inspections, Tests, Analyses and Acceptance Criteria (ITAAC)

Table 2.6.8-4 lists the CBVS ITAAC.

Table 2.6.8-4—Containment Building Ventilation System ITAAC (6 Sheets)

	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
4.1	Displays listed in Table 2.6.8-3 are ~~retrievable~~ indicated in the MCR and RSS ~~as listed in Table 2.6.8-3~~.	a. Tests will be performed in the MCR using test signals. b. Tests will be performed in the RSS using test signals.~~Tests will be performed for the retrieve-ability of the displays in the MCR and the RSS as listed in Table 2.6.8-3.~~	a. ~~The d~~Displays listed in Table 2.6.8-3 are indicated ~~as being retrieved in the MCR can be retrieved~~ in the MCR. b. ~~The d~~Displays listed in Table 2.6.8-3 are indicated ~~as being retrieved in the RSS can be retrieved~~ in the RSS.
4.2	Controls on the PICS in the MCR and the RSS perform the function listed~~Controls exist in the MCR and the RSS as identified~~ in Table 2.6.8-3.	a. Tests will be performed using controls on the PICS in the MCR. b. Tests will be performed using controls on the PICS in the RSS.~~Tests will be performed for the existence of control signals from the MCR and the RSS to the equipment listed in Table 2.6.8-3.~~	a. ~~The c~~Controls on the PICS in the MCR perform the function listed in Table 2.6.8-3 ~~as being in the MCR exist in the MCR~~. b. ~~The c~~Controls on the PICS in the RSS perform the function listed in Table 2.6.8-3 ~~as being in the RSS exist in the RSS~~.
4.3	Equipment listed as being controlled by a PACS module in Table 2.6.8-3 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.	Tests will be performed using test signals.	Equipment listed as being controlled by a PACS module in Table 2.6.8-3 responds to the state requested ~~by the signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.

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- Figure 2.6.9-4—Emergency Power Generating Building Ventilation System Functional Arrangement, Division 4.

2.2 The location of the EPGBVS equipment is as listed in Table 2.6.9-1—Emergency Power Generating Building Ventilation System Equipment Mechanical Design.

2.3 Physical separation exists between ~~the four~~ divisions of the EPGBVS as listed in Table 2.6.9-1.

3.0 Mechanical Design Features

3.1 Deleted.

3.2 Class 1E dampers ~~Equipment~~ listed in Table 2.6.9-1 will ~~can perform the~~ function to change position as listed in Table 2.6.9-1 under system operating conditions.

3.3 Components identified as Seismic Category I in Table 2.6.9-1 can withstand seismic design basis loads without a loss of the function listed in Table 2.6.9-1.

3.4 Components listed in Table 2.6.9-1 as ASME AG-1 Code are designed in accordance with ASME AG-1 Code requirements.

3.5 Components listed in Table 2.6.9-1 as ASME AG-1 Code are fabricated in accordance with ASME AG-1 Code requirements, including welding requirements.

3.6 Components listed in Table 2.6.9-1 as ASME AG-1 Code are installed, inspected and tested in accordance with ASME AG-1 Code requirements.

4.0 Displays and Controls

4.1 Displays listed in Table 2.6.9-2—Emergency Power Generating Building Ventilation System Equipment I&C and Electrical Design, are ~~retrievable~~ indicated in the main control room (MCR) and the remote shutdown station (RSS) ~~as listed in Table 2.6.9-2~~.

4.2 Controls on the PICS in the MCR and the RSS perform the function~~The EPGBVS equipment controls are provided in the MCR and RSS as~~ listed in Table 2.6.9-2.

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4.3 Equipment listed as being controlled by a priority and actuator control system (PACS) module in Table 2.6.9-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.

5.0 Electrical Power Design Features

5.1 The equipment designated as Class 1E in Table 2.6.9-2 are powered from the Class 1E division as listed in Table 2.6.9-2 in a normal feed condition.

5.2 Motor operated dampers listed in Table 2.6.9-2 fail to the position as shown in Table 2.6.9-2 on loss of power.

Table 2.6.9-3—Emergency Power Generating Building Ventilation System ITAAC (3 Sheets)

	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
		the RSS using test signals. ~~Tests will be performed for the retrieve-ability of the displays in the MCR and the RSS as listed in Table 2.6.9-2.~~	Table 2.6.9-2 are indicated ~~as being retrieved in the RSS can be retrieved~~ in the RSS.
4.2	Controls on the PICS in the MCR and the RSS perform the function ~~Controls exist in the MCR and the RSS as~~ listed in Table 2.6.9-2.	a. Tests will be performed using controls on the PICS in the MCR. b. Tests will be performed using controls on the PICS in the RSS. ~~Test will be performed for the existence of control signals from the MCR and the RSS to the equipment listed in Table 2.6.9-2.~~	a. ~~The c~~Controls on the PICS in the MCR perform the function listed in Table 2.6.9-2 ~~as being in the MCR exist in the MCR~~. b. ~~The c~~Controls on the PICS in the RSS perform the function listed in Table 2.6.9-2 ~~as being in the RSS exist in the RSS~~.
4.3	Equipment listed as being controlled by a PACS module in Table 2.6.9-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.	A test will be performed using test signals.	Equipment listed as being controlled by a PACS module in Table 2.6.9-2 responds to the state requested ~~by the test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.
5.1	The components designated as Class 1E in Table 2.6.9-2 are powered from the Class 1E division as listed in Table 2.6.9-2 in a normal feed condition.	Testing will be performed ~~for the components designated as Class 1E in Table 2.6.9-2~~ by providing a test signal in each normally aligned division.	The test signal provided in the normally aligned division is present at the respective Class 1E components identified in Table 2.6.9-2.
5.2	Motor operated dampers listed in Table 2.6.9-2 fail to	Tests ~~Testing~~ will be performed ~~for the motor~~	Following loss of power, the motor operated dampers listed

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3.5 Components listed in Table 2.6.13-1 as ASME AG-1 Code are fabricated in accordance with ASME AG-1 Code requirements, including welding requirements.

3.6 Components listed in Table 2.6.13-1 as ASME AG-1 Code are installed, inspected and tested in accordance with ASME AG-1 Code requirements.

4.0 Displays and Controls

4.1 Displays listed in Table 2.6.13-2—Essential Service Water Pump Building Ventilation System Equipment I&C and Electrical Design, are ~~retrievable~~ indicated in the main control room (MCR) and the remote shutdown station (RSS) ~~as listed in Table 2.6.13-2~~.

4.2 Controls on the PICS in the MCR and the RSS perform the function ~~The ESWPBVS equipment controls are provided in the MCR and RSS as~~ listed in Table 2.6.13-2.

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4.3 Equipment listed as being controlled by a priority and actuator control system (PACS) module in Table 2.6.13-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.

5.0 Electrical Power Design Features

5.1 The equipment designated as Class 1E in Table 2.6.13-2 are powered from the Class 1E division as listed in Table 2.6.13-2 in a normal feed condition.

6.0 Equipment and System Performance

6.1 The ESWPBVS provides recirculation cooling to maintain design temperatures in the Essential Service Water Pump Buildings, while operating in a design basis accident alignment.

7.0 Inspections, Tests, Analyses and Acceptance Criteria

Table 2.6.13-3 lists the ESWPBVS ITAAC.

Table 2.6.13-3—Essential Service Water Pump Building Ventilation System ITAAC (3 Sheets)

	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
	~~2.6.13-2~~.	b. Tests will be performed in the RSS using test signals.~~Tests will be performed for the retrieve-ability of the displays in the MCR and the RSS as listed in Table 2.6.13-2.~~	b. ~~The d~~Displays listed in Table 2.6.13-2 are indicated ~~as being retrieved in the RSS can be retrieved~~ in the RSS.
4.2	Controls on the PICS in the MCR and the RSS perform the function ~~Controls exist in the MCR and the RSS as~~ listed in Table 2.6.13-2. 14.03.05-30	a. Tests will be performed using controls on the PICS in the MCR. b. Tests will be performed using controls on the PICS in the RSS.~~Test will be performed for the existence of control signals from the MCR and the RSS to the equipment listed in Table 2.6.13-2.~~	a. ~~The c~~Controls on the PICS in the MCR perform the function listed in Table 2.6.13-2~~ as being in the MCR exist in the MCR~~. b. ~~The c~~Controls on the PICS in the RSS perform the function listed in Table 2.6.13-2~~ as being in the RSS exist in the RSS~~.
4.3	Equipment listed as being controlled by a PACS module in Table 2.6.13-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.	A test will be performed using test signals.	Equipment listed as being controlled by a PACS module in Table 2.6.13-2 responds to the state requested ~~by the test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.
5.1	The components designated as Class 1E in Table 2.6.13-2 are powered from the Class 1E division as listed in Table 2.6.13-2 in a normal feed condition.	Testing will be performed ~~for the components designated as Class 1E in Table 2.6.13-2~~ by providing a test signal in each normally aligned division.	The test signal provided in the normally aligned division is present at the respective Class 1E components identified in Table 2.6.13-2.

3.18 Components listed in Table 2.7.1-1 as ASME Code Section III are fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

3.19 Containment isolation valves are located close to containment penetrations.

4.0 I&C Design Features, Displays and Controls

4.1 Displays listed in Table 2.7.1-2—Component Cooling Water System Equipment I&C and Electrical Design are ~~retrievable~~ indicated in the main control room (MCR) and the remote shutdown station (RSS) ~~as listed in Table 2.7.1-2~~.

4.2 Controls on the PICS in the MCR and the RSS perform the function ~~The CCWS equipment controls are provided in the MCR and the RSS as~~ listed in Table 2.7.1-2.

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4.3 Equipment listed as being controlled by a priority and actuator control system (PACS) module in Table 2.7.1-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.

4.4 An interlock for the CCWS low flow condition automatically opens the low head safety injection (LHSI)/residual heat removal (RHR) heat exchanger (HX) inlet valve.

4.5 An interlock for the CCWS surge tank level of MIN3 automatically isolates the associated train common header switchover valves.

4.6 An interlock for the CCWS surge tank level of MIN4 automatically trips the associated CCWS pump and unlocks the common header switchover function to allow restoration of flow to the common users.

4.7 An interlock for the CCWS low surge tank level of MIN2 ~~and a flow rate difference between the supply and return~~ the supply flow rate to ~~from~~ the Nuclear Auxiliary Building (NAB) and the Radioactive Waste Building (RWB) is greater than the flow rate from NAB and RWB automatically isolates the non-safety-related branch.

4.8 ~~Loss~~ An interlock for the loss of one CCWS train initiates an automatic switchover to allow cooling of the common ‘a’ and/or ‘b’ headers.

4.9 Deleted.

4.10 An interlock for the CCWS train separation to RCP thermal barriers requires CIVs associated with one common header to be closed before the other common header CIVs can be opened.~~CCWS train separation to RCP thermal barriers is maintained by interlocks provided on the supply and return thermal barrier containment isolation valves. The interlocks require that CIVs associated with one common header be closed before the other common header CIVs can be opened~~.

4.11 An interlock for the ~~Manual or automatic~~ actuation of a CCWS pump, either automatically or manually ~~automatically~~ actuates the corresponding ESWS pump.

Table 2.7.1-3—Component Cooling Water System ITAAC (10 Sheets)

	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
4.1	Displays listed in Table 2.7.1-2 are indicated ~~exist or can be retrieved~~ in the MCR and ~~the~~ RSS ~~as identified in Table 2.7.1-2~~.	a. Tests will be performed in the MCR using test signals. b. Tests will be performed in the RSS using test signals.~~Tests will be performed for the retrieveability of the displays in the MCR or the RSS as listed in Table 2.7.1-2.~~	a. ~~The d~~Displays listed in Table 2.7.1-2 are indicated ~~as being retrieved in the MCR can be retrieved~~ in the MCR. b. ~~The d~~Displays listed in Table 2.7.1-2 are indicated ~~as being retrieved in the RSS can be retrieved~~ in the RSS.
4.2	Controls on the PICS in the MCR and the RSS perform the function ~~Controls exist in the MCR and the RSS as identified~~ in Table 2.7.1-2.	a. Tests will be performed using controls on the PICS in the MCR. b. Tests will be performed using controls on the PICS in the RSS.~~Tests will be performed for the existence of control signals from the MCR and the RSS to the equipment listed in Table 2.7.1-2.~~	a. ~~The c~~Controls on the PICS in the MCR perform the function listed in Table 2.7.1-2 ~~as being in the MCR exist in the MCR~~. b. ~~The c~~Controls on the PICS in the RSS perform the function listed in Table 2.7.1-2 ~~as being in the RSS exist in the RSS~~.
4.3	Equipment listed as being controlled by a PACS module in Table 2.7.1-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.	Deleted.	Equipment listed as being controlled by a PACS module in Table 2.7.1-2 responds to the state requested ~~by the test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.

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3.5 Pressure boundary welds on components listed in Table 2.7.5-1 as ASME Code Section III ~~are in accordance with~~meet ASME Code Section III non-destructive examination requirements.

3.6 Components listed in Table 2.7.5-1 as ASME Code Section III retain their pressure boundary integrity at their design pressure.

3.7 Components listed in Table 2.7.5-1 as ASME Code Section III are fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

3.8 Containment isolation valves are located close to containment penetrations.

3.9 FWDS piping between containment isolation valves is reconciled in accordance with an ASME Code Section III Design Report.

3.10 FWDS piping between containment isolation valves is fabricated, installed and inspected in accordance with ASME Code Section III requirements.

3.11 Pressure boundary welds in FWDS piping between containment isolation valves meet ASME Code Section III non-destructive examination requirements.

3.12 FWDS piping between containment isolation valves retains pressure boundary integrity at design pressure.

4.0 I&C Design Features, Displays and Controls

4.1 Displays listed in Table 2.7.5-2—Fire Water Distribution System Equipment I&C and Electrical Design are ~~retrievable~~ indicated in the main control room (MCR) and the remote shutdown station (RSS) ~~as listed in Table 2.7.5-2~~.

4.2 Controls on the PICS in the MCR and the RSS perform the function ~~The FWDS equipment controls are provided in the MCR and the RSS as~~ listed in Table 2.7.5-2.

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4.3 Equipment listed as being controlled by a priority and actuator control system (PACS) module in Table 2.7.5-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.

4.4 The ~~as-built~~location of the fire water distribution system equipment is consistent with the post-fire safe shutdown analysis.

5.0 Electrical Power Design Features

5.1 The components designated as Class 1E in Table 2.7.5-2 are powered from the Class 1E division as listed in Table 2.7.5-2 in a normal or alternate feed condition.

5.2 Valves listed in Table 2.7.5-2 fail as-is on loss of power.

Table 2.7.5-3—Fire Water Distribution System ITAAC (5 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
		b. Tests will be performed in the RSS using test signals.~~Tests will be performed for the retrievability of the displays in the MCR or the RSS as listed in Table 2.7.5-2.~~	b. ~~The d~~Displays listed in Table 2.7.5-2 are indicated ~~as being retrieved in the RSS can be retrieved~~ in the RSS.
4.2	Controls on the PICS in the MCR and the RSS perform the function ~~The FWDS equipment controls are provided in the MCR and the RSS as~~ listed in Table 2.7.5-2.	a. Tests will be performed using controls on the PICS in the MCR.	a. ~~The c~~Controls on the PICS in the MCR perform the function listed in Table 2.7.5-2 ~~as being in the MCR exist in the MCR~~.
		b. Tests will be performed using controls on the PICS in the RSS.~~Tests will be performed on control signals from the MCR and the RSS to the equipment listed in Table 2.7.5-2.~~	b. ~~The c~~Controls on the PICS in the RSS perform the function listed in Table 2.7.5-2 ~~as being in the RSS exist in the RSS~~.
4.3	Equipment listed as being controlled by a PACS module in Table 2.7.5-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.	A test will be performed using test signals.	Equipment listed as being controlled by a PACS module in Table 2.7.5-2 responds to the state requested ~~by the test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.
4.4	The ~~as-built~~location of the fire water distribution system equipment is consistent with the post-fire safe shutdown ~~analyses~~analysis.	a. A post-fire safe shutdown analysis will be performed to determine the location of the fire water distribution system equipment.	a. A post-fire safe shutdown analysis exists and determines the location of the fire water distribution system equipment.

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3.6 Components listed in Table 2.7.11-1 as ASME Code Section III are ~~fabricated~~ reconciled in accordance with ASME Code Section III design requirements.

3.7 Pressure boundary welds on components listed in Table 2.7.11-1 as ASME Code Section III ~~are in accordance with~~ meet ASME Code Section III non-destructive examinations requirements.

3.8 Components listed in Table 2.7.11-1 as ASME Code Section III retain pressure boundary integrity at design pressure.

3.9 Deleted.

3.10 Deleted.

3.11 Deleted.

3.12 ESWS piping shown as ASME Code Section III on Figure 2.7.11-1 is designed in accordance with ASME Code Section III requirements.

3.13 ESWS piping shown as ASME Code Section III on Figure 2.7.11-1 is ~~installed~~ reconciled in accordance with an ASME Code Section III Design Report.

3.14 Pressure boundary welds in ESWS piping shown as ASME Code Section III on Figure 2.7.11-1 ~~are in accordance with~~meet ASME Code Section III.

3.15 ESWS piping shown as ASME Code Section III on Figure 2.7.11-1 retains pressure boundary integrity at design pressure.

3.16 ESWS piping shown as ASME Code Section III on Figure 2.7.11-1 is fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

3.17 Components listed in Table 2.7.11-1 as ASME Code Section III are fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

3.18 The UHS fans are capable of withstanding the effects of tornado including differential pressure effects, overspeed, and the impact of differential pressure effects on other equipment located within the cooling tower structure (e.g., capability to function, potential to become missile/debris hazard).

4.0 I&C Design Features, Displays and Controls

4.1 Displays listed in Table 2.7.11-2— Essential Service Water System Equipment I&C and Electrical Design are ~~retrievable~~ indicated in the main control room (MCR) and the remote shutdown station (RSS) ~~as listed in Table 2.7.11-2~~.

4.2 ~~The ESWS equipment controls are provided in the MCR and the RSS as~~ Controls on the PICS in the MCR and the RSS perform the function listed in Table 2.7.11-2.

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4.3 Equipment listed as being controlled by a priority and actuator control system (PACS) module in Table 2.7.11-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the

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equipment by terminating the output command upon the equipment reaching the requested state.

4.4 ~~If~~ An interlock for failure of one ESWS pump (30PEB10/20/30/40 AP001) ~~fails~~ during normal operation~~,~~ results in a switchover to the other ESWS train ~~is carried out automatically for the entire cooling train~~ and is initiated by the CCWS Switchover sequence.

4.5 An interlock for a spurious closure of the ESWS pump discharge valve (30PEB10/20/30/40 AA005) results in a switchover to the other ESWS train ~~automatically for the entire cooling train~~ and is initiated by the CCWS Switchover sequence.

4.6 Deleted.

4.7 Deleted.

5.0 Electrical Power Design Features

5.1 The components designated as Class 1E in Table 2.7.11-2 are powered from the Class 1E division as listed in Table 2.7.11-2 in a normal or alternate feed condition.

5.2 Valves listed in Table 2.7.11-2 fail as-is on loss of power.

5.3 Deleted.

5.4 Items identified in Table 2.7.11-2 as "Dedicated" ESWS motor-operated components (including Division 4 cooling tower fans) are capable of being supplied by a SBODG.

6.0 Environmental Qualifications

6.1 Deleted.

7.0 Equipment and System Performance

7.1 The ESWS UHS as listed in Table 2.7.11-1 has the capacity to remove the total Max Heat Load from the CCWS and EDG heat exchangers, and the ESWPBVS room cooler, and the ESW pump mechanical work.

7.2 The pumps listed in Table 2.7.11-1 have sufficient net positive suction head available (NPSHA).

7.3 Class 1E valves listed in Table 2.7.11-2 ~~can perform the~~ will function to change position as listed in Table 2.7.11-1 under system operating conditions.

7.4 The ESWS provides for flow testing of the ESWS pumps during plant operation.

7.5 Deleted.

7.6 The ESWS delivers water to the CCWS and EDG heat exchangers and the ESWPBVS room cooler.

Table 2.7.11-3—Essential Service Water System ITAAC
(10 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
	14.03.05-30	b. Tests will be performed using controls on the PICS in the RSS. ~~Tests will be performed for the existence of control signals from the MCR and the RSS to the equipment listed in Table 2.7.11-2.~~	b. ~~The c~~Controls on the PICS in the RSS perform the function listed in Table 2.7.11-2 ~~as being in the RSS exist in the RSS~~.
4.3	Equipment listed as being controlled by a PACS module in Table 2.7.11-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.	A test will be performed using test signals.	Equipment listed as being controlled by a PACS module in Table 2.7.11-2 responds to the state requested ~~by the test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.
4.4	~~If~~ An interlock for failure of one ESWS pump (30PEB10/20/30/40 AP001) ~~fails~~ during normal operation~~,~~ results in a switchover to the other ESWS train ~~is carried out automatically for the entire cooling train~~ and is initiated by the CCWS Switchover sequence.	Tests will be performed using test signals ~~to verify the interlock~~.	The following interlock responds as specified below when activated by a test signal: If one ESWS pump (30PEB10/20/30/40 AP001) fails during normal operation, a switchover to the other ESWS train is carried out automatically for the entire cooling train and is initiated by the CCWS Switchover sequence.

3.5 Components listed in Table 2.8.2-1 as ASME Code Section III are reconciled~~fabricated~~ in accordance with ASME Code Section III requirements.

3.6 Pressure boundary welds on components listed in Table 2.8.2-1 as ASME Code Section III ~~are in accordance with~~meet ASME Code Section III non-destructive examination requirements.

3.7 Components listed in Table 2.8.2-1 as ASME Code Section III retain pressure boundary integrity at design pressure.

3.8 MSS piping shown as ASME Code Section III on Figure 2.8.2-1 ~~are~~is designed in accordance with ASME Code Section III requirements.

3.9 MSS piping shown as ASME Code Section III on Figure 2.8.2-1 ~~are~~is ~~installed~~ reconciled in accordance with an ASME Code Section III Design Report.

3.10 Pressure boundary welds in MSS piping shown as ASME Code Section III on Figure 2.8.2-1 ~~are in accordance with~~meet ASME Code Section III requirements.

3.11 MSS piping shown as ASME Code Section III on Figure 2.8.2-1 retains pressure boundary integrity at design pressure.

3.12 MSS piping shown as ASME Code Section III on Figure 2.8.2-1 ~~are~~ is fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

3.13 Components listed in Table 2.8.2-1 as ASME Code Section III are fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

4.0 Instrumentation and Controls (I&C) Design Features, Displays, and Controls

4.1 Displays listed in Table 2.8.2-2~~—MSS Equipment I&C and Electrical Design~~ are ~~retrievable~~ indicated in the ~~main control room (~~MCR~~)~~ and ~~the remote shutdown station (~~RSS~~) as listed in Table 2.8.2-2~~.

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4.2 Controls on the PICS in the MCR and the RSS perform the function ~~The MSS equipment controls are provided in the MCR and the RSS as~~ listed in Table 2.8.2-2.

4.3 Equipment listed as being controlled by a priority and actuator control system (PACS) module in Table 2.8.2-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.

5.0 Electrical Power Design Features

5.1 The components designated as Class 1E in Table 2.8.2-2 are powered from the Class 1E division as listed in Table 2.8.2-2 in a normal or alternate feed condition.

5.2 Each main steam relief isolation valve fails closed on loss of ~~electric~~ power~~. to the valve actuator.~~

Table 2.8.2-3—Main Steam System ITAAC (7 Sheets)

	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
4.2	Controls on the PICS in the MCR and the RSS perform the function listed ~~Controls exist in the MCR and the RSS as identified~~ in Table 2.8.2-2.	a. Tests will be performed using controls on the PICS in the MCR.	a. ~~The c~~Controls on the PICS in the MCR perform the function listed in Table 2.8.2-2 ~~as being in the MCR exist in the MCR~~.
		b. Tests will be performed using controls on the PICS in the RSS. ~~Tests will be performed for the existence of control signals from the MCR and the RSS to the equipment listed in Table 2.8.2-2.~~	b. ~~The c~~Controls on the PICS in the RSS perform the function listed in Table 2.8.2-2 ~~as being in the RSS exist in the RSS~~.
4.3	Equipment listed as being controlled by a PACS module in Table 2.8.2-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.	A test will be performed using test signals.	Equipment listed as being controlled by a PACS module in Table 2.8.2-2 responds to the state requested ~~by the test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.
5.1	The components designated as Class 1E in Table 2.8.2-2 are powered from the Class 1E division as listed in Table 2.8.2-2 in a normal or alternate feed condition.	a. Testing will be performed ~~for components designated as Class 1E in Table 2.8.2-2~~ by providing a test signal in each normally aligned division.	a. The test signal provided in the normally aligned division is present at the respective Class 1E components identified in Table 2.8.2-2.
		b. Testing will be performed ~~for components designated as Class 1E in Table 2.8.2-2~~ by providing a test signal in each division with the alternate feed aligned to the divisional pair.	b. The test signal provided in each division with the alternate feed aligned to the divisional pair is present at the respective Class 1E components identified in Table 2.8.2-2.

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3.5 Components listed in Table 2.8.6-1 as ASME Code Section III are designed in accordance with ASME Code Section III requirements.

3.6 Components listed in Table 2.8.6-1 as ASME Code Section III are ~~fabricated~~ reconciled in accordance with ASME Code Section III ~~design~~ requirements.

3.7 Pressure boundary welds on components listed in Table 2.8.6-1 as ASME Code Section III ~~are in accordance with~~meet ASME Code Section III non-destructive examination requirements.

3.8 Components listed in Table 2.8.6-1 as ASME Code Section III retain pressure boundary integrity at design pressure.

3.9 MFWS piping shown as ASME Code Section III on Figure 2.8.6-1 is designed in accordance with ASME Code Section III requirements.

3.10 MFWS piping shown as ASME Code Section III on Figure 2.8.6-1 is ~~installed~~ reconciled in accordance with an ASME Code Section III Design Report.

3.11 Pressure boundary welds in MFWS piping shown as ASME Code Section III on Figure 2.8.6-1 ~~are in accordance with~~meet ASME Code Section III requirements.

3.12 MFWS piping shown as ASME Code Section III on Figure 2.8.6-1 retains pressure boundary integrity at design pressure.

3.13 MFWS piping shown as ASME Code Section III on Figure 2.8.6-1 is fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

3.14 Components listed in Table 2.8.6-1 as ASME Code Section III are fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

4.0 Instrumentation and Control (I&C) Design Features, Displays, and Controls

4.1 Displays listed in Table 2.8.6-2 ~~– MFWS Equipment I&C and Electrical Design~~ are ~~retrievable~~ indicated in the ~~main control room (~~MCR~~) as listed in Table 2.8.6-2~~.

4.2 Controls on the PICS in the MCR and the RSS perform the function ~~The MFWS equipment controls are provided in the MCR as~~ listed in Table 2.8.6-2.

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4.3 Equipment listed as being controlled by a priority and actuator control system (PACS) module in Table 2.8.6-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.

5.0 Electrical Power Design Features

5.1 The components designated as Class 1E in Table 2.8.6-2 are powered from the Class 1E division as listed in Table 2.8.6-2 in a normal or alternate feed condition.

5.2 ~~The main feedwater full load isolation valves (~~MFWFLIVs~~)~~ fail closed on loss of hydraulic pressure in each redundant dump line.~~to the valve actuator.~~

Table 2.8.6-3— Main Feedwater System ITAAC (5 Sheets)

	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
4.2	Controls on the PICS in the MCR and the RSS perform the function listed ~~Controls exist in the MCR as identified~~ in Table 2.8.6-2.	a. Tests will be performed using controls on the PICS in the MCR. b. Tests will be performed using controls on the PICS in the RSS.~~Tests will be performed for the existence of control signals from the MCR to the equipment listed in Table 2.8.6-2.~~	a. ~~The c~~Controls on the PICS in the MCR perform the function listed in Table 2.8.6-2 ~~as being in the MCR exist in the MCR~~. b. Controls on the PICS in the RSS perform the function listed in Table 2.8.6-2.
4.3	Equipment listed as being controlled by a PACS module in Table 2.8.6-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.	A test will be performed using test signals.	Equipment listed as being controlled by a PACS module in Table 2.8.6-2 responds to the state requested ~~by the test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.
5.1	The components designated as Class 1E in Table 2.8.6-2 are powered from the Class 1E division as listed in Table 2.8.6-2 in a normal or alternate feed condition.	a. Testing will be performed ~~for components designated as Class 1E in Table 2.8.6-2~~ by providing a test signal in each normally aligned division. b. Testing will be performed ~~for components designated as Class 1E in Table 2.8.6-2~~ by providing a test signal in each division with the alternate feed aligned to the divisional pair.	a. The test signal provided in the normally aligned division is present at the respective Class 1E component identified in Table 2.8.6-2. b. The test signal provided in each division with the alternate feed aligned to the divisional pair is present at the respective Class 1E component identified in Table 2.8.6-2.

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3.6 Pressure boundary welds on components listed in Table 2.8.7-1 as ASME Code Section III ~~are in accordance with~~meet ASME Code Section III non-destructive examination requirements.

3.7 Components listed in Table 2.8.7-1 as ASME Code Section III retain pressure boundary integrity at design pressure.

3.8 SGBS piping shown as ASME Code Section III on Figure 2.8.7-1 is designed in accordance with ASME Code Section III requirements.

3.9 SGBS piping shown as ASME Code Section III on Figure 2.8.7-1 is ~~installed~~ reconciled in accordance with an ASME Code Section III Design Report.

3.10 Pressure boundary welds in SGBS piping shown as ASME Code Section III on Figure 2.8.7-1 ~~are in accordance with~~meet ASME Code Section III requirements.

3.11 SGBS piping shown as ASME Code Section III on Figure 2.8.7-1 retains pressure boundary integrity at design pressure.

3.12 SGBS piping shown as ASME Code Section III on Figure 2.8.7-1 is fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

3.13 Components listed in Table 2.8.7-1 as ASME Code Section III are fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

3.14 Containment isolation valves are located close to containment penetrations.

4.0 Instrumentation and Controls (I&C) Design Features, Displays, and Controls

4.1 Displays listed in Table 2.8.7-2~~—SGBS Equipment I&C and Electrical Design~~ are ~~retrievable~~ indicated in the ~~main control room (~~MCR~~)~~ and ~~the remote shutdown station (~~RSS~~) as listed in Table 2.8.7-2~~.

4.2 Controls on the PICS in the MCR and the RSS perform the function ~~SGBS equipment controls are provided in the MCR and the RSS as~~ listed in Table 2.8.7-2.

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4.3 Equipment listed as being controlled by a priority and actuator control system (PACS) module in Table 2.8.7-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.

4.4 Interlocks for the SGBS blowdown isolation valves listed in Table 2.8.7-2 result in closure ~~for~~ of the affected SG under the following signals:

- EFW actuation signal, ~~or~~
- High main steam activity signal with a partial cooldown signal, ~~or,~~
- High SG level signal with a partial cooldown signal, ~~or~~

Table 2.8.7-3—Steam Generator Blowdown System ITAAC
(6 Sheets)

	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
4.2	Controls on the PICS in the MCR and the RSS perform the function listed ~~Controls exist in the MCR and the RSS as identified~~ in Table 2.8.7-2.	a. Tests will be performed using controls on the PICS in the MCR. b. Tests will be performed using controls on the PICS in the RSS.~~Tests will be performed for the existence of control signals from the MCR and the RSS to the equipment listed in Table 2.8.7-2.~~	a. ~~The c~~Controls on the PICS in the MCR perform the function listed in Table 2.8.7-2 ~~as being in the MCR exist in the MCR~~. b. ~~The c~~Controls on the PICS in the RSS perform the function listed in Table 2.8.7-2 ~~as being in the RSS exist in the RSS~~.
4.3	Equipment listed as being controlled by a PACS module in Table 2.8.7-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.	A test will be performed using test signals.	Equipment listed as being controlled by a PACS module in Table 2.8.7-2 responds to the state requested ~~by the test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.

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3.9 Pressure boundary welds in containment isolation piping shown as ASME Code Section III on Figure 3.5-1 ~~are in accordance with~~meet ASME Code Section III.

3.10 Containment isolation piping shown as ASME Code Section III on Figure 3.5-1 retains pressure boundary integrity at design pressure.

3.11 Containment isolation piping shown as ASME Code Section III on Figure 3.5-1 is installed and inspected in accordance with ASME Code Section III requirements.

3.12 Components listed in Table 3.5-1 as ASME Code Section III are designed in accordance with ASME Code Section III requirements.

3.13 Components listed in Table 3.5-1 as ASME Code Section III are ~~fabricated~~ reconciled in accordance with ASME Code Section III design requirements.

3.14 Pressure boundary welds on components listed in Table 3.5-1 as ASME Code Section III ~~are in accordance with~~meet ASME Code Section III non-destructive examination requirements.

3.15 Components listed in Table 3.5-1 as ASME Code Section III retain pressure boundary integrity at design pressure.

3.16 Components listed in Table 3.5-1 as ASME Code Section III are fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

3.17 Containment isolation valves are located close to the containment penetrations.

4.0 I&C Design Features, Displays and Controls

4.1 Displays listed in Table 3.5-2—Containment Isolation Equipment I&C and Electrical Design are ~~retrievable~~ indicated in the main control room (MCR) ~~as listed in Table 3.5-2~~.

4.2 Controls on the PICS in the MCR and the RSS perform the function ~~The containment isolation equipment controls are provided in the MCR as~~ listed in Table 3.5-2.

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4.3 Equipment listed as being controlled by a priority and actuator control system (PACS) module in Table 3.5-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.

5.0 Electrical Power Design Features

5.1 The components designated as Class 1E in Table 3.5-2 are powered from the Class 1E division as listed in Table 3.5-2 in a normal or alternate feed condition.

5.2 Valves listed in Table 3.5-2 fail as-is on loss of power.

5.3 Deleted. ~~Containment electrical penetrations routing Class 1E cables have only Class 1E cables or associated cables.~~

Table 3.5-3—Containment Isolation ITAAC (8 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
4.1	Displays listed in Table 3.5-2 are indicated ~~exist or can be retrieved~~ in the MCR ~~as identified in Table 3.5-2~~.	a. Tests will be performed using controls on the PICS in the MCR. b. Tests will be performed using controls on the PICS in the RSS. ~~Inspections will be performed for the existence or retrievability of the displays in the MCR as listed in Table 3.5-2.~~	a. Controls on the PICS in the MCR perform the function listed in Table 3.5-2. b. Controls on the PICS in the RSS perform the function listed in Table 3.5-2. ~~The displays listed in Table 3.5-2 as being retrieved in the MCR can be retrieved in the MCR.~~
4.2	Controls on the PICS in the MCR and the RSS perform the function ~~The containment isolation equipment controls are provided in the MCR as~~ listed in Table 3.5-2.	Tests will be performed for the existence of control signals from the MCR to the equipment listed in Table 3.5-2.	The containment isolation equipment controls are provided in the MCR as listed in Table 3.5-2. 14.03.05-30
4.3	Equipment listed as being controlled by a PACS module in Table 3.5-2 responds to the state requested ~~by a test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.	A test will be performed using test signals.	Equipment listed as being controlled by a PACS module in Table 3.5-2 responds to the state requested ~~by the test signal~~ and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.
5.1	The components designated as Class 1E in Table 3.5-2 are powered from the Class 1E division as listed in Table 3.5-2 in a normal or alternate feed condition.	a. Testing will be performed ~~for components designated as Class 1E in Table 3.5-2~~ by providing a test signal in each normally aligned division. b. Testing will be performed ~~for components designated as Class 1E in Table 3.5-2~~ by providing a test signal in each division with the alternate feed aligned to the divisional pair.	a. The test signal provided in the normally aligned division is present at the respective Class 1E components identified in Table 3.5-2. b. The test signal provided in each division with the alternate feed aligned to the divisional pair is present at the respective Class 1E components identified in Table 3.5-2.

safety-related systems implement error detection algorithms to detect and accommodate failures.

7.1.1.6.5 Priority

The U.S. EPR I&C design allows for multiple I&C systems to send requests to a given actuator. To make certain that each individual actuator executes the proper action for the given plant condition, priority management rules for the PACS are provided. The following systems inputs to the PACS are listed in order of priority:

- PS/DAS. 14.03.05-30
- ~~DAS.~~
- SAS.
- SICS.
- PAS.

The DAS is given a higher priority than the SAS because it is a functional substitute to the PS and is needed at this level of priority to verify proper operation of SAS functions on a SWCCF of the PS.

During normal operation, the operational I&C disable switch on the SICS is set so that the PAS can send commands to the PACS. In this configuration, automatic commands from the PAS override manual commands from the SICS because of the nature of the manual control logic in the PACS. If the operational I&C disable switch is set to DISABLE by the operator, the PAS input will be disabled (i.e., the input signals from the PAS to the communications module will be blocked from being sent to the priority module), providing the priority of the SICS manual commands. The operational I&C disable switch disables PAS inputs, all other PACS inputs remain operational.

7.1.2 Identification of Safety Criteria

Table 7.1-2—I&C System Requirements Matrix, shows the I&C system requirements matrix which details the regulatory requirements for the I&C systems of the U.S. EPR.

The U.S. EPR is designed in accordance with IEEE Std 603-1998 (Reference 1). Refer to Section 7.1.2.6 for an explanation for using IEEE Std 603-1998 in lieu of IEEE Std 603-1991 per the alternative request in Reference 45.

The following I&C systems are within the scope of the protection system as defined in IEEE Std 603-1998 (Reference 1):

- Protection system.

7.8.1.1.2 Deleted

7.8.1.1.3 Diverse Actuation System

The DAS executes manual functions initiated from SICS and automatic functions to mitigate an ATWS or SWCCF of the PS. The DAS is diverse from the PS.

The DAS executes the automatic RT, ESF actuation, and alarm and display functions listed in Section 7.8.1.2. Sensor information is acquired by the DAS from the signal conditioning and distribution system (SCDS) using a hardwired signal that is not affected by a SWCCF. This path is described in Section 7.1.1.6. The DAS also processes the manual, system level actuation of critical safety functions as described in Section 7.8.1.2.3.

For RT functions, outputs from the DAS are sent to the shunt trip coils of the RT breakers, which are a diverse means of opening the breakers from the undervoltage coils which are actuated by the PS. An output is also sent to the rod control units of the CRDCS, which are a diverse means of dropping the control rods from the reactor trip contactors which are de-energized by the PS. The DAS outputs are energized to actuate. This design is diverse from the PS outputs, which are de-energized to actuate.

For ESF actuations, outputs from the DAS are sent directly to the PACS. This path is not affected by a SWCCF of the PS. Outputs for turbine trip are sent directly to the turbine generator I&C via a hardwired connection (one per division). The TG I&C performs two-out-of-four voting logic on the turbine trip signals. See Figure 7.1-27—Turbine Trip Logic within Turbine Generator I&C for details.

The following features are implemented so that the automatic DAS functions do not interfere with PS actuations under normal circumstances and so that the PS is given the opportunity to actuate before the DAS:

- DAS setpoints are selected to provide reasonable assurance that they will be reached after a corresponding PS setpoint is reached.
- Voting logic within the DAS is such that single failures do not result in spurious actuations of the automatic DAS functions.

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- ~~Priority logic within the PACS dictates that in case of conflicting orders between the PS and the DAS, the PS orders have a higher priority (the priority rules are described in Section 7.1).~~

The DAS functions are designed so that once initiated, they proceed to completion. The DAS functions use the same techniques as the similar PS functions to satisfy this requirement. These techniques are described in Section 7.2.2.1.6 and Section 7.3.2.3.4.