ArevaEPRDCPEm Resource

From: WILLIFORD Dennis (AREVA) [Dennis.Williford@areva.com]
Sent: Thursday, February 28, 2013 1:00 PM
To: Snyder, Amy
Cc: Gleaves, Bill; DELANO Karen (AREVA); LEIGHLITER John (AREVA); ROMINE Judy (AREVA); RYAN Tom (AREVA); WILLS Tiffany (AREVA); LENTZ Tony (EXTERNAL AREVA)
Subject: Response to U.S. EPR Design Certification Application FINAL RAI No. 568 (6713), FSAR Ch. 6, Supplement 1
Attachments: RAI 568 Supplement 1 Response US EPR DC.pdf

Amy,

AREVA NP Inc. provided a schedule for the response to the single question in RAI No. 568 on January 21, 2013.

The attached file, "RAI 568 Supplement 1 Response US EPR DC.pdf," provides a technically correct and complete final response to this question.

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 568 Question 06.02.04-13.

The following table indicates the respective pages in the response document, "RAI 568 Supplement 1 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 568 — 06.02.04-13	2	3

Sincerely,

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: Monday, January 21, 2013 1:01 PM
To: 'Snyder, Amy'
Cc: GUCWA Len (External RS/NB); LENTZ Tony (External RS/NB); bill.gleaves@nrc.gov; DELANO Karen (RS/NB); LEIGHLITER John (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); WILLS Tiffany (CORP/QP)
Subject: Response to U.S. EPR Design Certification Application FINAL RAI No. 568 (6713), FSAR Ch. 6

Amy,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 568 Response US EPR DC.pdf" provides a schedule since a technically correct and complete response to this one question cannot be provided at this time.

The following table indicates the respective pages in the response document, "RAI 568 Response US EPR DC.pdf" that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 568 — 06.02.04-13	2	2

A complete answer is not provided for the one question. The schedule for a technically correct and complete FINAL response to this question is provided below.

Question #	Response Date
RAI 568 — 06.02.04-13	March 22, 2013

Sincerely,

Dennis Williford, P.E.
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
7207 IBM Drive, Mail Code CLT 2B
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From: Snyder, Amy [mailto:Amy.Snyder@nrc.gov]
Sent: Tuesday, December 11, 2012 3:23 PM
To: ZZ-DL-A-USEPR-DL
Cc: McKirgan, John; Grady, Anne-Marie; Segala, John; Gleaves, Bill
Subject: U.S. EPR Design Certification Application FINAL RAI No. 568 (6713), FSAR Ch. 6

Attached please find the subject request for additional information (RAI). A draft of the RAI was provided to you on December 7, 2012, and on December 11, 2012, you informed us that the draft RAI does not contain proprietary information and that the draft RAI is clear and no further clarification is needed. As result, no change is made to the draft RAI.

The schedule we have established for review of your application assumes technically correct and complete responses within 30 days of receipt of RAIs, excluding the time period of **December 24, 2011 thru January 2, 2012, to account for the holiday season** as discussed with AREVA NP Inc on November 28, 2012. For any RAIs that cannot be answered **within 40 days or January 21, 2012**, it is expected that a date for receipt of this information will be provided to the staff within the 40-day period so that the staff can assess how this information will impact the published schedule."

Thank You,

Amy

Hearing Identifier: AREVA_EPR_DC_RAIs
Email Number: 4241

Mail Envelope Properties (554210743EFE354B8D5741BEB695E6560E8B7B)

Subject: Response to U.S. EPR Design Certification Application FINAL RAI No. 568 (6713), FSAR Ch. 6, Supplement 1
Sent Date: 2/28/2013 1:00:23 PM
Received Date: 2/28/2013 1:00:33 PM
From: WILLIFORD Dennis (AREVA)

Created By: Dennis.Williford@areva.com

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Files	**Size**	**Date & Time**
MESSAGE	3755	2/28/2013 1:00:33 PM
RAI 568 Supplement 1 Response US EPR DC.pdf	215367	

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

Response to

Request for Additional Information 568, Supplement 1

12/11/2012

U. S. EPR Standard Design Certification
AREVA NP Inc.
Docket No. 52-020
SRP 06.02.04 - Containment Isolation System
Application Section: FSAR Chapter 6.2.4

Question 06.02.04-13:

This question is a follow-up to responses to RAI 410, Question 06.02.04-10, and RAI 479, Question 6.2.4-11:

General Design Criteria 55, 56 and 57 require that containment isolation valves (CIVs) outside containment be located as close to the containment as practical. FSAR Tier 2, Section 6.2.4.2.1, General System Design, states that isolation valves outside containment are located as close as practical to the containment or shield building walls. The response to question 6.2.4-10 requesting these distances did not provide the specific distances between the outside CIVs and the containment.

Instead, the response to the question provided the design criteria for establishing these minimum distances, as well as a description of these criteria, to be added both to Tier 1, section 3.5, Containment Isolation, and Tier 2, section 6.2.4.2.1. The response also provided a new ITAAC item to be added to U. S. EPR FSAR, Tier 1, Table 3.5-3 to specifically require verification that the outside CIVs have been located as close to the containment penetration as practical.

The new ITAAC are necessary for all the outside CIVs. Table 3.5-1, which is referenced in Table 3.5-3, includes only those CIVs that are not included in Tier 1, Chapter 2, System Based Design Descriptions of ITAAC.

Therefore, in order for the staff to be able to evaluate the US EPR compliance with the requirements of GDCs 55, 56, and 57, staff requests the applicant address all the outside CIVs including those identified in the following Tier 1, chapter 2 sections: 2.2.2 (IRWST), 2.2.3 (SIS), 2.2.4 (EFW), 2.2.5 (FPC), 2.2.6 (CVCS), 2.2.7 (EBS), 2.3.3 (SAHRS), 2.6.8 (CBVS), 2.7.1 (CCW), 2.7.5 (FWD), 2.8.2 (MSS), 2.8.6 (MFW), and 2.8.7 (SGBS).

Response to Question 06.02.04-13:

A review of U.S. EPR FSAR Tier 1, Table 3.5-3, and U.S. EPR FSAR Tier 2, Table 6.2.4-1, validates that all containment isolation valves that are located inside and outside containment as listed in U.S. EPR FSAR Tier 2, Table 6.2.4-1, are listed in U.S. EPR FSAR Tier 1, Table 3.5-3.

Specific reference to 10 CFR 50, Appendix A, General Design Criteria 55, 56, and 57 will be added to U.S. EPR FSAR Tier 1, Section 3.5, Item 3.17. The Inspection, Test, Analysis, and Acceptance Criteria (ITAAC) will be designated as Design Acceptance Criteria (DAC). U.S. EPR FSAR Tier 2, Section 14.3 will be revised to include a discussion of this new DAC. U.S. EPR FSAR Tier 1, Table 3.5-3, will be revised to show which valves are located inside containment and which valves are located outside containment. NUREG-0800, Appendix C, Section B, “Figures” states: “Containment isolation valves (CIVs) should be shown on the figures of the applicable system ITAAC, or discussed in the DD if there is no figure.” U.S. EPR FSAR Tier 1, Section 3.5, discusses the CIVs as part of the Design Description (DD) in the tables; therefore, U.S. EPR FSAR Tier 1, Figure 3.5-1, will be deleted from the FSAR. In addition, U.S. EPR FSAR Tier 1, Section 3.5, Item 2.1, will be revised to delete reference to this figure.

FSAR Impact:

U.S. EPR FSAR, Tier 1, Section 3.5, and Tables 3.5-3 and 3.5-4 will be revised as described in the response and indicated on the enclosed markup. U.S. EPR FSAR, Tier 1, Figure 3.5-1 will be deleted as described in the response and indicated on the enclosed markup.

U.S. EPR FSAR, Tier 2, Section 14.3 will be revised as described in the response and indicated on the enclosed markup.

U.S. EPR Final Safety Analysis Report Markups

3.5 Containment Isolation

Design Description

1.0 System Description

The Reactor Building (RB) consists of a Reactor Containment Building (RCB) and a Reactor Shield Building (RSB). The RCB provides the primary means of confining radioactivity that may be released following a postulated design basis accident. The RCB and RSB are penetrated by systems to provide various functions for systems housed inside containment. These penetrations are made for mechanical and electrical systems, and include facilities for the transport of personnel and equipment.

The function for containment isolation is to isolate fluid system piping that penetrates the RB to prevent the discharge of radioactivity from containment following a postulated design basis accident. Containment isolation barriers are components of the penetrating systems and are generally included with the system descriptions in Tier 1, Chapter 2. This section includes containment isolation barriers that are not included in Tier 1, Chapter 2.

2.0 Arrangement

2.1 The functional arrangement of the containment isolation equipment is as described in the Design Description of Section 3.5~~.1~~ and~~,~~ Table 3.5-1—Containment Isolation Equipment Mechanical Design, Table 3.5-2—Containment Isolation Equipment I&C and Electrical Design, and Table 3.5-3—Containment Isolation Valves~~, and as shown on Figure 3.5-1—Representative Containment Isolation Valve Arrangement~~.

Q 06.02.04-13

2.2 Deleted.

3.0 Mechanical Design Features

3.1 Valves listed in Table 3.5-1 will be functionally designed and qualified such that each valve is capable of performing its intended function for a full range of system differential pressure and flow, ambient temperatures, and available voltage (as applicable) under design basis accident conditions.

3.2 Check valves listed in Table 3.5-1 will function to change position as listed in Table 3.5-1 under normal operating conditions.

3.3 Deleted.

3.4 Equipment identified as Seismic Category I in Table 3.5-1 can withstand seismic design basis loads without a loss of the function listed in Table 3.5-1.

3.5 Deleted.

3.6 Deleted.

3.7 Deleted.

3.8 Deleted.

3.9 Deleted.

3.10 Deleted.

3.11 The design and service stress limits and deformation criteria for ASME Code, Section III, Class 2 components comply with ASME Code Section III requirements.~~Deleted.~~

3.12 ASME Code Class 1, 2 and 3 piping systems are designed in accordance with ASME Code Section III requirements.

3.13 As-built ASME Code Class 1, 2 and 3 components are reconciled with the design requirements.

3.14 Pressure-boundary welds in ASME Code Class 1, 2 and 3 components meet ASME Code Section III non-destructive examination requirements.

3.15 ASME Code Class 1, 2 and 3 components retain their pressure-boundary integrity at their design pressure.

3.16 ASME Code Class 1, 2 and 3 components are fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

3.17 Containment isolation valves outside the containment as listed in Table 3.5-3 are located as close to the containment ~~penetrations~~ as practical, consistent with General Design Criteria 55, 56, and 57.~~ with consideration of the following:~~

- ~~Access for inspection of welds.~~
- ~~Containment leak testing.~~
- ~~Replacement.~~
- ~~Valve maintenance.~~

Q 06.02.04-13

4.0 I&C Design Features, Displays, and Controls

4.1 Displays listed in Table 3.5-2 are indicated on the PICS operator workstations in the MCR and the RSS.

4.2 Controls on the PICS operator workstations in the MCR perform the function listed in Table 3.5-2.

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 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.

Q 06.02.04-13

Table 3.5-3—Containment Isolation Valves
Sheet 1 of 8

System	Tag Number[1]	Location: Inside/Outside ~~Figure 3.5-1 Configuration~~	Valve Closure Time
Fuel Pool Cooling System	30FAL12AA001	Inside~~5B~~	≤ 29.5 sec
Fuel Pool Cooling System	30FAL12AA002	Outside~~5A~~	≤ 29.5 sec
Fuel Pool Cooling System	30FAL15AA002	Outside~~5A~~	≤ 29.5 sec
Fuel Pool Cooling System	30FAL15AA003	Inside~~6B~~	n/a
Demineralized Water Distribution System	30GHC74AA001	Outside~~5A~~	≤ 14.5 sec
Demineralized Water Distribution System	30GHC74AA002	Inside~~5B~~	≤ 14.5 sec
Extra Borating System	30JDH10AA006	Outside~~5A~~	≤ 14.5 sec
Extra Borating System	30JDH10AA007	Inside~~6B~~	n/a
Extra Borating System	30JDH40AA006	Outside~~5A~~	≤ 14.5 sec
Extra Borating System	30JDH40AA007	Inside~~6B~~	n/a
Chemical & Volume Control System	30JEW01AA005	Outside~~5A~~	≤ 14.5 sec
Chemical & Volume Control System	30JEW01AA006	Inside~~6B~~	n/a
Chemical & Volume Control System	30JEW50AA001	Inside~~5B~~	≤ 14.5 sec
Chemical & Volume Control System	30JEW50AA002	Outside~~5A~~	≤ 14.5 sec
Leak Off System - Inflating/Deflating Subsystem	30JMM10AA006	Inside~~5B~~	≤ 49.5 sec
Leak Off System - Inflating/Deflating Subsystem	30JMM10AA007	Outside~~5A~~	≤ 49.5 sec
Leak Off System - Leakage Exhaust Subsystem	30JMM23AA001	Inside~~5B~~	≤ 14.5 sec
Leak Off System - Leakage Exhaust Subsystem	30JMM23AA002	Outside~~5A~~	≤ 14.5 sec
Leak Off System - Leaktightness Test Subsystem	30JMM30AA001	Inside~~1B~~	n/a
Leak Off System - Leaktightness Test Subsystem	30JMM30AA003	Outside~~1A~~	n/a
Severe Accident Heat Removal System	30JMQ40AA001	Outside~~5A~~	≤ 59.5 sec
Severe Accident Heat Removal System	30JMQ41AA001	Outside~~5A~~	≤ 39.5 sec
Severe Accident Heat Removal System	30JMQ41AA002	Inside~~6B~~	n/a
Severe Accident Heat Removal System	30JMQ42AA001	Outside~~5A~~	≤ 39.5 sec
Severe Accident Heat Removal System	30JMQ42AA002	Inside~~6B~~	n/a
Severe Accident Heat Removal System	30JMQ43AA001	Outside~~5A~~	≤ 19.5 sec

Table 3.5-3—Containment Isolation Valves
Sheet 2 of 8

Q 06.02.04-13

System	Tag Number[1]	Location: Inside/Outside ~~Figure 3.5-1 Configuration~~	Valve Closure Time
Severe Accident Heat Removal System	30JMQ43AA002	Inside~~6B~~	n/a
Hydrogen Monitoring System	30JMU50AA075	Inside~~5B~~	≤ 14.5 sec
Hydrogen Monitoring System	30JMU50AA076	Outside~~5A~~	≤ 14.5 sec
Hydrogen Monitoring System	30JMU50AA077	Inside~~5B~~	≤ 14.5 sec
Hydrogen Monitoring System	30JMU50AA078	Outside~~5A~~	≤ 14.5 sec
Hydrogen Monitoring System	30JMU50AA079	Inside~~5B~~	≤ 14.5 sec
Hydrogen Monitoring System	30JMU50AA080	Outside~~5A~~	≤ 14.5 sec
Hydrogen Monitoring System	30JMU50AA081	Inside~~5B~~	≤ 14.5 sec
Hydrogen Monitoring System	30JMU50AA082	Outside~~5A~~	≤ 14.5 sec
Hydrogen Monitoring System	30JMU50AA083	Outside~~5A~~	≤ 14.5 sec
Hydrogen Monitoring System	30JMU50AA084	Inside~~5B~~	≤ 14.5 sec
Hydrogen Monitoring System	30JMU51AA085	Inside~~5B~~	≤ 14.5 sec
Hydrogen Monitoring System	30JMU51AA086	Outside~~5A~~	≤ 14.5 sec
Hydrogen Monitoring System	30JMU51AA087	Inside~~5B~~	≤ 14.5 sec
Hydrogen Monitoring System	30JMU51AA088	Outside~~5A~~	≤ 14.5 sec
Hydrogen Monitoring System	30JMU51AA089	Inside~~5B~~	≤ 14.5 sec
Hydrogen Monitoring System	30JMU51AA090	Outside~~5A~~	≤ 14.5 sec
Hydrogen Monitoring System	30JMU51AA091	Inside~~5B~~	≤ 14.5 sec
Hydrogen Monitoring System	30JMU51AA092	Outside~~5A~~	≤ 14.5 sec
Hydrogen Monitoring System	30JMU51AA093	Outside~~5A~~	≤ 14.5 sec
Hydrogen Monitoring System	30JMU51AA094	Inside~~5B~~	≤ 14.5 sec
Residual Heat Removal System	30JNA10AA002	Inside~~5B~~	≤ 49.5 sec
Residual Heat Removal System	30JNA10AA003	Outside~~5A~~	≤ 49.5 sec
Residual Heat Removal System	30JNA20AA002	Inside~~5B~~	≤ 49.5 sec
Residual Heat Removal System	30JNA20AA003	Outside~~5A~~	≤ 49.5 sec
Residual Heat Removal System	30JNA30AA002	Inside~~5B~~	≤ 49.5 sec
Residual Heat Removal System	30JNA30AA003	Outside~~5A~~	≤ 49.5 sec
Residual Heat Removal System	30JNA40AA002	Inside~~5B~~	≤ 49.5 sec
Residual Heat Removal System	30JNA40AA003	Outside~~5A~~	≤ 49.5 sec
Medium Head Safety Injection System	30JND10AA002	Outside~~5A~~	≤ 29.5 sec
Medium Head Safety Injection System	30JND10AA007	Inside~~6B~~	n/a

Table 3.5-3—Containment Isolation Valves
Sheet 3 of 8

Q 06.02.04-13

System	Tag Number[1]	Location: Inside/Outside ~~Figure 3.5-1 Configuration~~	Valve Closure Time
Medium Head Safety Injection System	30JND20AA002	Outside~~5A~~	≤ 29.5 sec
Medium Head Safety Injection System	30JND20AA007	Inside~~6B~~	n/a
Medium Head Safety Injection System	30JND30AA002	Outside~~5A~~	≤ 29.5 sec
Medium Head Safety Injection System	30JND30AA007	Inside~~6B~~	n/a
Medium Head Safety Injection System	30JND40AA002	Outside~~5A~~	≤ 29.5 sec
Medium Head Safety Injection System	30JND40AA007	Inside~~6B~~	n/a
Low Head Safety Injection System	30JNG10AA009	Inside~~6B~~	n/a
Low Head Safety Injection System	30JNG10AA060	Outside~~5A~~	≤ 39.5 sec
Low Head Safety Injection System	30JNG10AA061	Outside~~5A~~	≤ 19.5 sec
Low Head Safety Injection System	30JNG12AA001	Outside~~5A~~	≤ 39.5 sec
Low Head Safety Injection System	30JNG15AA004	Inside~~5B~~	≤ 14.5 sec
Low Head Safety Injection System	30JNG20AA009	Inside~~6B~~	n/a
Low Head Safety Injection System	30JNG20AA060	Outside~~5A~~	≤ 39.5 sec
Low Head Safety Injection System	30JNG20AA061	Outside~~5A~~	≤ 19.5 sec
Low Head Safety Injection System	30JNG22AA001	Outside~~5A~~	≤ 39.5 sec
Low Head Safety Injection System	30JNG25AA004	Inside~~5B~~	≤ 14.5 sec
Low Head Safety Injection System	30JNG30AA009	Inside~~6B~~	n/a
Low Head Safety Injection System	30JNG30AA060	Outside~~5A~~	≤ 39.5 sec
Low Head Safety Injection System	30JNG30AA061	Outside~~5A~~	≤ 19.5 sec
Low Head Safety Injection System	30JNG32AA001	Outside~~5A~~	≤ 39.5 sec
Low Head Safety Injection System	30JNG35AA004	Inside~~5B~~	≤ 14.5 sec
Low Head Safety Injection System	30JNG40AA009	Inside~~6B~~	n/a
Low Head Safety Injection System	30JNG40AA060	Outside~~5A~~	≤ 39.5 sec
Low Head Safety Injection System	30JNG40AA061	Outside~~5A~~	≤ 19.5 sec
Low Head Safety Injection System	30JNG42AA001	Outside~~5A~~	≤ 39.5 sec
Low Head Safety Injection System	30JNG45AA004	Inside~~5B~~	≤ 14.5 sec
In-Containment Refueling Water Storage Tank System	30JNK10AA001	Outside~~5A~~	≤ 59.5 sec
In-Containment Refueling Water Storage Tank System	30JNK10AA009	Outside~~5A~~	≤ 29.5 sec
In-Containment Refueling Water Storage Tank System	30JNK10AA013	Outside~~5A~~	≤ 29.5 sec

Table 3.5-3—Containment Isolation Valves
Sheet 4 of 8

Q 06.02.04-13

System	Tag Number(1)	Location: Inside/Outside ~~Figure 3.5-1 Configuration~~	Valve Closure Time
In-Containment Refueling Water Storage Tank System	30JNK11AA009	Outside~~5A~~	≤ 59.5 sec
In-Containment Refueling Water Storage Tank System	30JNK20AA001	Outside~~5A~~	≤ 59.5 sec
In-Containment Refueling Water Storage Tank System	30JNK30AA001	Outside~~5A~~	≤ 59.5 sec
In-Containment Refueling Water Storage Tank System	30JNK40AA001	Outside~~5A~~	≤ 59.5 sec
Component Cooling Water System	30KAB30AA049	Outside~~5A~~	≤ 14.5 sec
Component Cooling Water System	30KAB30AA050	Inside~~5B~~	≤ 14.5 sec
Component Cooling Water System	30KAB30AA051	Inside~~5B~~	≤ 14.5 sec
Component Cooling Water System	30KAB30AA052	Outside~~5A~~	≤ 14.5 sec
Component Cooling Water System	30KAB30AA053	Outside~~5A~~	≤ 14.5 sec
Component Cooling Water System	30KAB30AA054	Inside~~5B~~	≤ 14.5 sec
Component Cooling Water System	30KAB30AA055	Inside~~5B~~	≤ 14.5 sec
Component Cooling Water System	30KAB30AA056	Outside~~5A~~	≤ 14.5 sec
Component Cooling Water System	30KAB40AA001	Outside~~5A~~	≤ 49.5 sec
Component Cooling Water System	30KAB40AA002	Inside~~6B~~	n/a
Component Cooling Water System	30KAB40AA006	Outside~~5A~~	≤ 49.5 sec
Component Cooling Water System	30KAB40AA012	Inside~~5B~~	≤ 49.5 sec
Component Cooling Water System	30KAB60AA013	Outside~~5A~~	≤ 59.5 sec
Component Cooling Water System	30KAB60AA014	Inside~~6B~~	n/a
Component Cooling Water System	30KAB60AA018	Inside~~5B~~	≤ 59.5 sec
Component Cooling Water System	30KAB60AA019	Outside~~5A~~	≤ 59.5 sec
Component Cooling Water System	30KAB70AA013	Outside~~5A~~	≤ 59.5 sec
Component Cooling Water System	30KAB70AA014	Inside~~6B~~	n/a
Component Cooling Water System	30KAB70AA018	Inside~~5B~~	≤ 59.5 sec
Component Cooling Water System	30KAB70AA019	Outside~~5A~~	≤ 59.5 sec
Chemical & Volume Control System	30KBA14AA002	Inside~~5B~~	≤ 29.5 sec
Chemical & Volume Control System	30KBA14AA003	Outside~~5A~~	≤ 29.5 sec
Chemical & Volume Control System	30KBA34AA002	Outside~~5A~~	≤ 19.5 sec
Chemical & Volume Control System	30KBA34AA003	Inside~~6B~~	n/a

Table 3.5-3—Containment Isolation Valves
Sheet 5 of 8

Q 06.02.04-13

System	Tag Number(1)	Location: Inside/Outside ~~Figure 3.5-1 Configuration~~	Valve Closure Time
Containment Building Ventilation System	30KLA10AA001	Outside~~5A~~	≤ 4.9 sec
Containment Building Ventilation System	30KLA10AA003	Inside~~5B~~	≤ 4.9 sec
Containment Building Ventilation System	30KLA20AA001	Inside~~5B~~	≤ 4.9 sec
Containment Building Ventilation System	30KLA20AA003	Outside~~5A~~	≤ 4.9 sec
Containment Building Ventilation System	30KLA30AA002	Outside~~5A~~	n/a
Containment Building Ventilation System	30KLA30AA003	Inside~~5B~~	n/a
Containment Building Ventilation System	30KLA40AA001	Inside~~5B~~	n/a
Containment Building Ventilation System	30KLA40AA002	Outside~~5A~~	n/a
Containment Building Ventilation System	30KLA60AA701	Outside~~1A~~	n/a
Containment Building Ventilation System	30KLA60AA702	Outside~~1A~~	n/a
Containment Building Ventilation System	30KLA60AA703	Outside~~1A~~	n/a
Containment Building Ventilation System	30KLA60AA704	Outside~~1A~~	n/a
Containment Building Ventilation System	30KLA70AA701	Outside~~1A~~	n/a
Containment Building Ventilation System	30KLA70AA702	Outside~~1A~~	n/a
Containment Building Ventilation System	30KLA70AA703	Outside~~1A~~	n/a
Containment Building Ventilation System	30KLA70AA704	Outside~~1A~~	n/a
Containment Building Ventilation System	30KLA70AA706	Outside~~1A~~	n/a
Containment Building Ventilation System	30KLA70AA707	Outside~~1A~~	n/a
Containment Building Ventilation System	30KLA70AA708	Outside~~1A~~	n/a
Containment Building Ventilation System	30KLA70AA709	Outside~~1A~~	n/a
Gaseous Waste Processing System	30KPL84AA002	Outside~~5A~~	≤ 14.5 sec
Gaseous Waste Processing System	30KPL84AA003	Inside~~5B~~	≤ 14.5 sec
Gaseous Waste Processing System	30KPL85AA003	Inside~~5B~~	≤ 14.5 sec
Gaseous Waste Processing System	30KPL85AA004	Outside~~5A~~	≤ 14.5 sec
Nuclear Island Drain & Vent System	30KTA10AA017	Inside~~5B~~	≤ 14.5 sec
Nuclear Island Drain & Vent System	30KTA10AA018	Outside~~5A~~	≤ 14.5 sec
Nuclear Island Drain & Vent System	30KTC10AA005	Inside~~5B~~	≤ 14.5 sec
Nuclear Island Drain & Vent System	30KTC10AA006	Outside~~5A~~	≤ 14.5 sec
Nuclear Island Drain & Vent System	30KTC10AA010	Outside~~5A~~	≤ 14.5 sec
Nuclear Island Drain & Vent System	30KTC10AA029	Inside~~6B~~	n/a
Nuclear Island Drain & Vent System	30KTD10AA015	Outside~~5A~~	≤ 14.5 sec

Table 3.5-3—Containment Isolation Valves
Sheet 6 of 8

Q 06.02.04-13

System	Tag Number[1]	Location: Inside/Outside ~~Figure 3.5-1 Configuration~~	Valve Closure Time
Nuclear Island Drain & Vent System	30KTD10AA024	Inside~~5B~~	≤ 14.5 sec
Nuclear Island Drain & Vent System	30KTD10AA025	Outside~~5A~~	≤ 14.5 sec
Nuclear Sampling System	30KUA10AA003	Inside~~5B~~	≤ 14.5 sec
Nuclear Sampling System	30KUA10AA004	Outside~~5A~~	≤ 14.5 sec
Nuclear Sampling System	30KUA20AA002	Inside~~5B~~	≤ 14.5 sec
Nuclear Sampling System	30KUA20AA003	Outside~~5A~~	≤ 14.5 sec
Nuclear Sampling System	30KUA30AA003	Inside~~5B~~	≤ 14.5 sec
Nuclear Sampling System	30KUA30AA004	Outside~~5A~~	≤ 14.5 sec
Nuclear Sampling System	30KUB10AA001	Inside~~5B~~	≤ 14.5 sec
Nuclear Sampling System	30KUB10AA002	Outside~~5A~~	≤ 14.5 sec
Severe Accident Sampling System	30KUL51AA002	Outside~~5A~~	≤ 14.5 sec
Severe Accident Sampling System	30KUL51AA003	Outside~~5A~~	≤ 14.5 sec
Severe Accident Sampling System	30KUL52AA002	Outside~~5A~~	≤ 14.5 sec
Severe Accident Sampling System	30KUL52AA003	Outside~~5A~~	≤ 14.5 sec
Feedwater System	30LAB60AA002	Outside~~5A~~	≤ 59.5 sec
Feedwater System	30LAB60AA003	Inside~~6B~~	n/a
Feedwater System	30LAB70AA002	Outside~~5A~~	≤ 59.5 sec
Feedwater System	30LAB70AA003	Inside~~6B~~	n/a
Feedwater System	30LAB80AA002	Outside~~5A~~	≤ 59.5 sec
Feedwater System	30LAB80AA003	Inside~~6B~~	n/a
Feedwater System	30LAB90AA002	Outside~~5A~~	≤ 59.5 sec
Feedwater System	30LAB90AA003	Inside~~6B~~	n/a
Emergency Feedwater System	30LAR11AA006	Outside~~5A~~	≤ 19.5 sec
Emergency Feedwater System	30LAR11AA007	Inside~~6B~~	n/a
Emergency Feedwater System	30LAR21AA006	Outside~~5A~~	≤ 19.5 sec
Emergency Feedwater System	30LAR21AA007	Inside~~6B~~	n/a
Emergency Feedwater System	30LAR31AA006	Outside~~5A~~	≤ 19.5 sec
Emergency Feedwater System	30LAR31AA007	Inside~~6B~~	n/a
Emergency Feedwater System	30LAR41AA006	Outside~~5A~~	≤ 19.5 sec
Emergency Feedwater System	30LAR41AA007	Inside~~6B~~	n/a
Main Steam System	30LBA10AA002	Outside~~1A~~	n/a

Table 3.5-3—Containment Isolation Valves
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System	Tag Number(1)	Location: Inside/Outside ~~Figure 3.5-1 Configuration~~	Valve Closure Time
Main Steam System	30LBA10AA441	Outside~~5A~~	≤ 14.5 sec
Main Steam System	30LBA11AA191	Outside~~5A~~	n/a
Main Steam System	30LBA12AA191	Outside~~5A~~	n/a
Main Steam System	30LBA13AA001	Outside~~5A~~	n/a
Main Steam System	30LBA13AA101	Outside~~5A~~	n/a
Main Steam System	30LBA14AA001	Outside~~5A~~	≤ 29.5 sec
Main Steam System	30LBA20AA002	Outside~~1A~~	n/a
Main Steam System	30LBA20AA441	Outside~~5A~~	≤ 14.5 sec
Main Steam System	30LBA21AA191	Outside~~5A~~	n/a
Main Steam System	30LBA22AA191	Outside~~5A~~	n/a
Main Steam System	30LBA23AA001	Outside~~5A~~	n/a
Main Steam System	30LBA23AA101	Outside~~5A~~	n/a
Main Steam System	30LBA24AA001	Outside~~5A~~	≤ 29.5 sec
Main Steam System	30LBA30AA002	Outside~~1A~~	n/a
Main Steam System	30LBA30AA441	Outside~~5A~~	≤ 14.5 sec
Main Steam System	30LBA31AA191	Outside~~5A~~	n/a
Main Steam System	30LBA32AA191	Outside~~5A~~	n/a
Main Steam System	30LBA33AA001	Outside~~5A~~	n/a
Main Steam System	30LBA33AA101	Outside~~5A~~	n/a
Main Steam System	30LBA34AA001	Outside~~5A~~	≤ 29.5 sec
Main Steam System	30LBA40AA002	Outside~~1A~~	n/a
Main Steam System	30LBA40AA441	Outside~~5A~~	≤ 14.5 sec
Main Steam System	30LBA41AA191	Outside~~5A~~	n/a
Main Steam System	30LBA42AA191	Outside~~5A~~	n/a
Main Steam System	30LBA43AA001	Outside~~5A~~	n/a
Main Steam System	30LBA43AA101	Outside~~5A~~	n/a
Main Steam System	30LBA44AA001	Outside~~5A~~	≤ 29.5 sec
Condensate System	30LCA90AA003	Outside~~5A~~	≤ 29.5 sec
Condensate System	30LCA90AA004	Inside~~6B~~	n/a
Condensate System	30LCA90AA005	Inside~~5B~~	≤ 29.5 sec
Steam Generator Blowdown System	30LCA90AA006	Outside~~5A~~	≤ 29.5 sec

Table 3.5-3—Containment Isolation Valves
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System	Tag Number(1)	Location: Inside/Outside ~~Figure 3.5-1 Configuration~~	Valve Closure Time
Steam Generator Blowdown System	30LCQ51AA002	Inside~~5B~~	≤ 29.5 sec
Steam Generator Blowdown System	30LCQ51AA003	Outside~~5A~~	≤ 29.5 sec
Steam Generator Blowdown System	30LCQ52AA001	Inside~~5B~~	≤ 59.5 sec
Steam Generator Blowdown System	30LCQ52AA002	Outside~~5A~~	≤ 59.5 sec
Nitrogen Gas Distribution System	30QJB40AA001	Outside~~5A~~	≤ 14.5 sec
Nitrogen Gas Distribution System	30QJB40AA002	Inside~~5B~~	≤ 14.5 sec
Nitrogen Gas Distribution System	30QJB40AA003	Outside~~5A~~	≤ 14.5 sec
Nitrogen Gas Distribution System	30QJB40AA004	Inside~~5B~~	≤ 14.5 sec
Operational Chilled Water Supply System	30QNJ41AA002	Outside~~5A~~	≤ 39.5 sec
Operational Chilled Water Supply System	30QNJ41AA003	Inside~~6B~~	n/a
Operational Chilled Water Supply System	30QNJ41AA027	Inside~~5B~~	≤ 39.5 sec
Operational Chilled Water Supply System	30QNJ41AA028	Outside~~5A~~	≤ 39.5 sec
Secondary Sampling System	30QUC11AA001	Outside~~5A~~	≤ 14.5 sec
Secondary Sampling System	30QUC11AA011	Inside~~5B~~	≤ 14.5 sec
Secondary Sampling System	30QUC12AA001	Outside~~5A~~	≤ 14.5 sec
Secondary Sampling System	30QUC12AA011	Inside~~5B~~	≤ 14.5 sec
Secondary Sampling System	30QUC13AA001	Outside~~5A~~	≤ 14.5 sec
Secondary Sampling System	30QUC13AA011	Inside~~5B~~	≤ 14.5 sec
Secondary Sampling System	30QUC14AA001	Outside~~5A~~	≤ 14.5 sec
Secondary Sampling System	30QUC14AA011	Inside~~5B~~	≤ 14.5 sec
Compressed Air System	30SCB01AA001	Outside~~5A~~	≤ 14.5 sec
Compressed Air System	30SCB01AA002	Inside~~5B~~	≤ 14.5 sec
Compressed Air System	30SCB02AA001	Outside~~1A~~	n/a
Compressed Air System	30SCB02AA002	Inside~~1B~~	n/a
Fire Water Distribution System	30SGB30AA031	Outside~~5A~~	≤ 39.5 sec
Fire Water Distribution System	30SGB30AA032	Inside~~5B~~	≤ 39.5 sec

1. Equipment tag numbers are provided for information only and are not part of the certified design.

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Table 3.5-4—Containment Isolation ITAAC
Sheet 1 of 9

	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
2.1	The functional arrangement of the containment isolation equipment is as described in the Design Description of Section 3.5 and~~,~~ Tables 3.5-1, 3.5-2, and 3.5-3~~, and as shown on Figure 3.5-1~~.	An inspection of the as-built containment isolation equipment functional arrangement will be performed.	The containment isolation equipment conforms to the functional arrangement as described in the Design Description of Section 3.5 and~~,~~ Tables 3.5-1, 3.5-2, and 3.5-3~~, and as shown on Figure 3.5-1~~.
2.2	Deleted.	Deleted.	Deleted.
3.1	Valves listed in Table 3.5-1 will be functionally designed and qualified such that each valve is capable of performing its intended function for a full range of system differential pressure and flow, ambient temperatures, and available voltage (as applicable) under design basis accident conditions.	Tests or type tests of valves will be performed to demonstrate that the pumps and valves function under design basis accident conditions.	A report concludes that the valves listed in Table 3.5-1 are capable of performing their intended function for a full range of system differential pressure and flow, ambient temperatures, and available voltage (as applicable) under design basis accident conditions.
3.2	Check valves listed in Table 3.5-1 will function to change position as listed in Table 3.5-1 under normal operating conditions.	Tests will be performed to demonstrate the ability of check valves to change position under normal operating conditions.	The check valves change position as listed in Table 3.5-1 under normal operating conditions.
3.3	Deleted.	Deleted.	Deleted.

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Table 3.5-4—Containment Isolation ITAAC
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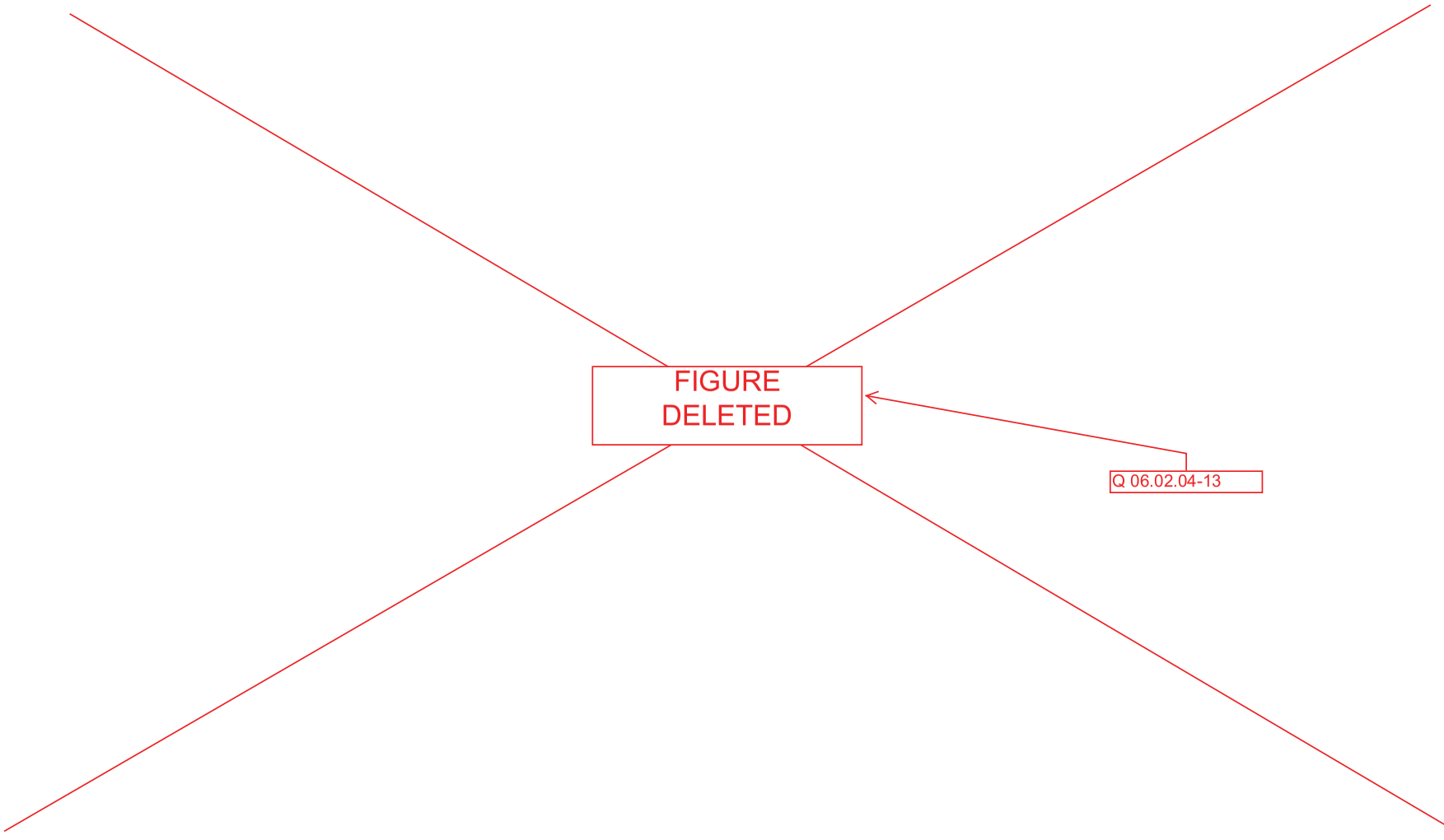
	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
3.17	Containment isolation valves outside the containment as listed in Table 3.5-3 are located as close to the containment ~~penetrations~~ as practical, consistent with General Design Criteria 55, 56, and 57. ~~with consideration of the following:~~ • ~~Access for inspection of welds.~~ • ~~Containment leak testing.~~ • ~~Replacement.~~ • ~~Valve maintenance.~~	An inspection and analysis will be performed to verify the as-built location of outside containment isolation valves. {{DAC}}	A report concludes that outside~~the~~ containment isolation valves listed in Table 3.5-3 are located as close to the containment ~~penetrations~~ as practical with consideration of the following: • Access for inspection of welds. • Containment leak testing. • Replacement. • Valve maintenance. {{DAC}}
4.1	Displays listed in Table 3.5-2 are indicated on the PICS operator workstations in the MCR and the RSS.	a. Tests will be performed to verify that the displays listed in Table 3.5-2 are indicated on the PICS operator workstations in the MCR by using test input signals to PICS. b. Tests will be performed to verify that the displays listed in Table 3.5-2 are indicated on the PICS operator workstations in the RSS by using test input signals inputs to PICS.	a. Displays listed in Table 3.5-2 are indicated on the PICS operator workstations in the MCR. b. Displays listed in Table 3.5-2 are indicated on the PICS operator workstations in the RSS.
4.2	Controls on the PICS operator workstations in the MCR perform the function listed in Table 3.5-2.	Tests will be performed using controls on the PICS operator workstations in the MCR.	Controls on the PICS operator workstations in the MCR perform the function listed in Table 3.5-2.

Figure 3.5-1—Deleted~~Representative Containment Isolation Valve Arrangement~~



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subject to analysis using pre-approved methods), and must be verified as a part of the ITAAC performed to demonstrate that the as-built facility conforms to the certified design." DAC are applied to (1) technologies, such as control room design, that are changing so rapidly that it would be unwise to freeze the details of the design many years before a plant is ready to be constructed, and (2) design areas such as piping analyses, where the as-built or as-procured information to complete the final design is not available.

As described in NEI 08-01, Section 8.3.1 (Reference 4), which is endorsed by Regulatory Guide 1.215 (Reference 5), "There are three options to close DAC, all of which involve essentially the same level of design detail. The design information necessary to close DAC should be that level which would have been provided during design certification review if DAC had not been used. Regardless of the option used to close DAC, NRC closure of DAC embodies a determination that the design has been completed in accordance with the design certification. The three options for DAC closure are:

- *Closure through amendment of design certification rule* – Under this option, the design certification applicant would submit an amendment with design information that implements the DAC. Completed DAC would be deleted from the set of design certification ITAAC; however, the ITAAC on the as-built SSCs would remain (or be modified, as necessary) to demonstrate that the as-built facility conforms to the completed DAC. The NRC would review the amendment request, issue a safety evaluation, and conduct rulemaking to amend the design certification rule.

- *Closure through the COLA review process* – Under this option, the COL application contains the additional design information needed to implement the DAC. The NRC reviews the design and includes the results of its review in the safety evaluation for the COL. The COL should reflect that the DAC have been completed. The as-built ITAAC would remain (or be modified as part of the NRC review of the COLA, as necessary) to demonstrate that the as-built facility conforms to the completed DAC.

- *Closure after COL issuance* – Under this option, the COL is issued with DAC. When the necessary additional design information is available, the licensee's DAC implementation is inspected by the NRC as part of the Engineering Design Verification (EDV) process, as described in Inspection Manual Chapter 2504. Following issuance of the NRC EDV inspection report, and resolution of any findings that would otherwise preclude DAC close-out, close-out of DAC is accomplished via the ITAAC closure process described in this document (e.g., close-out is initiated by a licensee's ITAAC close-out letter to NRC)."

U.S. EPR FSAR Tier 1 uses DAC in the areas of human factors engineering (HFE), ~~I&C~~containment isolation valve location, and piping design. DAC are identified in U.S. EPR FSAR Tier 1 with **{{DAC}}**.

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14.3.6.1 Human Factors Engineering DAC

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U.S. EPR FSAR Tier 1, Table 3.4-1 contains HFE DAC, which are identified with {{DAC}}.

14.3.6.2 Containment Isolation Valve Location DAC

U.S. EPR FSAR Tier 1, Table 3.5-4 contains containment isolation valve location DAC, which are identified with {{DAC}}.

14.3.6.3 Piping DAC

U.S. EPR piping DAC consists of both ASME Code Section III piping analyses and pipe break analyses. The piping design may be completed on a system-by-system basis for applicable systems. Information will be made available to the NRC to facilitate reviews, inspections, and audits throughout the analyses process and, if appropriate, the NRC may inform the licensee of concerns as they are identified so that adjustments may be made in a timely manner.

ASME Code Section III prescribes certain procedures and requirements that are to be followed for completing the piping design. The piping DAC includes a verification of the ASME Code Section III design report to verify that the appropriate code design requirements for each system have been implemented. The design information (including ASME design reports) will be available to the NRC for review, inspection, and audit.

The following U.S. EPR FSAR Tier 1 sections contain ASME Code Section III DAC, which are identified with {{DAC}}:

- Sections 2.2.1 through 2.2.7.
- Section 2.3.3.
- Section 2.5.4.
- Section 2.7.1.
- Section 2.7.2.
- Section 2.7.11.
- Section 2.8.2.
- Section 2.8.6.
- Section 2.8.7.
- Section 3.5.