ArevaEPRDCPEm Resource

From: Pederson Ronda M (AREVA NP INC) [Ronda.Pederson@areva.com]
Sent: Friday, February 13, 2009 4:48 PM
To: Getachew Tesfaye
Cc: BENNETT Kathy A (OFR) (AREVA NP INC); DELANO Karen V (AREVA NP INC); DUNCAN Leslie E (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 123(965_978_1037_1074),Supplement 1
Attachments: RAI 123 Supplement 1 Response US EPR DC.pdf

Getachew,

AREVA NP Inc. provided responses to 16 of the 28 questions of RAI No. 123 on December 12, 2008. The attached file, "RAI 123 Supplement 1 Response US EPR DC.pdf" provides technically correct and complete responses to 4 of the remaining 12 questions, as committed.

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 123 Question 14.03-4, 14.03-5, 14.03-6, and 14.03.03-1.

The following table indicates the respective pages in the response document, "RAI 123 Supplement 1 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 123 — 14.03-4	2	2
RAI 123 — 14.03-5	3	3
RAI 123 — 14.03-6	4	4
RAI 123 — 14.03.03-1	5	5

The schedule for technically correct and complete responses to the remaining 8 questions is unchanged and provided below:

Question #	**Response Date**
RAI 123 — 14.03.05-9	March 31, 2009
RAI 123 — 14.03.05-10	March 31, 2009
RAI 123 — 14.03.05-11	March 31, 2009
RAI 123 — 14.03.05-12	March 31, 2009
RAI 123 — 14.03.05-14	March 31, 2009
RAI 123 — 14.03.05-15	March 31, 2009
RAI 123 — 14.03.05-16	March 31, 2009
RAI 123 — 14.03.05-17	March 31, 2009

Sincerely,

Ronda Pederson
ronda.pederson@areva.com
Licensing Manager, U.S. EPR Design Certification
AREVA NP Inc.
An AREVA and Siemens company
3315 Old Forest Road
Lynchburg, VA 24506-0935

Phone: 434-832-3694
Cell: 434-841-8788

From: Pederson Ronda M (AREVA US)
Sent: Friday, December 12, 2008 4:47 PM
To: 'Getachew Tesfaye'
Cc: DELANO Karen V (AREVA US); BENNETT Kathy A (OFR) (AREVA US); DUNCAN Leslie E (AREVA US)
Subject: Response to U.S. EPR Design Certification Application RAI No. 123(965_978_1037_1074), FSAR Ch. 14

Getachew,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 123 Response US EPR DC.pdf" provides technically correct and complete responses to 16 of the 28 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 123 Questions 14.03.03-3, 14.03.03-4, 14.03.03-7, 14.03.03-8, 14.03.03-9, 14.03.05-18, 14.03.05-19, 14.03.05-20, 14.03.05-21, 14.03.05-22, and 14.03.05-23.

The following table indicates the respective page(s) in the response document "RAI 123 Response US EPR DC.pdf" that contain AREVA NP's response to the each of the subject questions.

Question #	Start Page	End Page
RAI 123 — 14.03-4	2	2
RAI 123 — 14.03-5	3	3
RAI 123 — 14.03-6	4	4
RAI 123 — 14.03.03-1	5	5
RAI 123 — 14.03.03-2	6	6
RAI 123 — 14.03.03-3	7	7
RAI 123 — 14.03.03-4	8	8
RAI 123 — 14.03.03-5	9	9
RAI 123 — 14.03.03-6	10	10
RAI 123 — 14.03.03-7	11	11
RAI 123 — 14.03.03-8	12	12
RAI 123 — 14.03.03-9	13	13
RAI 123 — 14.03.05-8	14	14
RAI 123 — 14.03.05-9	15	15
RAI 123 — 14.03.05-10	16	16
RAI 123 — 14.03.05-11	17	17
RAI 123 — 14.03.05-12	18	18
RAI 123 — 14.03.05-13	19	19
RAI 123 — 14.03.05-14	20	20
RAI 123 — 14.03.05-15	21	21
RAI 123 — 14.03.05-16	22	22
RAI 123 — 14.03.05-17	23	24
RAI 123 — 14.03.05-18	25	25
RAI 123 — 14.03.05-19	26	26
RAI 123 — 14.03.05-20	27	27
RAI 123 — 14.03.05-21	28	28
RAI 123 — 14.03.05-22	29	29

RAI 123 — 14.03.05-23	30	30

A complete answer is not provided for 12 of the 28 questions. The schedule for a technically correct and complete response to each of these questions is provided below.

Question #	Response Date
RAI 123 — 14.03-4	February 13, 2009
RAI 123 — 14.03-5	February 13, 2009
RAI 123 — 14.03-6	February 13, 2009
RAI 123 — 14.03.03-1	February 13, 2009
RAI 123 — 14.03.05-9	March 31, 2009
RAI 123 — 14.03.05-10	March 31, 2009
RAI 123 — 14.03.05-11	March 31, 2009
RAI 123 — 14.03.05-12	March 31, 2009
RAI 123 — 14.03.05-14	March 31, 2009
RAI 123 — 14.03.05-15	March 31, 2009
RAI 123 — 14.03.05-16	March 31, 2009
RAI 123 — 14.03.05-17	March 31, 2009

Sincerely,

Ronda Pederson
ronda.pederson@areva.com
Licensing Manager, U.S. EPR Design Certification
AREVA NP Inc.
An AREVA and Siemens company
3315 Old Forest Road
Lynchburg, VA 24506-0935
Phone: 434-832-3694
Cell: 434-841-8788

From: Getachew Tesfaye [mailto:Getachew.Tesfaye@nrc.gov]
Sent: Wednesday, November 12, 2008 7:24 PM
To: ZZ-DL-A-USEPR-DL
Cc: Edmund Kleeh; Richard Laura; Michael Miernicki; Joseph Colaccino; John Rycyna
Subject: U.S. EPR Design Certification Application RAI No. 123(965_978_1037_1074), FSAR Ch. 14

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on October 24, 2008, and on November 12, 2008, you informed us that the RAI is clear and no further clarification is needed. As a 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. 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: 217

Mail Envelope Properties (5CEC4184E98FFE49A383961FAD402D31A9FEE2)

Subject: Response to U.S. EPR Design Certification Application RAI No. 123(965_978_1037_1074),Supplement 1
Sent Date: 2/13/2009 4:47:53 PM
Received Date: 2/13/2009 4:47:57 PM
From: Pederson Ronda M (AREVA NP INC)

Created By: Ronda.Pederson@areva.com

Recipients:
"BENNETT Kathy A (OFR) (AREVA NP INC)" <Kathy.Bennett@areva.com>
Tracking Status: None
"DELANO Karen V (AREVA NP INC)" <Karen.Delano@areva.com>
Tracking Status: None
"DUNCAN Leslie E (AREVA NP INC)" <Leslie.Duncan@areva.com>
Tracking Status: None
"Getachew Tesfaye" <Getachew.Tesfaye@nrc.gov>
Tracking Status: None

Post Office: AUSLYNCMX02.adom.ad.corp

Files	**Size**	**Date & Time**
MESSAGE	5980	2/13/2009 4:47:57 PM
RAI 123 Supplement 1 Response US EPR DC.pdf		158147

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

Response to

Request for Additional Information No. 123, Supplement 1

11/12/2008

U. S. EPR Standard Design Certification
AREVA NP Inc.
Docket No. 52-020
SRP Section: 14.03 - Inspections, Tests, Analyses, and Acceptance Criteria
SRP Section: 14.03.03 - Piping Systems and Components - Inspections, Tests, Analyses, and Acceptance Criteria
SRP Section: 14.03.05 - Instrumentation and Controls - Inspections, Tests, Analyses, and Acceptance Criteria
Application Section: FSAR Section 14.3

QUESTIONS for Construction Inspection and Allegations Branch (CCIB)

Question 14.03-4:

ITAAC Item 3 in Table 3.3-1

SRP 14.3, App. A IV.4.B describes the three column format for ITAAC including the provision that the acceptance criteria in Column 3 for the inspections, test, or analyses described in Column 2 which, if met, demonstrate that the Design Commitments in Column 1 have been met. The three columns are not aligned, as follows:

- The Commitment is not aligned with the ITA and the AC. The Commitment refers to "valves and dampers other than HVAC dampers in item 5.0." The ITA and AC refer to "all containment isolation valves." Please provide consistent wording for these ITAAC entries or explain why the wording is different.
- The Commitment states that containment isolation shall be completed within "the maximum acceptable time", while the AC states that all isolation valves will be closed "within 60 seconds of the isolation initiating event." It is not clear whether these two requirements are the same. Tier 2, Section 6.2.4.2.6, Isolation Valve Closure Times, requires some closure times that are considerably shorter than 60 seconds. Please clarify the requirement and acceptance criteria for isolation valve closure times.

Response to Question 14.03-4:

The Inspection, Test or Analysis column and the Acceptance Criteria column for U.S. EPR FSAR, Tier 1, Table 3.3-1, Item 3.0 will be revised to include the words "… other than the HVAC valves in Item 5.0 …".

To eliminate confusion and provide consistency, the word "dampers" will be replaced with "valves"' in U.S. EPR, FSAR Tier 1, Section 3.3.2, Items 3.0 and 5.0 and in Table 3.3-1, Items 3.0 and 5.0.

The "…maximum acceptable time…" cited in the Commitment Wording column of U.S. EPR FSAR, Tier 1, Table 3.3-1, Item 3.0 is the 60 seconds cited in the Acceptance Criteria column. As described in the Response to RAI 104, Question 14.03.11-1, Part c1, the valve closure times cited in U.S. EPR FSAR, Tier 2, Table 6.2.4-1 are estimated values. They are used as design input and vary with valve size. They include only the time required for valve operation and not the time required for additional event response actions, such as unloading of busses, diesel start, and load sequencing.

An editorial change will also be made to U.S. EPR FSAR, Tier 1, Section 3.3.2, Items 3.0 and Table 3.3-1, Item 3.0; the "shall be" in the Commitment Wording will be replaced with "is."

FSAR Impact:

U.S. EPR FSAR, Tier 1, Section 3.3.2 and Table 3.3-1 will be revised as described in the response and indicated on the enclosed markup.

Question 14.03-5:

ITAAC Item 4 in Table 3.3-1

SRP 14.3, App. A IV.4.B describes the three column format for ITAAC including the provision that the acceptance criteria in Column 3 for the inspections, test, or analyses described in Column 2 which, if met, demonstrate that the Design Commitments in Column 1 have been met. The Commitment states that the MSRT is capable of cooling the secondary system at a pre-define rate the upon SIS actuation, and the AC provides quantitative criteria for this capability. The ITA for confirmation of the MSRT cooldown rate capability only requires a test. Since this test will not be performed under actual accident conditions (e.g., fuel will not be in the core), it appears that this test should be accompanied by an analysis to verify the validity of the test results for actual accident conditions in order to demonstrate that the Design Commitment has been met. Should the ITA and AC include provisions for an analysis to confirm that the test is capable of demonstrating the design capability would be met under accident conditions?

Is the cooldown rate of 180 degrees Fahrenheit/hr the maximum rate that the secondary system can support? If so, should not the AC state at a maximum cooldown rate of 180 degrees Fahrenheit/hour? The term 'opening' in AC, should that be 'operating' instead?

Suggested AC - 'A report exists and concludes that the test and analysis?? results indicate that the secondary system was depressurized from a maximum opening or operating ?? pressure of 1414.7 psia to 900 psia at a rate sufficient to achieve a maximum?? cooldown rate of 180 degrees Fahrenheit/hour'

Evaluate these deficiencies and revise/respond as necessary.

Response to Question 14.03-5:

U.S. EPR FSAR, Tier 1 will be revised to clarify the main steam relief train (MSRT) ITAAC:

- “Shall” will be deleted in Section 3.3.2, Item 4.0 and in the Commitment Wording column of Table 3.3-1, Item 4.0.

- An analysis will be added to the Inspection, Test or Analysis column and in the Acceptance Criteria column in Table 3.3-1, Item 4.0.

- The safety significant acceptance criteria for this ITAAC is the ramping of the pressure control setpoint from 1414.7 psia to 900 psia within 19 minutes. The Acceptance Criteria column of Table 3.3-1, Item 4.0 will be revised to “A report exists and concludes that the test and analysis results indicate that the pressure control set-point is ramped from 1414.7 psia to 900 psia within 19 minutes.”

FSAR Impact:

U.S. EPR FSAR, Tier 1, Table 3.3-1 will be revised as described in the response and indicated on the enclosed markup.

Question 14.03-6:

ITAAC Item 5 in Table 3.3-1

SRP 14.3, App. A IV.4.B describes the three column format for ITAAC including the provision that the acceptance criteria in Column 3 for the inspections, test, or analyses described in Column 2 which, if met, demonstrate that the Design Commitments in Column 1 have been met. The three columns are not aligned, as follows:

- The Commitment refers to 8 specific HVAC dampers, while the ITA and AC refer to “all containment isolation dampers”. Which of these statements is correct?
- The Commitment states that 'maximum acceptable time' whereas the AC has 'closed within 10 seconds of the actuation signal'. Is the maximum acceptable time the same as closed within 10 seconds of the actuation signal?
- Tier 2 refers to these dampers as valves. Which is correct Tier 2 or this ITAAC?

Response to Question 14.03-6:

The Inspection, Test or Analysis column and the Acceptance Criteria column in U.S. EPR FSAR, Tier 1, Table 3.3-1, Item 5.0 will be revised to change the word “all” to “the” to eliminate potential confusion that could result from taking the requirements out of context. An editorial change will also be made to U.S. EPR FSAR, Tier 1, Section 3.3.2, Items 5.0 and Table 3.3-1, Item 5.0; the “shall be” in the Commitment Wording will be replaced with “is.” The “maximum acceptable time” stated in the Commitment Wording column is the same as the 10 seconds stated in the Acceptance Criteria column.

As described in the Response to Question 14.03-4, the word “dampers” will be replaced with “valves”’ in U.S. EPR FSAR, Tier 1, Section 3.3.2, Items 3.0 and 5.0 and in Table 3.3-1, Items 3.0 and 5.0.

FSAR Impact:

U.S. EPR FSAR, Tier 1, Section 3.3.2 and Table 3.3-1 will be revised as described in the response and indicated on the enclosed markup.

Question 14.03.03-1:

ITAAC Item 2.5 in Table 2.2.1-5

The AC should be revised to state that 'The RCS loops are physically separated from each other.' The design description should also be revised.

This is also applicable to following ITAAC:

ITAAC Item 2.3 in Table 2.2.5-3 - The AC should be revised to state that 'The divisions of the FPCPS have the required physical separation from each other.' Design description should also be revised.

ITAAC Item 2.3 in Table 2.2.7-3 - The AC should be revised to state that ' The divisions of the EBS have the required physical separation from each other'. Design description should also be revised.

Evaluate these deficiencies and revise/respond as necessary.

Response to Question 14.03.03-1:

U.S. EPR FSAR, Tier 1, Section 2.2.1, Item 2.4 and Table 2.2.1-5, Item 2.4 will be revised to clarify reactor coolant system loop separation.

U.S. EPR FSAR, Tier 1, Section 2.2.5, Item 2.3 and Table 2.2.5-3, Item 2.3 will be revised to clarify extra borating system separation.

U.S. EPR FSAR, Tier 1, Section 2.2.7, Item 2.3 and Table 2.2.7-3, Item 2.3 will be revised to clarify fuel pool cooling and purification system separation.

FSAR Impact:

U.S. EPR FSAR, Tier 1, Section 2.2.1, Table 2.2.1-5, Section 2.2.5, Table 2.2.5-3, Section 2.2.7, and Table 2.2.7-3 will be revised as described in the response and indicated on the enclosed markup.

U.S. EPR Final Safety Analysis Report Markups

2.2 The functional arrangement of the RPV and heavy reflector is shown on Figure 2.2.1-2—RPV Functional Arrangement.

14.03.03-1

2.3 The location of the RCS equipment is as listed in Table 2.2.1-1—RCS Equipment Mechanical Design.

2.4 ~~Physical separation exists between the RCS loops~~The RCS loops are physically separated from each other.

3.0 Mechanical Design Features

3.1 Equipment listed in Table 2.2.1-1 as ASME Code Section III, other than RPV internals, is designed, welded, and hydrostatically tested in accordance with ASME Code Section III.

3.2 Check valves listed in Table 2.2.1-1 will function as listed in Table 2.2.1-1.

3.3 Equipment identified as Seismic Category 1 in Table 2.2.1-1 can withstand ~~a~~ seismic design basis ~~seismic~~ loads without loss of safety function as listed in Table 2.2.1-1.

3.4 Piping indicated on Figure 2.2.1-1 as ASME Code Section III is designed, welded, and tested in accordance with ASME Code Section III.

3.5 The steam outlet nozzles on the SGs include flow-limiting devices.

3.6 The RCP motors include a device to prevent reverse rotation.

3.7 The applicable piping and interconnected component nozzles listed in Table 2.2.1-1 are evaluated for LBB.

3.8 The RPV internals ~~are designed to~~will withstand the effects of flow-induced vibration.

3.9 The RCS is designed to allow movement of the components as necessary due to thermal expansion and contraction.

3.10 Supports for piping shown as ASME Section III on Figure 2.2.1-1 are designed in accordance with ASME Section III.

3.11 Components listed as ASME Code Class I in Table 2.2.1-1 are analyzed for fatigue in accordance with ASME Section III Class I.

3.12 ~~Specifications exist for components listed as ASME Section III in Table 2.2.1-1~~ Deleted.

3.13 ~~Specifications exist for piping shown as ASME Section III on Figure 2.2.1-1~~ Deleted.

3.14 Specifications exist for supports for piping shown as ASME Section III on Figure 2.2.1-1.

3.15 ~~Specifications exist for core support structures shown on Figure 2.2.1-2~~Deleted.

3.16 RPV internals listed in Table 2.2.1-1 are designed in accordance with ASME Code Section III, Subsection NG.

3.17 Core support structure welds meet ASME Code Section III, Sebsection NG requirements.

Table 2.2.1-5—RCS ~~Inspections, Tests, Analyses, and Acceptance Criteria~~ITAAC (~~6~~ 10 Sheets)

~~Design~~ Commitment Wording		Inspections, Tests, ~~or Analysis~~Analyses	Acceptance Criteria
2.1	The functional arrangement of the RCS is shown on Figure 2.2.1-1.	Inspections of the as-built system will be conducted.	The as-built RCS conforms to the functional arrangement shown on Figure 2.2.1-1.
2.2	The functional arrangement of the RPV and heavy reflector is shown on Figure 2.2.1-2.	Inspections of the as-built system will be conducted.	The as-built RPV and heavy reflector conforms to the functional arrangement shown on Figure 2.2.1-2 and Table 2.2.1-6.
~~2.4~~2.3	The location of RCS equipment is as listed in Table 2.2.1-1.	An inspection will be performed.	The equipment listed in Table 2.2.1-1 is located as listed in Table 2.2.1-1.
~~2.5~~2.4	The RCS loops are physically separated from each other.~~Physical separation exists between the RCS loops.~~	An inspection will be performed.	The RCS loops are physically separated from each other.~~The loops of the RCS are separated.~~

14.03.03-1

2.2.5 Fuel Pool Cooling and Purification System

1.0 Description

The fuel pool cooling and purification system (FPCPS) is made up of the following two separate subsystems:

- fuel pool cooling system (FPCS)
- fuel pool purification system (FPPS)

The FPCS is a safety-related system with two divisions. The FPCS provides the safety-related function of removing decay heat from the spent fuel pool.

The FPPS is a non-safety-related system that provides the following safety-related functions:

- Provides containment isolation.
- Provides SFP makeup water.

2.0 Arrangement

2.1 The functional arrangement of the FPCPS is as shown in Figure 2.2.5-1—Fuel Pool Cooling and Purification System Functional Arrangement.

14.03.03-1

2.2 The location of the FPCPS equipment is as listed in Table 2.2.5-1—FPCPS Equipment Mechanical Design.

2.3 ~~Physical separation exists between divisions of~~ T~~t~~he FPCPS divisions are physically separated from each other in the Fuel Building.

3.0 Mechanical Design Features

3.1 Equipment listed in Table 2.2.5-1 as ASME Code Section III is designed, welded, and hydrostatically tested in accordance with ASME Code Section III.

3.2 Check valves listed in Table 2.2.5-1 will function as listed in Table 2.2.5-1.

3.3 Piping indicated in Figure 2.2.5-1 as ASME Code Section III is designed, welded, and tested in accordance with ASME Code Section III.

3.4 Equipment identified as Seismic Category I in Table 2.2.5-1 can withstand ~~a~~ seismic design basis ~~seismic~~ loads without loss of safety function as listed in Table 2.2.5-1.

3.5 Supports for piping shown as ASME Section III on Figure 2.2.5-1 will be designed in accordance with ASME Section III.

3.6 ~~Specifications exist for components listed as ASME Section III in Table 2.2.5-1~~Deleted.

3.7 ~~Specifications exist for piping shown as ASME Section III on Figure 2.2.5-1~~Deleted.

14.03.03-1

Table 2.2.5-3—FPCPS ~~Inspections, Tests, Analyses, and Acceptance Criteria~~ITAAC (~~5~~ 6 Sheets)

Commitment Wording		Inspections, Tests, ~~or Analysis~~Analyses	Acceptance Criteria
2.1	The functional arrangement of the FPCPS is as shown on Figure 2.2.5-1.	Inspections of the as-built system as shown on Figure 2.2.5-1 will be conducted.	The as-built FPCPS conforms with the functional arrangement as shown in Figure 2.2.5-1.
2.2	The location of the FPCPS equipment is as listed in Table 2.2.5-1.	An inspection will be performed of the location of the equipment listed in Table 2.2.5-1.	The equipment listed in Table 2.2.5-1 is located as listed in Table 2.2.5-1.
2.3	The FPCPS divisions are physically separated from each other in the Fuel Building.~~Physical separation exists between divisions of the FPCPS.~~	An inspection will be performed to verify that the divisions of the FPCPS are ~~provided adequate physical separation~~separated in the Fuel Building.	~~The divisions of the FPCPS are provided adequate separation~~ The FPCPS divisions are physically separated from each other in the Fuel Building.
3.1	~~The components designated as~~Equipment listed in Table 2.2.5-1 as ASME Code Section III ~~in Table 2.2.5-1 are~~is designed, welded, and hydrostatically tested in accordance with ~~to~~ ASME Code Section III ~~requirements~~.	a. Analysis of the equipment identified in Table 2.2.5-1 as ASME Code Section III will be performed per ASME Code Section III design requirements. b. Inspections will be conducted ~~of ASME design, NDE and hydrostatic test reports for the components listed as~~on the equipment identified in Table 2.2.5-1 as ASME Code Section III ~~in Table 2.2.5-1~~ to verify welding has been performed per ASME Code Section III welding requirements.	a. ASME Code Section III Design Reports (NCA-3550) exist and conclude that the equipment identified in Table 2.2.5-1 as ASME Code Section III meets ASME Code Section III design requirements. b. Equipment identified in Table 2.2.5-1 as ASME Code Section III has been welded per ASME Code Section III welding requirements.

2.2.7 Extra Borating System

1.0 Description

The extra borating system (EBS) is a safety-related system. The EBS has two divisions. The EBS provides the following safety related functions:

- Core reactivity control.
- Reactor coolant pressure boundary integrity.
- Containment isolation.

The EBS provides the following non-safety related functions:

- Borated water to the RCS for beyond design basis events.

2.0 Arrangement

2.1 The functional arrangement of the EBS is as shown in Figure 2.2.7-1—Extra Borating System Functional Arrangement.

14.03.03-1

2.2 The location of the EBS equipment is as listed in Table 2.2.7-1—EBS Equipment Mechanical Design.

2.3 ~~Physical separation exists between divisions of the EBS~~The divisions of the EBS, except for the suction piping interconnect, are separated by a wall in the Fuel Building.

3.0 Mechanical Design Features

3.1 Equipment listed in Table 2.2.7-1 as ASME Code Section III is designed, welded, and hydrostatically tested in accordance with ASME Code Section III.

3.2 Check valves listed in Table 2.2.7-1 will function as listed in Table 2.2.7-1.

3.3 Piping indicated in Figure 2.2.7-1 as ASME Code Section III is designed, welded, and tested in accordance with ASME Code Section III.

3.4 Equipment identified as Seismic Category I in Table 2.2.7-1 can withstand ~~a~~ seismic design basis ~~seismic~~ loads without loss of safety function as listed in Table 2.2.7-1.

3.5 Supports for piping shown as ASME Section III on Figure 2.2.7-1 will be designed per ASME Section III.

3.6 Components listed as ASME Code Class 1 in Table 2.2.7-1 will be analyzed for fatigue in accordance with ASME Section III Class 1.

3.7 ~~Specifications exist for components listed as ASME Section III in Table 2.2.7-1~~Deleted.

3.8 ~~Specifications exist for piping shown as ASME Section III on Figure 2.2.7-1~~Deleted.

14.03.03-1

Table 2.2.7-3—EBS ~~Inspections, Tests, Analyses, and Acceptance Criteria~~ITAAC (6 Sheets)

Commitment Wording		Inspections, Tests, ~~or Analysis~~Analyses	Acceptance Criteria
2.1	The functional arrangement of the EBS is as shown on Figure 2.2.7-1.	Inspections of the as-built system as shown on Figure 2.2.7-1 will be conducted.	The as-built EBS conforms with the functional arrangement as shown in Figure 2.2.7-1.
2.2	The location of the EBS equipment is as listed in Table 2.2.7-1.	An inspection will be performed of the location of the equipment listed in Table 2.2.7-1.	The equipment listed in Table 2.2.7-1 is located as listed in Table 2.2.7-1.
2.3	The divisions of the EBS, except for the suction piping interconnect, are separated by a wall in the Fuel Building.~~Physical separation exists between divisions of the EBS.~~	An inspection will be performed to verify that the divisions of the EBS are ~~provided adequate physical separation~~separated in the Fuel Building.	~~The divisions of the EBS are provided adequate physical separation~~ The divisions of the EBS, except for the suction piping interconnect, are separated by a wall in the Fuel Building.
3.1	~~The components designated~~Equipment listed in Table 2.2.7-1 as ASME Code Section III ~~in Table 2.2.7-1 are~~is designed, welded, and hydrostatically tested in accordance with ~~to~~ ASME Code Section III ~~requirements~~.	a. Analysis of the equipment identified in Table 2.2.7-1 as ASME Code Section III will be performed per ASME Code Section III design requirements. b. Inspections will be conducted ~~of ASME design, NDE, and hydrostatic test reports for the components listed~~ on the equipment identified in Table 2.2.7-1 as ASME Code Section III ~~in Table 2.2.7-1~~ to verify welding has been performed per ASME Code Section III welding requirements.	a. ASME Code Section III Design Reports (NCA-3550) exist and conclude that the equipment identified in Table 2.2.7-1 as ASME Code Section III meets ASME Code Section III design requirements. b. Equipment identified in Table 2.2.7-1 as ASME Code Section III has been welded per ASME Code Section III welding requirements.

against which performance is evaluated. The test procedures are developed from preoperational and startup test specifications. Test specifications and test procedures are developed and reviewed by qualified personnel as delineated by site specific administrative procedures. Copies of the preoperational and startup specifications are made available to the NRC. Preoperational test procedures are made available to NRC personnel 60 days prior to the scheduled performance of these tests. Copies of test procedures for startup tests are provided to NRC inspection personnel 60 days prior to the scheduled fuel loading date. Site specific administrative procedures are used to control the conduct of the Initial Test Program; the review, evaluation and approval of test results; and all test record retention.

Inspections, Tests, Analyses and Acceptance Criteria

This section represents a commitment that COL applicants that reference the certified design will implement an Initial Test Program that meets the objectives presented above.

3.3.2 Integrated Tests

The preoperational test phase of the ITP will include integrated tests. Integrated tests are conducted to evaluate the integrated response of multiple systems to achieve a desired function. The integrated tests must be performed after successful completion of the individual system preoperational tests. The individual system tests are described in Tier 1, Chapter 2. Step-by-step procedures are used to conduct each integrated test. Acceptance criteria are specified for each test to establish the limit of performance for the systems. Integrated tests are listed in Table 3.3~~.1~~-1 lists the~~-~~ ITP ITAAC.

Integrated tests will be performed to confirm the following commitments:

1.0 The integrated leak rate from containment does not exceed the maximum allowable leakage rate.

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

14.03-4
14.03-5
14.03-6

3.0 Containment isolation for valves ~~and dampers~~ other than the HVAC ~~dampers~~ valves in Item 5.0 below ~~shall be~~is completed within the maximum acceptable time.

4.0 Upon SIS actuation, the MSRT ~~shall~~ controlled secondary system cooldown is at a pre-defined rate.

5.0 Containment isolation for the following HVAC ~~dampers~~ valves ~~shall be~~is completed within the maximum acceptable time: 30KLA10AA001, 30KLA10AA003, 30KLA20AA001, 30KLA20AA003, 30KLA30AA002, 30KLA30AA003, 30KLA40AA001, 30KLA40AA002.

Table 3.3-1— ITP~~Integrated Tests, Analyses, and Acceptance Criteria~~ITAAC

Commitment Wording		Inspections, Tests, ~~or Analysis~~Analyses	Acceptance Criteria
1.0	The integrated leak rate from containment does not exceed the maximum allowable leakage rate.	A test will be performed to evaluate the containment leakage rate.	The maximum allowable leakage rate shall not exceed 0.25% of containment air mass per day at containment pressure of 55 psig.
2.0	Safety injection pumped flow will be delivered to the RCS before the maximum elapsed time.	Tests will be performed to determine the safety injection pumped flow delivery time.	Time for safety injection flow to reach full flow shall not exceed 15 seconds with offsite power available or 40 seconds with loss of offsite power.
3.0	Containment isolation for valves ~~and dampers~~ other than the HVAC ~~dampers~~ valves in Item 5.0 below ~~shall be~~is completed within the maximum acceptable time.	A test will be performed to determine the time when ~~all~~ the containment isolation valves other than the HVAC valves in Item 5.0 are closed.	~~All~~ The containment isolation valves other than the HVAC valves in Item 5.0 ~~shall be closed~~close within 60 seconds of isolation initiating event.
4.0	Upon SIS actuation, the MSRT ~~shall~~ controlled secondary system cooldown is at a pre-defined rate.	A test and analysis will be performed to confirm the cooldown rate.	A report exists and concludes that the test and analysis results indicate that the pressure control set-point is ramped from 1414.7 psia to 900 psia within 19 minutes.~~The secondary system is depressurized from a maximum opening pressure of 1414.7 psia to a maximum of 900 psia at a rate sufficient to reduce temperature at a rate of 180°F/hr.~~

14.03-4
14.03-5
14.03-6

5.0	Containment isolation for the following HVAC ~~dampers~~valves ~~shall be~~ is completed within the maximum acceptable time: 30KLA10AA001 30KLA10AA003 30KLA20AA001 30KLA20AA003 30KLA30AA002 30KLA30AA003 30KLA40AA001 30KLA40AA002	A test or series of tests will be performed to determine the time when ~~all~~ the containment isolation ~~dampers~~ valves are closed.	~~All~~ Thecontainment isolation ~~dampers~~valves ~~shall be~~ closed within 10 seconds of the actuation signal.

14.03-4
14.03-5
14.03-6

Next File