

ArevaEPRDCPEm Resource

From: WELLS Russell D (AREVA NP INC) [Russell.Wells@areva.com]
Sent: Friday, June 12, 2009 5:43 PM
To: Tesfaye, Getachew
Cc: Pederson Ronda M (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); DELANO Karen V (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 104, FSAR Ch 14, Supplement 3
Attachments: RAI 104 Supplement 3 Response US EPR DC.pdf

Getachew,

AREVA NP Inc. (AREVA NP) provided responses to 2 of the 4 questions of RAI No. 104 on December 12, 2008. AREVA NP submitted Supplement 1 to the response on February 11, 2009 which provided a complete response to Question 14.03.11-1 and a partial response to Question 14.03-1. AREVA NP informed NRC on May 22, 2009 that a schedule for providing a complete response to Question 14.03-1 would be provided by June 12, 2009. The attached file, "RAI 104 Supplement 3 US EPR DC.pdf," provides a partial response to the remaining question.

The schedule for providing a response to the remaining parts of the Question 14.03-1 is being revised because the associated containment analyses are scheduled to be performed as a part of the Response to RAI 209, Question 06.02.01-14 (due to the NRC by December 18, 2009).

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 104 Question 14.03-1, Parts a1 and a4.

The following table indicates the respective pages in the response document, "RAI 104 Supplement 3 US EPR DC.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 104 — 14.03-1, Part a	2	4

The revised schedule for a technically correct and complete response to the remaining parts of the question is provided below:

Question #	Response Date
RAI 104 — 14.03-1, Part a2	December 18, 2009
RAI 104 — 14.03-1, Part a3	December 18, 2009

Sincerely,

(Russ Wells on behalf of)

Ronda Pederson

ronda.pederson@areva.com

Licensing Manager, U.S. EPR Design Certification

New Plants Deployment

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: WELLS Russell D (AREVA NP INC)
Sent: Friday, May 22, 2009 4:57 PM
To: 'Getachew Tesfaye'
Cc: Pederson Ronda M (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); DELANO Karen V (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 104, FSAR Ch 14, Supplement 2

Getachew,

AREVA NP is unable to provide a technically correct and complete response to the remaining part of RAI 104 that was scheduled to be completed by May 22, 2009. A revised schedule for responding to RAI 104, Question 14.03-1, Part a will be provided by June 12, 2009.

Sincerely,

(Russ Wells on behalf of)

Ronda Pederson

ronda.pederson@areva.com

Licensing Manager, U.S. EPR Design Certification

New Plants Deployment

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 NP INC)
Sent: Wednesday, February 11, 2009 4:24 PM
To: Getachew Tesfaye
Cc: DELANO Karen V (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); DUNCAN Leslie E (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 104 (1344, 1447,1468, 1475), Supplement 1

Getachew,

AREVA NP Inc. provided responses to 2 of the 4 questions of RAI No. 104 on December 12, 2008. The attached file, "RAI 104 Supplement 1 Response US EPR DC.pdf" provides technically correct and complete responses to Question 14.03-1, Part b and Question 14.03.11-1, as committed, in the revised scheduled e-mailed on January 28, 2009.

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 104 Questions 14.03-1, Part b and 14.03.11-1.

The following table indicates the respective pages in the response document, "RAI 104 Supplement 1 US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 104 — 14.03-1, Part b	2	3
RAI 104 — 14.03.11-1	4	6

The schedule for technically correct and complete response to the remaining question is unchanged and provided below:

Question #	Response Date
RAI 104 — 14.03-1, Part a	May 22, 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 NP INC)

Sent: Wednesday, January 28, 2009 6:55 PM

To: 'Getachew Tesfaye'

Cc: DUNCAN Leslie E (AREVA NP INC); DELANO Karen V (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC)

Subject: Response to U.S. EPR Design Certification Application RAI No. 104 (1344, 1447,1468, 1475), Supplement 1 Revised Schedule

Getachew,

AREVA NP is unable to provide technically correct and complete responses to the questions that were scheduled to be complete today.

The schedule for technically correct and complete responses has been revised as provided below.

Question #	Response Date
RAI 104 — 14.03-1, Part a	May 22, 2009
RAI 104 — 14.03-1, Part b	February 11, 2009
RAI 104 — 14.03.11-1	February 11, 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 4:27 PM
To: 'Getachew Tesfaye'
Cc: DUNCAN Leslie E (AREVA US); DELANO Karen V (AREVA US); BENNETT Kathy A (OFR) (AREVA US)
Subject: Response to U.S. EPR Design Certification Application RAI No. 104 (1344, 1447,1468, 1475), FSAR Ch. 14

Getachew,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 104 Response US EPR DC.pdf" provides technically correct and complete responses to 2 of the 4 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 104, Question 14.03.11-2.

The following table indicates the respective page(s) in the response document "RAI 104 Response US EPR DC.pdf" that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 104 — 14.03-1	2	2
RAI 104 — 14.03.11-1	3	3
RAI 104 — 14.03.11-2	4	5
RAI 104 — 14.03.07-1	6	7

A complete answer is not provided for 2 of the 4 questions. The schedule for a technically correct and complete response to each of these questions is provided below.

Question #	Response Date
RAI 104 — 14.03-1, Part a	May 22, 2009
RAI 104 — 14.03-1, Part b	January 28, 2009
RAI 104 — 14.03.11-1	January 28, 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: Friday, November 14, 2008 2:01 PM

To: ZZ-DL-A-USEPR-DL

Cc: Anne-Marie Grady; Walton Jensen; Nan Chien; Christopher Jackson; Michael Miernicki; Joseph Colaccino; John Rycyna; Prosanta Chowdhury

Subject: U.S. EPR Design Certification Application RAI No. 104 (1344, 1447,1468, 1475), FSAR Ch. 14

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on October 20, 2008, and discussed with your staff on November 3 and 14, 2008. No change was made to the draft RAI as a result of those discussion. 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: 575

Mail Envelope Properties (1F1CC1BBDC66B842A46CAC03D6B1CD4101953074)

Subject: Response to U.S. EPR Design Certification Application RAI No. 104, FSAR Ch
14, Supplement 3
Sent Date: 6/12/2009 5:43:24 PM
Received Date: 6/12/2009 5:43:28 PM
From: WELLS Russell D (AREVA NP INC)

Created By: Russell.Wells@areva.com

Recipients:

"Pederson Ronda M (AREVA NP INC)" <Ronda.Pederson@areva.com>

Tracking Status: None

"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

"Tesfaye, Getachew" <Getachew.Tesfaye@nrc.gov>

Tracking Status: None

Post Office: AUSLYNCMX02.adom.ad.corp

Files	Size	Date & Time
MESSAGE	8721	6/12/2009 5:43:28 PM
RAI 104 Supplement 3 Response US EPR DC.pdf		69390

Options

Priority: Standard

Return Notification: No

Reply Requested: No

Sensitivity: Normal

Expiration Date:

Recipients Received:

Response to

Request for Additional Information No. 104, Supplement 3

11/14/2008

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: 14.03.11 - Containment Systems and Severe Accidents -

Inspections, Tests, Analyses, and Acceptance Criteria

SRP Section: 14.03.07 - Plant Systems - Inspections, Tests, Analyses, and

Acceptance Criteria

Application Section: FSAR Ch. 14

**QUESTIONS for Containment and Ventilation Branch 1 (AP1000/EPR Projects)
(SPCV)**

Question 14.03-1:

a. Primary Containment

1. FSAR Section 6.2.1.1 describes possible events which might produce a negative containment pressure. Provide as an ITAAC requirement, verification that the as built containment can withstand the design maximum negative differential pressure across the containment building external wall.
2. The Containment Building is separated into a central portion containing the reactor system and a peripheral lower temperature portion containing equipment. Separation is accomplished by compartment walls, foils, doors, and dampers. The foils are located above the steam generator compartments and are designed to open at a fraction of a psi. The doors and dampers, located at lower elevations, must also open to avoid stratification so that steam flowing to the containment dome can circulate down the containment walls to reach the heat structures and the containment lower elevations. The doors and dampers are designed to open at various pressures from a few psi to greater than 13 psi. Provide as an ITAAC requirement verification that the opening characteristics of the foils, doors and dampers assumed in the analyses will be present for the as-built plant.
3. The size of the vent openings between containment compartments is important in analyses of containment mixing following design basis events as well as in beyond design basis events evaluated for hydrogen control. In addition the vent opening size is important for the evaluation of the short term pressure increase within containment subcompartments. Provide an ITAAC dealing with the flow areas of vent openings which will ensure that the vent openings are consistent with the values assumed in the safety analyses for containment mixing and for short term subcompartment pressure analysis.
4. For the containment subcompartments containing high energy lines for which an overpressure analysis was performed as described FSAR Section 6.2.1.2, provide an ITAAC to verify that the subcompartments were built to withstand pressures up to the design pressures assumed in FSAR Section 6.2.1.2.

b. Accident Response Instrumentation

1. FSAR Table 14.3-7 describes safety-significant containment instrumentation as containment pressure, containment water level, containment hydrogen concentration and containment radiation intensity. Provide justification that this instrumentation is sufficient for operators to deal with design and beyond design basis containment related events and justify that the information provided in Tier 1 adequately describes the test, analysis and acceptance criteria for this equipment for the as-built plant.

Response to Question 14.03-1:

- a.1 Information in U.S. EPR FSAR Tier 2 is screened, as described in U.S EPR FSAR Tier 2, Section 14.3.2, to determine if it is safety-significant. This screening process involves two approaches using criteria developed from Standard Review Plan (SRP) 14.3, Appendices A and C. The first screening approach uses discipline checklists that include inspections, tests, analyses, and acceptance criteria (ITAAC) criteria based on SRP 14.3 guidance. For example, the discipline checklist for systems provides guidance to create ITAAC for the following features:

- Major safety-related features.
- Equipment that is seismic, environmental qualification (EQ), or 1E.
- Safety-related equipment.
- Design features provided for severe accident (SA) mitigation, station blackout (SBO), and anticipated transient without scram (ATWS).
- Significant system features identified in the applicable SRPs for the system.
- Significant safety-related (and non-safety-related) functions derived from those listed in system design requirements documents.

This screening approach using discipline checklists based on SRP 14.3 guidance did not identify safety-significant design features for a negative pressure inside containment.

The second screening approach involves an expert review panel that identifies safety-significant features based on assumptions and insights from key safety and integrated plant safety analyses in U.S. EPR FSAR Tier 2, where plant performance is dependent on contributions from multiple systems. The expert review panel is based on guidance in SRP 14.3, page 14.3-21. Results of the expert review panel meetings are provided in U.S. EPR FSAR Tier 2, Table 14.3-1—Design Basis Accident Analysis (Safety-Significant Features) through Table 14.3-7—Licensing (Safety-Significant Features). No design basis events described in the U.S. EPR FSAR result in a negative pressure inside containment. Therefore, ITAAC for a negative pressure inside containment are not included in U.S. EPR FSAR Tier 1.

- a.2 Containment analyses are scheduled to be performed as a part of the Response to RAI 209, Question 06.02.01-14 (due to the NRC by December 18, 2009). The Response to Question 14.03-1, Part a.2, which addresses the opening characteristics of foils, doors, and dampers assumed in the containment analyses, will be provided by December 18, 2009.
- a.3 Containment analyses are scheduled to be performed as a part of the Response to RAI 209, Question 06.02.01-14 (due to the NRC by December 18, 2009). The Response to Question 14.03-1, Part a.3, which addresses vent openings assumed in the containment analyses, will be provided by December 18, 2009.
- a.4 As described in U.S. EPR FSAR Tier 2, Section 6.2.1.2.3, “design pressure transients generated from postulated pipe breaks...for the identified critical sections are designed for as shown in Appendix 3E. The results of these evaluations show that the critical sections can withstand the applied loads including the subcompartment pressures and remain within allowable limits.” The Response to RAI 132, Supplement 1, Question 14.03.02-11 provides ITAAC for the Reactor Building critical sections. U.S. EPR FSAR Tier 1, Table 2.1.1-8, Item 2.12 confirms the key dimensions listed in U.S. EPR FSAR Tier 1, Table 2.1.1-5 for the Reactor Building critical sections.

b.1 RAI 104, Supplement 1 provided the Response to Question 14.03-1, Part b.1.

FSAR Impact:

- a.1 The U.S. EPR FSAR will not be changed as a result of this question.

a.2 A Response to Question 14.03-1, Part a.2 will be provided by December 18, 2009.

a.3 A Response to Question 14.03-1, Part a.3 will be provided by December 18, 2009.

a.4 The U.S. EPR FSAR will not be changed as a result of this question.