

ArevaEPRDCPEm Resource

From: WILLIFORD Dennis (AREVA) [Dennis.Williford@areva.com]
Sent: Thursday, April 25, 2013 5:14 PM
To: Snyder, Amy
Cc: Gleaves, Bill; ANDERSON Katherine (EXTERNAL AREVA); DELANO Karen (AREVA); LEIGHLITER John (AREVA); ROMINE Judy (AREVA); RYAN Tom (AREVA); HONMA George (EXTERNAL AREVA); KOWALSKI David (AREVA)
Subject: Response to U.S. EPR Design Certification Application RAI No. 233, FSAR Ch 6, Supplement 5
Attachments: RAI 233 Supplement 5 Response US EPR DC.pdf

Amy,

AREVA NP Inc. provided responses to portions of two of the four questions of RAI No. 233 on July 10, 2009. Supplement 1 response was sent on September 1, 2009 to provide responses for the remaining portions of these two questions (06.05.01-1 and 06.05.03-1). Supplement 2 and Supplement 3 responses were sent on December 18, 2009 and April 22, 2010, respectively, to provide a revised schedule for the remaining two questions (06.02.02-29 and 06.02.02-30). Supplement 4 response was sent on May 20, 2010 to provide technically correct and complete final responses to Questions 06.02.02-29 and 06.02.02-30.

The attached file, "RAI 233 Supplement 5 Response US EPR DC.pdf," provides a technically correct and complete revised response to Question 06.05.03-1. This response supersedes in its entirety the response to Question 06.05.03-1 provided in RAI 233, and RAI 233, Supplement 1. The response to Question 06.05.03-1 is being revised to address NRC staff comments on RAI 511, Question 06.04-9, Item d. The response has been updated to consider both the Safeguard Buildings and Fuel Building.

The following table indicates the respective pages in the response document, "RAI 233 Supplement 5 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 233 — 06.05.03-1	2	3

This concludes the formal AREVA NP response to RAI 233, and there are no questions from this RAI for which AREVA NP has not provided responses.

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: BRYAN Martin (EXT)
Sent: Thursday, May 20, 2010 3:37 PM
To: 'Tesyfaye, Getachew'
Cc: DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); GUCWA Len T (EXT)
Subject: Response to U.S. EPR Design Certification Application RAI No. 233, FSAR Ch 6, Supplement 4

Getachew,

AREVA NP Inc. (AREVA NP) provided responses to portions of 2 of the 4 questions of RAI No. 233 on July 10, 2009. Responses to portions of the 2 remaining questions were provided by AREVA NP on September 1, 2009. AREVA NP submitted Supplement 2 to the response on December 18, 2009 to provide a revised response schedule. AREVA NP submitted Supplement 3 to the response on April 22, 2010 to provide a revised response schedule.

The attached file, "RAI 233 Supplement 4 Response US EPR DC.pdf," provides a technically correct and complete response to the 2 remaining questions.

The following table indicates the respective pages in the response document, "RAI 233 Supplement 4 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 233 — 06.02.02-29	2	3
RAI 233 — 06.02.02-30	4	6

This concludes the formal AREVA NP response to RAI 233, and there are no questions from this RAI for which AREVA NP has not provided responses.

Sincerely,

Martin (Marty) C. Bryan
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
Tel: (434) 832-3016
702 561-3528 cell
Martin.Bryan.ext@areva.com

From: BRYAN Martin (EXT)
Sent: Thursday, April 22, 2010 6:18 PM
To: 'Getachew.Tesfaye@nrc.gov'
Cc: DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); GUCWA Len T (EXT)
Subject: Response to U.S. EPR Design Certification Application RAI No. 233, FSAR Ch 6, Supplement 3

Getachew,

AREVA NP Inc. (AREVA NP) provided responses to portions of 2 of the 4 questions of RAI No. 233 on July 10, 2009. Responses to portions of the 2 remaining questions were provided by AREVA NP on September 1, 2009. AREVA NP submitted Supplement 2 to the response on December 18, 2009 to provide a revised response schedule.

Responses to the remaining RAI 233 questions are dependent upon the results of ongoing GSI-191 evaluations for demonstrating sump strainer performance. Because of these ongoing activities, AREVA NP is not providing a response at this time.

The schedule for providing technically correct and complete responses to the remaining 2 questions has been revised and is provided below:

Question #	Response Date
RAI 233 — 06.02.02-29	May 20, 2010

Sincerely,

Martin (Marty) C. Bryan
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
Tel: (434) 832-3016
702 561-3528 cell
Martin.Bryan.ext@areva.com

From: Pederson Ronda M (AREVA NP INC)
Sent: Friday, December 18, 2009 3:27 PM
To: 'Tsfaye, Getachew'
Cc: BENNETT Kathy A (OFR) (AREVA NP INC); DELANO Karen V (AREVA NP INC); GUCWA Len T (EXT)
Subject: Response to U.S. EPR Design Certification Application RAI No. 233, FSAR Ch 6, Supplement 2

Getachew,

AREVA NP Inc. (AREVA NP) provided responses to portions of 2 of the 4 questions of RAI No. 233 on July 10, 2009. Responses to portions of the 2 remaining questions were provided by AREVA NP on September 1, 2009.

Responses to the remaining RAI 233 questions are dependent upon the results of ongoing GSI-191 head loss testing, which will demonstrate sump strainer performance. Because additional testing is planned, AREVA NP is not providing a response at this time.

The schedule for providing technically correct and complete responses to the remaining 2 questions has been revised and is provided below:

Question #	Response Date
RAI 233 — 06.02.02-29	April 22, 2010
RAI 233 — 06.02.02-30	April 22, 2010

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: WELLS Russell D (AREVA NP INC)
Sent: Tuesday, September 01, 2009 10:44 AM
To: 'Getachew Tsfaye'

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. 233, FSAR Ch 6, Supplement 1

Getachew,

AREVA NP Inc. (AREVA NP) provided responses to portions of 2 of the 4 questions of RAI No. 233 on July 10, 2009. The attached file, "RAI 233 Supplement 1 Response US EPR DC.pdf" provides technically correct responses to portions of 2 of the remaining 4 questions, as committed.

The following table indicates the respective pages in the response document, "RAI 233 Supplement 1 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 233 — 06.05.01-1	2	4
RAI 233 — 06.05.03-1	5	5

The schedule for providing technically correct and complete responses to the remaining 2 questions is unchanged and is provided below:

Question #	Response Date
RAI 233 — 06.02.02-29	December 18, 2009
RAI 233 — 06.02.02-30	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: Pederson Ronda M (AREVA NP INC)

Sent: Friday, July 10, 2009 9:54 AM

To: 'Tefaye, Getachew'

Cc: BENNETT Kathy A (OFR) (AREVA NP INC); DELANO Karen V (AREVA NP INC); GUCWA Len T (EXT)

Subject: Response to U.S. EPR Design Certification Application RAI No. 233, FSAR Ch. 6

Getachew,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 233 Response US EPR DC.pdf" provides responses to portions of 2 of the 4 questions.

The following table indicates the respective pages in the response document, "RAI 233 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 233 — 06.02.02-29	2	2

RAI 233 — 06.02.02-30	3	5
RAI 233 — 06.05.01-1	6	7
RAI 233 — 06.05.03-1	8	8

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

Question #	Response Date
RAI 233 — 06.02.02-29	December 18, 2009
RAI 233 — 06.02.02-30	December 18, 2009
RAI 233 — 06.05.01-1 (Parts 2, 4, and 5)	September 3, 2009
RAI 233 — 06.05.03-1 (Part d)	September 3, 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: Tesfaye, Getachew [<mailto:Getachew.Tesfaye@nrc.gov>]

Sent: Friday, June 12, 2009 5:18 PM

To: ZZ-DL-A-USEPR-DL

Cc: Ashley, Clinton; ODriscoll, James; Jackson, Christopher; Carneal, Jason; Colaccino, Joseph; ArevaEPRDCPEm Resource

Subject: U.S. EPR Design Certification Application RAI No. 233 (2857, 2872,2873), FSAR Ch. 6

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on May 19, 2009, and on June 12, 2009, 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. Per your request, we support future interaction to give you an opportunity to clarify your design regarding Question 06.05.03-1 part d . 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: 4338

Mail Envelope Properties (554210743EFE354B8D5741BEB695E656129E4A)

Subject: Response to U.S. EPR Design Certification Application RAI No. 233, FSAR Ch
6, Supplement 5
Sent Date: 4/25/2013 5:14:02 PM
Received Date: 4/25/2013 5:14:08 PM
From: WILLIFORD Dennis (AREVA)

Created By: Dennis.Williford@areva.com

Recipients:

"Gleaves, Bill" <Bill.Gleaves@nrc.gov>
Tracking Status: None
"ANDERSON Katherine (EXTERNAL AREVA)" <katherine.anderson.ext@areva.com>
Tracking Status: None
"DELANO Karen (AREVA)" <Karen.Delano@areva.com>
Tracking Status: None
"LEIGHLITER John (AREVA)" <John.Leighliter@areva.com>
Tracking Status: None
"ROMINE Judy (AREVA)" <Judy.Romine@areva.com>
Tracking Status: None
"RYAN Tom (AREVA)" <Tom.Ryan@areva.com>
Tracking Status: None
"HONMA George (EXTERNAL AREVA)" <George.Honma.ext@areva.com>
Tracking Status: None
"KOWALSKI David (AREVA)" <David.Kowalski@areva.com>
Tracking Status: None
"Snyder, Amy" <Amy.Snyder@nrc.gov>
Tracking Status: None

Post Office: FUSLYNCMX03.fdom.ad.corp

Files	Size	Date & Time
MESSAGE	10767	4/25/2013 5:14:08 PM
RAI 233 Supplement 5 Response US EPR DC.pdf		66670

Options

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

Response to

Request for Additional Information No. 233, Supplement 5

6/12/2009

U. S. EPR Standard Design Certification

AREVA NP Inc.

Docket No. 52-020

SRP Section: 06.02.02 - Containment Heat Removal Systems

SRP Section: 06.05.01 - ESF Atmosphere Cleanup Systems

SRP Section: 06.05.03 - Fission Product Control Systems and Structures

Application Section: FSAR Ch. 6

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

Question 06.05.03-1:

Per SRP 6.5.3, Acceptance Criteria 2, in order to be classified as a secondary containment for the purpose of fission product control, a structure or structures should completely surround the primary containment, and at least should be held at a pressure of 0.6 cm (0.25 in) (water) below adjacent regions under all wind conditions up to the wind speed at which diffusion becomes great enough to ensure site boundary exposures less than those calculated for the design basis accidents, even if exfiltration occurs.

- a. During the DBA LOCA, the AVS ESF accident operation maintains a negative pressure in the annulus and the assumed in-leakage to the annulus is based only on the 0.25% allowable primary containment leakage. What is the allowed secondary containment in-leakage from the safeguards and fuel buildings that surround the shield building?
- b. What programs are in place to test for secondary containment in-leakage?
- c. What is the applicable mixing fraction to be applied to the annulus area?
- d. What is the maximum wind speed at which annulus negative pressure can be maintained?

Response to Question 06.05.03-1:

This response supersedes in its entirety the response to Question 06.05.03-1 provided in RAI 233, and RAI 233, Supplement 1. The response has been revised to consider both the Safeguard Buildings and Fuel Building.

- a. The in-leakage from the surroundings, including the Safeguard Buildings and Fuel Building, is 0.2 percent of the total primary containment volume per day. This is conservative as the secondary containment (Shield Building) wall is approximately 1.5 feet thicker than the primary containment wall, is not subject to the expansion during a loss of coolant accident that the primary containment wall may experience, and includes the total containment volume as opposed to the containment free volume.

The bypass leakage from the primary containment into the Safeguard Buildings and Fuel Building is assumed to be 9.8 cfm. This is the same in-leakage assumed into the annulus from the primary containment and is 0.2 percent of the total primary containment volume per day. The in-leakage into the Safeguard Building hot mechanical area from adjacent areas is 6 cfm per division. The in-leakage into the Fuel Building from the environment is assumed to be 30 cfm.

- b. 10 CFR Part 50, Appendix J in paragraph IV.B, "Special Testing Requirements," states that structures of multiple barrier containments (such as secondary containments/shield buildings for pressurized water reactors) shall be subject to individual tests in accordance with the procedures outlined in the Technical Specifications, or associated Bases. U.S. EPR FSAR Tier 2, Chapter 16, "Technical Specifications, Surveillance Requirement (SR) 3.6.6," specifies testing to fulfill this requirement for the Shield Building.

U.S. EPR FSAR Tier 2, Chapter 16, "Technical Specifications SR 3.7.12," specifies testing to fulfill this requirement for the Safeguard Building Controlled Area Ventilation System.

- c. No mixing is assumed to occur within the annulus volume.

No mixing is assumed to occur in the Safeguard Building and Fuel Building.

- d. The U.S. EPR Shield Building (secondary containment) is a tightly-fitted, axisymmetric, reinforced concrete structure completely surrounding the Reactor Building (primary containment) with no penetrations exposed to the environment. The Shield Building is further surrounded by the Nuclear Island (NI) buildings. Such a structure is not subject to the wind- and buoyancy-driven exchanges with the environment of the kind envisioned by RG 1.183, Regulatory Position 4.3. The NI configuration is shown in U.S. EPR FSAR Tier 2, Figure 1.2-1—3-Dimensional Conceptual Configuration of U.S. EPR Buildings and Figure 1.2-2—U.S. EPR Cutaway.

The hot mechanical rooms in the Safeguard Buildings are below grade and adjacent to the annulus and Safeguard Building electrical rooms. The hot mechanical rooms have no direct contact with the environment. During normal operation, the hot mechanical rooms are maintained at a negative pressure less than or equal to negative 0.25 inches water gauge relative to atmosphere by control valves in the supply ducts from the Safeguard Building Electrical Division Ventilation System (SBVSE) in each of the Safeguard Buildings. During normal operation, the Fuel Building is maintained at a negative pressure less than or equal to a negative 0.25 inches water gauge relative to the environment by control valves in the supply duct from the nuclear auxiliary building ventilation system. The effect of wind is accounted for in the pressure measurement, which controls the supply valves to maintain the negative pressure.

FSAR Impact:

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