

## ArevaEPRDCPEm Resource

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**From:** Pederson Ronda M (AREVA NP INC) [Ronda.Pederson@areva.com]  
**Sent:** Friday, July 31, 2009 2:51 PM  
**To:** Tesfaye, Getachew  
**Cc:** BEELMAN Ronald J (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. 221, FSARCh. 6 , Supplement 1  
**Attachments:** RAI 221 Supplement 1 Response US EPR DC.pdf

Getachew,

AREVA NP Inc. (AREVA NP) provided responses to 3 of the 32 questions of RAI No. 221 on June 17, 2009. The attached file, "RAI 221 Supplement 1 Response US EPR DC.pdf" provides technically correct and complete responses to 4 of the remaining 29 questions and a revised schedule for the one partial response (RAI 221 — 06.02.01-38c) of the remaining 29 questions.

The following table indicates the respective pages in the response document, "RAI 221 Supplement 1 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 221 — 06.02.01-25	2	2
RAI 221 — 06.02.01-31	3	3
RAI 221 — 06.02.01-36	4	4
RAI 221 — 06.02.01-37	5	5

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

Question #	Response Date
RAI 221 — 06.02.01-15	December 17, 2009
RAI 221 — 06.02.01-16	September 30, 2009
RAI 221 — 06.02.01-18	September 30, 2009
RAI 221 — 06.02.01-20	September 30, 2009
RAI 221 — 06.02.01-21	December 17, 2009
RAI 221 — 06.02.01-22	December 17, 2009
RAI 221 — 06.02.01-23	December 17, 2009
RAI 221 — 06.02.01-24	December 17, 2009
RAI 221 — 06.02.01-26	December 17, 2009
RAI 221 — 06.02.01-27	August 27, 2009
RAI 221 — 06.02.01-28	December 17, 2009
RAI 221 — 06.02.01-29	August 27, 2009
RAI 221 — 06.02.01-30	December 17, 2009
RAI 221 — 06.02.01-32	December 17, 2009
RAI 221 — 06.02.01-33	December 17, 2009
RAI 221 — 06.02.01-34	December 17, 2009
RAI 221 — 06.02.01-35	December 17, 2009
RAI 221 — 06.02.01-38c	August 27, 2009
RAI 221 — 06.02.01-39	August 27, 2009
RAI 221 — 06.02.01-40	August 27, 2009
RAI 221 — 06.02.01-41	August 27, 2009
RAI 221 — 06.02.01-42	December 17, 2009

RAI 221 — 06.02.01-43	August 27, 2009
RAI 221 — 06.02.01-44	December 17, 2009
RAI 221 — 06.02.01-46	August 27, 2009

Sincerely,

*Ronda Pederson*

[ronda.pederson@areva.com](mailto: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

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**From:** Pederson Ronda M (AREVA NP INC)

**Sent:** Wednesday, June 17, 2009 5:41 PM

**To:** 'Getachew Tesfaye'

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

**Subject:** Response to U.S. EPR Design Certification Application RAI No. 221, FSARCh. 6 (Part 2 of 2)

[Getachew,](#)

[Attached is response to RAI 221 \(Part 2 of 2\).](#)

*Ronda Pederson*

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**From:** Pederson Ronda M (AREVA NP INC)

**Sent:** Wednesday, June 17, 2009 5:09 PM

**To:** 'Getachew Tesfaye'

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

**Subject:** Response to U.S. EPR Design Certification Application RAI No. 221, FSARCh. 6 (Part 1 of 2)

[Getachew,](#)

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 221 Response US EPR DC.pdf" provides technically correct and complete responses to 3 of the 32 questions.

The following table indicates the respective pages in the response document, "RAI 221 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

<b>Question #</b>	<b>Start Page</b>	<b>End Page</b>
RAI 221 — 06.02.01-15	2	2
RAI 221 — 06.02.01-16	3	3
RAI 221 — 06.02.01-17	4	4
RAI 221 — 06.02.01-18	5	5
RAI 221 — 06.02.01-19	6	6
RAI 221 — 06.02.01-20	7	7
RAI 221 — 06.02.01-21	8	8
RAI 221 — 06.02.01-22	9	9
RAI 221 — 06.02.01-23	10	10
RAI 221 — 06.02.01-24	11	11
RAI 221 — 06.02.01-25	12	12
RAI 221 — 06.02.01-26	13	13
RAI 221 — 06.02.01-27	14	14
RAI 221 — 06.02.01-28	15	15
RAI 221 — 06.02.01-29	16	16
RAI 221 — 06.02.01-30	17	17
RAI 221 — 06.02.01-31	18	18
RAI 221 — 06.02.01-32	19	19
RAI 221 — 06.02.01-33	20	20
RAI 221 — 06.02.01-34	21	21
RAI 221 — 06.02.01-35	22	22
RAI 221 — 06.02.01-36	23	23
RAI 221 — 06.02.01-37	24	24
RAI 221 — 06.02.01-38	25	25
RAI 221 — 06.02.01-39	26	26
RAI 221 — 06.02.01-40	27	27
RAI 221 — 06.02.01-41	28	28
RAI 221 — 06.02.01-42	29	29
RAI 221 — 06.02.01-43	30	30
RAI 221 — 06.02.01-44	31	31
RAI 221 — 06.02.01-45	32	34
RAI 221 — 06.02.01-46	35	35

A complete answer is not provided for 29 of the 32 questions. The schedule for a technically correct and complete response to these questions is provided below.

<b>Question #</b>	<b>Response Date</b>
RAI 221 — 06.02.01-15	December 17, 2009
RAI 221 — 06.02.01-16	September 30, 2009
RAI 221 — 06.02.01-18	September 30, 2009
RAI 221 — 06.02.01-20	September 30, 2009
RAI 221 — 06.02.01-21	December 17, 2009
RAI 221 — 06.02.01-22	December 17, 2009
RAI 221 — 06.02.01-23	December 17, 2009
RAI 221 — 06.02.01-24	December 17, 2009
RAI 221 — 06.02.01-25	July 31, 2009
RAI 221 — 06.02.01-26	December 17, 2009
RAI 221 — 06.02.01-27	August 27, 2009

RAI 221 — 06.02.01-28	December 17, 2009
RAI 221 — 06.02.01-29	August 27, 2009
RAI 221 — 06.02.01-30	December 17, 2009
RAI 221 — 06.02.01-31	July 31, 2009
RAI 221 — 06.02.01-32	December 17, 2009
RAI 221 — 06.02.01-33	December 17, 2009
RAI 221 — 06.02.01-34	December 17, 2009
RAI 221 — 06.02.01-35	December 17, 2009
RAI 221 — 06.02.01-36	July 31, 2009
RAI 221 — 06.02.01-37	July 31, 2009
RAI 221 — 06.02.01-38c	July 31, 2009
RAI 221 — 06.02.01-39	August 27, 2009
RAI 221 — 06.02.01-40	August 27, 2009
RAI 221 — 06.02.01-41	August 27, 2009
RAI 221 — 06.02.01-42	December 17, 2009
RAI 221 — 06.02.01-43	August 27, 2009
RAI 221 — 06.02.01-44	December 17, 2009
RAI 221 — 06.02.01-46	August 27, 2009

Sincerely,

*Ronda Pederson*

[ronda.pederson@areva.com](mailto:ronda.pederson@areva.com)

Licensing Manager, U.S. EPR Design Certification

**AREVA NP Inc.**

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**From:** Getachew Tesfaye [mailto:Getachew.Tesfaye@nrc.gov]

**Sent:** Tuesday, May 19, 2009 7:30 PM

**To:** ZZ-DL-A-USEPR-DL

**Cc:** Walton Jensen; Christopher Jackson; Jason Carneal; Joseph Colaccino; ArevaEPRDCPEm Resource

**Subject:** U.S. EPR Design Certification Application RAI No. 221 (2792), FSARCh. 6

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on April 14, 2009, and on May 15, 2009, you informed us that the RAI is clear with exception of Draft RAI Question 06.02.01-15, Part 33. After further evaluation, the staff has determined that Draft RAI Question 06.02.01-15, Part 33 is unnecessary and it is deleted. Additionally, per your request, RAI 221 has been renumbered to break up the single RAI question with 32 parts into 32 separate questions, i.e. Question 06.02.01-15, Part1-32 are now Questions 06.02.01-15 - Question 06.02.01-46. 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:** 701

**Mail Envelope Properties** (5CEC4184E98FFE49A383961FAD402D31011D3029)

**Subject:** Response to U.S. EPR Design Certification Application RAI No. 221, FSARCh. 6  
, Supplement 1  
**Sent Date:** 7/31/2009 2:51:08 PM  
**Received Date:** 7/31/2009 2:51:16 PM  
**From:** Pederson Ronda M (AREVA NP INC)

**Created By:** Ronda.Pederson@areva.com

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Tracking Status: None

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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

<b>Files</b>	<b>Size</b>	<b>Date &amp; Time</b>
MESSAGE	8341	7/31/2009 2:51:16 PM
RAI 221 Supplement 1 Response US EPR DC.pdf		62037

**Options**

**Priority:** Standard

**Return Notification:** No

**Reply Requested:** No

**Sensitivity:** Normal

**Expiration Date:**

**Recipients Received:**

**Response to**

**Request for Additional Information No. 221, Supplement 1**

**5/19/2009**

**U. S. EPR Standard Design Certification**

**AREVA NP Inc.**

**Docket No. 52-020**

**SRP Section: 06.02.01 - Containment Functional Design**

**Application Section: 6.2.1, Technical Report ANP-10299P**

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

**Question 06.02.01-25:**

Formation of a panel to identify and rank significant phenomena which might affect the US-EPR containment analysis for the development of a PIRT is discussed in Section 3.4.1 beginning on page 3.21 of ANP-10299P. Identify the individuals who served on the panel and provide their qualifications to serve this function.

**Response to Question 06.02.01-25:**

ANP-10299P, "Applicability of AREVA NP Containment Response Evaluation Methodology to the U.S. EPR for Large Break LOCA Analysis - Technical Report," Revision 1, Appendix A provides the response to this question.

**FSAR Impact:**

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



**Question 06.02.01-31:**

The text in the paragraph in the middle of page 6-17 of ANP-10299P for timing of steam generator tube quenching does not appear to agree with the times indicated in Figure 6-15 on the same page. Further clarification is needed.

**Response to Question 06.02.01-31:**

ANP-10299P, "Applicability of AREVA NP Containment Response Evaluation Methodology to the U.S. EPR for Large Break LOCA Analysis - Technical Report," Revision 1, Section 6.1.3 provides the response to this question.

**FSAR Impact:**

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

**Question 06.02.01-36:**

Pages 8-24 through 8-26 of ANP-10299P describe derivation of the hot leg injection mixing model used with the GOTHIC simulation of hot leg injection. The staff understands that these pages are being revised. Provide the revisions and provide a step-wise derivation for the equations that are used in the hot leg injection and mixing model for GOTHIC.

**Response to Question 06.02.01-36:**

ANP-10299P, "Applicability of AREVA NP Containment Response Evaluation Methodology to the U.S. EPR for Large Break LOCA Analysis - Technical Report," Revision 1, Section 8.3.2.1 and Section 8.3.2.2 provide the response to this question.

**FSAR Impact:**

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

**Question 06.02.01-37:**

Figure 9-12 in ANP-10299P presents the long term steam flow to the containment calculated by the GOTHIC reactor system model. The figure shows the steam flow to: 1. drop to almost zero following the initiation of hot leg injection and to partially recover, 2. slowly increase from 5400 seconds to approximately 12000 seconds and 3. suddenly decrease at approximately 12000 seconds. Explain the processes in the GOTHIC model which cause these effects.

**Response to Question 06.02.01-37:**

ANP-10299P, "Applicability of AREVA NP Containment Response Evaluation Methodology to the U.S. EPR for Large Break LOCA Analysis - Technical Report," Revision 1, Section 9.3 provides the response to this question.

**FSAR Impact:**

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