

## ArevaEPRDCPEm Resource

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**From:** WELLS Russell (AREVA) [Russell.Wells@areva.com]  
**Sent:** Monday, March 28, 2011 3:29 PM  
**To:** Tesfaye, Getachew  
**Cc:** BUDZIK Dennis (AREVA); HUDSON Greg (AREVA); BENNETT Kathy (AREVA); DELANO Karen (AREVA); HALLINGER Pat (EXTERNAL AREVA); ROMINE Judy (AREVA); RYAN Tom (AREVA); WILLIFORD Dennis (AREVA)  
**Subject:** DRAFT Response to U.S. EPR Design Certification Application RAI No. 285, FSAR Ch 7, Question 7.3-21  
**Attachments:** RAI 285 Question 07.03-21 Response US EPR DC - DRAFT.pdf

Getachew,

Attached is a draft response to RAI No. 285, Question 07.03-21. The response is provided in advance of the final response date of April 28, 2011 as shown below.

Please let me know if the staff has questions, or if this can be sent as a final response.

*Sincerely,*

*Russ Wells*

*U.S. EPR Design Certification Licensing Manager*

*AREVA NP, Inc.*

*3315 Old Forest Road, P.O. Box 10935*

*Mail Stop OF-57*

*Lynchburg, VA 24506-0935*

*Phone: 434-832-3884 (work)*

*434-942-6375 (cell)*

*Fax: 434-382-3884*

*[Russell.Wells@Areva.com](mailto:Russell.Wells@Areva.com)*

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**From:** WELLS Russell (RS/NB)  
**Sent:** Thursday, February 24, 2011 4:55 PM  
**To:** 'Tesfaye, Getachew'  
**Cc:** BRYAN Martin (External RS/NB); DELANO Karen (RS/NB); BENNETT Kathy (RS/NB); RYAN Tom (RS/NB); ROMINE Judy (RS/NB)  
**Subject:** Response to U.S. EPR Design Certification Application RAI No. 285, FSAR Ch 7, Supplement 11

Getachew,

AREVA NP Inc. (AREVA NP) provided responses to 4 of the 20 questions of RAI No. 285 on November 11, 2009. AREVA NP submitted Supplement 1 to the response on December 17, 2009 to address 6 of the remaining 16 questions. AREVA NP submitted Supplement 2 to the response on January 22, 2010 to provide a revised schedule for the remaining questions. AREVA NP submitted Supplement 3 to the response on February 19, 2010 which provided responses to 7 of the 10 remaining questions. The RAI 285 Supplement 4 response on February 26, 2010 provided technically correct and complete responses to 1 of the remaining 3 questions. That submittal completed responses to 14 of the 16 questions for RAI 285. The RAI 285 Supplement 5 response on March 5, 2010 provided technically correct and complete responses to 1 of the remaining 2 questions for a total response to 15 of 16 questions. The RAI 285 Supplement 6 response on April 16, 2010, RAI 285 Supplement 7 response on May 28, 2010, RAI 285 Supplement 8 response on July 20,

2010, RAI 285 Supplement 9 response on October 28, 2010, and RAI 285 Supplement 10 response on January 7, 2011, provided a revised schedule for the remaining question 07.03-21.

Based upon the information presented to the NRC during the February 15, 2011, Public Meeting, the schedule for the remaining question has been changed.

The schedule for technically correct and complete response to question 07.03-21 is changed and is provided below.

Question #	Response Date
RAI 285 — 07.03-21	April 28, 2011

*Sincerely,*

*Russ Wells*

*U.S. EPR Design Certification Licensing Manager*

*AREVA NP, Inc.*

*3315 Old Forest Road, P.O. Box 10935*

*Mail Stop OF-57*

*Lynchburg, VA 24506-0935*

*Phone: 434-832-3884 (work)*

*434-942-6375 (cell)*

*Fax: 434-382-3884*

*[Russell.Wells@Areva.com](mailto:Russell.Wells@Areva.com)*

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**From:** BRYAN Martin (External RS/NB)

**Sent:** Friday, January 07, 2011 11:18 AM

**To:** Tesfaye, Getachew

**Cc:** DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); RYAN Tom (RS/NB); PANNELL George (CORP/QP)

**Subject:** Response to U.S. EPR Design Certification Application RAI No. 285, FSAR Ch 7, Supplement 10

Getachew,

AREVA NP Inc. (AREVA NP) provided responses to 4 of the 20 questions of RAI No. 285 on November 11, 2009. AREVA NP submitted Supplement 1 to the response on December 17, 2009 to address 6 of the remaining 16 questions. AREVA NP submitted Supplement 2 to the response on January 22, 2010 to provide a revised schedule for the remaining questions. AREVA NP submitted Supplement 3 to the response on February 19, 2010 which provided responses to 7 of the 10 remaining questions. The RAI 285 Supplement 4 response on February 26, 2010 provided technically correct and complete responses to 1 of the remaining 3 questions. That submittal completed responses to 14 of the 16 questions for RAI 285. The RAI 285 Supplement 5 response on March 5, 2010 provided technically correct and complete responses to 1 of the remaining 2 questions for a total response to 15 of 16 questions. The RAI 285 Supplement 6 response on April 16, 2010, RAI 285 Supplement 7 response on May 28, 2010, RAI 285 Supplement 8 response on July 20, 2010, and RAI 285 Supplement 9 response on October 28, 2010 provided a revised schedule for the remaining question 07.03-21. To allow additional time to address comments from the NRC staff and then to interact with the staff on this remaining question, the response date is being revised.

The schedule for technically correct and complete responses to question 07.03-21 is changed and is provided below.

Question #	Response Date
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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](mailto:Martin.Bryan.ext@areva.com)

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**From:** BRYAN Martin (External RS/NB)  
**Sent:** Thursday, October 28, 2010 2:45 PM  
**To:** 'Tesfaye, Getachew'  
**Cc:** DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); PANNELL George (CORP/QP)  
**Subject:** Response to U.S. EPR Design Certification Application RAI No. 285, FSAR Ch 7, Supplement 9

Getachew,

AREVA NP Inc. (AREVA NP) provided responses to 4 of the 20 questions of RAI No. 285 on November 11, 2009. AREVA NP submitted Supplement 1 to the response on December 17, 2009 to address 6 of the remaining 16 questions. AREVA NP submitted Supplement 2 to the response on January 22, 2010 to provide a revised schedule for the remaining questions. AREVA NP submitted Supplement 3 to the response on February 19, 2010 which provided responses to 7 of the 10 remaining questions. The RAI 285 Supplement 4 response on February 26, 2010 provided technically correct and complete responses to 1 of the remaining 3 questions. That submittal completed responses to 14 of the 16 questions for RAI 285. The RAI 285 Supplement 5 response on March 5, 2010 provided technically correct and complete responses to 1 of the remaining 2 questions for a total response to 15 of 16 questions. The RAI 285 Supplement 6 response on April 16, 2010, and RAI 285 Supplement 7 response on May 28, 2010, provided a revised schedule for the remaining question 07.03-21. To allow additional time to address comments from the NRC staff and then to interact with the staff on this remaining question, the response date is being revised.

The schedule for technically correct and complete responses to question 07.03-21 is changed and is provided below.

Question #	Response Date
RAI 285 — 07.03-21	January 10, 2011

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](mailto:Martin.Bryan.ext@areva.com)

**From:** BRYAN Martin (EXT)

**Sent:** Tuesday, July 20, 2010 3:43 PM

**To:** 'Tefsaye, Getachew'

**Cc:** DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); RYAN Tom (AREVA NP INC); PANNELL George L (AREVA NP INC)

**Subject:** Response to U.S. EPR Design Certification Application RAI No. 285, FSAR Ch 7, Supplement 8

Getachew,

AREVA NP Inc. (AREVA NP) provided responses to 4 of the 20 questions of RAI No. 285 on November 11, 2009. AREVA NP submitted Supplement 1 to the response on December 17, 2009 to address 6 of the remaining 16 questions. AREVA NP submitted Supplement 2 to the response on January 22, 2010 to provide a revised schedule for the remaining questions. AREVA NP submitted Supplement 3 to the response on February 19, 2010 which provided responses to 7 of the 10 remaining questions. The RAI 285 Supplement 4 response on February 26, 2010 provided technically correct and complete responses to 1 of the remaining 3 questions. That submittal completed responses to 14 of the 16 questions for RAI 285. The RAI 285 Supplement 5 response on March 5, 2010 provided technically correct and complete responses to 1 of the remaining 2 questions for a total response to 15 of 16 questions. The RAI 285 Supplement 6 response on April 16, 2010, and RAI 285 Supplement 7 response on May 28, 2010, provided a revised schedule for the remaining question 07.03-21. To allow time to continue to interact with the staff on this remaining question the response date is being revised.

The schedule for technically correct and complete responses to question 07.03-21 is changed and is provided below. It should be noted that this response date may be updated based on the outcome of future NRC and AREVA interactions on FSAR Chapter 7 topics.

Question #	Response Date
RAI 285 — 07.03-21	October 28, 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](mailto:Martin.Bryan.ext@areva.com)

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**From:** BRYAN Martin (EXT)

**Sent:** Friday, May 28, 2010 2:16 PM

**To:** 'Tefsaye, Getachew'

**Cc:** DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); PANNELL George L (AREVA NP INC)

**Subject:** Response to U.S. EPR Design Certification Application RAI No. 285, FSAR Ch 7, Supplement 7

Getachew,

AREVA NP Inc. (AREVA NP) provided responses to 4 of the 20 questions of RAI No. 285 on November 11, 2009. AREVA NP submitted Supplement 1 to the response on December 17, 2009 to address 6 of the remaining 16 questions. AREVA NP submitted Supplement 2 to the response on January 22, 2010 to provide a revised schedule for the remaining questions. AREVA NP submitted Supplement 3 to the response on February 19, 2010 which provided responses to 7 of the 10 remaining questions. The RAI 285 Supplement 4 response on February 26, 2010 provided technically correct and complete responses to 1 of the remaining 3

questions. That submittal completed responses to 14 of the 16 questions for RAI 285. The RAI 285 Supplement 5 response on March 5, 2010 provided technically correct and complete responses to 1 of the remaining 2 questions for a total response to 15 of 16 questions. The RAI 285 Supplement 6 response on April 16, 2010 provided a revised schedule for the remaining question.

A public meeting was held on April 27-28, 2010 between AREVA and NRC Technical Specification Branch and I&C Branch. Another public meeting is planned for late June to discuss I & C topics related to Chapter 7. The feedback from these meetings needs to be factored into the response for the remaining question.

The schedule for a technically correct and complete response to question 07.03-21 is changed and is provided below.

Question #	Response Date
RAI 285 — 07.03-21	July 23, 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](mailto:Martin.Bryan.ext@areva.com)

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**From:** BRYAN Martin (EXT)  
**Sent:** Friday, April 16, 2010 3:26 PM  
**To:** 'Tefsaye, Getachew'  
**Cc:** DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); PANNELL George L (AREVA NP INC)  
**Subject:** Response to U.S. EPR Design Certification Application RAI No. 285, FSAR Ch 7, Supplement 6

Getachew,

AREVA NP Inc. (AREVA NP) provided responses to 4 of the 20 questions of RAI No. 285 on November 11, 2009. AREVA NP submitted Supplement 1 to the response on December 17, 2009 to address 6 of the remaining 16 questions. AREVA NP submitted Supplement 2 to the response on January 22, 2010 to provide a revised schedule for the remaining questions. AREVA NP submitted Supplement 3 to the response on February 19, 2010 which provided responses to 7 of the 10 remaining questions. The RAI 285 Supplement 4 response provided technically correct and complete responses to 1 of the remaining 3 questions. That submittal completed responses to 14 of the 16 questions for RAI 285. The RAI 285 Supplement 5 response provided technically correct and complete responses to 1 of the remaining 2 questions for a total response to 15 of 16 questions.

The schedule for technically correct and complete response to question 07.03-21 is changed and is provided below. The schedule is being revised to provide opportunities for interactions with the NRC prior to submittal.

Question #	Response Date
RAI 285 — 07.03-21	May 28, 2010

Sincerely,

Martin (Marty) C. Bryan  
Licensing Advisory Engineer  
AREVA NP Inc.  
Tel: (434) 832-3016  
[Martin.Bryan.ext@areva.com](mailto:Martin.Bryan.ext@areva.com)

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**From:** BRYAN Martin (EXT)  
**Sent:** Friday, March 05, 2010 3:11 PM  
**To:** 'Tefaye, Getachew'  
**Cc:** DELANO Karen V (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); ROMINE Judy (AREVA NP INC); PANNELL George L (AREVA NP INC)  
**Subject:** Response to U.S. EPR Design Certification Application RAI No. 285, FSAR Ch 7, Supplement 5

Getachew,

AREVA NP Inc. (AREVA NP) provided responses to 4 of the 20 questions of RAI No. 285 on November 11, 2009. AREVA NP submitted Supplement 1 to the response on December 17, 2009 to address 6 of the remaining 16 questions. AREVA NP submitted Supplement 2 to the response on January 22, 2010 to provide a revised schedule for the remaining questions. AREVA NP submitted Supplement 3 to the response on February 19, 2010 which provided responses to 7 of the 10 remaining questions. AREVA NP submitted Supplement 4 to the response on Feb. 26, 2010 which provided responses to 1 of the remaining 3 questions. The attached file, "RAI 285 Supplement 5 Response US EPR DC.pdf" provides technically correct and complete responses to 1 of the remaining 2 questions. This submittal completes responses to 15 of the 16 questions for RAI 285.

The following table indicates the respective pages in the response document, "RAI 285 Supplement 5 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 285 — 07.01-15	2	4

The schedule for technically correct and complete response to question 07.03-21 is provided below.

Question #	Response Date
RAI 285 — 07.03-21	April 16, 2010

Sincerely,

Martin (Marty) C. Bryan  
Licensing Advisory Engineer  
AREVA NP Inc.  
Tel: (434) 832-3016  
[Martin.Bryan@areva.com](mailto:Martin.Bryan@areva.com)

**From:** DUNCAN Leslie E (AREVA NP INC)

**Sent:** Friday, February 26, 2010 3:27 PM

**To:** 'Tesfaye, Getachew'

**Cc:** DELANO Karen V (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); ROMINE Judy (AREVA NP INC); PANNELL George L (AREVA NP INC); BRYAN Martin (EXT)

**Subject:** Response to U.S. EPR Design Certification Application RAI No. 285, FSAR Ch 7, Supplement 4

Getachew,

AREVA NP Inc. (AREVA NP) provided responses to 4 of the 20 questions of RAI No. 285 on November 11, 2009. AREVA NP submitted Supplement 1 to the response on December 17, 2009 to address 6 of the remaining 16 questions. AREVA NP submitted Supplement 2 to the response on January 22, 2010 to provide a revised schedule for the remaining questions. AREVA NP submitted Supplement 3 to the response on February 19, 2010 which provided responses to 7 of the 10 remaining questions. The attached file, "RAI 285 Supplement 4 Response US EPR DC.pdf," provides a technically correct and complete response to 1 of the remaining 3 questions.

The following table indicates the respective pages in the response document, "RAI 285 Supplement 4 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 285 — 07.03-25	2	3

The schedule for technically correct and complete responses to questions is unchanged and provided below.

Question #	Response Date
RAI 285 — 07.01-15	March 5, 2010
RAI 285 — 07.03-21	April 16, 2010

Sincerely,

Les Duncan

Licensing Engineer

**AREVA NP Inc.**

An AREVA and Siemens Company

Tel: (434) 832-2849

[Leslie.Duncan@areva.com](mailto:Leslie.Duncan@areva.com)

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**From:** DUNCAN Leslie E (AREVA NP INC)

**Sent:** Friday, February 19, 2010 4:57 PM

**To:** 'Tesfaye, Getachew'

**Cc:** DELANO Karen V (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); ROMINE Judy (AREVA NP INC); PANNELL George L (AREVA NP INC)

**Subject:** Response to U.S. EPR Design Certification Application RAI No. 285, FSAR Ch 7, Supplement 3

Getachew,

AREVA NP Inc. (AREVA NP) provided responses to 4 of the 20 questions of RAI No. 285 on November 11, 2009. AREVA NP submitted Supplement 1 to the response on December 17, 2009 to address 6 of the remaining 16 questions. AREVA NP submitted Supplement 2 to the response on January 22, 2010 to provide a revised schedule for the remaining questions. The attached file, "RAI 285 Supplement 3 Response US EPR

DC.pdf” provides technically correct and complete responses to 7 of the remaining 10 questions. The schedule for a technically correct and complete response to question 07.03-25 remains unchanged, and the schedule for technically correct and complete responses to questions 07.01-15 and 07.03-21 has been changed.

Appended to this file are affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which supports the response to RAI 285 Supplement 3 Questions 07.01-16, 07.03-27, 07.04-11, and 07.04-13.

The following table indicates the respective pages in the response document, “RAI 285 Supplement 3 Response US EPR DC.pdf,” that contain AREVA NP’s response to the subject questions.

Question #	Start Page	End Page
RAI 285 — 07.01-13	2	3
RAI 285 — 07.01-16	4	5
RAI 285 — 07.01-17	6	8
RAI 285 — 07.03-26	9	11
RAI 285 — 07.03-27	12	13
RAI 285 — 07.04-11	14	14
RAI 285 — 07.04-13	15	17

The schedule for a technically correct and complete response to question 07.03-25 remains unchanged and provided below. The schedule for technically correct and complete responses to questions 07.01-15 and 07.03-21 has been changed and is provided below.

Question #	Response Date
RAI 285 — 07.01-15	March 5, 2010
RAI 285 — 07.03-21	April 16, 2010
RAI 285 — 07.03-25	February 26, 2010

Sincerely,

Les Duncan  
 Licensing Engineer  
**AREVA NP Inc.**  
 An AREVA and Siemens Company  
 Tel: (434) 832-2849  
[Leslie.Duncan@areva.com](mailto:Leslie.Duncan@areva.com)

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**From:** DUNCAN Leslie E (AREVA NP INC)  
**Sent:** Friday, January 22, 2010 6:27 PM  
**To:** 'Tesfaye, Getachew'  
**Cc:** BENNETT Kathy A (OFR) (AREVA NP INC); DELANO Karen V (AREVA NP INC); PANNELL George L (AREVA NP INC)  
**Subject:** Response to U.S. EPR Design Certification Application RAI No. 285, FSAR Ch 7, Supplement 2

Getachew,

AREVA NP Inc. provided responses to 4 of the 20 questions of RAI No. 285 on November 11, 2009. AREVA NP submitted Supplement 1 to the response on December 17, 2009 to address 6 of the remaining 16 questions.

AREVA NP is unable to provide a response to the 9 RAI No. 285 questions with a commitment date of January 22, 2010. The commitment date for these nine questions has been changed to February 19, 2010 to allow

time to incorporate comments and feedback from the upcoming 1/25/10-1/26/10 meeting with the NRC related to U.S. EPR FSAR Chapter 7.

The schedule for a technically correct and complete response to RAI 285 Question 07.03-25 is unchanged and provided below. The schedule for technically correct and complete responses to the other nine RAI questions has been changed and is provided below:

Question #	Response Date
RAI 285 — 07.01-13	February 19, 2010
RAI 285 — 07.01-15	February 19, 2010
RAI 285 — 07.01-16	February 19, 2010
RAI 285 — 07.01-17	February 19, 2010
RAI 285 — 07.03-21	February 19, 2010
RAI 285 — 07.03-25	February 26, 2010
RAI 285 — 07.03-26	February 19, 2010
RAI 285 — 07.03-27	February 19, 2010
RAI 285 — 07.04-11	February 19, 2010
RAI 285 — 07.04-13	February 19, 2010

Sincerely,

Les Duncan  
 Licensing Engineer  
**AREVA NP Inc.**  
 An AREVA and Siemens Company  
 Tel: (434) 832-2849  
[Leslie.Duncan@areva.com](mailto:Leslie.Duncan@areva.com)

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**From:** WELLS Russell D (AREVA NP INC)  
**Sent:** Thursday, December 17, 2009 1:26 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. 285, FSAR Ch 7, Supplement 1

Getachew,

AREVA NP Inc. provided responses to 4 of the 20 questions of RAI No. 285 on November 11, 2009. The attached file, "RAI 285 Supplement 1 Response US EPR DC.pdf" provides technically correct and complete responses to 6 of the remaining 16 questions, as committed.

Appended to this file are affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which supports the response to RAI 285 Questions 07.02-31 and 07.03-23.

The following table indicates the respective pages in the response document, "RAI 285 Supplement 1 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 285 — 07.01-12	2	2
RAI 285 — 07.02-31	3	3
RAI 285 — 07.03-22	4	5
RAI 285 — 07.03-23	6	6
RAI 285 — 07.03-24	7	8

The schedule for a technically correct and complete response to the remaining questions is unchanged and provided below.

Question #	Response Date
RAI 285 — 07.01-13	January 22, 2010
RAI 285 — 07.01-15	January 22, 2010
RAI 285 — 07.01-16	January 22, 2010
RAI 285 — 07.01-17	January 22, 2010
RAI 285 — 07.03-21	January 22, 2010
RAI 285 — 07.03-25	February 26, 2010
RAI 285 — 07.03-26	January 22, 2010
RAI 285 — 07.03-27	January 22, 2010
RAI 285 — 07.04-11	January 22, 2010
RAI 285 — 07.04-13	January 22, 2010

Sincerely,

(Russ Wells on behalf of)

*Ronda Pederson*

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

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

**Sent:** Wednesday, November 11, 2009 6:11 PM

**To:** Tesfaye, Getachew

**Cc:** BENNETT Kathy A (OFR) (AREVA NP INC); DELANO Karen V (AREVA NP INC); PANNELL George L (AREVA NP INC)

**Subject:** Response to U.S. EPR Design Certification Application RAI No. 285, FSAR Ch. 7

Getachew,

Attached please find AREVA NP Inc.'s response to the subject request for additional information RAI 285. The attached file, "RAI 285 Response US EPR DC.pdf" provides technically correct and complete responses to 4 of the 20 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 285 Questions 07.01-14 and 07.04-12.

The following table indicates the respective page(s) in the response document, "RAI 285 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 285 — 07.01-12	2	2

RAI 285 — 07.01-13	3	3
RAI 285 — 07.01-14	4	4
RAI 285 — 07.01-15	5	5
RAI 285 — 07.01-16	6	6
RAI 285 — 07.01-17	7	8
RAI 285 — 07.02-30	9	10
RAI 285 — 07.02-31	11	11
RAI 285 — 07.03-21	12	12
RAI 285 — 07.03-22	13	13
RAI 285 — 07.03-23	14	14
RAI 285 — 07.03-24	15	15
RAI 285 — 07.03-25	16	16
RAI 285 — 07.03-26	17	17
RAI 285 — 07.03-27	18	18
RAI 285 — 07.04-10	19	19
RAI 285 — 07.04-11	20	20
RAI 285 — 07.04-12	21	21
RAI 285 — 07.04-13	22	23
RAI 285 — 07.05-9	24	24

A complete answer is not provided for 16 of the 20 questions. The schedule for a technically correct and complete response to these questions is provided below.

<b>Question #</b>	<b>Response Date</b>
RAI 285 — 07.01-12	December 18, 2009
RAI 285 — 07.01-13	January 22, 2010
RAI 285 — 07.01-15	January 22, 2010
RAI 285 — 07.01-16	January 22, 2010
RAI 285 — 07.01-17	January 22, 2010
RAI 285 — 07.02-31	December 18, 2009
RAI 285 — 07.03-21	January 22, 2010
RAI 285 — 07.03-22	December 18, 2009
RAI 285 — 07.03-23	December 18, 2009
RAI 285 — 07.03-24	December 18, 2009
RAI 285 — 07.03-25	February 26, 2010
RAI 285 — 07.03-26	January 22, 2010
RAI 285 — 07.03-27	January 22, 2010
RAI 285 — 07.04-11	January 22, 2010
RAI 285 — 07.04-13	January 22, 2010
RAI 285 — 07.05-9	December 18, 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:** Tesfaye, Getachew [mailto:Getachew.Tesfaye@nrc.gov]

**Sent:** Tuesday, October 13, 2009 4:49 PM

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

**Cc:** Spaulding, Deirdre; Truong, Tung; Morton, Wendell; Cheung, Calvin; Jackson, Terry; Canova, Michael; Guardiola, Maria; Colaccino, Joseph; ArevaEPRDCPEm Resource

**Subject:** U.S. EPR Design Certification Application RAI No. 285(3560,3507,3552,3564,3565), FSAR Ch. 7

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on August 25, 2009, and discussed with your staff on September 3, 2009. Draft RAI Question 07-01-13 was modified as a result of that 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:** 2754

**Mail Envelope Properties** (1F1CC1BBDC66B842A46CAC03D6B1CD4104283E46)

**Subject:** DRAFT Response to U.S. EPR Design Certification Application RAI No. 285,  
FSAR Ch 7, Question 7.3-21  
**Sent Date:** 3/28/2011 3:29:27 PM  
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**Response to**

**Request for Additional Information No. 285 (3560, 3507, 3552, 3564, 3565),  
Revision 1, Question 07.03-21**

**10/13/2009**

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

**AREVA NP Inc.**

**Docket No. 52-020**

**SRP Section: 07.01 - Instrumentation and Controls - Introduction**

**SRP Section: 07.02 - Reactor Trip System**

**SRP Section: 07.03 - Engineered Safety Features Systems**

**SRP Section: 07.04 - Safe Shutdown Systems**

**SRP Section: 07.05 - Information Systems Important to Safety**

**Application Section: FSAR Ch. 7**

**QUESTIONS for Instrumentation, Controls and Electrical Engineering 1  
(AP1000/EPR Projects) (ICE1)**

**Question 07.03-21:**

Follow-up to RAI Question No. 07.03-2

Provide specific details on the design capabilities of the self-testing features, and their intended use to fulfill IEEE Std. 603-1991, Clauses 5.1 and 5.7, and Technical Specification surveillances as stated in U.S. EPR DC-FSAR, Section 7.3.

In U.S. EPR DC-FSAR Section 7.3.2.3.6, Revision 1, AREVA NP mentions the self-testing features of the PS as a means of satisfying IEEE Std. 603-1991, Clause 5.7. This is also consistent with Section 14.10 of the U.S. EPR Digital Protection System Topical Report (ANP-10281P). Also, in DC-FSAR Section 7.3.2.3.1, Revision 1, AREVA NP details that the failure modes and effects analysis (FMEA) shown in Tables 7.3-2, 7.3-3, and 7.3-4 are used to demonstrate compliance with IEEE Std. 603-1991, Clause 5.1, Single Failure Criterion. For the FMEA, AREVA NP defines "detected" and "non-detected" failures by the self-testing features' ability to find failures in the Protection System (PS). If AREVA NP intends to use the self-testing features to satisfy Clauses 5.1 and 5.7 of IEEE Std. 603-1991 and for Technical Specification surveillance testing, the staff requires additional detail on the abilities of the self-testing features, as well as AREVA NP's intended design usage for the self-testing features.

1. Does AREVA NP intend to take credit for self-testing features of the PS in order to satisfy IEEE Std. 603-1991, Clause 5.7?
2. What are the exact coverage capabilities of the self-testing features? Are the self-testing features intended to find all failures/faults, hardware or software, within the PS including instrument channels?
3. Does AREVA NP have operating experience that can demonstrate the reliability and capability of the self-testing features to detect failures over a given period of time?
4. Are all failures, defined as "undetected" in DC-FSAR Section 7.3.2.2, be detected by other means, or during a Technical Specification surveillance? If not, what types of failures cannot be detected at all?
5. How does AREVA NP verify the operation of self-testing features on a periodic basis, such as a Technical Specification surveillance? If no surveillance is provided for self-test features, provide the basis for why the self-test feature would not fail for the life of the plant.

**Response to Question 07.03-21:**

An alternative request to use a conservative setpoint methodology to satisfy single failure considerations as an alternative for independence between redundant divisions in IEEE 603-1991, Clause 5.6.1 will be submitted under separate letter.

Technical Report ANP-10315P, Revision 0, "U.S. EPR Protection System Surveillance Testing and TELEPERM XS Self-Monitoring," presents the U.S. EPR protection system (PS) self-test features.

1. Technical Report ANP-10315P, Section 3.6 describes compliance to BTP 7-17, which includes IEEE 603-1991, Clause 5.7.

2. Technical Report ANP-10315P, Section 2.0 describes the coverage capabilities of the self-test features. Technical Report ANP-10315P, Section 2.2 describes how the tests overlap to provide coverage.
3. AREVA NP does not have a report concerning the reliability of self-test failures. Because those functions are software-related, they change with software updates. The development of those functions follows the software quality process of the Teleperm XS (TXS) software, and they are tested concurrent with system software that performs the PS safety functions.
4. The Response to RAI 442, Question RAI 07.01-27 provides information on the “undetected” failures. As defined by IEEE 603-1998, the PS has only detectable failures and no identifiable, but non-detectable, failures.
5. Technical Report ANP-10315P, Section 2.2.6 details the protection self-test feature. These self-tests are non-intrusive and can be monitored through engineered self-tests as described in Technical Report ANP-10315P, Section 2.2.6.

Technical Report ANP-10315P will be provided by separate letter.

**FSAR Impact:**

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

DRAFT