

ArevaEPRDCPEm Resource

From: WILLIFORD Dennis (AREVA) [Dennis.Williford@areva.com]
Sent: Monday, May 06, 2013 2:17 PM
To: Snyder, Amy
Cc: Miernicki, Michael; ANDERSON Katherine (EXTERNAL AREVA); DELANO Karen (AREVA); HONMA George (EXTERNAL AREVA); LEIGHLITER John (AREVA); LEWIS Ray (EXTERNAL AREVA); ROMINE Judy (AREVA); RYAN Tom (AREVA); VANCE Brian (AREVA); ABAYAN Victor (AREVA); SHEPHERD Tracey (AREVA); LOSEKE Brian (AREVA); ALCHAAR Nawar (AREVA); CORNELL Veronica (EXTERNAL AREVA)
Subject: Advanced Response to U.S. EPR Design Certification Application RAI No. 371, FSAR Ch. 3, Question 03.07.01-29
Attachments: RAI 371 Advanced Response Question 3.7.1-29 - US EPR DC.pdf

Amy,

Attached is an Advanced Response to RAI No.371, Question 03.07.01-29 in advance of the final response date of June 20, 2013.

To keep our commitment to send a final response to this question by the commitment date, we need to receive all NRC staff feedback and comments no later than **June 13, 2013**.

Please let me know if NRC staff has any questions or if this response can be sent as final.

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: WILLIFORD Dennis (RS/NB)
Sent: Monday, May 06, 2013 1:50 PM
To: Amy.Snyder@nrc.gov
Cc: Michael.Miernicki@nrc.gov; ANDERSON Katherine (External AREVA NP INC.); DELANO Karen (RS/NB); LEIGHLITER John (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 371, FSAR Ch. 3, Supplement 28

Amy,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 371 on April 26, 2010. AREVA NP submitted Supplement 1 to the response on June 7, 2010, to provide a revised schedule for question 03.07.01-29. On June 24, 2010, AREVA provided a revised response schedule in Supplement 2 for the other 8 questions based on the information presented at the June 9, 2010 public meeting on civil/structural replanning activities. AREVA NP provided Supplement 3 to the response on July 8, 2010, to provide a revised date for submittal of a FINAL response to question 03.07.01-29 to allow time to address NRC comments. AREVA NP submitted Supplement 4 to the response on July 29, 2010, to provide INTERIM responses to questions 03.07.02-66 through question 03.07.02-68. AREVA NP submitted Supplement 5 to the response on August 31, 2010, to provide technically correct and complete FINAL responses to questions 03.07.02-70 through 03.07.02-72. On September 9, 2010, AREVA NP submitted Supplement 6 to provide a revised schedule for a FINAL response to question 03.07.01-29. On October 4,

2010, AREVA NP submitted Supplement 7 to provide a FINAL response to question 03.07.01-29. On October 18, 2010, AREVA NP submitted Supplement 8 to provide an INTERIM response to question 03.07.02-69. On November 11, 2010, AREVA NP submitted Supplement 9 to provide a revised schedule for a response to question 03.07.01-28. On January 20, 2011, AREVA NP submitted Supplement 10 to provide a revised schedule for a response to questions 03.07.02-67, 03.07.02-68, and 03.07.02-69. AREVA NP submitted Supplement 11 to the response on February 11, 2011 to provide a revised schedule for a response to question 03.07.02-66. On February 28, 2011, AREVA NP submitted Supplement 12 to provide a revised schedule for Question 03.07.01-28 and Question 03.07.02-69. AREVA NP submitted Supplement 13 on March 8, 2011, to provide an INTERIM response to Question 03.07.02-69. On March 24, 2011, AREVA NP submitted Supplement 14 to provide a revised schedule for Question 03.07.02-66. AREVA NP submitted Supplement 15 on April 1, 2011, to provide a revised schedule for Question 03.07.02-68. On April 27, 2011, AREVA NP submitted Supplement 16 to provide a revised schedule for Questions 03.07.02-67 and 03.07.02-69. AREVA NP submitted Supplement 17 on May 2, 2011, to provide a revised schedule for Question 03.07.02-68. On May 20, 2011, AREVA NP submitted Supplement 18 to provide a revised schedule for Question 03.07.02-66. AREVA NP submitted Supplement 19 on June 17, 2011, to provide a final response to Question 03.07.02-68 and a revised schedule for Question 03.07.01-28. On June 23, 2011, AREVA NP submitted Supplement 20 to provide a final response to Question 03.07.02-69. On June 24, 2011, AREVA NP submitted Supplement 20 and Supplement 21 to provide a final response to Question 03.07.02-69 and INTERIM responses to Questions 03.07.02-66 and 03.07.02-67, respectively. On July 6, 2011, AREVA NP submitted Supplement 22 to provide a final response to Question 03.07.01-28. On July 29, 2011, AREVA NP submitted Supplement 23 to provide a revised final response to Question 03.07.02-68 to address NRC comments. On September 13, 2011, AREVA NP submitted Supplement 24 to provide a final response to Question 03.07.02-67. On October 10, 2011, AREVA NP submitted Supplement 25 to provide an updated INTERIM response to Question 03.07.02-66. On December 19, 2011, AREVA NP submitted Supplement 26 to provide a technically correct and complete final response to Question 03.07.02-66. On February 28, 2013, AREVA NP submitted Supplement 27 to provide a revised schedule for Question 03.07.01-29.

Per NRC request dated May 1, 2013, AREVA NP has agreed to extend the due date for the final response to allow NRC staff more time to review the Advanced Response for Question 03.07.01-29.

The schedule for a technically correct and complete revised final response to Question 03.07.01-29 has been changed as provided below.

Question #	Advanced Response Date	NRC Comment Request Date	Final Response Date
RAI 371 — 03.07.01-29	May 6, 2013	June 13, 2013	June 20, 2013

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: WILLIFORD Dennis (RS/NB)
Sent: Thursday, February 28, 2013 1:38 PM
To: Amy.Snyder@nrc.gov
Cc: Michael.Miernicki@nrc.gov; DELANO Karen (RS/NB); LEIGHLITER John (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); WILLS Tiffany (CORP/QP)
Subject: Response to U.S. EPR Design Certification Application RAI No. 371, FSAR Ch. 3, Supplement 27

Amy,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 371 on April 26, 2010. AREVA NP submitted Supplement 1 to the response on June 7, 2010, to provide a revised schedule for question 03.07.01-29. On June 24, 2010, AREVA provided a revised response schedule in Supplement 2 for the other 8 questions based on the information presented at the June 9, 2010 public meeting on civil/structural replanning activities. AREVA NP provided Supplement 3 to the response on July 8, 2010, to provide a revised date for submittal of a FINAL response to question 03.07.01-29 to allow time to address NRC comments. AREVA NP submitted Supplement 4 to the response on July 29, 2010, to provide INTERIM responses to questions 03.07.02-66 through question 03.07.02-68. AREVA NP submitted Supplement 5 to the response on August 31, 2010, to provide technically correct and complete FINAL responses to questions 03.07.02-70 through 03.07.02-72. On September 9, 2010, AREVA NP submitted Supplement 6 to provide a revised schedule for a FINAL response to question 03.07.01-29. On October 4, 2010, AREVA NP submitted Supplement 7 to provide a FINAL response to question 03.07.01-29. On October 18, 2010, AREVA NP submitted Supplement 8 to provide an INTERIM response to question 03.07.02-69. On November 11, 2010, AREVA NP submitted Supplement 9 to provide a revised schedule for a response to question 03.07.01-28. On January 20, 2011, AREVA NP submitted Supplement 10 to provide a revised schedule for a response to questions 03.07.02-67, 03.07.02-68, and 03.07.02-69. AREVA NP submitted Supplement 11 to the response on February 11, 2011 to provide a revised schedule for a response to question 03.07.02-66. On February 28, 2011, AREVA NP submitted Supplement 12 to provide a revised schedule for Question 03.07.01-28 and Question 03.07.02-69. AREVA NP submitted Supplement 13 on March 8, 2011, to provide an INTERIM response to Question 03.07.02-69. On March 24, 2011, AREVA NP submitted Supplement 14 to provide a revised schedule for Question 03.07.02-66. AREVA NP submitted Supplement 15 on April 1, 2011, to provide a revised schedule for Question 03.07.02-68. On April 27, 2011, AREVA NP submitted Supplement 16 to provide a revised schedule for Questions 03.07.02-67 and 03.07.02-69. AREVA NP submitted Supplement 17 on May 2, 2011, to provide a revised schedule for Question 03.07.02-68. On May 20, 2011, AREVA NP submitted Supplement 18 to provide a revised schedule for Question 03.07.02-66. AREVA NP submitted Supplement 19 on June 17, 2011, to provide a final response to Question 03.07.02-68 and a revised schedule for Question 03.07.01-28. On June 23, 2011, AREVA NP submitted Supplement 20 to provide a final response to Question 03.07.02-69. On June 24, 2011, AREVA NP submitted Supplement 20 and Supplement 21 to provide a final response to Question 03.07.02-69 and INTERIM responses to Questions 03.07.02-66 and 03.07.02-67, respectively. On July 6, 2011, AREVA NP submitted Supplement 22 to provide a final response to Question 03.07.01-28. On July 29, 2011, AREVA NP submitted Supplement 23 to provide a revised final response to Question 03.07.02-68 to address NRC comments. On September 13, 2011, AREVA NP submitted Supplement 24 to provide a final response to Question 03.07.02-67. On October 10, 2011, AREVA NP submitted Supplement 25 to provide an updated INTERIM response to Question 03.07.02-66. On December 19, 2011, AREVA NP submitted Supplement 26 to provide a technically correct and complete final response to Question 03.07.02-66.

As provided in AREVA NP Inc. letter NRC:12:072 dated December 20, 2012 which transmitted the U.S. EPR Revised Closure Plan for Civil/Structural Open Items, AREVA NP committed to provide NRC a revised schedule and response for Question 03.07.01-29.

The schedule for a technically correct and complete revised response to Question 03.07.01-29 is provided below.

Question #	Response Date
RAI 371 — 03.07.01-29	June 6, 2013

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: WILLIFORD Dennis (RS/NB)

Sent: Monday, December 19, 2011 3:32 PM

To: Getachew.Tesfaye@nrc.gov

Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB)

Subject: Response to U.S. EPR Design Certification Application RAI No. 371, FSAR Ch. 3, Supplement 26

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 371 on April 26, 2010. AREVA NP submitted Supplement 1 to the response on June 7, 2010, to provide a revised schedule for question 03.07.01-29. On June 24, 2010, AREVA provided a revised response schedule in Supplement 2 for the other 8 questions based on the information presented at the June 9, 2010 public meeting on civil/structural replanning activities. AREVA NP provided Supplement 3 to the response on July 8, 2010, to provide a revised date for submittal of a FINAL response to question 03.07.01-29 to allow time to address NRC comments. AREVA NP submitted Supplement 4 to the response on July 29, 2010, to provide INTERIM responses to questions 03.07.02-66 through question 03.07.02-68. AREVA NP submitted Supplement 5 to the response on August 31, 2010, to provide technically correct and complete FINAL responses to questions 03.07.02-70 through 03.07.02-72. On September 9, 2010, AREVA NP submitted Supplement 6 to provide a revised schedule for a FINAL response to question 03.07.01-29. On October 4, 2010, AREVA NP submitted Supplement 7 to provide a FINAL response to question 03.07.01-29. On October 18, 2010, AREVA NP submitted Supplement 8 to provide an INTERIM response to question 03.07.02-69. On November 11, 2010, AREVA NP submitted Supplement 9 to provide a revised schedule for a response to question 03.07.01-28. On January 20, 2011, AREVA NP submitted Supplement 10 to provide a revised schedule for a response to questions 03.07.02-67, 03.07.02-68, and 03.07.02-69. AREVA NP submitted Supplement 11 to the response on February 11, 2011 to provide a revised schedule for a response to question 03.07.02-66. On February 28, 2011, AREVA NP submitted Supplement 12 to provide a revised schedule for Question 03.07.01-28 and Question 03.07.02-69. AREVA NP submitted Supplement 13 on March 8, 2011, to provide an INTERIM response to Question 03.07.02-69. On March 24, 2011, AREVA NP submitted Supplement 14 to provide a revised schedule for Question 03.07.02-66. AREVA NP submitted Supplement 15 on April 1, 2011, to provide a revised schedule for Question 03.07.02-68. On April 27, 2011, AREVA NP submitted Supplement 16 to provide a revised schedule for Questions 03.07.02-67 and 03.07.02-69. AREVA NP submitted Supplement 17 on May 2, 2011, to provide a revised schedule for Question 03.07.02-68. On May 20, 2011, AREVA NP submitted Supplement 18 to provide a revised schedule for Question 03.07.02-66. AREVA NP submitted Supplement 19 on June 17, 2011, to provide a final response to Question 03.07.02-68 and a revised schedule for Question 03.07.01-28. On June 23, 2011, AREVA NP submitted Supplement 20 to provide a final response to Question 03.07.02-69. On June 24, 2011, AREVA NP submitted Supplement 20 and Supplement 21 to provide a final response to Question 03.07.02-69 and INTERIM responses to Questions 03.07.02-66 and 03.07.02-67, respectively. On July 6, 2011, AREVA NP submitted Supplement 22 to provide a final response to Question 03.07.01-28. On July 29, 2011, AREVA NP submitted Supplement 23 to provide a revised final response to Question 03.07.02-68 to address NRC comments. On September 13, 2011, AREVA NP submitted Supplement 24 to provide a final response to Question 03.07.02-67. On October 10, 2011, AREVA NP submitted Supplement 25 to provide an updated INTERIM response to Question 03.07.02-66.

The attached file, "RAI 371 Supplement 26 Response US EPR DC.pdf" provides a technically correct and complete final response to Question 03.07.02-66. 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 371 Question 03.07.02-66.

The following table indicates the respective pages in the response document, "RAI 371 Supplement 26 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 371 — 03.07. 02-66	2	18

This concludes the formal AREVA NP response to RAI No. 371, 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: WILLIFORD Dennis (RS/NB)
Sent: Monday, October 10, 2011 3:24 PM
To: Getachew.Tesfaye@nrc.gov
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 371, FSAR Ch. 3, Supplement 25

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 371 on April 26, 2010. AREVA NP submitted Supplement 1 to the response on June 7, 2010, to provide a revised schedule for question 03.07.01-29. On June 24, 2010, AREVA provided a revised response schedule in Supplement 2 for the other 8 questions based on the information presented at the June 9, 2010 public meeting on civil/structural replanning activities. AREVA NP provided Supplement 3 to the response on July 8, 2010, to provide a revised date for submittal of a FINAL response to question 03.07.01-29 to allow time to address NRC comments. AREVA NP submitted Supplement 4 to the response on July 29, 2010, to provide INTERIM responses to questions 03.07.02-66 through question 03.07.02-68. AREVA NP submitted Supplement 5 to the response on August 31, 2010, to provide technically correct and complete FINAL responses to questions 03.07.02-70 through 03.07.02-72. On September 9, 2010, AREVA NP submitted Supplement 6 to provide a revised schedule for a FINAL response to question 03.07.01-29. On October 4, 2010, AREVA NP submitted Supplement 7 to provide a FINAL response to question 03.07.01-29. On October 18, 2010, AREVA NP submitted Supplement 8 to provide an INTERIM response to question 03.07.02-69. On November 11, 2010, AREVA NP submitted Supplement 9 to provide a revised schedule for a response to question 03.07.01-28. On January 20, 2011, AREVA NP submitted Supplement 10 to provide a revised schedule for a response to questions 03.07.02-67, 03.07.02-68, and 03.07.02-69. AREVA NP submitted Supplement 11 to the response on February 11, 2011 to provide a revised schedule for a response to question 03.07.02-66. On February 28, 2011, AREVA NP submitted Supplement 12 to provide a revised schedule for Question 03.07.01-28 and Question 03.07.02-69. AREVA NP submitted Supplement 13 on March 8, 2011, to provide an INTERIM response to Question 03.07.02-69. On March 24, 2011, AREVA NP submitted Supplement 14 to provide a revised schedule for Question 03.07.02-66. AREVA NP submitted Supplement 15 on April 1, 2011, to provide a revised schedule for Question 03.07.02-68. On April 27, 2011, AREVA NP submitted Supplement 16 to provide a revised schedule for Questions 03.07.02-67 and 03.07.02-69. AREVA NP submitted Supplement 17 on May 2, 2011, to provide a revised schedule for Question 03.07.02-68. On May 20, 2011, AREVA NP submitted Supplement 18 to provide a revised schedule for Question 03.07.02-66. AREVA NP submitted Supplement 19 on June 17, 2011, to provide a final response to Question 03.07.02-68 and a revised schedule for Question 03.07.01-28. On June 23, 2011, AREVA NP submitted Supplement 20 to

provide a final response to Question 03.07.02-69. On June 24, 2011, AREVA NP submitted Supplement 20 and Supplement 21 to provide a final response to Question 03.07.02-69 and INTERIM responses to Questions 03.07.02-66 and 03.07.02-67, respectively. On July 6, 2011, AREVA NP submitted Supplement 22 to provide a final response to Question 03.07.01-28. On July 29, 2011, AREVA NP submitted Supplement 23 to provide a revised final response to Question 03.07.02-68 to address NRC comments. On September 13, 2011, AREVA NP submitted Supplement 24 to provide a final response to Question 03.07.02-67.

The attached file, "RAI 371 Supplement 25 Response US EPR DC - Interim.pdf" provides an updated INTERIM response to Question 03.07.02-66 Part (b). 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 371 Question 03.07.02-66 Part (b).

The following table indicates the respective pages in the response document, "RAI 371 Supplement 25 Response US EPR DC - Interim.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 371 — 03.07. 02-66	2	15

The schedule for a technically correct and complete response to the remaining question has been changed as provided below.

Question #	Interim Response Date	Response Date
RAI 371-03.07.02-66	July 29, 2010 (Actual) June 24, 2011 (Actual) October 10, 2011 (Actual)	January 5, 2012

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: WILLIFORD Dennis (RS/NB)
Sent: Tuesday, September 13, 2011 2:52 PM
To: Getachew.Tesfaye@nrc.gov
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 371, FSAR Ch. 3, Supplement 24

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 371 on April 26, 2010. AREVA NP submitted Supplement 1 to the response on June 7, 2010, to provide a revised schedule for question 03.07.01-29. On June 24, 2010, AREVA provided a revised response schedule in Supplement 2 for the other 8 questions based on the information presented at the June 9, 2010 public meeting on civil/structural replanning activities. AREVA NP provided Supplement 3 to the response on July 8, 2010, to provide a revised date for submittal of a FINAL response to question 03.07.01-29 to allow time to address NRC comments. AREVA NP submitted Supplement 4 to the response on July 29, 2010, to provide INTERIM responses to questions 03.07.02-66 through question 03.07.02-68. AREVA NP submitted Supplement 5 to the response on August 31, 2010, to provide technically correct and complete FINAL

responses to questions 03.07.02-70 through 03.07.02-72. On September 9, 2010, AREVA NP submitted Supplement 6 to provide a revised schedule for a FINAL response to question 03.07.01-29. On October 4, 2010, AREVA NP submitted Supplement 7 to provide a FINAL response to question 03.07.01-29. On October 18, 2010, AREVA NP submitted Supplement 8 to provide an INTERIM response to question 03.07.02-69. On November 11, 2010, AREVA NP submitted Supplement 9 to provide a revised schedule for a response to question 03.07.01-28. On January 20, 2011, AREVA NP submitted Supplement 10 to provide a revised schedule for a response to questions 03.07.02-67, 03.07.02-68, and 03.07.02-69. AREVA NP submitted Supplement 11 to the response on February 11, 2011 to provide a revised schedule for a response to question 03.07.02-66. On February 28, 2011, AREVA NP submitted Supplement 12 to provide a revised schedule for Question 03.07.01-28 and Question 03.07.02-69. AREVA NP submitted Supplement 13 on March 8, 2011, to provide an INTERIM response to Question 03.07.02-69. On March 24, 2011, AREVA NP submitted Supplement 14 to provide a revised schedule for Question 03.07.02-66. AREVA NP submitted Supplement 15 on April 1, 2011, to provide a revised schedule for Question 03.07.02-68. On April 27, 2011, AREVA NP submitted Supplement 16 to provide a revised schedule for Questions 03.07.02-67 and 03.07.02-69. AREVA NP submitted Supplement 17 on May 2, 2011, to provide a revised schedule for Question 03.07.02-68. On May 20, 2011, AREVA NP submitted Supplement 18 to provide a revised schedule for Question 03.07.02-66. AREVA NP submitted Supplement 19 on June 17, 2011, to provide a final response to Question 03.07.02-68 and a revised schedule for Question 03.07.01-28. On June 23, 2011, AREVA NP submitted Supplement 20 to provide a final response to Question 03.07.02-69. On June 24, 2011, AREVA NP submitted Supplement 20 and Supplement 21 to provide a final response to Question 03.07.02-69 and INTERIM responses to Questions 03.07.02-66 and 03.07.02-67, respectively. On July 6, 2011, AREVA NP submitted Supplement 22 to provide a final response to Question 03.07.01-28. On July 29, 2011, AREVA NP submitted Supplement 23 to provide a revised final response to Question 03.07.02-68 to address NRC comments.

The attached file, "RAI 371 Supplement 24 Response US EPR DC.pdf" provides a technically correct and complete final response to Question 03.07.02-67, as committed. Appended to this file are the affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which support the response to RAI 371 Question 03.07.02-67.

The following table indicates the respective pages in the response document, "RAI 371 Supplement 24 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 371 — 03.07. 02-67	2	42

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

Question #	Interim Response Date	Response Date
RAI 371-03.07.02-66	July 29, 2010 (Actual) June 24, 2011 (Actual)	October 10, 2011

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: WELLS Russell (RS/NB)

Sent: Friday, July 29, 2011 4:59 PM

To: Tesfaye, Getachew

Cc: ROMINE Judy (RS/NB); LENTZ Tony (External RS/NB); WILLIFORD Dennis (RS/NB); BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); RYAN Tom (RS/NB)

Subject: Response to U.S. EPR Design Certification Application RAI No. 371, FSAR Ch. 3, Supplement 23

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 371 on April 26, 2010. AREVA NP submitted Supplement 1 to the response on June 7, 2010, to provide a revised schedule for question 03.07.01-29. On June 24, 2010, AREVA provided a revised response schedule in Supplement 2 for the other 8 questions based on the information presented at the June 9, 2010 public meeting on civil/structural replanning activities. AREVA NP provided Supplement 3 to the response on July 8, 2010, to provide a revised date for submittal of a FINAL response to question 03.07.01-29 to allow time to address NRC comments. AREVA NP submitted Supplement 4 to the response on July 29, 2010, to provide INTERIM responses to questions 03.07.02-66 through question 03.07.02-68. AREVA NP submitted Supplement 5 to the response on August 31, 2010, to provide technically correct and complete FINAL responses to questions 03.07.02-70 through 03.07.02-72. On September 9, 2010, AREVA NP submitted Supplement 6 to provide a revised schedule for a FINAL response to question 03.07.01-29. On October 4, 2010, AREVA NP submitted Supplement 7 to provide a FINAL response to question 03.07.01-29. On October 18, 2010, AREVA NP submitted Supplement 8 to provide an INTERIM response to question 03.07.02-69. On November 11, 2010, AREVA NP submitted Supplement 9 to provide a revised schedule for a response to question 03.07.01-28. On January 20, 2011, AREVA NP submitted Supplement 10 to provide a revised schedule for a response to questions 03.07.02-67, 03.07.02-68, and 03.07.02-69. AREVA NP submitted Supplement 11 to the response on February 11, 2011 to provide a revised schedule for a response to question 03.07.02-66. On February 28, 2011, AREVA NP submitted Supplement 12 to provide a revised schedule for Question 03.07.01-28 and Question 03.07.02-69. AREVA NP submitted Supplement 13 on March 8, 2011, to provide an INTERIM response to Question 03.07.02-69. On March 24, 2011, AREVA NP submitted Supplement 14 to provide a revised schedule for Question 03.07.02-66. AREVA NP submitted Supplement 15 on April 1, 2011, to provide a revised schedule for Question 03.07.02-68. On April 27, 2011, AREVA NP submitted Supplement 16 to provide a revised schedule for Questions 03.07.02-67 and 03.07.02-69. AREVA NP submitted Supplement 17 on May 2, 2011, to provide a revised schedule for Question 03.07.02-68. On May 20, 2011, AREVA NP submitted Supplement 18 to provide a revised schedule for Question 03.07.02-66. AREVA NP submitted Supplement 19 on June 17, 2011, to provide a final response to Question 03.07.02-68 and a revised schedule for Question 03.07.01-28. On June 23, 2011, AREVA NP submitted Supplement 20 to provide a final response to Question 03.07.02-69. On June 24, 2011, AREVA NP submitted Supplement 20 and Supplement 21 to provide a final response to Question 03.07.02-69 and INTERIM responses to Questions 03.07.02-66 and 03.07.02-67, respectively. On July 6, 2011, AREVA NP submitted Supplement 22 to provide a final response to Question 03.07.01-28.

The attached file, "RAI 371 Supplement 23 Response US EPR DC.pdf" provides a REVISED technically correct and final response to Question 03.07.02-68 to address NRC comments. Appended to this file are the affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which support the response to RAI 371 Question 03.07.02-68.

The following table indicates the respective pages in the response document, "RAI 371 Supplement 23 Response US EPR DC.pdf," that contains AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 371 — 03.07. 02-68	2	22

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

Question #	Interim Response Date	Response Date
RAI 371-03.07.02-66	July 29, 2010 (Actual) June 24, 2011 (Actual)	October 10, 2011
RAI 371-03.07.02-67	July 29, 2010 (Actual) June 24, 2011 (Actual)	September 14, 2011

Sincerely,

Russ Wells for
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: WILLIFORD Dennis (RS/NB)
Sent: Wednesday, July 06, 2011 9:26 AM
To: Tesfaye, Getachew
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 371, FSAR Ch. 3, Supplement 22

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 371 on April 26, 2010. AREVA NP submitted Supplement 1 to the response on June 7, 2010, to provide a revised schedule for question 03.07.01-29. On June 24, 2010, AREVA provided a revised response schedule in Supplement 2 for the other 8 questions based on the information presented at the June 9, 2010 public meeting on civil/structural replanning activities. AREVA NP provided Supplement 3 to the response on July 8, 2010, to provide a revised date for submittal of a FINAL response to question 03.07.01-29 to allow time to address NRC comments. AREVA NP submitted Supplement 4 to the response on July 29, 2010, to provide INTERIM responses to questions 03.07.02-66 through question 03.07.02-68. AREVA NP submitted Supplement 5 to the response on August 31, 2010, to provide technically correct and complete FINAL responses to questions 03.07.02-70 through 03.07.02-72. On September 9, 2010, AREVA NP submitted Supplement 6 to provide a revised schedule for a FINAL response to question 03.07.01-29. On October 4, 2010, AREVA NP submitted Supplement 7 to provide a FINAL response to question 03.07.01-29. On October 18, 2010, AREVA NP submitted Supplement 8 to provide an INTERIM response to question 03.07.02-69. On November 11, 2010, AREVA NP submitted Supplement 9 to provide a revised schedule for a response to question 03.07.01-28. On January 20, 2011, AREVA NP submitted Supplement 10 to provide a revised schedule for a response to questions 03.07.02-67, 03.07.02-68, and 03.07.02-69. AREVA NP submitted Supplement 11 to the response on February 11, 2011 to provide a revised schedule for a response to question 03.07.02-66. On February 28, 2011, AREVA NP submitted Supplement 12 to provide a revised schedule for Question 03.07.01-28 and Question 03.07.02-69. AREVA NP submitted Supplement 13 on March 8, 2011, to provide an INTERIM response to Question 03.07.02-69. On March 24, 2011, AREVA NP submitted Supplement 14 to provide a revised schedule for Question 03.07.02-66. AREVA NP submitted Supplement 15 on April 1, 2011, to provide a revised schedule for Question 03.07.02-68. On April 27, 2011, AREVA NP submitted Supplement 16 to provide a revised schedule for Questions 03.07.02-67 and 03.07.02-69. AREVA NP submitted Supplement 17 on May 2, 2011, to provide a revised schedule for Question 03.07.02-68. On May 20, 2011, AREVA NP submitted Supplement 18 to provide a revised schedule for Question 03.07.02-66. AREVA NP submitted Supplement 19 on June 17, 2011, to provide a final response to Question 03.07.02-68 and a revised schedule for Question 03.07.01-28. On June 24, 2011, AREVA NP submitted Supplement 20 to provide a final response to Question 03.07.02-69. Supplement 21 was submitted also on June 24, 2011 to

provide revised INTERIM responses to Questions 03.07.02-66 and 03.07.02-67 and a revised schedule for final responses to these 2 questions.

The attached file, "RAI 371 Supplement 22 Response US EPR DC.pdf" provides a technically correct and complete final response to Question 03.07.01-28. Appended to this file are the affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which support the response to RAI 371 Question 03.07.01-28.

The following table indicates the respective pages in the response document, "RAI 371 Supplement 22 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 371 — 03.07.01-28	2	22

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

Question #	Interim Response Date	Response Date
RAI 371-03.07.02-66	July 29, 2010 (Actual) June 24, 2011 (Actual)	October 10, 2011
RAI 371-03.07.02-67	July 29, 2010 (Actual) June 24, 2011 (Actual)	September 14, 2011

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: WILLIFORD Dennis (RS/NB)
Sent: Friday, June 24, 2011 9:40 AM
To: Tesfaye, Getachew
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); CORNELL Veronica (External RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 371, FSAR Ch. 3, Supplement 21

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 371 on April 26, 2010. AREVA NP submitted Supplement 1 to the response on June 7, 2010, to provide a revised schedule for question 03.07.01-29. On June 24, 2010, AREVA provided a revised response schedule in Supplement 2 for the other 8 questions based on the information presented at the June 9, 2010 public meeting on civil/structural replanning activities. AREVA NP provided Supplement 3 to the response on July 8, 2010, to provide a revised date for submittal of a FINAL response to question 03.07.01-29 to allow time to address NRC comments. AREVA NP submitted Supplement 4 to the response on July 29, 2010, to provide INTERIM responses to questions 03.07.02-66 through question 03.07.02-68. AREVA NP submitted Supplement 5 to the response on August 31, 2010, to provide technically correct and complete FINAL responses to questions 03.07.02-70 through 03.07.02-72. On September 9, 2010, AREVA NP submitted Supplement 6 to provide a revised schedule for a FINAL response to question 03.07.01-29. On October 4, 2010, AREVA NP submitted Supplement 7 to provide a FINAL response to question 03.07.01-29. On October

18, 2010, AREVA NP submitted Supplement 8 to provide an INTERIM response to question 03.07.02-69. On November 11, 2010, AREVA NP submitted Supplement 9 to provide a revised schedule for a response to question 03.07.01-28. On January 20, 2011, AREVA NP submitted Supplement 10 to provide a revised schedule for a response to questions 03.07.02-67, 03.07.02-68, and 03.07.02-69. AREVA NP submitted Supplement 11 to the response on February 11, 2011 to provide a revised schedule for a response to question 03.07.02-66. On February 28, 2011, AREVA NP submitted Supplement 12 to provide a revised schedule for Question 03.07.01-28 and Question 03.07.02-69. AREVA NP submitted Supplement 13 on March 8, 2011, to provide an INTERIM response to Question 03.07.02-69. On March 24, 2011, AREVA NP submitted Supplement 14 to provide a revised schedule for Question 03.07.02-66. AREVA NP submitted Supplement 15 on April 1, 2011, to provide a revised schedule for Question 03.07.02-68. On April 27, 2011, AREVA NP submitted Supplement 16 to provide a revised schedule for Questions 03.07.02-67 and 03.07.02-69. AREVA NP submitted Supplement 17 on May 2, 2011, to provide a revised schedule for Question 03.07.02-68. On May 20, 2011, AREVA NP submitted Supplement 18 to provide a revised schedule for Question 03.07.02-66. AREVA NP submitted Supplement 19 on June 17, 2011, to provide a final response to Question 03.07.02-68 and a revised schedule for Question 03.07.01-28. On June 24, 2011, AREVA NP submitted Supplement 20 to provide a final response to Question 03.07.02-69.

The attached file, "RAI 371 Supplement 21 Response US EPR DC - INTERIM.pdf" provides revised INTERIM responses to Question 03.07.02-66 and Question 03.07.02-67. Appended to this file are the affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which support the response to RAI 371 Question 03.07.02-66.

The following table indicates the respective pages in the response document, "RAI 371 Supplement 21 Response US EPR DC - INTERIM.pdf," that contains AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 371 — 03.07.02-66	2	9
RAI 371 — 03.07.02-67	10	10

The schedule for final responses to Question 03.07.02-66 and Question 03.07.02-67 is being revised. The schedule for the remaining question is unchanged.

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

Question #	Interim Response Date	Response Date
RAI 371-03.07.01-28	N/A	July 22, 2011
RAI 371-03.07.02-66	July 29, 2010 (Actual) June 24, 2011 (Actual)	October 10, 2011
RAI 371-03.07.02-67	July 29, 2010 (Actual) June 24, 2011 (Actual)	September 14, 2011

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: WILLIFORD Dennis (RS/NB)
Sent: Friday, June 24, 2011 9:08 AM
To: 'Tesfaye, Getachew'

Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); CORNELL Veronica (External RS/NB)

Subject: Response to U.S. EPR Design Certification Application RAI No. 371, FSAR Ch. 3, Supplement 20

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 371 on April 26, 2010. AREVA NP submitted Supplement 1 to the response on June 7, 2010, to provide a revised schedule for question 03.07.01-29. On June 24, 2010, AREVA provided a revised response schedule in Supplement 2 for the other 8 questions based on the information presented at the June 9, 2010 public meeting on civil/structural replanning activities. AREVA NP provided Supplement 3 to the response on July 8, 2010, to provide a revised date for submittal of a FINAL response to question 03.07.01-29 to allow time to address NRC comments. AREVA NP submitted Supplement 4 to the response on July 29, 2010, to provide INTERIM responses to questions 03.07.02-66 through question 03.07.02-68. AREVA NP submitted Supplement 5 to the response on August 31, 2010, to provide technically correct and complete FINAL responses to questions 03.07.02-70 through 03.07.02-72. On September 9, 2010, AREVA NP submitted Supplement 6 to provide a revised schedule for a FINAL response to question 03.07.01-29. On October 4, 2010, AREVA NP submitted Supplement 7 to provide a FINAL response to question 03.07.01-29. On October 18, 2010, AREVA NP submitted Supplement 8 to provide an INTERIM response to question 03.07.02-69. On November 11, 2010, AREVA NP submitted Supplement 9 to provide a revised schedule for a response to question 03.07.01-28. On January 20, 2011, AREVA NP submitted Supplement 10 to provide a revised schedule for a response to questions 03.07.02-67, 03.07.02-68, and 03.07.02-69. AREVA NP submitted Supplement 11 to the response on February 11, 2011 to provide a revised schedule for a response to question 03.07.02-66. On February 28, 2011, AREVA NP submitted Supplement 12 to provide a revised schedule for Question 03.07.01-28 and Question 03.07.02-69. AREVA NP submitted Supplement 13 on March 8, 2011, to provide an INTERIM response to Question 03.07.02-69. On March 24, 2011, AREVA NP submitted Supplement 14 to provide a revised schedule for Question 03.07.02-66. AREVA NP submitted Supplement 15 on April 1, 2011, to provide a revised schedule for Question 03.07.02-68. On April 27, 2011, AREVA NP submitted Supplement 16 to provide a revised schedule for Questions 03.07.02-67 and 03.07.02-69. AREVA NP submitted Supplement 17 on May 2, 2011, to provide a revised schedule for Question 03.07.02-68. On May 20, 2011, AREVA NP submitted Supplement 18 to provide a revised schedule for Question 03.07.02-66. AREVA NP submitted Supplement 19 on June 17, 2011, to provide a final response to Question 03.07.02-68 and a revised schedule for Question 03.07.01-28.

The attached file, "RAI 371 Supplement 20 Response US EPR DC.pdf" provides a technically correct, complete and final response to Question 03.07.02-69, as committed. Appended to this file are the affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which support the response to RAI 371 Question 03.07.02-69.

The following table indicates the respective pages in the response document, "RAI 371 Supplement 20 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 371 — 03.07.02-69	2	31

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

Question #	Interim Response Date	Response Date
RAI 371-03.07.01-28	N/A	July 22, 2011
RAI 371-03.07.02-66	July 29, 2010 (Actual)	July 8, 2011
RAI 371-03.07.02-67	July 29, 2010 (Actual)	July 8, 2011

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: RYAN Tom (RS/NB)
Sent: Friday, June 17, 2011 3:36 PM
To: 'Tesfaye, Getachew'
Cc: CORNELL Veronica (External RS/NB); WILLIFORD Dennis (RS/NB); BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); WILLIFORD Dennis (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 371, FSAR Ch. 3, Supplement 19

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 371 on April 26, 2010. AREVA NP submitted Supplement 1 to the response on June 7, 2010, to provide a revised schedule for question 03.07.01-29. On June 24, 2010, AREVA provided a revised response schedule in Supplement 2 for the other 8 questions based on the information presented at the June 9, 2010 public meeting on civil/structural replanning activities. AREVA NP provided Supplement 3 to the response on July 8, 2010, to provide a revised date for submittal of a FINAL response to question 03.07.01-29 to allow time to address NRC comments. AREVA NP submitted Supplement 4 to the response on July 29, 2010, to provide INTERIM responses to questions 03.07.02-66 through question 03.07.02-68. AREVA NP submitted Supplement 5 to the response on August 31, 2010, to provide technically correct and complete FINAL responses to questions 03.07.02-70 through 03.07.02-72. On September 9, 2010, AREVA NP submitted Supplement 6 to provide a revised schedule for a FINAL response to question 03.07.01-29. On October 4, 2010, AREVA NP submitted Supplement 7 to provide a FINAL response to question 03.07.01-29. On October 18, 2010, AREVA NP submitted Supplement 8 to provide an INTERIM response to question 03.07.02-69. On November 11, 2010, AREVA NP submitted Supplement 9 to provide a revised schedule for a response to question 03.07.01-28. On January 20, 2011, AREVA NP submitted Supplement 10 to provide a revised schedule for a response to questions 03.07.02-67, 03.07.02-68, and 03.07.02-69. AREVA NP submitted Supplement 11 to the response on February 11, 2011 to provide a revised schedule for a response to question 03.07.02-66. On February 28, 2011, AREVA NP submitted Supplement 12 to provide a revised schedule for Question 03.07.01-28 and Question 03.07.02-69. AREVA NP submitted Supplement 13 on March 8, 2011, to provide an INTERIM response to Question 03.07.02-69. On March 24, 2011, AREVA NP submitted Supplement 14 to provide a revised schedule for Question 03.07.02-66. AREVA NP submitted Supplement 15 on April 1, 2011, to provide a revised schedule for Question 03.07.02-68. On April 27, 2011, AREVA NP submitted Supplement 16 to provide a revised schedule for Questions 03.07.02-67 and 03.07.02-69. AREVA NP submitted Supplement 17 on May 2, 2011, to provide a revised schedule for Question 03.07.02-68. On May 20, 2011, AREVA NP submitted Supplement 18 to provide a revised schedule for Question 03.07.02-66.

The attached file, "RAI 371 Supplement 19 Response US EPR DC.pdf" provides a technically correct, complete and final response to Question 03.07.02-68, as committed. Appended to this file are the affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which support the response to RAI 371 Question 03.07.02-68.

The following table indicates the respective pages in the response document, "RAI 371 Supplement 19 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 371 — 03.07.02-68	2	27

In addition, the schedule for Question 03.07.01-28 is being revised. The schedule for the remaining questions is unchanged.

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

Question #	Interim Response Date	Response Date
RAI 371-03.07.01-28	N/A	July 22, 2011
RAI 371-03.07.02-66	July 29, 2010 (Actual)	July 8, 2011
RAI 371-03.07.02-67	July 29, 2010 (Actual)	July 8, 2011
RAI 371-03.07.02-69	October 18, 2010 (Actual) March 21, 2011 March 8, 2011 (Actual)	July 8, 2011

Sincerely,

**Tom Ryan for
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: WELLS Russell (RS/NB)
Sent: Friday, May 20, 2011 7:43 AM
To: Tesfaye, Getachew
Cc: CORNELL Veronica (External RS/NB); WILLIFORD Dennis (RS/NB); BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 371, FSAR Ch. 3, Supplement 18

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 371 on April 26, 2010. AREVA NP submitted Supplement 1 to the response on June 7, 2010, to provide a revised schedule for question 03.07.01-29. On June 24, 2010, AREVA provided a revised response schedule in Supplement 2 for the other 8 questions based on the information presented at the June 9, 2010 public meeting on civil/structural replanning activities. AREVA NP provided Supplement 3 to the response on July 8, 2010, to provide a revised date for submittal of a FINAL response to question 03.07.01-29 to allow time to address NRC comments. AREVA NP submitted Supplement 4 to the response on July 29, 2010, to provide INTERIM responses to questions 03.07.02-66 through question 03.07.02-68. AREVA NP submitted Supplement 5 to the response on August 31, 2010, to provide technically correct and complete FINAL responses to questions 03.07.02-70 through 03.07.02-72. On September 9, 2010, AREVA NP submitted Supplement 6 to provide a revised schedule for a FINAL response to question 03.07.01-29. On October 4, 2010, AREVA NP submitted Supplement 7 to provide a FINAL response to question 03.07.01-29. On October 18, 2010, AREVA NP submitted Supplement 8 to provide an INTERIM response to question 03.07.02-69. On November 11, 2010, AREVA NP submitted Supplement 9 to provide a revised schedule for a response to question 03.07.01-28. On January 20, 2011, AREVA NP submitted Supplement 10 to provide a revised schedule for a response to questions 03.07.02-67, 03.07.02-68, and 03.07.02-69. AREVA NP submitted Supplement 11 to the response on February 11, 2011 to provide a revised schedule for a response to question 03.07.02-66. On February 28, 2011, AREVA NP submitted Supplement 12 to provide a revised schedule for Question 03.07.01-28 and Question 03.07.02-69. AREVA NP submitted Supplement 13 on March 8, 2011, to provide an INTERIM response to Question 03.07.02-69. On March 24, 2011, AREVA NP submitted Supplement 14 to provide a revised schedule for Question 03.07.02-66. AREVA NP submitted Supplement 15

on April 1, 2011, to provide a revised schedule for Question 03.07.02-68. On April 27, 2011, AREVA NP submitted Supplement 16 to provide a revised schedule for Questions 03.07.02-67 and 03.07.02-69. AREVA NP submitted Supplement 17 on May 2, 2011, to provide a revised schedule for Question 03.07.02-68.

The schedule for Question 03.07.02-66 is being revised. The schedule for the remaining questions is unchanged.

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

Question #	Interim Response Date	Response Date
RAI 371-03.07.01-28	N/A	June 21, 2011
RAI 371-03.07.02-66	July 29, 2010 (Actual)	July 8, 2011
RAI 371-03.07.02-67	July 29, 2010 (Actual)	July 8, 2011
RAI 371-03.07.02-68	July 29, 2010 (Actual)	July 8, 2011
RAI 371-03.07.02-69	October 18, 2010 (Actual) March 21, 2011 March 8, 2011 (Actual)	July 8, 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

From: WELLS Russell (RS/NB)

Sent: Monday, May 02, 2011 10:30 AM

To: Tesfaye, Getachew

Cc: CORNELL Veronica (External RS/NB); BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB)

Subject: Response to U.S. EPR Design Certification Application RAI No. 371, FSAR Ch. 3, Supplement 17

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 371 on April 26, 2010. AREVA NP submitted Supplement 1 to the response on June 7, 2010, to provide a revised schedule for question 03.07.01-29. On June 24, 2010, AREVA provided a revised response schedule in Supplement 2 for the other 8 questions based on the information presented at the June 9, 2010 public meeting on civil/structural replanning activities. AREVA NP provided Supplement 3 to the response on July 8, 2010, to provide a revised date for submittal of a FINAL response to question 03.07.01-29 to allow time to address NRC comments. AREVA NP submitted Supplement 4 to the response on July 29, 2010, to provide INTERIM responses to questions 03.07.02-66 through question 03.07.02-68. AREVA NP submitted Supplement 5 to the response on August 31, 2010, to provide technically correct and complete FINAL responses to questions 03.07.02-70 through 03.07.02-72. On September 9, 2010, AREVA NP submitted Supplement 6 to provide a revised schedule for a FINAL response to question 03.07.01-29. On October 4,

2010, AREVA NP submitted Supplement 7 to provide a FINAL response to question 03.07.01-29. On October 18, 2010, AREVA NP submitted Supplement 8 to provide an INTERIM response to question 03.07.02-69. On November 11, 2010, AREVA NP submitted Supplement 9 to provide a revised schedule for a response to question 03.07.01-28. On January 20, 2011, AREVA NP submitted Supplement 10 to provide a revised schedule for a response to questions 03.07.02-67, 03.07.02-68, and 03.07.02-69. AREVA NP submitted Supplement 11 to the response on February 11, 2011 to provide a revised schedule for a response to question 03.07.02-66. On February 28, 2011, AREVA NP submitted Supplement 12 to provide a revised schedule for Question 03.07.01-28 and Question 03.07.02-69. AREVA NP submitted Supplement 13 on March 8, 2011, to provide an INTERIM response to Question 03.07.02-69. On March 24, 2011, AREVA NP submitted Supplement 14 to provide a revised schedule for Question 03.07.02-66. AREVA NP submitted Supplement 15 on April 1, 2011, to provide a revised schedule for Question 03.07.02-68. On April 27, 2011, AREVA NP submitted Supplement 16 to provide a revised schedule for Questions 03.07.02-67 and 03.07.02-69.

Due to changes in the schedule for FSAR Sections 3.7 and 3.8 as discussed with NRC, the schedule for Question 03.07.02-68 is being revised. The schedule for the remaining questions is unchanged.

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

Question #	Interim Response Date	Response Date
RAI 371-03.07.01-28	N/A	June 21, 2011
RAI 371-03.07.02-66	July 29, 2010 (Actual)	May 26, 2011
RAI 371-03.07.02-67	July 29, 2010 (Actual)	July 8, 2011
RAI 371-03.07.02-68	July 29, 2010 (Actual)	July 8, 2011
RAI 371-03.07.02-69	October 18, 2010 (Actual) March 21, 2011 March 8, 2011 (Actual)	July 8, 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

From: WELLS Russell (RS/NB)

Sent: Wednesday, April 27, 2011 8:25 AM

To: 'Tesfaye, Getachew'

Cc: CORNELL Veronica (External RS/NB); BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB)

Subject: Response to U.S. EPR Design Certification Application RAI No. 371, FSAR Ch. 3, Supplement 16

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 371 on April 26, 2010. AREVA NP submitted Supplement 1 to the response on June 7, 2010, to provide a

revised schedule for question 03.07.01-29. On June 24, 2010, AREVA provided a revised response schedule in Supplement 2 for the other 8 questions based on the information presented at the June 9, 2010 public meeting on civil/structural replanning activities. AREVA NP provided Supplement 3 to the response on July 8, 2010, to provide a revised date for submittal of a FINAL response to question 03.07.01-29 to allow time to address NRC comments. AREVA NP submitted Supplement 4 to the response on July 29, 2010, to provide INTERIM responses to questions 03.07.02-66 through question 03.07.02-68. AREVA NP submitted Supplement 5 to the response on August 31, 2010, to provide technically correct and complete FINAL responses to questions 03.07.02-70 through 03.07.02-72. On September 9, 2010, AREVA NP submitted Supplement 6 to provide a revised schedule for a FINAL response to question 03.07.01-29. On October 4, 2010, AREVA NP submitted Supplement 7 to provide a FINAL response to question 03.07.01-29. On October 18, 2010, AREVA NP submitted Supplement 8 to provide an INTERIM response to question 03.07.02-69. On November 11, 2010, AREVA NP submitted Supplement 9 to provide a revised schedule for a response to question 03.07.01-28. On January 20, 2011, AREVA NP submitted Supplement 10 to provide a revised schedule for a response to questions 03.07.02-67, 03.07.02-68, and 03.07.02-69. AREVA NP submitted Supplement 11 to the response on February 11, 2011 to provide a revised schedule for a response to question 03.07.02-66. On February 28, 2011, AREVA NP submitted Supplement 12 to provide a revised schedule for Question 03.07.01-28 and Question 03.07.02-69. AREVA NP submitted Supplement 13 on March 8, 2011, to provide an INTERIM response to Question 03.07.02-69. On March 24, 2011, AREVA NP submitted Supplement 14 to provide a revised schedule for Question 03.07.02-66. AREVA NP submitted Supplement 15 on April 1, 2011, to provide a revised schedule for Question 03.07.02-68.

The schedule for Questions 03.07.02-67 and 03.07.02-69 is being revised. The schedule for the remaining questions is unchanged.

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

Question #	Interim Response Date	Response Date
RAI 371-03.07.01-28	N/A	June 21, 2011
RAI 371-03.07.02-66	July 29, 2010 (Actual)	May 26, 2011
RAI 371-03.07.02-67	July 29, 2010 (Actual)	July 8, 2011
RAI 371-03.07.02-68	July 29, 2010 (Actual)	May 26, 2011
RAI 371-03.07.02-69	October 18, 2010 (Actual) March 21, 2011 March 8, 2011 (Actual)	July 8, 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

From: WELLS Russell (RS/NB)

Sent: Friday, April 01, 2011 2:23 PM

To: 'Tesfaye, Getachew'

Cc: CORNELL Veronica (External RS/NB); BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB);

RYAN Tom (RS/NB)

Subject: Response to U.S. EPR Design Certification Application RAI No. 371, FSAR Ch. 3, Supplement 15

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 371 on April 26, 2010. AREVA NP submitted Supplement 1 to the response on June 7, 2010, to provide a revised schedule for question 03.07.01-29. On June 24, 2010, AREVA provided a revised response schedule in Supplement 2 for the other 8 questions based on the information presented at the June 9, 2010 public meeting on civil/structural replanning activities. AREVA NP provided Supplement 3 to the response on July 8, 2010, to provide a revised date for submittal of a FINAL response to question 03.07.01-29 to allow time to address NRC comments. AREVA NP submitted Supplement 4 to the response on July 29, 2010, to provide INTERIM responses to questions 03.07.02-66 through question 03.07.02-68. AREVA NP submitted Supplement 5 to the response on August 31, 2010, to provide technically correct and complete FINAL responses to questions 03.07.02-70 through 03.07.02-72. On September 9, 2010, AREVA NP submitted Supplement 6 to provide a revised schedule for a FINAL response to question 03.07.01-29. On October 4, 2010, AREVA NP submitted Supplement 7 to provide a FINAL response to question 03.07.01-29. On October 18, 2010, AREVA NP submitted Supplement 8 to provide an INTERIM response to question 03.07.02-69. On November 11, 2010, AREVA NP submitted Supplement 9 to provide a revised schedule for a response to question 03.07.01-28. On January 20, 2011, AREVA NP submitted Supplement 10 to provide a revised schedule for a response to questions 03.07.02-67, 03.07.02-68, and 03.07.02-69. AREVA NP submitted Supplement 11 to the response on February 11, 2011 to provide a revised schedule for a response to question 03.07.02-66. On February 28, 2011, AREVA NP submitted Supplement 12 to provide a revised schedule for Question 03.07.01-28 and Question 03.07.02-69. AREVA NP submitted Supplement 13 on March 8, 2011, to provide an INTERIM response to Question 03.07.02-69. On March 24, 2011, AREVA NP submitted Supplement 14 to provide a revised schedule for Question 03.07.02-66.

The schedule for Question 03.07.02-68 is being revised to allow AREVA NP additional time to address NRC comments. The schedule for the remaining questions is unchanged.

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

Question #	Interim Response Date	Response Date
RAI 371-03.07.01-28	N/A	June 21, 2011
RAI 371-03.07.02-66	July 29, 2010 (Actual)	May 26, 2011
RAI 371-03.07.02-67	July 29, 2010 (Actual)	April 28, 2011
RAI 371-03.07.02-68	July 29, 2010 (Actual)	May 26, 2011
RAI 371-03.07.02-69	October 18, 2010 (Actual) March 21, 2011 March 8, 2011 (Actual)	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

From: WELLS Russell (RS/NB)
Sent: Thursday, March 24, 2011 1:11 PM
To: 'Tesfaye, Getachew'
Cc: CORNELL Veronica (External RS/NB); BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 371, FSAR Ch. 3, Supplement 14

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 371 on April 26, 2010. AREVA NP submitted Supplement 1 to the response on June 7, 2010, to provide a revised schedule for question 03.07.01-29. On June 24, 2010, AREVA provided a revised response schedule in Supplement 2 for the other 8 questions based on the information presented at the June 9, 2010 public meeting on civil/structural replanning activities. AREVA NP provided Supplement 3 to the response on July 8, 2010, to provide a revised date for submittal of a FINAL response to question 03.07.01-29 to allow time to address NRC comments. AREVA NP submitted Supplement 4 to the response on July 29, 2010, to provide INTERIM responses to questions 03.07.02-66 through question 03.07.02-68. AREVA NP submitted Supplement 5 to the response on August 31, 2010, to provide technically correct and complete FINAL responses to questions 03.07.02-70 through 03.07.02-72. On September 9, 2010, AREVA NP submitted Supplement 6 to provide a revised schedule for a FINAL response to question 03.07.01-29. On October 4, 2010, AREVA NP submitted Supplement 7 to provide a FINAL response to question 03.07.01-29. On October 18, 2010, AREVA NP submitted Supplement 8 to provide an INTERIM response to question 03.07.02-69. On November 11, 2010, AREVA NP submitted Supplement 9 to provide a revised schedule for a response to question 03.07.01-28. On January 20, 2011, AREVA NP submitted Supplement 10 to provide a revised schedule for a response to questions 03.07.02-67, 03.07.02-68, and 03.07.02-69. AREVA NP submitted Supplement 11 to the response on February 11, 2011 to provide a revised schedule for a response to question 03.07.02-66. On February 28, 2011, AREVA NP submitted Supplement 12 to provide a revised schedule for Question 03.07.01-28 and Question 03.07.02-69. AREVA NP submitted Supplement 13 on March 8, 2011, to provide an INTERIM response to Question 03.07.02-69.

The schedule for Question 03.07.02-66 is being revised. In addition, the schedule for Question 03.07.01-28 is being revised to allow additional time for AREVA NP to address NRC comments. The schedule for the remaining questions is unchanged.

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

Question #	Interim Response Date	Response Date
RAI 371-03.07.01-28	N/A	June 21, 2011
RAI 371-03.07.02-66	July 29, 2010 (Actual)	May 26, 2011
RAI 371-03.07.02-67	July 29, 2010 (Actual)	April 28, 2011
RAI 371-03.07.02-68	July 29, 2010 (Actual)	April 5, 2011
RAI 371-03.07.02-69	October 18, 2010 (Actual) March 21, 2011 March 8, 2011 (Actual)	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

From: WELLS Russell (RS/NB)
Sent: Tuesday, March 08, 2011 3:45 PM
To: 'Tefaye, Getachew'
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); CORNELL Veronica (External RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 371, FSAR Ch. 3, Supplement 13

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 371 on April 26, 2010. AREVA NP submitted Supplement 1 to the response on June 7, 2010, to provide a revised schedule for question 03.07.01-29. On June 24, 2010, AREVA provided a revised response schedule in Supplement 2 for the other 8 questions based on the information presented at the June 9, 2010 public meeting on civil/structural replanning activities. AREVA NP provided Supplement 3 to the response on July 8, 2010, to provide a revised date for submittal of a FINAL response to question 03.07.01-29 to allow time to address NRC comments. AREVA NP submitted Supplement 4 to the response on July 29, 2010, to provide INTERIM responses to questions 03.07.02-66 through question 03.07.02-68. AREVA NP submitted Supplement 5 to the response on August 31, 2010, to provide technically correct and complete FINAL responses to questions 03.07.02-70 through 03.07.02-72. On September 9, 2010, AREVA NP submitted Supplement 6 to provide a revised schedule for a FINAL response to question 03.07.01-29. On October 4, 2010, AREVA NP submitted Supplement 7 to provide a FINAL response to question 03.07.01-29. On October 18, 2010, AREVA NP submitted Supplement 8 to provide an INTERIM response to question 03.07.02-69. On November 11, 2010, AREVA NP submitted Supplement 9 to provide a revised schedule for a response to question 03.07.01-28. On January 20, 2011, AREVA NP submitted Supplement 10 to provide a revised schedule for a response to questions 03.07.02-67, 03.07.02-68, and 03.07.02-69. AREVA NP submitted Supplement 11 to the response on February 11, 2011 to provide a revised schedule for a response to question 03.07.02-66. On February 28, 2011, AREVA NP submitted Supplement 12 to provide a revised schedule for Question 03.07.01-28 and Question 03.07.02-69.

The attached file, "RAI 371 Supplement 13 Response US EPR DC-INTERIM.pdf" provides a technically correct INTERIM response to the Question 03.07.02-69, as committed.

The following table indicates the page in the response document, "RAI 371 Supplement 13 Response US EPR DC-INTERIM.pdf" that contains AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 371 – 03.07.02-69	2	32

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

Question #	Interim Response Date	Response Date
RAI 371-03.07.01-28	N/A	March 24, 2011
RAI 371-03.07.02-66	July 29, 2010 (Actual)	April 8, 2011
RAI 371-03.07.02-67	July 29, 2010 (Actual)	April 28, 2011
RAI 371-03.07.02-68	July 29, 2010 (Actual)	April 5, 2011
RAI 371-03.07.02-69	October 18, 2010 (Actual) March 21, 2011 March 8, 2011 (Actual)	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

From: WELLS Russell (RS/NB)

Sent: Monday, February 28, 2011 5:09 PM

To: 'Tesfaye, Getachew'

Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); CORNELL Veronica (External RS/NB)

Subject: Response to U.S. EPR Design Certification Application RAI No. 371, FSAR Ch. 3, Supplement 12

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 371 on April 26, 2010. AREVA NP submitted Supplement 1 to the response on June 7, 2010, to provide a revised schedule for question 03.07.01-29. On June 24, 2010, AREVA provided a revised response schedule in Supplement 2 for the other 8 questions based on the information presented at the June 9, 2010 public meeting on civil/structural replanning activities. AREVA NP provided Supplement 3 to the response on July 8, 2010, to provide a revised date for submittal of a FINAL response to question 03.07.01-29 to allow time to address NRC comments. AREVA NP submitted Supplement 4 to the response on July 29, 2010, to provide INTERIM responses to questions 03.07.02-66 through question 03.07.02-68. AREVA NP submitted Supplement 5 to the response on August 31, 2010, to provide technically correct and complete FINAL responses to questions 03.07.02-70 through 03.07.02-72. On September 9, 2010, AREVA NP submitted Supplement 6 to provide a revised schedule for a FINAL response to question 03.07.01-29. On October 4, 2010, AREVA NP submitted Supplement 7 to provide a FINAL response to question 03.07.01-29. On October 18, 2010, AREVA NP submitted Supplement 8 to provide an INTERIM response to question 03.07.02-69. On November 11, 2010, AREVA NP submitted Supplement 9 to provide a revised schedule for a response to question 03.07.01-28. On January 20, 2011, AREVA NP submitted Supplement 10 to provide a revised schedule for a response to questions 03.07.02-67, 03.07.02-68, and 03.07.02-69. AREVA NP submitted Supplement 11 to the response on February 11, 2011 to provide a revised schedule for a response to question 03.07.02-66.

The schedule for the FINAL response to Question 03.07.01-28 is being revised to allow additional time for AREVA NP to interact with the NRC. In addition, the schedule for the INTERIM response to Question 03.07.02-69 is being revised to allow additional time for AREVA NP to address NRC comments. The schedule for the remaining questions is unchanged.

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

Question #	Interim Response Date	Response Date
RAI 371-03.07.01-28	N/A	March 24, 2011
RAI 371-03.07.02-66	July 29, 2010 (Actual)	April 8, 2011

RAI 371-03.07.02-67	July 29, 2010 (Actual)	April 28, 2011
RAI 371-03.07.02-68	July 29, 2010 (Actual)	April 5, 2011
RAI 371-03.07.02-69	October 18, 2010 (Actual) March 21 2011	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

From: BRYAN Martin (External RS/NB)

Sent: Friday, February 11, 2011 1:55 PM

To: 'Tesfaye, Getachew'

Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); CORNELL Veronica (External RS/NB)

Subject: Response to U.S. EPR Design Certification Application RAI No. 371, FSAR Ch. 3, Supplement 11

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 371 on April 26, 2010. AREVA NP submitted Supplement 1 to the response on June 7, 2010, to provide a revised schedule for question 03.07.01-29. On June 24, 2010, AREVA provided a revised response schedule in Supplement 2 for the other 8 questions based on the information presented at the June 9, 2010 public meeting on civil/structural replanning activities. AREVA NP provided Supplement 3 to the response on July 8, 2010, to provide a revised date for submittal of a FINAL response to question 03.07.01-29 to allow time to address NRC comments. AREVA NP submitted Supplement 4 to the response on July 29, 2010, to provide INTERIM responses to questions 03.07.02-66 through question 03.07.02-68. AREVA NP submitted Supplement 5 to the response on August 31, 2010, to provide technically correct and complete FINAL responses to questions 03.07.02-70 through 03.07.02-72. On September 9, 2010, AREVA NP submitted Supplement 6 to provide a revised schedule for a FINAL response to question 03.07.01-29. On October 4, 2010, AREVA NP submitted Supplement 7 to provide a FINAL response to question 03.07.01-29. On October 18, 2010, AREVA NP submitted Supplement 8 to provide an INTERIM response to question 03.07.02-69. On November 11, 2010, AREVA NP submitted Supplement 9 to provide a revised schedule for a response to question 03.07.01-28. On January 20, 2011, AREVA NP submitted Supplement 10 to provide a revised schedule for a response to questions 03.07.02-67, 03.07.02-68, and 03.07.02-69.

The schedule for Question 03.07.02-66 has changed. The schedule for the remaining questions is unchanged

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

Question #	Interim Response Date	Response Date
RAI 371-03.07.01-28	N/A	February 28, 2011

RAI 371-03.07.02-66	July 29, 2010 (Actual)	April 8, 2011
RAI 371-03.07.02-67	July 29, 2010 (Actual)	April 28, 2011
RAI 371-03.07.02-68	July 29, 2010 (Actual)	April 5, 2011
RAI 371-03.07.02-69	October 18, 2010 (Actual) February 28, 2011	April 28, 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

From: BRYAN Martin (External RS/NB)
Sent: Thursday, January 20, 2011 6:53 PM
To: 'Tefaye, Getachew'
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); CORNELL Veronica (External RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 371, FSAR Ch. 3, Supplement 10

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 371 on April 26, 2010. AREVA NP submitted Supplement 1 to the response on June 7, 2010, to provide a revised schedule for question 03.07.01-29. On June 24, 2010, AREVA provided a revised response schedule in Supplement 2 for the other 8 questions based on the information presented at the June 9, 2010 public meeting on civil/structural replanning activities. AREVA NP provided Supplement 3 to the response on July 8, 2010, to provide a revised date for submittal of a FINAL response to question 03.07.01-29 to allow time to address NRC comments. AREVA NP submitted Supplement 4 to the response on July 29, 2010, to provide INTERIM responses to questions 03.07.02-66 through question 03.07.02-68. AREVA NP submitted Supplement 5 to the response on August 31, 2010, to provide technically correct and complete FINAL responses to questions 03.07.02-70 through 03.07.02-72. On September 9, 2010, AREVA NP submitted Supplement 6 to provide a revised schedule for a FINAL response to question 03.07.01-29. On October 4, 2010, AREVA NP submitted Supplement 7 to provide a FINAL response to question 03.07.01-29. On October 18, 2010, AREVA NP submitted Supplement 8 to provide an INTERIM response to question 03.07.02-69. On November 11, 2010, AREVA NP submitted Supplement 9 to provide a revised schedule for a response to question 03.07.01-28.

The schedule for the responses to Question 03.07.02-67 and Question 03.07.02-68 is being revised to allow additional time for AREVA NP to address NRC comments. The schedule for the response to Question 03.07.02-69 is also being revised to allow additional time for AREVA NP to prepare and submit a revised INTERIM response. The schedule for the remaining questions is unchanged

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

Question #	Interim Response Date	Response Date
RAI 371-03.07.01-28	N/A	February 28, 2011
RAI 371-03.07.02-66	July 29, 2010 (Actual)	February 17, 2011
RAI 371-03.07.02-67	July 29, 2010 (Actual)	April 28, 2011
RAI 371-03.07.02-68	July 29, 2010 (Actual)	April 5, 2011
RAI 371-03.07.02-69	October 18, 2010 (Actual)	April 28, 2011

February 28, 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

From: BRYAN Martin (External RS/NB)
Sent: Thursday, November 11, 2010 11:24 AM
To: 'Tesyfaye, Getachew'
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); CORNELL Veronica (External RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 371, FSAR Ch. 3, Supplement 9

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 371 on April 26, 2010. AREVA NP submitted Supplement 1 to the response on June 7, 2010, to provide a revised schedule for question 03.07.01-29. On June 24, 2010, AREVA provided a revised response schedule in Supplement 2 for the other 8 questions based on the information presented at the June 9, 2010 public meeting on civil/structural replanning activities. AREVA NP provided Supplement 3 to the response on July 8, 2010, to provide a revised date for submittal of a FINAL response to question 03.07.01-29 to allow time to address NRC comments. AREVA NP submitted Supplement 4 to the response on July 29, 2010, to provide INTERIM responses to questions 03.07.02-66 through question 03.07.02-68. AREVA NP submitted Supplement 5 to the response on August 31, 2010, to provide technically correct and complete FINAL responses to questions 03.07.02-70 through 03.07.02-72. On September 9, 2010, AREVA NP submitted Supplement 6 to provide a revised schedule for a FINAL response to question 03.07.01-29. On October 4, 2010, AREVA NP submitted Supplement 7 to provide a FINAL response to question 03.07.01-29. On October 18, 2010, AREVA NP submitted Supplement 8 to provide an INTERIM response to question 03.07.02-69.

The schedule for the response to Question 03.07.01-28 is being revised to allow additional time for AREVA NP to address NRC comments. The schedule for the remaining questions is unchanged

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

Question #	Interim Response Date	Response Date
RAI 371-03.07.01-28	N/A	February 28, 2011
RAI 371-03.07.02-66	July 29, 2010 (Actual)	February 17, 2011
RAI 371-03.07.02-67	July 29, 2010 (Actual)	January 20, 2011
RAI 371-03.07.02-68	July 29, 2010 (Actual)	January 20, 2011
RAI 371-03.07.02-69	October 18, 2010 (Actual)	January 20, 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

From: BRYAN Martin (External RS/NB)
Sent: Monday, October 18, 2010 4:30 PM
To: 'Tefsaye, Getachew'
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); CORNELL Veronica (External RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 371, FSAR Ch. 3, Supplement 8

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 371 on April 26, 2010. AREVA NP submitted Supplement 1 to the response on June 7, 2010, to provide a revised schedule for question 03.07.01-29. On June 24, 2010, AREVA provided a revised response schedule in Supplement 2 for the other 8 questions based on the information presented at the June 9, 2010 public meeting on civil/structural replanning activities. AREVA NP provided Supplement 3 to the response on July 8, 2010, to provide a revised date for submittal of a FINAL response to question 03.07.01-29 to allow time to address NRC comments. AREVA NP submitted Supplement 4 to the response on July 29, 2010, to provide INTERIM responses to questions 03.07.02-66 through question 03.07.02-68. AREVA NP submitted Supplement 5 to the response on August 31, 2010, to provide technically correct and complete FINAL responses to questions 03.07.02-70 through 03.07.02-72. On September 9, 2010, AREVA NP submitted Supplement 6 to provide a revised schedule for a FINAL response to question 03.07.01-29. On October 4, 2010, AREVA NP submitted Supplement 7 to provide a FINAL response to question 03.07.01-29.

The attached file, "RAI 371 Supplement 8 Response US EPR DC-INTERIM.pdf" provides a technically correct and complete INTERIM response to question 03.07.02-69, as committed.

The following table indicates the respective pages in the response document, "RAI 371 Supplement 8 Response US EPR DC-INTERIM.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 371 — 03.07.02-69	2	4

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

Question #	Interim Response Date	Response Date
RAI 371-03.07.01-28	N/A	November 12, 2010
RAI 371-03.07.02-66	July 29, 2010 (Actual)	February 17, 2011
RAI 371-03.07.02-67	July 29, 2010 (Actual)	January 20, 2011
RAI 371-03.07.02-68	July 29, 2010 (Actual)	January 20, 2011
RAI 371-03.07.02-69	October 18, 2010 (Actual)	January 20, 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

From: BRYAN Martin (External RS/NB)
Sent: Monday, October 04, 2010 4:57 PM
To: 'Tefsaye, Getachew'
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); CORNELL Veronica (External RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 371, FSAR Ch. 3, Supplement 7

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 371 on April 26, 2010. AREVA NP submitted Supplement 1 to the response on June 7, 2010, to provide a revised schedule for question 03.07.01-29. On June 24, 2010, AREVA provided a revised response schedule in Supplement 2 for the other 8 questions based on the information presented at the June 9, 2010 public meeting on civil/structural replanning activities. AREVA NP provided Supplement 3 to the response on July 8, 2010, to provide a revised date for submittal of a FINAL response to question 03.07.01-29 to allow time to address NRC comments. AREVA NP submitted Supplement 4 to the response on July 29, 2010, to provide INTERIM responses to questions 03.07.02-66 through question 03.07.02-68. AREVA NP submitted Supplement 5 to the response on August 31, 2010, to provide technically correct and complete FINAL responses to questions 03.07.02-70 through 03.07.02-72. On September 9, 2010, AREVA NP submitted Supplement 6 to provide a revised schedule for a FINAL response to question 03.07.01-29.

The attached file, "RAI 371 Supplement 7 Response US EPR DC.pdf" provides technically correct and complete FINAL response to question 03.07.01-29, as committed.

The following table indicates the respective pages in the response document, "RAI 371 Supplement 7 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 371 — 03.07.01-29	2	5

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

Question #	Interim Response Date	Response Date
RAI 371-03.07.01-28	N/A	November 12, 2010
RAI 371-03.07.02-66	July 29, 2010 (Actual)	February 17, 2011
RAI 371-03.07.02-67	July 29, 2010 (Actual)	January 20, 2011
RAI 371-03.07.02-68	July 29, 2010 (Actual)	January 20, 2011
RAI 371-03.07.02-69	October 18, 2010	January 20, 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

From: BRYAN Martin (External RS/NB)
Sent: Thursday, September 09, 2010 12:44 PM
To: Tesfaye, Getachew
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); CORNELL Veronica (External RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 371, FSAR Ch. 3, Supplement 6

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 371 on April 26, 2010. AREVA NP submitted Supplement 1 to the response on June 7, 2010, to provide a revised schedule for question 03.07.01-29. On June 24, 2010, AREVA provided a revised response schedule in Supplement 2 for the other 8 questions based on the information presented at the June 9, 2010 public meeting on civil/structural replanning activities. AREVA NP provided Supplement 3 to the response on July 8, 2010, to provide a revised date for submittal of a FINAL response to question 03.07.01-29 to allow time to address NRC comments. AREVA NP submitted Supplement 4 to the response on July 29, 2010, to provide INTERIM responses to question 03.07.02-66 through question 03.07.02-68. AREVA NP submitted Supplement 5 to the response on August 31, 2010, to provide technically correct and complete FINAL responses to questions 03.07.02-70 through 03.07.02-72.

The schedule for the FINAL response to Question 03.07.01-29 is being revised to allow time for AREVA NP to address NRC comments. The schedule for the remaining questions is unchanged.

The schedule for a technically correct and complete interim response and responses to the following questions is provided below.

Question #	Interim Response Date	Response Date
RAI 371-03.07.01-28	N/A	November 12, 2010
RAI 371-03.07.01-29	N/A	October 5, 2010
RAI 371-03.07.02-66	July 29, 2010 (Actual)	February 17, 2011
RAI 371-03.07.02-67	July 29, 2010 (Actual)	January 20, 2011
RAI 371-03.07.02-68	July 29, 2010 (Actual)	January 20, 2011
RAI 371-03.07.02-69	October 18, 2010	January 20, 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

From: BRYAN Martin (External RS/NB)
Sent: Tuesday, August 31, 2010 4:55 PM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); CORNELL Veronica (External RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 371, FSAR Ch. 3, Supplement 5

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 371 on April 26, 2010. AREVA NP submitted Supplement 1 to the response on June 7, 2010, to provide a revised schedule for question 03.07.01-29. On June 24, 2010, AREVA provided a revised response schedule in Supplement 2 for the other 8 questions based on the information presented at the June 9, 2010 public meeting on civil/structural replanning activities. AREVA NP provided Supplement 3 to the response on July 8, 2010, to provide a revised date for submittal of a FINAL response to question 03.07.01-29 to allow time to address NRC comments. AREVA NP submitted Supplement 4 to the response on July 29, 2010, to provide INTERIM responses to question 03.07.02-66 through question 03.07.02-68.

The attached file, "RAI 371 Supplement 5 Response US EPR DC.pdf" provides technically correct and complete FINAL responses to 3 of the remaining 9 questions, as committed.

The following table indicates the respective pages in the response document, "RAI 371 Supplement 5 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 371 — 03.07.02-70	2	3
RAI 371 — 03.07.02-71	4	10
RAI 371 — 03.07.02-72	11	11

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

Question #	Interim Response Date	Response Date
RAI 371-03.07.01-28	N/A	November 12, 2010
RAI 371-03.07.01-29	N/A	September 17, 2010
RAI 371-03.07.02-66	July 29, 2010 (Actual)	February 17, 2011
RAI 371-03.07.02-67	July 29, 2010 (Actual)	January 20, 2011
RAI 371-03.07.02-68	July 29, 2010 (Actual)	January 20, 2011
RAI 371-03.07.02-69	October 18, 2010	January 20, 2011

Sincerely,

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From: BRYAN Martin (EXT)
Sent: Thursday, July 29, 2010 8:08 PM
To: 'Tesyfaye, Getachew'
Cc: DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); VAN NOY Mark (EXT); CORNELL Veronica (EXT)
Subject: Response to U.S. EPR Design Certification Application RAI No. 371, FSAR Ch. 3, Supplement 4 - Interim

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 371 on April 26, 2010. AREVA NP submitted Supplement 1 to the response on June 7, 2010, to provide a revised schedule for question 03.07.01-29. On June 24, 2010, AREVA provided a revised response schedule in Supplement 2 for the other 8 questions based on the information presented at the June 9, 2010 public meeting on civil/structural replanning activities. AREVA NP provided Supplement 3 to the response on July 8, 2010, to provide a revised date for submittal of a FINAL response to question 03.07.01-29 to allow time to address NRC comments.

The attached file, "RAI 371 Supplement 4 Response US EPR DC.pdf" provides technically correct and complete INTERIM responses to 3 of the remaining 10 questions, as committed.

The following table indicates the respective pages in the response document, "RAI 371 Supplement 4 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 371 — 03.07.02-66	2	2
RAI 371 — 03.07.02-67	3	3
RAI 371 — 03.07.02-68	4	8

The schedule for an interim response and the technically correct and complete response to these questions is unchanged and is provided below.

Question #	Interim Response Date	Response Date
RAI 371-03.07.01-28	N/A	November 12, 2010
RAI 371-03.07.01-29	N/A	September 17, 2010
RAI 371-03.07.02-66	July 29, 2010 (Actual)	February 17, 2011
RAI 371-03.07.02-67	July 29, 2010 (Actual)	January 20, 2011
RAI 371-03.07.02-68	July 29, 2010 (Actual)	January 20, 2011
RAI 371-03.07.02-69	October 18, 2010	January 20, 2011
RAI 371-03.07.02-70	N/A	September 3, 2010
RAI 371-03.07.02-71	N/A	September 3, 2010
RAI 371-03.07.02-72	N/A	September 3, 2010

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From: BRYAN Martin (EXT)
Sent: Thursday, July 08, 2010 4:02 PM
To: 'Tesyfaye, Getachew'
Cc: DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); VAN NOY Mark (EXT); CORNELL Veronica (EXT)
Subject: Response to U.S. EPR Design Certification Application RAI No. 371, FSAR Ch. 3, Supplement 3

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to the 9 questions of RAI No. 371 on April 26, 2010. AREVA NP submitted Supplement 1 on June 7, 2010, to provide a revised date for 1 of the questions (03.07.01-29) on June 7, 2010. On June 24, 2010, AREVA provided a revised response schedule in Supplement 2 for the other 8 questions based on the information presented at the June 9, 2010 public meeting on civil/structural replanning activities.

To provide for further interaction with the NRC on the response for question 03.07.01-29, a revised schedule is provided below. Dates for the other 8 questions remain unchanged.

The revised schedule for the technically correct and complete response to these questions has been changed and is provided below.

Question #	Interim Response Date	Response Date
RAI 371-03.07.01-28	N/A	November 12, 2010
RAI 371-03.07.01-29	N/A	September 17, 2010
RAI 371-03.07.02-66	July 29, 2010	February 17, 2011
RAI 371-03.07.02-67	July 29, 2010	January 20, 2011
RAI 371-03.07.02-68	July 29, 2010	January 20, 2011
RAI 371-03.07.02-69	October 18, 2010	January 20, 2011
RAI 371-03.07.02-70	N/A	September 3, 2010
RAI 371-03.07.02-71	N/A	September 3, 2010
RAI 371-03.07.02-72	N/A	September 3, 2010

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From: BRYAN Martin (EXT)
Sent: Thursday, June 24, 2010 12:58 PM
To: 'Teshfaye, Getachew'
Cc: DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); VAN NOY Mark (EXT); CORNELL Veronica (EXT); RYAN Tom (AREVA NP INC); GARDNER George Darrell (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 371, FSAR Ch. 3, Supplement 2

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 371 on April 26, 2010. AREVA NP submitted Supplement 1 to the response on June 7, 2010, to provide a schedule for the remaining 9 questions, 8 of which were affected by the work underway to address NRC comments from the April 26, 2010, audit.

Based upon the civil/structural re-planning activities and revised RAI response schedule presented to the NRC during the June 9, 2010, Public Meeting, and to allow time to interact with the NRC on the responses, the schedule has been changed. The schedule for 03.07.01-29 remains unchanged.

Prior to submittal of the final RAI response, AREVA NP will provide an interim RAI response that includes:

- (1) a description of the technical work (e.g., methodology)

(2) U.S. EPR FSAR revised pages, as applicable

The revised schedule for an interim response and the technically correct and complete response to these questions is provided below.

Question #	Interim Response Date	Response Date
RAI 371-03.07.01-28	N/A	November 12, 2010
RAI 371-03.07.01-29	N/A	July 8, 2010
RAI 371-03.07.02-66	July 29, 2010	February 17, 2011
RAI 371-03.07.02-67	July 29, 2010	January 20, 2011
RAI 371-03.07.02-68	July 29, 2010	January 20, 2011
RAI 371-03.07.02-69	October 18, 2010	January 20, 2011
RAI 371-03.07.02-70	N/A	September 3, 2010
RAI 371-03.07.02-71	N/A	September 3, 2010
RAI 371-03.07.02-72	N/A	September 3, 2010

Sincerely,

Martin (Marty) C. Bryan
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
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From: BRYAN Martin (EXT)
Sent: Monday, June 07, 2010 5:07 PM
To: 'Tesyfaye, Getachew'
Cc: DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); CORNELL Veronica (EXT); VAN NOY Mark (EXT)
Subject: Response to U.S. EPR Design Certification Application RAI No. 371, FSAR Ch. 3, Supplement 1

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 371 on April 26, 2010.

As agreed with NRC, AREVA NP is providing a revised date for RAI 371 Supplement 1 Question 03.07.01-29 to allow time to interact with the NRC on the response.

The schedule for technically correct and complete responses to the remaining question has been changed and is provided below. The dates for questions 03.07.02-66 through 03.03.02-69 will be revised based on the information that will be presented at the June 9, 2010 public meeting and subsequent NRC feedback.

Question #	Response Date
RAI 371-03.07.01-28	August 3, 2010
RAI 371-03.07.01-29	July 8, 2010
RAI 371-03.07.02-66	July 27, 2010

RAI 371-03.07.02-67	July 27, 2010
RAI 371-03.07.02-68	August 3, 2010
RAI 371-03.07.02-69	August 3, 2010
RAI 371-03.07.02-70	August 3, 2010
RAI 371-03.07.02-71	August 3, 2010
RAI 371-03.07.02-72	August 3, 2010

Sincerely,

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From: BRYAN Martin (EXT)
Sent: Monday, April 26, 2010 12:45 PM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen V (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); ROMINE Judy (AREVA NP INC); VAN NOY Mark (EXT); RYAN Tom (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 371, FSAR Ch. 3

Getachew,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 371 Response US EPR DC.pdf" provides a schedule since a technically correct and complete response to the 9 questions is not provided.

The following table indicates the respective pages in the response document, "RAI 371 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 371-03.07.01-28	2	3
RAI 371-03.07.01-29	4	4
RAI 371-03.07.02-66	5	5
RAI 371-03.07.02-67	6	6
RAI 371-03.07.02-68	7	7
RAI 371-03.07.02-69	8	9
RAI 371-03.07.02-70	10	10
RAI 371-03.07.02-71	11	11
RAI 371-03.07.02-72	12	12

A complete answer is not provided for 9 of the 9 questions. The schedule for a technically correct and complete response to these questions is provided below.

Question #	Response Date
RAI 371-03.07.01-28	August 3, 2010
RAI 371-03.07.01-29	June 7, 2010
RAI 371-03.07.02-66	July 27, 2010
RAI 371-03.07.02-67	July 27, 2010
RAI 371-03.07.02-68	August 3, 2010

RAI 371-03.07.02-69	August 3, 2010
RAI 371-03.07.02-70	August 3, 2010
RAI 371-03.07.02-71	August 3, 2010
RAI 371-03.07.02-72	August 3, 2010

Sincerely,

Martin (Marty) C. Bryan
U.S. EPR Design Certification Licensing Manager
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From: Tesfaye, Getachew [mailto:Getachew.Tesfaye@nrc.gov]
Sent: Thursday, March 25, 2010 2:05 PM
To: ZZ-DL-A-USEPR-DL
Cc: Chakravorty, Manas; Hawkins, Kimberly; Miernicki, Michael; Colaccino, Joseph; ArevaEPRDCPEm Resource
Subject: U.S. EPR Design Certification Application RAI No. 371 (4273,4271,4280), FSAR Ch. 3

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on February 25, 2010, and on March 24, 2010, 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: 4425

Mail Envelope Properties (554210743EFE354B8D5741BEB695E65615521F)

Subject: Advanced Response to U.S. EPR Design Certification Application RAI No. 371, FSAR Ch. 3, Question 03.07.01-29
Sent Date: 5/6/2013 2:17:13 PM
Received Date: 5/6/2013 2:17:29 PM
From: WILLIFORD Dennis (AREVA)

Created By: Dennis.Williford@areva.com

Recipients:

"Miernicki, Michael" <Michael.Miernicki@nrc.gov>
Tracking Status: None
"ANDERSON Katherine (EXTERNAL AREVA)" <katherine.anderson.ext@areva.com>
Tracking Status: None
"DELANO Karen (AREVA)" <Karen.Delano@areva.com>
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"LEIGHLITER John (AREVA)" <John.Leighliter@areva.com>
Tracking Status: None
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"RYAN Tom (AREVA)" <Tom.Ryan@areva.com>
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"VANCE Brian (AREVA)" <Brian.Vance@areva.com>
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"ABAYAN Victor (AREVA)" <victor.abayan@areva.com>
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"SHEPHERD Tracey (AREVA)" <Tracey.Shepherd@areva.com>
Tracking Status: None
"LOSEKE Brian (AREVA)" <Brian.Loseke@areva.com>
Tracking Status: None
"ALCHAAR Nawar (AREVA)" <Nawar.Alchaar@areva.com>
Tracking Status: None
"CORNELL Veronica (EXTERNAL AREVA)" <veronica.cornell.ext@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	103651	5/6/2013 2:17:29 PM
RAI 371 Advanced Response Question 3.7.1-29 - US EPR DC.pdf		720089

Options

Priority: Standard
Return Notification: No

Reply Requested:

No

Sensitivity:

Normal

Expiration Date:

Recipients Received:

Advanced Response to

Request for Additional Information No. 371, Question 03.07.01-29

3/25/2010

U.S. EPR Standard Design Certification

AREVA NP Inc.

Docket No. 52-020

SRP Section: 03.07.01 - Seismic Design Parameters

SRP Section: 03.07.02 - Seismic System Analysis

Application Section: 03.07

QUESTIONS for Structural Engineering Branch 2 (ESBWR/ABWR Projects) (SEB2)

Question 03.07.01-29:**Follow Up to RAI 215, Question 03.07.01-22:**

The applicant has provided a comparison between modal damping using RG 1.61 and Rayleigh damping using assumed values for alpha and beta. The alpha and beta values used to develop the Rayleigh damping curve in Figure 3.7.1-22-1 are 0.9 and 0.00045, respectively. According to Appendix 3C.4.2.1.1 of the U.S. EPR FSAR these values are not the values used for seismic analysis as was requested by staff but are the values used for the RCS four-loop high energy line break analysis. In Appendix 3C.4.2.2 a different set of values of alpha and beta are given for the RCS seismic analysis. These values are 1.7 for alpha and .00055 for beta. As such there is inconsistency between the applicant's response to RAI 03.07.01-22 and the FSAR Appendix 3C.4.2.1.1. Use of higher values of alpha and beta can result in damping values that may not be conservative.

1. The applicant is requested to explain why two different sets of alpha and beta values were used and provide justification for the use of the higher damping values in the RCS seismic analysis and include this information in Appendix 3C of the FSAR.
2. Appendix 3C.4.2.2.1 states that a cutoff frequency of 35 cycles was used in the linear modal analysis. Now that Bell Bend response spectra curves will be included in the certified design and as these curves contain significant responses above 35 cps, the applicant is requested to provide a basis for using a cutoff frequency of 35 cps in the RCS seismic analysis. Please include the technical basis for your response and update the FSAR accordingly.

Response to Question 03.07.01-29:

1. As stated in U.S. EPR FSAR Tier 2, Appendix 3C.4.2.1.1, the high-energy line break (HELB) structural analysis of the reactor coolant system (RCS) used 0.9 and 0.00045 for alpha and beta, respectively. These values provide conservatively low damping as compared to the modal damping values calculated using RG 1.61. Due to the severity of the seismic ground accelerations, a set of greater alpha and beta damping values was used for the seismic analysis of the RCS to yield a more accurate, yet still conservative result for the frequencies of interest in the RCS. As stated in U.S. EPR FSAR Tier 2, Appendix 3C.4.2.2.1, the alpha and beta values used for the development of seismic structural analysis linear versus nonlinear model factors for the RCS were 1.7 and 0.00055, respectively.

Figure 03.07.01-29-1 compares the alpha-beta damping used for HELB and seismic analyses with the RG 1.61. The RG 1.61 damping values have been modified due to the changes in Internal Concrete Structure damping to OBE levels as discussed in RAI 370, Question 03.07.01-27. This change has reduced the RG 1.61 damping used in the RCS analysis. The Rayleigh damping values for the HELB structural analysis remain conservative for the RCS frequencies of interest.

Recognizing that the alpha-beta damping curves increase significantly as frequencies increase beyond 30 Hz, AREVA NP has evaluated the impact of the modes in this frequency range on the dynamic response of the RCS. As is typical for the dynamic analysis of systems with large components, approximately 99.5 percent of the RCS effective mass is accounted for by considering frequencies below 28 Hz. This indicates that the impact on the response of any modes above 28 Hz is negligible. In addition, 94 percent of the lateral effective mass (Global X and Z directions) is accounted for by considering frequencies

below 16 Hz. The vertical effective mass (Global Y direction), as would be expected, has a higher frequency due to the rigidity of the vertical supports and component shells in the axial direction.

The dominant natural frequencies of the RCS components in the lateral directions are:

- Reactor Vessel ~10 Hz.
- Steam Generator ~6.5 Hz.
- Reactor Coolant Pumps ~14 Hz.
- Pressurizer ~14.5 Hz.

The linear regression trend in Figure 03.07.01-29-1 represents a curve fit for the applied modal damping values. Figure 03.07.01-29-1, shows that the seismic alpha-beta damping curve falls below the curve fit up to 16 Hz. As previously explained, more than 94 percent of the lateral effective mass of the RCS components is accounted for below a frequency of 16 Hz and crosses the 0.04 damping ratio line at approximately 19 Hz. The alpha-beta curve for HELB analysis intersects the linear regression curve fit at about 23 Hz and crosses the 0.04 damping ratio line at approximately 26 Hz, indicating that majority of the RCS effective mass in all directions is damped below the modal damping allowed by RG 1.61; and, therefore, remains conservative.

As explained in U.S. EPR FSAR Tier 2, Section 3C.4.2.2.1, non-linear and linear seismic time-history analyses of the four-loop RCS are performed. A load comparison between the linear and non-linear analyses is performed to arrive at bounding factors using alpha-beta damping. To determine the effect of non-linearity in the RCS modeling, seismic cases are analyzed using linear and non-linear versions of the RCS four-loop structural model, with Rayleigh damping and direct step-by-step integration time history analyses. The results of these runs are compared to arrive at factors greater than 1.0. The factors are applied to a linear modal superposition time history solution (production runs) of the RCS four-loop structural model, using RG 1.61 modal damping values in U.S. EPR FSAR Tier 2, Table 3.7.1-1. The effects of missing mass are included beyond a cut-off frequency of 35 Hz. The alpha-beta damping parameters are used only for comparison between the linear and non-linear analyses to calculate factors to be applied to the seismic structural analysis. The alpha and beta values remain appropriate to use with the changes in the damping of the internal concrete structure for the development of the model factors. The seismic structural analysis uses RG 1.61 damping for the structural analysis of the RCS.

Therefore, the RG 1.61 values used in the seismic analysis, as well as the alpha-beta values used in the HELB analysis, are considered conservative for structural analysis.

2. As stated in U.S. EPR FSAR Tier 2, Appendix 3C.4.2.2.1, a cutoff frequency of 35 Hz was used for seismic analysis for the soil cases included in the U.S. EPR design. The effects of high-frequency modes are included by the missing mass method and are described in the revised U.S. EPR FSAR Tier 2, Appendix 3C.4.2.2.1. Recognizing that the ground response spectra for Bell Bend and other future sites may have significant accelerations at frequencies greater than 35 Hz, AREVA NP evaluated the impact of these high-frequency accelerations on the seismic response of the RCS by performing analyses for the Bell Bend lower-bound, best-estimate, and upper-bound cases.

As is typical for the dynamic analysis of systems with large components, approximately 99.5 percent of the RCS effective mass is accounted for by considering the frequencies below 28 Hz. This indicates that the impact on the response of frequency content above 28 Hz is negligible. Approximately 91 percent of the RCS effective mass in the vertical direction is accounted for by considering frequencies below 26 Hz. The circled frequencies in Figure 03.07.01-29-1 account for approximately 80 percent of the RCS effective mass in the vertical direction.

The effective mass of the RCS is calculated from the participation factor using the following equations:

$$[M]\{\ddot{X}\} + [C]\{\dot{X}\} + [K]\{X\} = -[M]\{P\}\ddot{E}(t)$$

where: $[M]$ = system mass matrix (consistent or lumped)
 $[C]$ = system damping matrix
 $[K]$ = system stiffness matrix
 $\{\ddot{X}\}$, $\{\dot{X}\}$, $\{X\}$ = unknown acceleration, velocity, displacement vectors
 $\ddot{E}(t)$ = time varying anchor acceleration
 $\{P\}$ = influence coefficient vector

Through substitution, this equation can be rewritten as follows:

$$\ddot{\eta} + 2\zeta\omega\dot{\eta} + \omega^2\eta = -\Gamma\ddot{E}(t)$$

where $\omega^2 = \frac{\{\phi\}^T[K]\{\phi\}}{\{\phi\}^T[M]\{\phi\}}$, ω = angular frequency at the given $\{\phi\}$,
 $2\zeta\omega = \frac{\{\phi\}^T[C]\{\phi\}}{\{\phi\}^T[M]\{\phi\}}$ = viscous damping at frequency ω ,
 $\Gamma = \frac{\{\phi\}^T[M]\{P\}}{\{\phi\}^T[M]\{\phi\}}$ = participation factor.

The participation factor for each mode i is:

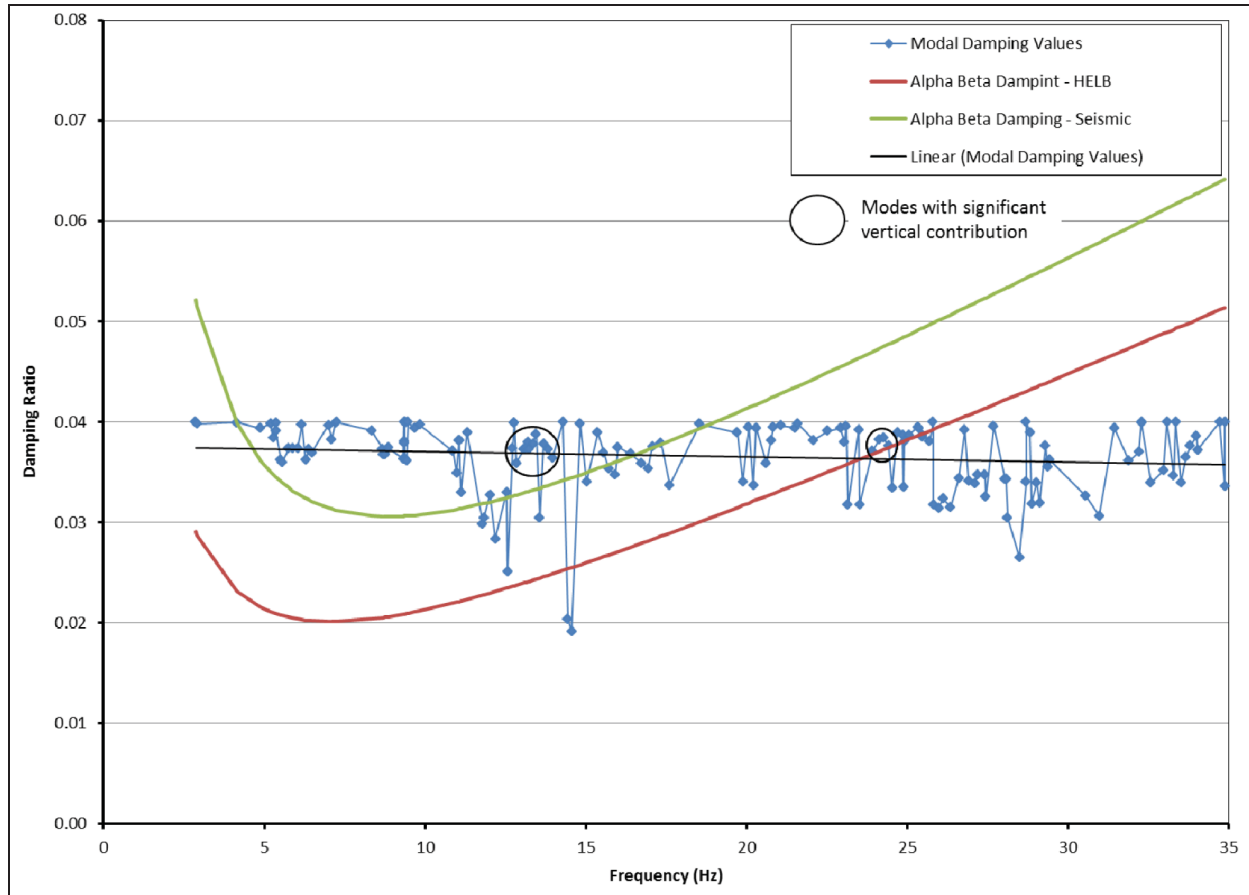
$$\Gamma_i = \frac{\{\phi\}_i^T [M] \{P\}}{\{\phi\}_i^T [M] \{\phi\}_i}$$

The effective mass, M_{eff} , is calculated for each mode i as follows:

$$M_{\text{eff},i} = \frac{\Gamma_i^2}{\{\phi\}_i^T [M] \{\phi\}_i}$$

Where $\{\phi\}_i^T [M] \{\phi\}_i = 1$

Figure 03.07.01-29-1—Comparison of Alpha-Beta / RG 1.61 Damping – HELB/Seismic



FSAR Impact:

U.S. EPR FSAR Tier 2, Figure 3C-9 will be revised as described in the response and as indicated on the enclosed markup.

U.S. EPR
Final Safety Analysis Report
MARKUPS

Figure 3C-9—Rayleigh Damping Curve

