

ArevaEPRDCPEm Resource

From: HOTTLE Nathan (AREVA) [Nathan.Hottle@areva.com]
Sent: Thursday, December 19, 2013 11:35 AM
To: Wunder, George
Cc: Miernicki, Michael; GUCWA Len (EXTERNAL AREVA); UYEDA Graydon (AREVA); RANSOM Jim (AREVA); LEIGHLITER John (AREVA); HARRINGTON James (AREVA); WILLIFORD Dennis (AREVA); RYAN Tom (AREVA); ROMINE Judy (AREVA); DELANO Karen (AREVA); WILLS Tiffany (AREVA); HONMA George (EXTERNAL AREVA)
Subject: Response to U.S. EPR Design Certification Application RAI No. 354, FSAR Ch. 3, Supplement 43
Attachments: RAI 354 Supplement 43 Response US EPR DC.pdf

George,

The attached file, "RAI 354 Supplement 43 Response US EPR DC.pdf," provides an updated response to one question in RAI 354 (Question 03.06.02-35). Appended to this file are affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which support the updated response to RAI 354, Question 03.06.02-35. The updated response incorporates changes made to ANP-10218P "Pipe Rupture External Loading Effects on U.S. EPR Essential Structures, Systems, and Components Technical Report" to address NRC comments. Concurrently, AREVA is mailing to NRC proprietary and non-proprietary versions of ANP-10218P/NP, Revision 2.

The following table indicates the respective pages in the response document, "RAI 354 Supplement 43 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

| Question # | Start Page | End Page |
|-----------------------|------------|----------|
| RAI 354 — 03.06.02-35 | 2 | 4 |

This completes the formal AREVA NP response to RAI 354. There are no additional questions associated with this RAI.

Sincerely,

Nathan Hottle

AREVA Inc.
3315 Old Forest Road
Lynchburg, VA 24501
Phone 434-832-3864
Mobile 434-485-4239
nathan.hottle@areva.com

From: HOTTLE Nathan (EP/PE)
Sent: Tuesday, October 29, 2013 11:17 AM
To: michael.miernicki@nrc.gov
Cc: bill.gleaves@nrc.gov; RANSOM Jim (RS/NB); LEIGHLITER John (RS/NB); UYEDA Graydon (EP/PE); GUCWA Len (External RS/NB); RYAN Tom (RS/NB); LOSEKE Brian (EP/PE); ROMINE Judy (RS/NB); DELANO Karen (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 354, FSAR Ch. 3, Supplement 42 (Part 1 of 3)

Mike,

The attached file, "RAI 354 Supplement 42 Response - US EPR DC Part 1 of 3.pdf," and the subsequent 2 e-mails provide a technically correct and complete response to one question in RAI 354 (Question 03.08.05-22). Due to the file size, the remaining parts will be provided in two subsequent e-mails. 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 354 Question 03.08.05-22.

The following table indicates the respective pages in the response document, "RAI 354 Supplement 42 Response - US EPR DC Part 1 of 3.pdf," that contain AREVA NP's response to the subject question.

| Question # | Start Page | End Page |
|-----------------------|------------|----------|
| RAI 354 — 03.08.05-22 | 2 | 10 |

This completes the formal AREVA NP response to RAI 354. There are no additional questions associated with this RAI.

Sincerely,

Nathan Hottle

AREVA Inc.

3315 Old Forest Road

Lynchburg, VA 24501

Phone 434-832-3864

Mobile 434-485-4239

nathan.hottle@areva.com

From: WILLIFORD Dennis (RS/NB)

Sent: Monday, July 29, 2013 5:46 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); HONMA George (EXT); HOTTLE Nathan (EP/PE); KOWALSKI David (RS/NB); LENTZ Tony (External RS/NB); GUCWA Len (External RS/NB)

Subject: Response to U.S. EPR Design Certification Application RAI No. 354, FSAR Ch. 3, Supplement 41

Amy,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the remaining 21 questions. Supplement 2 was submitted on June 24, 2010, and included a revised schedule for Questions 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23. AREVA NP submitted Supplement 3 on July 7, 2010, responding to 1 of the remaining 21 questions. AREVA NP submitted Supplement 4 on July 30, 2010, to provide final responses to Questions 03.06.02-32, 03.06.02-41 and 03.08.02-16 and a revised schedule for Questions 03.06.02-33 through 03.06.02-40. On August 5, 2010, AREVA NP provided a revised schedule for Questions 03.06.02-42 and 03.08.05-23 in Supplement 5. AREVA NP submitted Supplement 6 on August 31, 2010, to provide final responses to 5 of the remaining 17 questions. On September 8, 2010, AREVA NP submitted Supplement 7 to provide a revised schedule for the response to Question 03.08.05-21. On September 13, 2010, AREVA NP provided an INTERIM response to Question 03.08.05-22 in Supplement 8. In Supplement 9, AREVA NP submitted a revised schedule for Question 03.08.05-23 on October 1, 2010. AREVA NP submitted Supplement 10 on October 7, 2010 and Supplement 11 on November 1, 2010 to provide a revised schedule for the response to Question 03.08.02-13. On November 17, 2010, AREVA NP submitted Supplement 12 to provide a revised schedule for Questions 03.06.02-33 through 03.06.02-40 and 03.08.05-23. On November 22, 2010, AREVA NP submitted Supplement 13 to provide an INTERIM response to Question 03.08.05-22 and a new schedule for supplemental responses to Questions 03.08.02-11 and 03.08.02-12. In Supplement 14, AREVA NP submitted a revised schedule for Question 03.08.05-23 on January 7, 2011. In Supplement 15, AREVA NP submitted a revised schedule for Question 03.08.05-22 on January 13, 2011. On February 11, 2011, AREVA NP submitted Supplement 16 to provide a revised schedule for Questions 03.08.02-11, 03.08.02-12, 03.08.02-13, 03.08.05-22 and 03.08.05-23. On March 3, 2011, AREVA NP submitted Supplement 17 to provide a technically correct and complete FINAL response to Question 03.08.02-12 and a revised schedule for Questions 03.08.02-11 and Question 03.08.02-13. In Supplement 18, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40

on March 17, 2011. On March 29, 2011, AREVA NP submitted Supplement 19 to provide revised schedules for Question 03.08.05-22 and Question 03.08.05-23. On April 18, 2011, AREVA NP submitted Supplement 20 to provide a technically correct and complete FINAL response to Question 03.08.05-22. On April 18, 2011, AREVA NP also submitted Supplement 21 to provide a technically correct and complete response to Question 03.08.02-11. On April 28, 2011, in Supplement 22, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on April 28, 2011. On May 4, 2011, AREVA NP submitted a technically correct and complete response to Question 03.08.05-23 in Supplement 23. On May 27, 2011, AREVA NP submitted Supplement 24 to provide revised schedules for Questions 03.06.02-33, -34, -36 through -40. On June 13, AREVA NP submitted Supplement 25 to provide a revised schedule for Question 03.08.02-13. On June 29, 2011, AREVA NP submitted Supplement 26 to provide a revised schedule. On July 14, 2011, AREVA NP submitted Supplement 27 which provided a technically correct and complete response to Question 03.08.02-13. On July 22, 2011, AREVA NP submitted Supplement 28 which provided a technically correct and complete final response to 7 of the 8 remaining questions of RAI 354. On August 30, 2011, AREVA NP submitted Supplement 29 which provided a technically correct and complete revised final response to Question 03.06.02-33 and an INTERIM response to the 1 remaining question (03.06.02-35). On October 28, 2011, AREVA NP submitted Supplement 30 to provide a revised schedule for the final response to the remaining question. On December 12, 2011, AREVA NP submitted Supplement 31; on January 31, 2012, AREVA NP submitted Supplement 32; and on February 21, 2012, AREVA NP submitted Supplement 33 to provide a revised schedule for the final response to the remaining question. On March 14, 2012, AREVA NP submitted Supplement 34 to provide a revised final response to Question 03.08.05-22. On June 5, 2012, AREVA NP submitted Supplement 35 to provide a revised schedule for the remaining question (Question 03.06.02-35). On February 26, 2013, AREVA NP submitted Supplement 36 to provide a schedule date for a revised Question 03.08.02-11. On June 14, 2013, AREVA NP submitted Supplement 37 to provide a schedule for a revised response to Question 03.08.02-12. On June 25, 2013, AREVA NP submitted Supplement 38 to provide a revised schedule for supplemental responses to Questions 03.08.02-13 and 03.08.05-22. On July 23, 2013, AREVA NP submitted Supplement 39 to provide a technically correct and complete response to two questions in RAI 354 (Question 03.08.02-11 and Question 03.08.02-13). On July 29, 2013, AREVA NP submitted Supplement 40 to provide a technically correct and complete response to Question 03.06.02-35.

The attached file, "RAI 354 Supplement 41 Response US EPR DC.pdf," provides a technically correct and complete response to one question in RAI 354 (Question 03.08.02-12).

The following table indicates the respective pages in the response document, "RAI 354 Supplement 41 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

| Question # | Start Page | End Page |
|-----------------------|------------|----------|
| RAI 354 — 03.08.02-12 | 2 | 3 |

The schedule for the final response to the remaining question is unchanged as shown below.

| Question # | Final Response Date |
|-----------------------|---------------------|
| RAI 354 — 03.08.05-22 | August 30, 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, July 29, 2013 5:39 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); HONMA George (EXT); HOTTLE Nathan (EP/PE); KOWALSKI David (RS/NB); LENTZ Tony (External RS/NB); GUCWA Len (External RS/NB)

Subject: Response to U.S. EPR Design Certification Application RAI No. 354, FSAR Ch. 3, Supplement 40

Amy,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the remaining 21 questions. Supplement 2 was submitted on June 24, 2010, and included a revised schedule for Questions 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23. AREVA NP submitted Supplement 3 on July 7, 2010, responding to 1 of the remaining 21 questions. AREVA NP submitted Supplement 4 on July 30, 2010, to provide final responses to Questions 03.06.02-32, 03.06.02-41 and 03.08.02-16 and a revised schedule for Questions 03.06.02-33 through 03.06.02-40. On August 5, 2010, AREVA NP provided a revised schedule for Questions 03.06.02-42 and 03.08.05-23 in Supplement 5. AREVA NP submitted Supplement 6 on August 31, 2010, to provide final responses to 5 of the remaining 17 questions. On September 8, 2010, AREVA NP submitted Supplement 7 to provide a revised schedule for the response to Question 03.08.05-21. On September 13, 2010, AREVA NP provided an INTERIM response to Question 03.08.05-22 in Supplement 8. In Supplement 9, AREVA NP submitted a revised schedule for Question 03.08.05-23 on October 1, 2010. AREVA NP submitted Supplement 10 on October 7, 2010 and Supplement 11 on November 1, 2010 to provide a revised schedule for the response to Question 03.08.02-13. On November 17, 2010, AREVA NP submitted Supplement 12 to provide a revised schedule for Questions 03.06.02-33 through 03.06.02-40 and 03.08.05-23. On November 22, 2010, AREVA NP submitted Supplement 13 to provide an INTERIM response to Question 03.08.05-22 and a new schedule for supplemental responses to Questions 03.08.02-11 and 03.08.02-12. In Supplement 14, AREVA NP submitted a revised schedule for Question 03.08.05-23 on January 7, 2011. In Supplement 15, AREVA NP submitted a revised schedule for Question 03.08.05-22 on January 13, 2011. On February 11, 2011, AREVA NP submitted Supplement 16 to provide a revised schedule for Questions 03.08.02-11, 03.08.02-12, 03.08.02-13, 03.08.05-22 and 03.08.05-23. On March 3, 2011, AREVA NP submitted Supplement 17 to provide a technically correct and complete FINAL response to Question 03.08.02-12 and a revised schedule for Questions 03.08.02-11 and Question 03.08.02-13. In Supplement 18, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on March 17, 2011. On March 29, 2011, AREVA NP submitted Supplement 19 to provide revised schedules for Question 03.08.05-22 and Question 03.08.05-23. On April 18, 2011, AREVA NP submitted Supplement 20 to provide a technically correct and complete FINAL response to Question 03.08.05-22. On April 18, 2011, AREVA NP also submitted Supplement 21 to provide a technically correct and complete response to Question 03.08.02-11. On April 28, 2011, in Supplement 22, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on April 28, 2011. On May 4, 2011, AREVA NP submitted a technically correct and complete response to Question 03.08.05-23 in Supplement 23. On May 27, 2011, AREVA NP submitted Supplement 24 to provide revised schedules for Questions 03.06.02-33, -34, -36 through -40. On June 13, 2011, AREVA NP submitted Supplement 25 to provide a revised schedule for Question 03.08.02-13. On June 29, 2011, AREVA NP submitted Supplement 26 to provide a revised schedule. On July 14, 2011, AREVA NP submitted Supplement 27 which provided a technically correct and complete response to Question 03.08.02-13. On July 22, 2011, AREVA NP submitted Supplement 28 which provided a technically correct and complete final response to 7 of the 8 remaining questions of RAI 354. On August 30, 2011, AREVA NP submitted Supplement 29 which provided a technically correct and complete revised final response to Question 03.06.02-33 and an INTERIM response to the 1 remaining question (03.06.02-35). On October 28, 2011, AREVA NP submitted Supplement 30 to provide a revised schedule for the final response to the remaining question. On December 12, 2011, AREVA NP submitted Supplement 31; on January 31, 2012, AREVA NP submitted Supplement 32; and on February 21, 2012, AREVA NP submitted Supplement 33 to provide a revised schedule for the final response to the remaining question. On March 14, 2012, AREVA NP submitted Supplement 34 to provide a revised final response to Question 03.08.05-22. On June 5, 2012, AREVA NP submitted Supplement 35 to provide a revised schedule for the remaining question (Question 03.06.02-35). On February 26, 2013, AREVA NP submitted Supplement 36 to provide a schedule date for a revised Question 03.08.02-11. On June 14, 2013, AREVA NP submitted Supplement 37 to provide a schedule for a revised response to Question

03.08.02-12. On June 25, 2013, AREVA NP submitted Supplement 38 to provide a revised schedule for supplemental responses to Questions 03.08.02-13 and 03.08.05-22. On July 23, 2013, AREVA NP submitted Supplement 39 to provide a technically correct and complete response to two questions in RAI 354 (Question 03.08.02-11 and Question 03.08.02-13).

The attached file, "RAI 354 Supplement 40 Response US EPR DC.pdf," provides a technically correct and complete response to one question in RAI 354 (Question 03.06.02-35). 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 354, Question 03.06.02-35.

The following table indicates the respective pages in the response document, "RAI 354 Supplement 40 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

| Question # | Start Page | End Page |
|-----------------------|------------|----------|
| RAI 354 — 03.06.02-35 | 2 | 5 |

The schedule for the final response to the remaining two questions is unchanged as shown below.

| Question # | Final Response Date |
|-----------------------|---------------------|
| RAI 354 — 03.08.02-12 | August 1, 2013 |
| RAI 354 — 03.08.05-22 | August 30, 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: Tuesday, July 23, 2013 5:15 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); HONMA George (EXT)
Subject: Response to U.S. EPR Design Certification Application RAI No. 354, FSAR Ch. 3, Supplement 39

Amy,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the remaining 21 questions. Supplement 2 was submitted on June 24, 2010, and included a revised schedule for Questions 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23. AREVA NP submitted Supplement 3 on July 7, 2010, responding to 1 of the remaining 21 questions. AREVA NP submitted Supplement 4 on July 30, 2010, to provide final responses to Questions 03.06.02-32, 03.06.02-41 and 03.08.02-16 and a revised schedule for Questions 03.06.02-33 through 03.06.02-40. On August 5, 2010, AREVA NP provided a revised schedule for Questions 03.06.02-42 and 03.08.05-23 in Supplement 5. AREVA NP submitted Supplement 6 on August 31, 2010, to provide final responses to 5 of the remaining 17 questions. On September 8, 2010, AREVA NP submitted Supplement 7 to provide a revised schedule for the response to Question 03.08.05-21. On September 13, 2010, AREVA NP provided an INTERIM response to Question 03.08.05-22 in Supplement 8. In Supplement 9, AREVA NP submitted a revised schedule for Question

03.08.05-23 on October 1, 2010. AREVA NP submitted Supplement 10 on October 7, 2010 and Supplement 11 on November 1, 2010 to provide a revised schedule for the response to Question 03.08.02-13. On November 17, 2010, AREVA NP submitted Supplement 12 to provide a revised schedule for Questions 03.06.02-33 through 03.06.02-40 and 03.08.05-23. On November 22, 2010, AREVA NP submitted Supplement 13 to provide an INTERIM response to Question 03.08.05-22 and a new schedule for supplemental responses to Questions 03.08.02-11 and 03.08.02-12. In Supplement 14, AREVA NP submitted a revised schedule for Question 03.08.05-23 on January 7, 2011. In Supplement 15, AREVA NP submitted a revised schedule for Question 03.08.05-22 on January 13, 2011. On February 11, 2011, AREVA NP submitted Supplement 16 to provide a revised schedule for Questions 03.08.02-11, 03.08.02-12, 03.08.02-13, 03.08.05-22 and 03.08.05-23. On March 3, 2011, AREVA NP submitted Supplement 17 to provide a technically correct and complete FINAL response to Question 03.08.02-12 and a revised schedule for Questions 03.08.02-11 and Question 03.08.02-13. In Supplement 18, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on March 17, 2011. On March 29, 2011, AREVA NP submitted Supplement 19 to provide revised schedules for Question 03.08.05-22 and Question 03.08.05-23. On April 18, 2011, AREVA NP submitted Supplement 20 to provide a technically correct and complete FINAL response to Question 03.08.05-22. On April 18, 2011, AREVA NP also submitted Supplement 21 to provide a technically correct and complete response to Question 03.08.02-11. On April 28, 2011, in Supplement 22, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on April 28, 2011. On May 4, 2011, AREVA NP submitted a technically correct and complete response to Question 03.08.05-23 in Supplement 23. On May 27, 2011, AREVA NP submitted Supplement 24 to provide revised schedules for Questions 03.06.02-33, -34, -36 through -40. On June 13, AREVA NP submitted Supplement 25 to provide a revised schedule for Question 03.08.02-13. On June 29, 2011, AREVA NP submitted Supplement 26 to provide a revised schedule. On July 14, 2011, AREVA NP submitted Supplement 27 which provided a technically correct and complete response to Question 03.08.02-13. On July 22, 2011, AREVA NP submitted Supplement 28 which provided a technically correct and complete final response to 7 of the 8 remaining questions of RAI 354. On August 30, 2011, AREVA NP submitted Supplement 29 which provided a technically correct and complete revised final response to Question 03.06.02-33 and an INTERIM response to the 1 remaining question (03.06.02-35). On October 28, 2011, AREVA NP submitted Supplement 30 to provide a revised schedule for the final response to the remaining question. On December 12, 2011, AREVA NP submitted Supplement 31; on January 31, 2012, AREVA NP submitted Supplement 32; and on February 21, 2012, AREVA NP submitted Supplement 33 to provide a revised schedule for the final response to the remaining question. On March 14, 2012, AREVA NP submitted Supplement 34 to provide a revised final response to Question 03.08.05-22. On June 5, 2012, AREVA NP submitted Supplement 35 to provide a revised schedule for the remaining question (Question 03.06.02-35). On February 26, 2013, AREVA NP submitted Supplement 36 to provide a schedule date for a revised Question 03.08.02-11. On June 14, 2013, AREVA NP submitted Supplement 37 to provide a schedule for a revised response to Question 03.08.02-12. On June 25, 2013, AREVA NP submitted Supplement 38 to provide a revised schedule for supplemental responses to Questions 03.08.02-13 and 03.08.05-22.

The attached file, "RAI 354 Supplement 39 Response US EPR DC - PUBLIC.pdf" provides a technically correct and complete response to two questions in RAI 354 (Question 03.08.02-11 and Question 03.08.02-13). Because the response file contains security-related sensitive information that should be withheld from public disclosure in accordance with 10 CFR 2.390, a public version is provided with the security-related sensitive information redacted. This email and attached file do not contain any security-related information. An unredacted security-related version is provided under separate email.

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 354, Question 03.08.02-11.

The following table indicates the respective pages in the response document, "RAI 354 Supplement 39 Response US EPR DC - PUBLIC.pdf," that contain AREVA NP's response to the subject questions.

| Question # | Start Page | End Page |
|-----------------------|------------|----------|
| RAI 354 — 03.08.02-11 | 2 | 5 |
| RAI 354 — 03.08.02-13 | 6 | 11 |

The schedule for the response to the remaining three questions is unchanged as shown below.

| Question # | Advanced Response Date | NRC Comment Request Date | Final Response Date |
|-----------------------|------------------------|--------------------------|---------------------|
| RAI 354 — 03.06.02-35 | N/A | N/A | July 30, 2013 |
| RAI 354 — 03.08.02-12 | June 28, 2013 | July 24, 2013 | August 1, 2013 |
| RAI 354 — 03.08.05-22 | June 28, 2013 | August 15, 2013 | August 30, 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: Tuesday, June 25, 2013 1:47 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); HONMA George (EXT)
Subject: Response to U.S. EPR Design Certification Application RAI No. 354, FSAR Ch. 3, Supplement 38

Amy,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the remaining 21 questions. Supplement 2 was submitted on June 24, 2010, and included a revised schedule for Questions 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23. AREVA NP submitted Supplement 3 on July 7, 2010, responding to 1 of the remaining 21 questions. AREVA NP submitted Supplement 4 on July 30, 2010, to provide final responses to Questions 03.06.02-32, 03.06.02-41 and 03.08.02-16 and a revised schedule for Questions 03.06.02-33 through 03.06.02-40. On August 5, 2010, AREVA NP provided a revised schedule for Questions 03.06.02-42 and 03.08.05-23 in Supplement 5. AREVA NP submitted Supplement 6 on August 31, 2010, to provide final responses to 5 of the remaining 17 questions. On September 8, 2010, AREVA NP submitted Supplement 7 to provide a revised schedule for the response to Question 03.08.05-21. On September 13, 2010, AREVA NP provided an INTERIM response to Question 03.08.05-22 in Supplement 8. In Supplement 9, AREVA NP submitted a revised schedule for Question 03.08.05-23 on October 1, 2010. AREVA NP submitted Supplement 10 on October 7, 2010 and Supplement 11 on November 1, 2010 to provide a revised schedule for the response to Question 03.08.02-13. On November 17, 2010, AREVA NP submitted Supplement 12 to provide a revised schedule for Questions 03.06.02-33 through 03.06.02-40 and 03.08.05-23. On November 22, 2010, AREVA NP submitted Supplement 13 to provide an INTERIM response to Question 03.08.05-22 and a new schedule for supplemental responses to Questions 03.08.02-11 and 03.08.02-12. In Supplement 14, AREVA NP submitted a revised schedule for Question 03.08.05-23 on January 7, 2011. In Supplement 15, AREVA NP submitted a revised schedule for Question 03.08.05-22 on January 13, 2011. On February 11, 2011, AREVA NP submitted Supplement 16 to provide a revised schedule for Questions 03.08.02-11, 03.08.02-12, 03.08.02-13, 03.08.05-22 and 03.08.05-23. On March 3, 2011, AREVA NP submitted Supplement 17 to provide a technically correct and complete FINAL response to Question 03.08.02-12 and a revised schedule for Questions 03.08.02-11 and Question 03.08.02-13. In Supplement 18, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on March 17, 2011. On March 29, 2011, AREVA NP submitted Supplement 19 to provide revised schedules for Question 03.08.05-22 and Question 03.08.05-23. On April 18, 2011, AREVA NP submitted Supplement 20 to provide a technically

correct and complete FINAL response to Question 03.08.05-22. On April 18, 2011, AREVA NP also submitted Supplement 21 to provide a technically correct and complete response to Question 03.08.02-11. On April 28, 2011, in Supplement 22, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on April 28, 2011. On May 4, 2011, AREVA NP submitted a technically correct and complete response to Question 03.08.05-23 in Supplement 23. On May 27, 2011, AREVA NP submitted Supplement 24 to provide revised schedules for Questions 03.06.02-33, -34, -36 through -40. On June 13, AREVA NP submitted Supplement 25 to provide a revised schedule for Question 03.08.02-13. On June 29, 2011, AREVA NP submitted Supplement 26 to provide a revised schedule. On July 14, 2011, AREVA NP submitted Supplement 27 which provided a technically correct and complete response to Question 03.08.02-13. On July 22, 2011, AREVA NP submitted Supplement 28 which provided a technically correct and complete final response to 7 of the 8 remaining questions of RAI 354. On August 30, 2011, AREVA NP submitted Supplement 29 which provided a technically correct and complete revised final response to Question 03.06.02-33 and an INTERIM response to the 1 remaining question (03.06.02-35). On October 28, 2011, AREVA NP submitted Supplement 30 to provide a revised schedule for the final response to the remaining question. On December 12, 2011, AREVA NP submitted Supplement 31; on January 31, 2012, AREVA NP submitted Supplement 32; and on February 21, 2012, AREVA NP submitted Supplement 33 to provide a revised schedule for the final response to the remaining question. On March 14, 2012, AREVA NP submitted Supplement 34 to provide a revised final response to Question 03.08.05-22. On June 5, 2012, AREVA NP submitted Supplement 35 to provide a revised schedule for the remaining question (Question 03.06.02-35). On February 26, 2013, AREVA NP submitted Supplement 36 to provide a schedule date for a revised Question 03.08.02-11. On June 14, 2013, AREVA NP submitted Supplement 37 to provide a schedule for a revised response to Question 03.08.02-12.

As discussed with NRC staff during a conference call on June 11, 2013, AREVA NP committed to provide NRC a revised schedule and response for Questions 03.08.02-13 and 03.08.05-22.

The schedule for a technically correct and complete revised response to Questions 03.08.02-13 and 03.08.05-22 is provided below. The schedule for the response to the other questions remains unchanged.

| Question # | Advanced Response Date | NRC Comment Request Date | Final Response Date |
|-----------------------|------------------------|--------------------------|------------------------|
| RAI 354 — 03.06.02-35 | N/A | N/A | July 30, 2013 |
| RAI 354 — 03.08.02-11 | June 28, 2013 | July 24, 2013 | August 1, 2013 |
| RAI 354 — 03.08.02-12 | June 28, 2013 | July 24, 2013 | August 1, 2013 |
| RAI 354 — 03.08.02-13 | June 28, 2013 | July 24, 2013 | August 1, 2013 |
| RAI 354 — 03.08.05-22 | June 28, 2013 | August 15, 2013 | August 30, 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: RYAN Tom (RS/NB)
Sent: Friday, June 14, 2013 3:42 PM
To: Amy.Snyder@nrc.gov
Cc: ANDERSON Katherine (External AREVA NP INC.); DELANO Karen (RS/NB); LEIGHLITER John (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); WILLIFORD Dennis (RS/NB); HONMA George (EXT); Miernicki, Michael; HARRINGTON James (EP/PE)
Subject: Response to U.S. EPR Design Certification Application RAI No. 354, FSAR Ch. 3, Supplement 37

Amy,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the remaining 21 questions. Supplement 2 was submitted on June 24, 2010, and included a revised schedule for Questions 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23. AREVA NP submitted Supplement 3 on July 7, 2010, responding to 1 of the remaining 21 questions. AREVA NP submitted Supplement 4 on July 30, 2010, to provide final responses to Questions 03.06.02-32, 03.06.02-41 and 03.08.02-16 and a revised schedule for Questions 03.06.02-33 through 03.06.02-40. On August 5, 2010, AREVA NP provided a revised schedule for Questions 03.06.02-42 and 03.08.05-23 in Supplement 5. AREVA NP submitted Supplement 6 on August 31, 2010, to provide final responses to 5 of the remaining 17 questions. On September 8, 2010, AREVA NP submitted Supplement 7 to provide a revised schedule for the response to Question 03.08.05-21. On September 13, 2010, AREVA NP provided an INTERIM response to Question 03.08.05-22 in Supplement 8. In Supplement 9, AREVA NP submitted a revised schedule for Question 03.08.05-23 on October 1, 2010. AREVA NP submitted Supplement 10 on October 7, 2010 and Supplement 11 on November 1, 2010 to provide a revised schedule for the response to Question 03.08.02-13. On November 17, 2010, AREVA NP submitted Supplement 12 to provide a revised schedule for Questions 03.06.02-33 through 03.06.02-40 and 03.08.05-23. On November 22, 2010, AREVA NP submitted Supplement 13 to provide an INTERIM response to Question 03.08.05-22 and a new schedule for supplemental responses to Questions 03.08.02-11 and 03.08.02-12. In Supplement 14, AREVA NP submitted a revised schedule for Question 03.08.05-23 on January 7, 2011. In Supplement 15, AREVA NP submitted a revised schedule for Question 03.08.05-22 on January 13, 2011. On February 11, 2011, AREVA NP submitted Supplement 16 to provide a revised schedule for Questions 03.08.02-11, 03.08.02-12, 03.08.02-13, 03.08.05-22 and 03.08.05-23. On March 3, 2011, AREVA NP submitted Supplement 17 to provide a technically correct and complete FINAL response to Question 03.08.02-12 and a revised schedule for Questions 03.08.02-11 and Question 03.08.02-13. In Supplement 18, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on March 17, 2011. On March 29, 2011, AREVA NP submitted Supplement 19 to provide revised schedules for Question 03.08.05-22 and Question 03.08.05-23. On April 18, 2011, AREVA NP submitted Supplement 20 to provide a technically correct and complete FINAL response to Question 03.08.05-22. On April 18, 2011, AREVA NP also submitted Supplement 21 to provide a technically correct and complete response to Question 03.08.02-11. On April 28, 2011, in Supplement 22, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on April 28, 2011. On May 4, 2011, AREVA NP submitted a technically correct and complete response to Question 03.08.05-23 in Supplement 23. On May 27, 2011, AREVA NP submitted Supplement 24 to provide revised schedules for Questions 03.06.02-33, -34, -36 through -40. On June 13, 2011, AREVA NP submitted Supplement 25 to provide a revised schedule for Question 03.08.02-13. On June 29, 2011, AREVA NP submitted Supplement 26 to provide a revised schedule. On July 14, 2011, AREVA NP submitted Supplement 27 which provided a technically correct and complete response to Question 03.08.02-13. On July 22, 2011, AREVA NP submitted Supplement 28 which provided a technically correct and complete final response to 7 of the 8 remaining questions of RAI 354. On August 30, 2011, AREVA NP submitted Supplement 29 which provided a technically correct and complete revised final response to Question 03.06.02-33 and an INTERIM response to the 1 remaining question (03.06.02-35). On October 28, 2011, AREVA NP submitted Supplement 30 to provide a revised schedule for the final response to the remaining question. On December 12, 2011, AREVA NP submitted Supplement 31; on January 31, 2012, AREVA NP submitted Supplement 32; and on February 21, 2012, AREVA NP submitted Supplement 33 to provide a revised schedule for the final response to the remaining question. On March 14, 2012, AREVA NP submitted Supplement 34 to provide a revised final response to Question 03.08.05-22. On June 5, 2012, AREVA NP submitted Supplement 35 to provide a revised schedule for the remaining question (Question 03.06.02-35). On February 26, 2013, AREVA NP submitted Supplement 36 to provide a schedule date for a revised Question 03.08.02-11.

As discussed with NRC during a conference call on June 11, 2013, AREVA NP committed to provide NRC a revised schedule and response for Question 03.08.02-12.

The schedule for a technically correct and complete revised response to Question 03.08.02-12 is provided below. The schedule for the response to the other questions remains unchanged as shown below.

| Question # | Advanced Response Date | NRC Comment Request Date | Final Response Date |
|-----------------------|------------------------|--------------------------|---------------------|
| RAI 354 — 03.06.02-35 | N/A | N/A | July 30, 2013 |
| RAI 354 — 03.08.02-11 | June 28, 2013 | July 24 | August 1, 2013 |
| RAI 354 — 03.08.02-12 | June 28, 2013 | July 24 | August 1, 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: Tuesday, February 26, 2013 8:15 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. 354, FSAR Ch. 3, Supplement 36

Amy,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the remaining 21 questions. Supplement 2 was submitted on June 24, 2010, and included a revised schedule for Questions 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23. AREVA NP submitted Supplement 3 on July 7, 2010, responding to 1 of the remaining 21 questions. AREVA NP submitted Supplement 4 on July 30, 2010, to provide final responses to Questions 03.06.02-32, 03.06.02-41 and 03.08.02-16 and a revised schedule for Questions 03.06.02-33 through 03.06.02-40. On August 5, 2010, AREVA NP provided a revised schedule for Questions 03.06.02-42 and 03.08.05-23 in Supplement 5. AREVA NP submitted Supplement 6 on August 31, 2010, to provide final responses to 5 of the remaining 17 questions. On September 8, 2010, AREVA NP submitted Supplement 7 to provide a revised schedule for the response to Question 03.08.05-21. On September 13, 2010, AREVA NP provided an INTERIM response to Question 03.08.05-22 in Supplement 8. In Supplement 9, AREVA NP submitted a revised schedule for Question 03.08.05-23 on October 1, 2010. AREVA NP submitted Supplement 10 on October 7, 2010 and Supplement 11 on November 1, 2010 to provide a revised schedule for the response to Question 03.08.02-13. On November 17, 2010, AREVA NP submitted Supplement 12 to provide a revised schedule for Questions 03.06.02-33 through 03.06.02-40 and 03.08.05-23. On November 22, 2010, AREVA NP submitted Supplement 13 to provide an INTERIM response to Question 03.08.05-22 and a new schedule for supplemental responses to Questions 03.08.02-11 and 03.08.02-12. In Supplement 14, AREVA NP submitted a revised schedule for Question 03.08.05-23 on January 7, 2011. In Supplement 15, AREVA NP submitted a revised schedule for Question 03.08.05-22 on January 13, 2011. On February 11, 2011, AREVA NP submitted Supplement 16 to provide a revised schedule for Questions 03.08.02-11, 03.08.02-12, 03.08.02-13, 03.08.05-22 and 03.08.05-23. On March 3, 2011, AREVA NP submitted Supplement 17 to provide a technically correct and complete FINAL response to Question 03.08.02-12 and a revised schedule for Questions 03.08.02-11 and Question 03.08.02-13. In Supplement 18, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on March 17, 2011. On March 29, 2011, AREVA NP submitted Supplement 19 to provide revised schedules for Question 03.08.05-22 and Question 03.08.05-23. On April 18, 2011, AREVA NP submitted Supplement 20 to provide a technically correct and complete FINAL response to Question 03.08.05-22. On April 18, 2011, AREVA NP also submitted Supplement 21 to provide a technically correct and complete response to Question 03.08.02-11. On April 28, 2011, in Supplement

22, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on April 28, 2011. On May 4, 2011, AREVA NP submitted a technically correct and complete response to Question 03.08.05-23 in Supplement 23. On May 27, 2011, AREVA NP submitted Supplement 24 to provide revised schedules for Questions 03.06.02-33, -34, -36 through -40. On June 13, AREVA NP submitted Supplement 25 to provide a revised schedule for Question 03.08.02-13. On June 29, 2011, AREVA NP submitted Supplement 26 to provide a revised schedule. On July 14, 2011, AREVA NP submitted Supplement 27 which provided a technically correct and complete response to Question 03.08.02-13. On July 22, 2011, AREVA NP submitted Supplement 28 which provided a technically correct and complete final response to 7 of the 8 remaining questions of RAI 354. On August 30, 2011, AREVA NP submitted Supplement 29 which provided a technically correct and complete revised final response to Question 03.06.02-33 and an INTERIM response to the 1 remaining question (03.06.02-35). On October 28, 2011, AREVA NP submitted Supplement 30 to provide a revised schedule for the final response to the remaining question. On December 12, 2011, AREVA NP submitted Supplement 31; on January 31, 2012, AREVA NP submitted Supplement 32; and on February 21, 2012, AREVA NP submitted Supplement 33 to provide a revised schedule for the final response to the remaining question. On March 14, 2012, AREVA NP submitted Supplement 34 to provide a revised final response to Question 03.08.05-22. On June 5, 2012, AREVA NP submitted Supplement 35 to provide a revised schedule for the remaining question (Question 03.06.02-35).

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 03.08.02-11.

The schedule for a technically correct and complete revised response to Question 03.08.02-11 is provided below. The schedule for the response to the other question remains unchanged as shown below.

| Question # | Interim Response Date | Response Date |
|-----------------------|--------------------------|-----------------------|
| RAI 354 — 03.06.02-35 | August 30, 2011 (actual) | July 30, 2013 |
| RAI 354 — 03.08.02-11 | N/A | August 1, 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: Tuesday, June 05, 2012 1:36 PM
To: Getachew.Tesfaye@nrc.gov
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); WELLS Russell (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 354, FSAR Ch. 3, Supplement 35

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the remaining 21 questions. Supplement 2 was submitted on June 24, 2010, and included a revised schedule for Questions 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23. AREVA NP submitted Supplement 3 on July 7, 2010, responding to 1 of the remaining 21 questions. AREVA NP submitted Supplement 4 on July 30, 2010, to provide final responses to Questions 03.06.02-32, 03.06.02-41 and 03.08.02-16 and a revised schedule for Questions 03.06.02-33

through 03.06.02-40. On August 5, 2010, AREVA NP provided a revised schedule for Questions 03.06.02-42 and 03.08.05-23 in Supplement 5. AREVA NP submitted Supplement 6 on August 31, 2010, to provide final responses to 5 of the remaining 17 questions. On September 8, 2010, AREVA NP submitted Supplement 7 to provide a revised schedule for the response to Question 03.08.05-21. On September 13, 2010, AREVA NP provided an INTERIM response to Question 03.08.05-22 in Supplement 8. In Supplement 9, AREVA NP submitted a revised schedule for Question 03.08.05-23 on October 1, 2010. AREVA NP submitted Supplement 10 on October 7, 2010 and Supplement 11 on November 1, 2010 to provide a revised schedule for the response to Question 03.08.02-13. On November 17, 2010, AREVA NP submitted Supplement 12 to provide a revised schedule for Questions 03.06.02-33 through 03.06.02-40 and 03.08.05-23. On November 22, 2010, AREVA NP submitted Supplement 13 to provide an INTERIM response to Question 03.08.05-22 and a new schedule for supplemental responses to Questions 03.08.02-11 and 03.08.02-12. In Supplement 14, AREVA NP submitted a revised schedule for Question 03.08.05-23 on January 7, 2011. In Supplement 15, AREVA NP submitted a revised schedule for Question 03.08.05-22 on January 13, 2011. On February 11, 2011, AREVA NP submitted Supplement 16 to provide a revised schedule for Questions 03.08.02-11, 03.08.02-12, 03.08.02-13, 03.08.05-22 and 03.08.05-23. On March 3, 2011, AREVA NP submitted Supplement 17 to provide a technically correct and complete FINAL response to Question 03.08.02-12 and a revised schedule for Questions 03.08.02-11 and Question 03.08.02-13. In Supplement 18, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on March 17, 2011. On March 29, 2011, AREVA NP submitted Supplement 19 to provide revised schedules for Question 03.08.05-22 and Question 03.08.05-23. On April 18, 2011, AREVA NP submitted Supplement 20 to provide a technically correct and complete FINAL response to Question 03.08.05-22. On April 18, 2011, AREVA NP also submitted Supplement 21 to provide a technically correct and complete response to Question 03.08.02-11. On April 28, 2011, in Supplement 22, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on April 28, 2011. On May 4, 2011, AREVA NP submitted a technically correct and complete response to Question 03.08.05-23 in Supplement 23. On May 27, 2011, AREVA NP submitted Supplement 24 to provide revised schedules for Questions 03.06.02-33, -34, -36 through -40. On June 13, 2011, AREVA NP submitted Supplement 25 to provide a revised schedule for Question 03.08.02-13. On June 29, 2011, AREVA NP submitted Supplement 26 to provide a revised schedule. On July 14, 2011, AREVA NP submitted Supplement 27 which provided a technically correct and complete response to Question 03.08.02-13. On July 22, 2011, AREVA NP submitted Supplement 28 which provided a technically correct and complete final response to 7 of the 8 remaining questions of RAI 354. On August 30, 2011, AREVA NP submitted Supplement 29 which provided a technically correct and complete revised final response to Question 03.06.02-33 and an INTERIM response to the 1 remaining question (03.06.02-35). On October 28, 2011, AREVA NP submitted Supplement 30 to provide a revised schedule for the final response to the remaining question. On December 12, 2011, AREVA NP submitted Supplement 31; on January 31, 2012, AREVA NP submitted Supplement 32; and on February 21, 2012, AREVA NP submitted Supplement 33 to provide a revised schedule for the final response to the remaining question. On March 14, 2012, AREVA NP submitted Supplement 34 to provide a revised final response to Question 03.08.05-22.

The schedule for the response to the remaining question has been changed as shown below. This schedule was transmitted to the NRC in AREVA NP letter NRC:12:024 dated May 10, 2012.

| Question # | Interim Response Date | Response Date |
|-----------------------|--------------------------|----------------------|
| RAI 354 — 03.06.02-35 | August 30, 2011 (actual) | July 30, 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: Wednesday, March 14, 2012 2:17 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. 354, FSAR Ch. 3, Supplement 34

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the remaining 21 questions. Supplement 2 was submitted on June 24, 2010, and included a revised schedule for Questions 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23. AREVA NP submitted Supplement 3 on July 7, 2010, responding to 1 of the remaining 21 questions. AREVA NP submitted Supplement 4 on July 30, 2010, to provide final responses to Questions 03.06.02-32, 03.06.02-41 and 03.08.02-16 and a revised schedule for Questions 03.06.02-33 through 03.06.02-40. On August 5, 2010, AREVA NP provided a revised schedule for Questions 03.06.02-42 and 03.08.05-23 in Supplement 5. AREVA NP submitted Supplement 6 on August 31, 2010, to provide final responses to 5 of the remaining 17 questions. On September 8, 2010, AREVA NP submitted Supplement 7 to provide a revised schedule for the response to Question 03.08.05-21. On September 13, 2010, AREVA NP provided an INTERIM response to Question 03.08.05-22 in Supplement 8. In Supplement 9, AREVA NP submitted a revised schedule for Question 03.08.05-23 on October 1, 2010. AREVA NP submitted Supplement 10 on October 7, 2010 and Supplement 11 on November 1, 2010 to provide a revised schedule for the response to Question 03.08.02-13. On November 17, 2010, AREVA NP submitted Supplement 12 to provide a revised schedule for Questions 03.06.02-33 through 03.06.02-40 and 03.08.05-23. On November 22, 2010, AREVA NP submitted Supplement 13 to provide an INTERIM response to Question 03.08.05-22 and a new schedule for supplemental responses to Questions 03.08.02-11 and 03.08.02-12. In Supplement 14, AREVA NP submitted a revised schedule for Question 03.08.05-23 on January 7, 2011. In Supplement 15, AREVA NP submitted a revised schedule for Question 03.08.05-22 on January 13, 2011. On February 11, 2011, AREVA NP submitted Supplement 16 to provide a revised schedule for Questions 03.08.02-11, 03.08.02-12, 03.08.02-13, 03.08.05-22 and 03.08.05-23. On March 3, 2011, AREVA NP submitted Supplement 17 to provide a technically correct and complete FINAL response to Question 03.08.02-12 and a revised schedule for Questions 03.08.02-11 and Question 03.08.02-13. In Supplement 18, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on March 17, 2011. On March 29, 2011, AREVA NP submitted Supplement 19 to provide revised schedules for Question 03.08.05-22 and Question 03.08.05-23. On April 18, 2011, AREVA NP submitted Supplement 20 to provide a technically correct and complete FINAL response to Question 03.08.05-22. On April 18, 2011, AREVA NP also submitted Supplement 21 to provide a technically correct and complete response to Question 03.08.02-11. On April 28, 2011, in Supplement 22, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on April 28, 2011. On May 4, 2011, AREVA NP submitted a technically correct and complete response to Question 03.08.05-23 in Supplement 23. On May 27, 2011, AREVA NP submitted Supplement 24 to provide revised schedules for Questions 03.06.02-33, -34, -36 through -40. On June 13, 2011, AREVA NP submitted Supplement 25 to provide a revised schedule for Question 03.08.02-13. On June 29, 2011, AREVA NP submitted Supplement 26 to provide a revised schedule. On July 14, 2011, AREVA NP submitted Supplement 27 which provided a technically correct and complete response to Question 03.08.02-13. On July 22, 2011, AREVA NP submitted Supplement 28 which provided a technically correct and complete final response to 7 of the 8 remaining questions of RAI 354. On August 30, 2011, AREVA NP submitted Supplement 29 which provided a technically correct and complete revised final response to Question 03.06.02-33 and an INTERIM response to the 1 remaining question (03.06.02-35). On October 28, 2011, AREVA NP submitted Supplement 30 to provide a revised schedule for the final response to the remaining question. On December 12, 2011, AREVA NP submitted Supplement 31; on January 31, 2012, AREVA NP submitted Supplement 32; and on February 21, 2012, AREVA NP submitted Supplement 33 to provide a revised schedule for the final response to the remaining question.

The attached file, "RAI 354 Supplement 34 Response US EPR DC.pdf" provides a technically correct revised response to Question 03.08.05-22. 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 354 Question 03.08.05-22.

The following table indicates the respective pages in the response document, "RAI 354 Supplement 34 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

| Question # | Start Page | End Page |
|-----------------------|------------|----------|
| RAI 354 — 03.08.05-22 | 2 | 2 |

The schedule for the response to the remaining question is unchanged as shown below.

| Question # | Interim Response Date | Response Date |
|-----------------------|--------------------------|-----------------|
| RAI 354 — 03.06.02-35 | August 30, 2011 (actual) | August 30, 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: Tuesday, February 21, 2012 5:42 PM
To: Getachew.Tesfaye@nrc.gov
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); WELLS Russell (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 354, FSAR Ch. 3, Supplement 33

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the remaining 21 questions. Supplement 2 was submitted on June 24, 2010, and included a revised schedule for Questions 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23. AREVA NP submitted Supplement 3 on July 7, 2010, responding to 1 of the remaining 21 questions. AREVA NP submitted Supplement 4 on July 30, 2010, to provide final responses to Questions 03.06.02-32, 03.06.02-41 and 03.08.02-16 and a revised schedule for Questions 03.06.02-33 through 03.06.02-40. On August 5, 2010, AREVA NP provided a revised schedule for Questions 03.06.02-42 and 03.08.05-23 in Supplement 5. AREVA NP submitted Supplement 6 on August 31, 2010, to provide final responses to 5 of the remaining 17 questions. On September 8, 2010, AREVA NP submitted Supplement 7 to provide a revised schedule for the response to Question 03.08.05-21. On September 13, 2010, AREVA NP provided an INTERIM response to Question 03.08.05-22 in Supplement 8. In Supplement 9, AREVA NP submitted a revised schedule for Question 03.08.05-23 on October 1, 2010. AREVA NP submitted Supplement 10 on October 7, 2010 and Supplement 11 on November 1, 2010 to provide a revised schedule for the response to Question 03.08.02-13. On November 17, 2010, AREVA NP submitted Supplement 12 to provide a revised schedule for Questions 03.06.02-33 through 03.06.02-40 and 03.08.05-23. On November 22, 2010, AREVA NP submitted Supplement 13 to provide an INTERIM response to Question 03.08.05-22 and a new schedule for supplemental responses to Questions 03.08.02-11 and 03.08.02-12. In Supplement 14, AREVA NP submitted a revised schedule for Question 03.08.05-23 on January 7, 2011. In Supplement 15, AREVA NP submitted a revised schedule for Question 03.08.05-22 on January 13, 2011. On February 11, 2011, AREVA NP submitted Supplement 16 to provide a revised schedule for Questions 03.08.02-11, 03.08.02-12, 03.08.02-13, 03.08.05-22 and 03.08.05-23. On March 3, 2011, AREVA NP submitted Supplement 17 to provide a technically correct and complete FINAL response to Question 03.08.02-12 and a revised schedule for Questions 03.08.02-11 and Question

03.08.02-13. In Supplement 18, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on March 17, 2011. On March 29, 2011, AREVA NP submitted Supplement 19 to provide revised schedules for Question 03.08.05-22 and Question 03.08.05-23. On April 18, 2011, AREVA NP submitted Supplement 20 to provide a technically correct and complete FINAL response to Question 03.08.05-22. On April 18, 2011, AREVA NP also submitted Supplement 21 to provide a technically correct and complete response to Question 03.08.02-11. On April 28, 2011, in Supplement 22, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on April 28, 2011. On May 4, 2011, AREVA NP submitted a technically correct and complete response to Question 03.08.05-23 in Supplement 23. On May 27, 2011, AREVA NP submitted Supplement 24 to provide revised schedules for Questions 03.06.02-33, -34, -36 through -40. On June 13, AREVA NP submitted Supplement 25 to provide a revised schedule for Question 03.08.02-13. On June 29, 2011, AREVA NP submitted Supplement 26 to provide a revised schedule. On July 14, 2011, AREVA NP submitted Supplement 27 which provided a technically correct and complete response to Question 03.08.02-13. On July 22, 2011, AREVA NP submitted Supplement 28 which provided a technically correct and complete final response to 7 of the 8 remaining questions of RAI 354. On August 30, 2011, AREVA NP submitted Supplement 29 which provided a technically correct and complete revised final response to Question 03.06.02-33 and an INTERIM response to the 1 remaining question (03.06.02-35). On October 28, 2011, AREVA NP submitted Supplement 30 to provide a revised schedule for the final response to the remaining question. On December 12, 2011, AREVA NP submitted Supplement 31 and on January 31, 2012, AREVA NP submitted Supplement 32 to provide a revised schedule for the final response to the remaining question.

The schedule for the response to the remaining question has been changed as provided below. This schedule was transmitted to the NRC in AREVA NP letter 12:008 dated February 21, 2012.

| Question # | Interim Response Date | Response Date |
|-----------------------|--------------------------|------------------------|
| RAI 354 — 03.06.02-35 | August 30, 2011 (actual) | August 30, 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: Tuesday, January 31, 2012 4:44 PM
To: Getachew.Tesfaye@nrc.gov
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); WELLS Russell (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 354, FSAR Ch. 3, Supplement 32

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the remaining 21 questions. Supplement 2 was submitted on June 24, 2010, and included a revised schedule for Questions 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23. AREVA NP submitted Supplement 3 on July 7, 2010, responding to 1 of the remaining 21 questions. AREVA NP submitted Supplement 4 on July 30, 2010, to provide final responses to Questions 03.06.02-32, 03.06.02-41 and 03.08.02-16 and a revised schedule for Questions 03.06.02-33

through 03.06.02-40. On August 5, 2010, AREVA NP provided a revised schedule for Questions 03.06.02-42 and 03.08.05-23 in Supplement 5. AREVA NP submitted Supplement 6 on August 31, 2010, to provide final responses to 5 of the remaining 17 questions. On September 8, 2010, AREVA NP submitted Supplement 7 to provide a revised schedule for the response to Question 03.08.05-21. On September 13, 2010, AREVA NP provided an INTERIM response to Question 03.08.05-22 in Supplement 8. In Supplement 9, AREVA NP submitted a revised schedule for Question 03.08.05-23 on October 1, 2010. AREVA NP submitted Supplement 10 on October 7, 2010 and Supplement 11 on November 1, 2010 to provide a revised schedule for the response to Question 03.08.02-13. On November 17, 2010, AREVA NP submitted Supplement 12 to provide a revised schedule for Questions 03.06.02-33 through 03.06.02-40 and 03.08.05-23. On November 22, 2010, AREVA NP submitted Supplement 13 to provide an INTERIM response to Question 03.08.05-22 and a new schedule for supplemental responses to Questions 03.08.02-11 and 03.08.02-12. In Supplement 14, AREVA NP submitted a revised schedule for Question 03.08.05-23 on January 7, 2011. In Supplement 15, AREVA NP submitted a revised schedule for Question 03.08.05-22 on January 13, 2011. On February 11, 2011, AREVA NP submitted Supplement 16 to provide a revised schedule for Questions 03.08.02-11, 03.08.02-12, 03.08.02-13, 03.08.05-22 and 03.08.05-23. On March 3, 2011, AREVA NP submitted Supplement 17 to provide a technically correct and complete FINAL response to Question 03.08.02-12 and a revised schedule for Questions 03.08.02-11 and Question 03.08.02-13. In Supplement 18, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on March 17, 2011. On March 29, 2011, AREVA NP submitted Supplement 19 to provide revised schedules for Question 03.08.05-22 and Question 03.08.05-23. On April 18, 2011, AREVA NP submitted Supplement 20 to provide a technically correct and complete FINAL response to Question 03.08.05-22. On April 18, 2011, AREVA NP also submitted Supplement 21 to provide a technically correct and complete response to Question 03.08.02-11. On April 28, 2011, in Supplement 22, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on April 28, 2011. On May 4, 2011, AREVA NP submitted a technically correct and complete response to Question 03.08.05-23 in Supplement 23. On May 27, 2011, AREVA NP submitted Supplement 24 to provide revised schedules for Questions 03.06.02-33, -34, -36 through -40. On June 13, 2011, AREVA NP submitted Supplement 25 to provide a revised schedule for Question 03.08.02-13. On June 29, 2011, AREVA NP submitted Supplement 26 to provide a revised schedule. On July 14, 2011, AREVA NP submitted Supplement 27 which provided a technically correct and complete response to Question 03.08.02-13. On July 22, 2011, AREVA NP submitted Supplement 28 which provided a technically correct and complete final response to 7 of the 8 remaining questions of RAI 354. On August 30, 2011, AREVA NP submitted Supplement 29 which provided a technically correct and complete revised final response to Question 03.06.02-33 and an INTERIM response to the 1 remaining question (03.06.02-35). On October 28, 2011, AREVA NP submitted Supplement 30 to provide a revised schedule for the final response to the remaining question. On December 12, 2011, AREVA NP submitted Supplement 31 to provide a revised schedule for the final response to the remaining question.

The schedule for the response to the remaining question has been changed as provided below. This is a preliminary revised schedule that is being reevaluated and a new supplement with a revised schedule will be transmitted by February 21, 2012.

| Question # | Interim Response Date | Response Date |
|-----------------------|--------------------------|--------------------------|
| RAI 354 — 03.06.02-35 | August 30, 2011 (actual) | February 21, 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: Monday, December 12, 2011 1:39 PM

To: Getachew.Tesfaye@nrc.gov

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

Subject: Response to U.S. EPR Design Certification Application RAI No. 354, FSAR Ch. 3, Supplement 31

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the remaining 21 questions. Supplement 2 was submitted on June 24, 2010, and included a revised schedule for Questions 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23. AREVA NP submitted Supplement 3 on July 7, 2010, responding to 1 of the remaining 21 questions. AREVA NP submitted Supplement 4 on July 30, 2010, to provide final responses to Questions 03.06.02-32, 03.06.02-41 and 03.08.02-16 and a revised schedule for Questions 03.06.02-33 through 03.06.02-40. On August 5, 2010, AREVA NP provided a revised schedule for Questions 03.06.02-42 and 03.08.05-23 in Supplement 5. AREVA NP submitted Supplement 6 on August 31, 2010, to provide final responses to 5 of the remaining 17 questions. On September 8, 2010, AREVA NP submitted Supplement 7 to provide a revised schedule for the response to Question 03.08.05-21. On September 13, 2010, AREVA NP provided an INTERIM response to Question 03.08.05-22 in Supplement 8. In Supplement 9, AREVA NP submitted a revised schedule for Question 03.08.05-23 on October 1, 2010. AREVA NP submitted Supplement 10 on October 7, 2010 and Supplement 11 on November 1, 2010 to provide a revised schedule for the response to Question 03.08.02-13. On November 17, 2010, AREVA NP submitted Supplement 12 to provide a revised schedule for Questions 03.06.02-33 through 03.06.02-40 and 03.08.05-23. On November 22, 2010, AREVA NP submitted Supplement 13 to provide an INTERIM response to Question 03.08.05-22 and a new schedule for supplemental responses to Questions 03.08.02-11 and 03.08.02-12. In Supplement 14, AREVA NP submitted a revised schedule for Question 03.08.05-23 on January 7, 2011. In Supplement 15, AREVA NP submitted a revised schedule for Question 03.08.05-22 on January 13, 2011. On February 11, 2011, AREVA NP submitted Supplement 16 to provide a revised schedule for Questions 03.08.02-11, 03.08.02-12, 03.08.02-13, 03.08.05-22 and 03.08.05-23. On March 3, 2011, AREVA NP submitted Supplement 17 to provide a technically correct and complete FINAL response to Question 03.08.02-12 and a revised schedule for Questions 03.08.02-11 and Question 03.08.02-13. In Supplement 18, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on March 17, 2011. On March 29, 2011, AREVA NP submitted Supplement 19 to provide revised schedules for Question 03.08.05-22 and Question 03.08.05-23. On April 18, 2011, AREVA NP submitted Supplement 20 to provide a technically correct and complete FINAL response to Question 03.08.05-22. On April 18, 2011, AREVA NP also submitted Supplement 21 to provide a technically correct and complete response to Question 03.08.02-11. On April 28, 2011, in Supplement 22, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on April 28, 2011. On May 4, 2011, AREVA NP submitted a technically correct and complete response to Question 03.08.05-23 in Supplement 23. On May 27, 2011, AREVA NP submitted Supplement 24 to provide revised schedules for Questions 03.06.02-33, -34, -36 through -40. On June 13, 2011, AREVA NP submitted Supplement 25 to provide a revised schedule for Question 03.08.02-13. On June 29, 2011, AREVA NP submitted Supplement 26 to provide a revised schedule. On July 14, 2011, AREVA NP submitted Supplement 27 which provided a technically correct and complete response to Question 03.08.02-13. On July 22, 2011, AREVA NP submitted Supplement 28 which provided a technically correct and complete final response to 7 of the 8 remaining questions of RAI 354. On August 30, 2011, AREVA NP submitted Supplement 29 which provided a technically correct and complete revised final response to Question 03.06.02-33 and an INTERIM response to the 1 remaining question (03.06.02-35). On October 28, 2011, AREVA NP submitted Supplement 30 to provide a revised schedule for the final response to the remaining question.

The schedule for the response to the remaining question has been changed as provided below. This is a preliminary revised schedule that is being reevaluated and a new supplement with a revised schedule will be transmitted by January 31, 2012.

| Question # | Interim Response Date | Response Date |
|-----------------------|--------------------------|------------------|
| RAI 354 — 03.06.02-35 | August 30, 2011 (actual) | January 31, 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: Friday, October 28, 2011 5:28 PM
To: Getachew.Tesfaye@nrc.gov
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); WELLS Russell (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 354, FSAR Ch. 3, Supplement 30

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the remaining 21 questions. Supplement 2 was submitted on June 24, 2010, and included a revised schedule for Questions 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23. AREVA NP submitted Supplement 3 on July 7, 2010, responding to 1 of the remaining 21 questions. AREVA NP submitted Supplement 4 on July 30, 2010, to provide final responses to Questions 03.06.02-32, 03.06.02-41 and 03.08.02-16 and a revised schedule for Questions 03.06.02-33 through 03.06.02-40. On August 5, 2010, AREVA NP provided a revised schedule for Questions 03.06.02-42 and 03.08.05-23 in Supplement 5. AREVA NP submitted Supplement 6 on August 31, 2010, to provide final responses to 5 of the remaining 17 questions. On September 8, 2010, AREVA NP submitted Supplement 7 to provide a revised schedule for the response to Question 03.08.05-21. On September 13, 2010, AREVA NP provided an INTERIM response to Question 03.08.05-22 in Supplement 8. In Supplement 9, AREVA NP submitted a revised schedule for Question 03.08.05-23 on October 1, 2010. AREVA NP submitted Supplement 10 on October 7, 2010 and Supplement 11 on November 1, 2010 to provide a revised schedule for the response to Question 03.08.02-13. On November 17, 2010, AREVA NP submitted Supplement 12 to provide a revised schedule for Questions 03.06.02-33 through 03.06.02-40 and 03.08.05-23. On November 22, 2010, AREVA NP submitted Supplement 13 to provide an INTERIM response to Question 03.08.05-22 and a new schedule for supplemental responses to Questions 03.08.02-11 and 03.08.02-12. In Supplement 14, AREVA NP submitted a revised schedule for Question 03.08.05-23 on January 7, 2011. In Supplement 15, AREVA NP submitted a revised schedule for Question 03.08.05-22 on January 13, 2011. On February 11, 2011, AREVA NP submitted Supplement 16 to provide a revised schedule for Questions 03.08.02-11, 03.08.02-12, 03.08.02-13, 03.08.05-22 and 03.08.05-23. On March 3, 2011, AREVA NP submitted Supplement 17 to provide a technically correct and complete FINAL response to Question 03.08.02-12 and a revised schedule for Questions 03.08.02-11 and Question 03.08.02-13. In Supplement 18, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on March 17, 2011. On March 29, 2011, AREVA NP submitted Supplement 19 to provide revised schedules for Question 03.08.05-22 and Question 03.08.05-23. On April 18, 2011, AREVA NP submitted Supplement 20 to provide a technically correct and complete FINAL response to Question 03.08.05-22. On April 18, 2011, AREVA NP also submitted Supplement 21 to provide a technically correct and complete response to Question 03.08.02-11. On April 28, 2011, in Supplement 22, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on April 28, 2011. On May 4, 2011, AREVA NP submitted a technically correct and complete response to Question 03.08.05-23 in Supplement 23. On May 27, 2011, AREVA NP submitted Supplement 24 to provide revised schedules for Questions 03.06.02-33, -34, -36 through -40. On June 13, 2011, AREVA NP submitted Supplement 25 to provide a revised schedule for Question 03.08.02-13. On June 29, 2011, AREVA NP submitted Supplement 26 to provide a revised schedule. On July 14, 2011, AREVA NP submitted Supplement 27 which provided a technically correct and complete response to Question 03.08.02-13. On July 22, 2011, AREVA NP submitted Supplement 28 which provided a technically correct and complete final response to 7 of

the 8 remaining questions of RAI 354. On August 30, 2011, AREVA NP submitted Supplement 29 which provided a technically correct and complete revised final response to Question 03.06.02-33 and an INTERIM response to the 1 remaining question (03.06.02-35).

The schedule for the response to the remaining question has been changed as provided below. This is a preliminary revised schedule for a technically correct and complete response to the remaining question. This schedule is being reevaluated and a new supplement with a revised schedule will be transmitted by December 14, 2011.

| Question # | Interim Response Date | Response Date |
|-----------------------|--|--------------------------|
| RAI 354 — 03.06.02-35 | August 30, 2011 (actual) (Note: E-mail transmitting Supplement 29 incorrectly stated August 25, 2011 as the actual date) | December 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: Tuesday, August 30, 2011 11:49 AM
To: Getachew.Tesfaye@nrc.gov
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); WELLS Russell (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 354, FSAR Ch. 3, Supplement 29

Getachew,

AREVA NP Inc. letter NRC 11:094 dated August 30, 2011 provides a technically correct and complete revised final response to RAI 354 Question 03.06.02-33 and an INTERIM response to Question 03.06.02-35 to describe the AREVA NP methodology for determining applied blast loads on target structures. AREVA NP considers some of the material contained in the response to be proprietary information. As required by 10 CFR 2.390(b), an affidavit is provided to support the withholding of the proprietary information from public disclosure. Proprietary and non-proprietary versions of the enclosure to this letter are provided separately.

Also enclosed with this response are affected pages of the U.S. EPR Final Safety Analysis Report and ANP-10318P, "Pipe Rupture External Loading Effects on U.S. EPR Essential Structures, Systems, and Components Technical Report," in redline-strikeout format which support the response to RAI 354 Question 03.06.02-33.

The following table indicates the respective pages in the enclosed response that contain AREVA NP's response to the subject questions.

| Question # | Start Page | End Page |
|---------------------------------|------------|----------|
| RAI 354 — 03.06.02-33 (FINAL) | 2 | 16 |
| RAI 354 — 03.06.02-35 (INTERIM) | 17 | 23 |

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

| Question # | Interim Response Date | Response Date |
|-----------------------|--------------------------|------------------|
| RAI 354 — 03.06.02-35 | August 25, 2011 (actual) | October 28, 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 22, 2011 4:35 PM
To: Tesfaye, Getachew
Cc: MCFADEN Sherry (CORP/QP); ROMINE Judy (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. 354, FSAR Ch. 3, Supplement 28

Getachew,

AREVA NP Inc. letter NRC 11:076 dated July 22, 2011 provides a technically correct and complete final response to 7 of the 8 remaining questions of RAI 354, as shown in the below table. AREVA NP considers some of the material contained in the response to be proprietary information. As required by 10 CFR 2.390(b), an affidavit is provided to support the withholding of the proprietary information from public disclosure. Proprietary and non-proprietary versions of the enclosure to this letter are provided separately.

Also enclosed with this response are affected pages of the U.S. EPR Final Safety Analysis Report and ANP-10318P, "Pipe Rupture External Loading Effects on U.S. EPR Essential Structures, Systems, and Components Technical Report," in redline-strikeout format which support the response to RAI 354 Question 03.06.02-33.

The following table indicates the respective pages in the enclosed response that contain AREVA NP's final response to the subject questions.

| Question # | Start Page | End Page |
|-----------------------|------------|----------|
| RAI 354 — 03.06.02-33 | 2 | 16 |
| RAI 354 — 03.06.02-34 | 17 | 18 |
| RAI 354 — 03.06.02-36 | 19 | 21 |
| RAI 354 — 03.06.02-37 | 22 | 22 |
| RAI 354 — 03.06.02-38 | 23 | 25 |
| RAI 354 — 03.06.02-39 | 26 | 26 |
| RAI 354 — 03.06.02-40 | 27 | 28 |

The schedule for the technically correct and complete final response to the remaining question has been revised and is provided below.

| Question # | Response Date |
|-----------------------|------------------|
| RAI 354 — 03.06.02-35 | October 28, 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: Thursday, July 14, 2011 10:24 AM
To: Tesfaye, Getachew
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); Miernicki, Michael
Subject: Response to U.S. EPR Design Certification Application RAI No. 354, FSAR Ch. 3, Supplement 27

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the remaining 21 questions. Supplement 2 was submitted on June 24, 2010, and included a revised schedule for Questions 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23. AREVA NP submitted Supplement 3 on July 7, 2010, responding to 1 of the remaining 21 questions. AREVA NP submitted Supplement 4 on July 30, 2010, to provide final responses to Questions 03.06.02-32, 03.06.02-41 and 03.08.02-16 and a revised schedule for Questions 03.06.02-33 through 03.06.02-40. On August 5, 2010, AREVA NP provided a revised schedule for Questions 03.06.02-42 and 03.08.05-23 in Supplement 5. AREVA NP submitted Supplement 6 on August 31, 2010, to provide final responses to 5 of the remaining 17 questions. On September 8, 2010, AREVA NP submitted Supplement 7 to provide a revised schedule for the response to Question 03.08.05-21. On September 13, 2010, AREVA NP provided an INTERIM response to Question 03.08.05-22 in Supplement 8. In Supplement 9, AREVA NP submitted a revised schedule for Question 03.08.05-23 on October 1, 2010. AREVA NP submitted Supplement 10 on October 7, 2010 and Supplement 11 on November 1, 2010 to provide a revised schedule for the response to Question 03.08.02-13. On November 17, 2010, AREVA NP submitted Supplement 12 to provide a revised schedule for Questions 03.06.02-33 through 03.06.02-40 and 03.08.05-23. On November 22, 2010, AREVA NP submitted Supplement 13 to provide an INTERIM response to Question 03.08.05-22 and a new schedule for supplemental responses to Questions 03.08.02-11 and 03.08.02-12. In Supplement 14, AREVA NP submitted a revised schedule for Question 03.08.05-23 on January 7, 2011. In Supplement 15, AREVA NP submitted a revised schedule for Question 03.08.05-22 on January 13, 2011. On February 11, 2011, AREVA NP submitted Supplement 16 to provide a revised schedule for Questions 03.08.02-11, 03.08.02-12, 03.08.02-13, 03.08.05-22 and 03.08.05-23. On March 3, 2011, AREVA NP submitted Supplement 17 to provide a technically correct and complete FINAL response to Question 03.08.02-12 and a revised schedule for Questions 03.08.02-11 and Question 03.08.02-13. In Supplement 18, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on March 17, 2011. On March 29, 2011, AREVA NP submitted Supplement 19 to provide revised schedules for Question 03.08.05-22 and Question 03.08.05-23. On April 18, 2011, AREVA NP submitted Supplement 20 to provide a technically correct and complete FINAL response to Question 03.08.05-22. On April 18, 2011, AREVA NP also submitted Supplement 21 to provide a technically correct and complete response to Question 03.08.02-11. On April 28, 2011, in Supplement

22, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on April 28, 2011. On May 4, 2011, AREVA NP submitted a technically correct and complete response to Question 03.08.05-23 in Supplement 23. On May 27, 2011, AREVA NP submitted Supplement 24 to provide revised schedules for Questions 03.06.02-33, -34, -36 through -40. On June 13, AREVA NP submitted Supplement 25 to provide a revised schedule for Question 03.08.02-13. On June 29, 2011, AREVA NP submitted Supplement 26 to provide a revised schedule.

The attached file, "RAI 354 Supplement 27 Response US EPR DC.pdf" provides a technically correct and complete response to Question 03.08.02-13, 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 354 Question 03.08.02-13.

The following table indicates the respective pages in the response document, "RAI 354 Supplement 27 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

| Question # | Start Page | End Page |
|-----------------------|------------|----------|
| RAI 354 — 03.08.02-13 | 2 | 6 |

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

| Question # | Response Date |
|-----------------------|---------------|
| RAI 354 - 03.06.02-33 | July 28, 2011 |
| RAI 354 - 03.06.02-34 | July 28, 2011 |
| RAI 354 - 03.06.02-35 | July 28, 2011 |
| RAI 354 - 03.06.02-36 | July 28, 2011 |
| RAI 354 - 03.06.02-37 | July 28, 2011 |
| RAI 354 - 03.06.02-38 | July 28, 2011 |
| RAI 354 - 03.06.02-39 | July 28, 2011 |
| RAI 354 - 03.06.02-40 | July 28, 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: Wednesday, June 29, 2011 2:32 PM
To: Tesfaye, Getachew
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); WELLS Russell (RS/NB); CORNELL Veronica (External RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 354, FSAR Ch. 3, Supplement 26

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the

remaining 21 questions. Supplement 2 was submitted on June 24, 2010, and included a revised schedule for Questions 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23. AREVA NP submitted Supplement 3 on July 7, 2010, responding to 1 of the remaining 21 questions. AREVA NP submitted Supplement 4 on July 30, 2010, to provide final responses to Questions 03.06.02-32, 03.06.02-41 and 03.08.02-16 and a revised schedule for Questions 03.06.02-33 through 03.06.02-40. On August 5, 2010, AREVA NP provided a revised schedule for Questions 03.06.02-42 and 03.08.05-23 in Supplement 5. AREVA NP submitted Supplement 6 on August 31, 2010, to provide final responses to 5 of the remaining 17 questions. On September 8, 2010, AREVA NP submitted Supplement 7 to provide a revised schedule for the response to Question 03.08.05-21. On September 13, 2010, AREVA NP provided an INTERIM response to Question 03.08.05-22 in Supplement 8. In Supplement 9, AREVA NP submitted a revised schedule for Question 03.08.05-23 on October 1, 2010. AREVA NP submitted Supplement 10 on October 7, 2010 and Supplement 11 on November 1, 2010 to provide a revised schedule for the response to Question 03.08.02-13. On November 17, 2010, AREVA NP submitted Supplement 12 to provide a revised schedule for Questions 03.06.02-33 through 03.06.02-40 and 03.08.05-23. On November 22, 2010, AREVA NP submitted Supplement 13 to provide an INTERIM response to Question 03.08.05-22 and a new schedule for supplemental responses to Questions 03.08.02-11 and 03.08.02-12. In Supplement 14, AREVA NP submitted a revised schedule for Question 03.08.05-23 on January 7, 2011. In Supplement 15, AREVA NP submitted a revised schedule for Question 03.08.05-22 on January 13, 2011. On February 11, 2011, AREVA NP submitted Supplement 16 to provide a revised schedule for Questions 03.08.02-11, 03.08.02-12, 03.08.02-13, 03.08.05-22 and 03.08.05-23. On March 3, 2011, AREVA NP submitted Supplement 17 to provide a technically correct and complete FINAL response to Question 03.08.02-12 and a revised schedule for Questions 03.08.02-11 and Question 03.08.02-13. In Supplement 18, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on March 17, 2011. On March 29, 2011, AREVA NP submitted Supplement 19 to provide revised schedules for Question 03.08.05-22 and Question 03.08.05-23. On April 18, 2011, AREVA NP submitted Supplement 20 to provide a technically correct and complete FINAL response to Question 03.08.05-22. On April 18, 2011, AREVA NP also submitted Supplement 21 to provide a technically correct and complete response to Question 03.08.02-11. On April 28, 2011, in Supplement 22, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on April 28, 2011. On May 4, 2011, AREVA NP submitted a technically correct and complete response to Question 03.08.05-23 in Supplement 23. On May 27, 2011, AREVA NP submitted Supplement 24 to provide revised schedules for Questions 03.06.02-33, -34, -36 through -40. On June 13, AREVA NP submitted Supplement 25 to provide a revised schedule for Question 03.08.02-13.

The schedule for the response to Questions 03.06.02-33, -34, -36 through -40 is being revised. The schedule for the remaining questions is unchanged. The schedule for technically correct and complete responses to the remaining questions is provided below.

| Question # | Response Date |
|-----------------------|----------------------|
| RAI 354 - 03.08.02-13 | July 14, 2011 |
| RAI 354 - 03.06.02-33 | July 28, 2011 |
| RAI 354 - 03.06.02-34 | July 28, 2011 |
| RAI 354 - 03.06.02-35 | July 28, 2011 |
| RAI 354 - 03.06.02-36 | July 28, 2011 |
| RAI 354 - 03.06.02-37 | July 28, 2011 |
| RAI 354 - 03.06.02-38 | July 28, 2011 |
| RAI 354 - 03.06.02-39 | July 28, 2011 |
| RAI 354 - 03.06.02-40 | July 28, 2011 |

Sincerely,

Dennis Williford, P.E.
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.

7207 IBM Drive, Mail Code CLT 2B

From: RYAN Tom (RS/NB)
Sent: Monday, June 13, 2011 6:24 PM
To: 'Tesfaye, Getachew'
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); WELLS Russell (RS/NB); CORNELL Veronica (External RS/NB); WILLIFORD Dennis (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 354, FSAR Ch. 3, Supplement 25

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the remaining 21 questions. Supplement 2 was submitted on June 24, 2010, and included a revised schedule for Questions 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23. AREVA NP submitted Supplement 3 on July 7, 2010, responding to 1 of the remaining 21 questions. AREVA NP submitted Supplement 4 on July 30, 2010, to provide final responses to Questions 03.06.02-32, 03.06.02-41 and 03.08.02-16 and a revised schedule for Questions 03.06.02-33 through 03.06.02-40. On August 5, 2010, AREVA NP provided a revised schedule for Questions 03.06.02-42 and 03.08.05-23 in Supplement 5. AREVA NP submitted Supplement 6 on August 31, 2010, to provide final responses to 5 of the remaining 17 questions. On September 8, 2010, AREVA NP submitted Supplement 7 to provide a revised schedule for the response to Question 03.08.05-21. On September 13, 2010, AREVA NP provided an INTERIM response to Question 03.08.05-22 in Supplement 8. In Supplement 9, AREVA NP submitted a revised schedule for Question 03.08.05-23 on October 1, 2010. AREVA NP submitted Supplement 10 on October 7, 2010 and Supplement 11 on November 1, 2010 to provide a revised schedule for the response to Question 03.08.02-13. On November 17, 2010, AREVA NP submitted Supplement 12 to provide a revised schedule for Questions 03.06.02-33 through 03.06.02-40 and 03.08.05-23. On November 22, 2010, AREVA NP submitted Supplement 13 to provide an INTERIM response to Question 03.08.05-22 and a new schedule for supplemental responses to Questions 03.08.02-11 and 03.08.02-12. In Supplement 14, AREVA NP submitted a revised schedule for Question 03.08.05-23 on January 7, 2011. In Supplement 15, AREVA NP submitted a revised schedule for Question 03.08.05-22 on January 13, 2011. On February 11, 2011, AREVA NP submitted Supplement 16 to provide a revised schedule for Questions 03.08.02-11, 03.08.02-12, 03.08.02-13, 03.08.05-22 and 03.08.05-23. On March 3, 2011, AREVA NP submitted Supplement 17 to provide a technically correct and complete FINAL response to Question 03.08.02-12 and a revised schedule for Questions 03.08.02-11 and Question 03.08.02-13. In Supplement 18, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on March 17, 2011. On March 29, 2011, AREVA NP submitted Supplement 19 to provide revised schedules for Question 03.08.05-22 and Question 03.08.05-23. On April 18, 2011, AREVA NP submitted Supplement 20 to provide a technically correct and complete FINAL response to Question 03.08.05-22. On April 18, 2011, AREVA NP also submitted Supplement 21 to provide a technically correct and complete response to question 03.08.02-11. On April 28, 2011, in Supplement 22, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on April 28, 2011. On May 4, 2011, AREVA NP submitted a technically correct and complete response to Question 03.08.05-23 in Supplement 23. On May 27, 2011, AREVA NP submitted Supplement 24 to provide revised schedules for Questions 03.06.02-33, -34, -36 through -40.

The schedule for the response to Question 03.08.02-13 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 # | Response Date |
|-----------------------|---------------|
| RAI 354 - 03.08.02-13 | July 14, 2011 |
| RAI 354 - 03.06.02-33 | June 30, 2011 |
| RAI 354 - 03.06.02-34 | June 30, 2011 |

| Question # | Response Date |
|-----------------------|---------------|
| RAI 354 - 03.06.02-35 | July 28, 2011 |
| RAI 354 - 03.06.02-36 | June 30, 2011 |
| RAI 354 - 03.06.02-37 | June 30, 2011 |
| RAI 354 - 03.06.02-38 | June 30, 2011 |
| RAI 354 - 03.06.02-39 | June 30, 2011 |
| RAI 354 - 03.06.02-40 | June 30, 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: WILLIFORD Dennis (RS/NB)
Sent: Friday, May 27, 2011 10:49 AM
To: Tesfaye, Getachew
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); WELLS Russell (RS/NB); CORNELL Veronica (External RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 354, FSAR Ch. 3, Supplement 24

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the remaining 21 questions. Supplement 2 was submitted on June 24, 2010, and included a revised schedule for Questions 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23. AREVA NP submitted Supplement 3 on July 7, 2010, responding to 1 of the remaining 21 questions. AREVA NP submitted Supplement 4 on July 30, 2010, to provide final responses to Questions 03.06.02-32, 03.06.02-41 and 03.08.02-16 and a revised schedule for Questions 03.06.02-33 through 03.06.02-40. On August 5, 2010, AREVA NP provided a revised schedule for Questions 03.06.02-42 and 03.08.05-23 in Supplement 5. AREVA NP submitted Supplement 6 on August 31, 2010, to provide final responses to 5 of the remaining 17 questions. On September 8, 2010, AREVA NP submitted Supplement 7 to provide a revised schedule for the response to Question 03.08.05-21. On September 13, 2010, AREVA NP provided an INTERIM response to Question 03.08.05-22 in Supplement 8. In Supplement 9, AREVA NP submitted a revised schedule for Question 03.08.05-23 on October 1, 2010. AREVA NP submitted Supplement 10 on October 7, 2010 and Supplement 11 on November 1, 2010 to provide a revised schedule for the response to Question 03.08.02-13. On November 17, 2010, AREVA NP submitted Supplement 12 to provide a revised schedule for Questions 03.06.02-33 through 03.06.02-40 and 03.08.05-23. On November 22, 2010, AREVA NP submitted Supplement 13 to provide an INTERIM response to Question 03.08.05-22 and a new schedule for supplemental responses to Questions 03.08.02-11 and 03.08.02-12. In Supplement 14, AREVA NP submitted a revised schedule for Question 03.08.05-23 on January 7, 2011. In Supplement 15, AREVA NP submitted a revised schedule for Question 03.08.05-22 on January 13, 2011. On February 11, 2011, AREVA NP submitted Supplement 16 to provide a revised schedule for Questions 03.08.02-11, 03.08.02-12, 03.08.02-13, 03.08.05-

22 and 03.08.05-23. On March 3, 2011, AREVA NP submitted Supplement 17 to provide a technically correct and complete FINAL response to Question 03.08.02-12 and a revised schedule for Questions 03.08.02-11 and Question 03.08.02-13. In Supplement 18, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on March 17, 2011. On March 29, 2011, AREVA NP submitted Supplement 19 to provide revised schedules for Question 03.08.05-22 and Question 03.08.05-23. On April 18, 2011, AREVA NP submitted Supplement 20 to provide a technically correct and complete FINAL response to Question 03.08.05-22. On April 18, 2011, AREVA NP also submitted Supplement 21 to provide a technically correct and complete response to question 03.08.02-11. On April 28, 2011, in Supplement 22, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on April 28, 2011. On May 4, 2011, AREVA NP submitted a technically correct and complete response to Question 03.08.05-23.

The schedule for the response to questions 03.06.02-33, -34, -36 through -40 is being revised as noted in bold below. The schedule for the response to questions 03.06.02-35 and 03.08.02-13 is unchanged. The schedule for technically correct and complete responses to the remaining questions is provided below.

| Question # | Response Date |
|-----------------------|----------------------|
| RAI 354 - 03.08.02-13 | June 14, 2011 |
| RAI 354 - 03.06.02-33 | June 30, 2011 |
| RAI 354 - 03.06.02-34 | June 30, 2011 |
| RAI 354 - 03.06.02-35 | July 28, 2011 |
| RAI 354 - 03.06.02-36 | June 30, 2011 |
| RAI 354 - 03.06.02-37 | June 30, 2011 |
| RAI 354 - 03.06.02-38 | June 30, 2011 |
| RAI 354 - 03.06.02-39 | June 30, 2011 |
| RAI 354 - 03.06.02-40 | June 30, 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: Wednesday, May 04, 2011 12:48 PM
To: 'Tefaye, 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. 354, FSAR Ch. 3, Supplement 23

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the remaining 21 questions. Supplement 2 was submitted on June 24, 2010, and included a revised schedule for Questions 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23. AREVA NP submitted Supplement 3 on July 7, 2010, responding to 1 of the remaining 21 questions. AREVA NP submitted Supplement 4 on July 30, 2010, to provide final responses to Questions 03.06.02-32, 03.06.02-41 and 03.08.02-16 and a revised schedule for Questions 03.06.02-33

through 03.06.02-40. On August 5, 2010, AREVA NP provided a revised schedule for Questions 03.06.02-42 and 03.08.05-23 in Supplement 5. AREVA NP submitted Supplement 6 on August 31, 2010, to provide final responses to 5 of the remaining 17 questions. On September 8, 2010, AREVA NP submitted Supplement 7 to provide a revised schedule for the response to Question 03.08.05-21. On September 13, 2010, AREVA NP provided an INTERIM response to Question 03.08.05-22 in Supplement 8. In Supplement 9, AREVA NP submitted a revised schedule for Question 03.08.05-23 on October 1, 2010. AREVA NP submitted Supplement 10 on October 7, 2010 and Supplement 11 on November 1, 2010 to provide a revised schedule for the response to Question 03.08.02-13. On November 17, 2010, AREVA NP submitted Supplement 12 to provide a revised schedule for Questions 03.06.02-33 through 03.06.02-40 and 03.08.05-23. On November 22, 2010, AREVA NP submitted Supplement 13 to provide an INTERIM response to Question 03.08.05-22 and a new schedule for supplemental responses to Questions 03.08.02-11 and 03.08.02-12. In Supplement 14, AREVA NP submitted a revised schedule for Question 03.08.05-23 on January 7, 2011. In Supplement 15, AREVA NP submitted a revised schedule for Question 03.08.05-22 on January 13, 2011. On February 11, 2011, AREVA NP submitted Supplement 16 to provide a revised schedule for Questions 03.08.02-11, 03.08.02-12, 03.08.02-13, 03.08.05-22 and 03.08.05-23. On March 3, 2011, AREVA NP submitted Supplement 17 to provide a technically correct and complete FINAL response to Question 03.08.02-12 and a revised schedule for Questions 03.08.02-11 and Question 03.08.02-13. In Supplement 18, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on March 17, 2011. On March 29, 2011, AREVA NP submitted Supplement 19 to provide revised schedules for Question 03.08.05-22 and Question 03.08.05-23. On April 18, 2011, AREVA NP submitted Supplement 20 to provide a technically correct and complete FINAL response to Question 03.08.05-22. On April 18, 2011, AREVA NP also submitted Supplement 21 to provide a technically correct and complete response to question 03.08.02-11. On April 28, 2011, in Supplement 22, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on April 28, 2011.

The attached file, "RAI 354 Supplement 23 Response US EPR DC.pdf" provides a technically correct and complete response to Question 03.08.05-23, 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 354 Question 03.08.05-23.

The following table indicates the respective pages in the response document, "RAI 354 Supplement 23 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

| Question # | Start Page | End Page |
|-----------------------|------------|----------|
| RAI 354 — 03.08.05-23 | 2 | 4 |

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

| Question # | Interim Response Date | Response Date |
|-----------------------|-----------------------|---------------|
| RAI 354 - 03.08.02-13 | | June 14, 2011 |
| RAI 354 - 03.06.02-33 | | May 30, 2011 |
| RAI 354 - 03.06.02-34 | | May 30, 2011 |
| RAI 354 - 03.06.02-35 | | July 28, 2011 |
| RAI 354 - 03.06.02-36 | | May 30, 2011 |
| RAI 354 - 03.06.02-37 | | May 30, 2011 |
| RAI 354 - 03.06.02-38 | | May 30, 2011 |
| RAI 354 - 03.06.02-39 | | May 30, 2011 |
| RAI 354 - 03.06.02-40 | | May 30, 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, April 28, 2011 3:18 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. 354, FSAR Ch. 3, Supplement 22

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the remaining 21 questions. Supplement 2 was submitted on June 24, 2010, and included a revised schedule for Questions 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23. AREVA NP submitted Supplement 3 on July 7, 2010, responding to 1 of the remaining 21 questions. AREVA NP submitted Supplement 4 on July 30, 2010, to provide final responses to Questions 03.06.02-32, 03.06.02-41 and 03.08.02-16 and a revised schedule for Questions 03.06.02-33 through 03.06.02-40. On August 5, 2010, AREVA NP provided a revised schedule for Questions 03.06.02-42 and 03.08.05-23 in Supplement 5. AREVA NP submitted Supplement 6 on August 31, 2010, to provide final responses to 5 of the remaining 17 questions. On September 8, 2010, AREVA NP submitted Supplement 7 to provide a revised schedule for the response to Question 03.08.05-21. On September 13, 2010, AREVA NP provided an INTERIM response to Question 03.08.05-22 in Supplement 8. In Supplement 9, AREVA NP submitted a revised schedule for Question 03.08.05-23 on October 1, 2010. AREVA NP submitted Supplement 10 on October 7, 2010 and Supplement 11 on November 1, 2010 to provide a revised schedule for the response to Question 03.08.02-13. On November 17, 2010, AREVA NP submitted Supplement 12 to provide a revised schedule for Questions 03.06.02-33 through 03.06.02-40 and 03.08.05-23. On November 22, 2010, AREVA NP submitted Supplement 13 to provide an INTERIM response to Question 03.08.05-22 and a new schedule for supplemental responses to Questions 03.08.02-11 and 03.08.02-12. In Supplement 14, AREVA NP submitted a revised schedule for Question 03.08.05-23 on January 7, 2011. In Supplement 15, AREVA NP submitted a revised schedule for Question 03.08.05-22 on January 13, 2011. On February 11, 2011, AREVA NP submitted Supplement 16 to provide a revised schedule for Questions 03.08.02-11, 03.08.02-12, 03.08.02-13, 03.08.05-22 and 03.08.05-23. On March 3, 2011, AREVA NP submitted Supplement 17 to provide a technically correct and complete FINAL response to Question 03.08.02-12 and a revised schedule for Questions 03.08.02-11 and Question 03.08.02-13. In Supplement 18, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on March 17, 2011. On March 29, 2011, AREVA NP submitted Supplement 19 to provide revised schedules for Question 03.08.05-22 and Question 03.08.05-23. On April 18, 2011, AREVA NP submitted Supplement 20 to provide a technically correct and complete FINAL response to Question 03.08.05-22. On April 18, 2011, AREVA NP also submitted Supplement 21 to provide a technically correct and complete response to question 03.08.02-11.

The schedule for the response to questions 03.06.02-33 through 03.06.02-40 is being revised to allow AREVA NP additional time to address NRC comments. The schedule for the technically correct and complete responses to the remaining questions is unchanged and provided below.

| Question # | Interim Response Date | Response Date |
|-----------------------|-----------------------|----------------------|
| RAI 354 - 03.08.02-13 | | June 14, 2011 |
| RAI 354 - 03.08.05-23 | | May 10, 2011 |
| RAI 354 - 03.06.02-33 | | May 30, 2011 |
| RAI 354 - 03.06.02-34 | | May 30, 2011 |
| RAI 354 - 03.06.02-35 | | July 28, 2011 |
| RAI 354 - 03.06.02-36 | | May 30, 2011 |
| RAI 354 - 03.06.02-37 | | May 30, 2011 |
| RAI 354 - 03.06.02-38 | | May 30, 2011 |
| RAI 354 - 03.06.02-39 | | May 30, 2011 |
| RAI 354 - 03.06.02-40 | | May 30, 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, April 18, 2011 10:04 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. 354, FSAR Ch. 3, Supplement 21

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the remaining 21 questions. Supplement 2 was submitted on June 24, 2010, and included a revised schedule for Questions 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23. AREVA NP submitted Supplement 3 on July 7, 2010, responding to 1 of the remaining 21 questions. AREVA NP submitted Supplement 4 on July 30, 2010, to provide final responses to Questions 03.06.02-32, 03.06.02-41 and 03.08.02-16 and a revised schedule for Questions 03.06.02-33 through 03.06.02-40. On August 5, 2010, AREVA NP provided a revised schedule for Questions 03.06.02-42 and 03.08.05-23 in Supplement 5. AREVA NP submitted Supplement 6 on August 31, 2010, to provide final responses to 5 of the remaining 17 questions. On September 8, 2010, AREVA NP submitted Supplement 7 to provide a revised schedule for the response to Question 03.08.05-21. On September 13, 2010, AREVA NP provided an INTERIM response to Question 03.08.05-22 in Supplement 8. In Supplement 9, AREVA NP submitted a revised schedule for Question 03.08.05-23 on October 1, 2010. AREVA NP submitted Supplement 10 on October 7, 2010 and Supplement 11 on November 1, 2010 to provide a revised schedule for the response to Question 03.08.02-13. On November 17, 2010, AREVA NP submitted Supplement 12 to provide a revised schedule for Questions 03.06.02-33 through 03.06.02-40 and 03.08.05-23. On November 22, 2010, AREVA NP submitted Supplement 13 to provide an INTERIM response to Question 03.08.05-22 and a new schedule for supplemental responses to Questions 03.08.02-11 and 03.08.02-12. In Supplement

14, AREVA NP submitted a revised schedule for Question 03.08.05-23 on January 7, 2011. In Supplement 15, AREVA NP submitted a revised schedule for Question 03.08.05-22 on January 13, 2011. On February 11, 2011, AREVA NP submitted Supplement 16 to provide a revised schedule for Questions 03.08.02-11, 03.08.02-12, 03.08.02-13, 03.08.05-22 and 03.08.05-23. On March 3, 2011, AREVA NP submitted Supplement 17 to provide a technically correct and complete FINAL response to Question 03.08.02-12 and a revised schedule for Questions 03.08.02-11 and Question 03.08.02-13. In Supplement 18, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on March 17, 2011. On March 29, 2011, AREVA NP submitted Supplement 19 to provide revised schedules for Question 03.08.05-22 and Question 03.08.05-23. On April 18, 2011, AREVA NP submitted Supplement 20 to provide a technically correct and complete FINAL response to Question 03.08.05-22.

The attached file, "RAI 354 Supplement 21 Response US EPR DC - PUBLIC.pdf" provides a technically correct and complete response to question 03.08.02-11, as committed. Because the response file contains security-related sensitive information that should be withheld from public disclosure in accordance with 10 CFR 2.390, a public version is provided with the security-related sensitive information redacted. This email and attached file do not contain any security-related information. An unredacted security-related version is provided under separate email.

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 354 Question 03.08.02-11.

The following table indicates the respective pages in the response document, "RAI 354 Supplement 21 Response US EPR DC - PUBLIC.pdf," that contain AREVA NP's response to the subject question.

| Question # | Start Page | End Page |
|-----------------------|------------|----------|
| RAI 354 — 03.08.02-11 | 2 | 5 |

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

| Question # | Interim Response Date | Response Date |
|-----------------------|-----------------------|----------------|
| RAI 354 - 03.08.02-13 | | June 14, 2011 |
| RAI 354 - 03.08.05-23 | | May 10, 2011 |
| RAI 354 - 03.06.02-33 | | April 29, 2011 |
| RAI 354 - 03.06.02-34 | | April 29, 2011 |
| RAI 354 - 03.06.02-35 | | April 29, 2011 |
| RAI 354 - 03.06.02-36 | | April 29, 2011 |
| RAI 354 - 03.06.02-37 | | April 29, 2011 |
| RAI 354 - 03.06.02-38 | | April 29, 2011 |
| RAI 354 - 03.06.02-39 | | April 29, 2011 |
| RAI 354 - 03.06.02-40 | | April 29, 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, April 18, 2011 9:55 AM

To: 'Tefaye, 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. 354, FSAR Ch. 3, Supplement 20 (Part 3 of 3)

Getachew

Attached is part 3 of 3 for a response of RAI No. 354, FSAR Ch 3, Supplement 20

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, April 18, 2011 9:54 AM

To: 'Tefaye, 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. 354, FSAR Ch. 3, Supplement 20 (Part 2 of 3)

Getachew

Attached is part 2 of 3 for a response of RAI No. 354, FSAR Ch 3, Supplement 20

Sincerely,

Russ Wells

U.S. EPR Design Certification Licensing Manager

AREVA NP, Inc.

3315 Old Forest Road, P.O. Box 10935

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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, April 18, 2011 9:52 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. 354, FSAR Ch. 3, Supplement 20 (Part 1 of 3)

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the remaining 21 questions. Supplement 2 was submitted on June 24, 2010, and included a revised schedule for Questions 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23. AREVA NP submitted Supplement 3 on July 7, 2010, responding to 1 of the remaining 21 questions. AREVA NP submitted Supplement 4 on July 30, 2010, to provide final responses to Questions 03.06.02-32, 03.06.02-41 and 03.08.02-16 and a revised schedule for Questions 03.06.02-33 through 03.06.02-40. On August 5, 2010, AREVA NP provided a revised schedule for Questions 03.06.02-42 and 03.08.05-23 in Supplement 5. AREVA NP submitted Supplement 6 on August 31, 2010, to provide final responses to 5 of the remaining 17 questions. On September 8, 2010, AREVA NP submitted Supplement 7 to provide a revised schedule for the response to Question 03.08.05-21. On September 13, 2010, AREVA NP provided an INTERIM response to Question 03.08.05-22 in Supplement 8. In Supplement 9, AREVA NP submitted a revised schedule for Question 03.08.05-23 on October 1, 2010. AREVA NP submitted Supplement 10 on October 7, 2010 and Supplement 11 on November 1, 2010 to provide a revised schedule for the response to Question 03.08.02-13. On November 17, 2010, AREVA NP submitted Supplement 12 to provide a revised schedule for Questions 03.06.02-33 through 03.06.02-40 and 03.08.05-23. On November 22, 2010, AREVA NP submitted Supplement 13 to provide an INTERIM response to Question 03.08.05-22 and a new schedule for supplemental responses to Questions 03.08.02-11 and 03.08.02-12. In Supplement 14, AREVA NP submitted a revised schedule for Question 03.08.05-23 on January 7, 2011. In Supplement 15, AREVA NP submitted a revised schedule for Question 03.08.05-22 on January 13, 2011. On February 11, 2011, AREVA NP submitted Supplement 16 to provide a revised schedule for Questions 03.08.02-11, 03.08.02-12, 03.08.02-13, 03.08.05-22 and 03.08.05-23. On March 3, 2011, AREVA NP submitted Supplement 17 to provide a technically correct and complete FINAL response to Question 03.08.02-12 and a revised schedule for Questions 03.08.02-11 and Question 03.08.02-13. In Supplement 18, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on March 17, 2011. On March 29, 2011, AREVA NP submitted Supplement 19 to provide revised schedules for Question 03.08.05-22 and Question 03.08.05-23.

The attached file, "RAI 354 Supplement 20 Response US EPR DC (1 of 3).pdf" provides a technically correct and complete response to question 03.08.05-22, as committed. Due to file size, the remaining parts will be provided in subsequent e-mails.

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 354 Question 03.08.05-22.

The following table indicates the respective pages in the response document, "RAI 354 Supplement 20 Response US EPR DC (1 of 3).pdf," that contain AREVA NP's response to the subject question.

| Question # | Start Page | End Page |
|-----------------------|------------|----------|
| RAI 354 — 03.08.05-22 | 2 | 9 |

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

| Question # | Interim Response Date | Response Date |
|-----------------------|-----------------------|----------------|
| RAI 354 - 03.08.02-11 | | April 28, 2011 |
| RAI 354 - 03.08.02-13 | | June 14, 2011 |
| RAI 354 - 03.08.05-23 | | May 10, 2011 |
| RAI 354 - 03.06.02-33 | | April 29, 2011 |
| RAI 354 - 03.06.02-34 | | April 29, 2011 |
| RAI 354 - 03.06.02-35 | | April 29, 2011 |
| RAI 354 - 03.06.02-36 | | April 29, 2011 |
| RAI 354 - 03.06.02-37 | | April 29, 2011 |
| RAI 354 - 03.06.02-38 | | April 29, 2011 |
| RAI 354 - 03.06.02-39 | | April 29, 2011 |
| RAI 354 - 03.06.02-40 | | April 29, 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 29, 2011 10:11 AM

To: 'Tefaye, 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. 354, FSAR Ch. 3, Supplement 19

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the remaining 21 questions. Supplement 2 was submitted on June 24, 2010, and included a revised schedule for Questions 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23. AREVA NP submitted Supplement 3 on July 7, 2010, responding to 1 of the remaining 21 questions. AREVA NP submitted Supplement 4 on July 30, 2010, to provide final responses to Questions 03.06.02-32, 03.06.02-41 and 03.08.02-16 and a revised schedule for Questions 03.06.02-33 through 03.06.02-40. On August 5, 2010, AREVA NP provided a revised schedule for Questions 03.06.02-42 and 03.08.05-23 in Supplement 5. AREVA NP submitted Supplement 6 on August 31, 2010, to provide final responses to 5 of the remaining 17 questions. On September 8, 2010, AREVA NP submitted Supplement 7 to provide a revised schedule for the response to Question 03.08.05-21. On September 13, 2010, AREVA NP provided an INTERIM response to Question 03.08.05-22 in Supplement 8. In Supplement 9, AREVA NP submitted a revised schedule for Question 03.08.05-23 on October 1, 2010. AREVA NP submitted Supplement 10 on October 7, 2010 and Supplement 11 on November 1, 2010 to provide a revised schedule for the response to Question 03.08.02-13. On November 17, 2010, AREVA NP submitted Supplement 12 to provide a revised schedule for Questions 03.06.02-33 through 03.06.02-40 and 03.08.05-23. On November 22, 2010, AREVA NP submitted Supplement 13 to provide an INTERIM response to Question

03.08.05-22 and a new schedule for supplemental responses to Questions 03.08.02-11 and 03.08.02-12. In Supplement 14, AREVA NP submitted a revised schedule for Question 03.08.05-23 on January 7, 2011. In Supplement 15, AREVA NP submitted a revised schedule for Question 03.08.05-22 on January 13, 2011. On February 11, 2011, AREVA NP submitted Supplement 16 to provide a revised schedule for Questions 03.08.02-11, 03.08.02-12, 03.08.02-13, 03.08.05-22 and 03.08.05-23. On March 3, 2011, AREVA NP submitted Supplement 17 to provide a technically correct and complete FINAL response to Question 03.08.02-12 and a revised schedule for Questions 03.08.02-11 and Question 03.08.02-13. In Supplement 18, AREVA NP submitted a revised schedule for Questions 03.06.02-33 through 03.06.02-40 on March 17, 2011.

The schedule for Question 03.08.05-22 is being revised to allow AREVA NP additional time to interact with the NRC. In addition, Question 03.08.05-23 is being revised to allow AREVA NP additional time to address NRC audit 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 354 - 03.08.02-11 | | April 28, 2011 |
| RAI 354 - 03.08.02-13 | | June 14, 2011 |
| RAI 354 - 03.08.05-22 | September 15, 2010 (Actual September 13, 2010) November 22, 2010 (Actual) | May 10, 2011 |
| RAI 354 - 03.08.05-23 | | May 10, 2011 |
| RAI 354 - 03.06.02-33 | | April 29, 2011 |
| RAI 354 - 03.06.02-34 | | April 29, 2011 |
| RAI 354 - 03.06.02-35 | | April 29, 2011 |
| RAI 354 - 03.06.02-36 | | April 29, 2011 |
| RAI 354 - 03.06.02-37 | | April 29, 2011 |
| RAI 354 - 03.06.02-38 | | April 29, 2011 |
| RAI 354 - 03.06.02-39 | | April 29, 2011 |
| RAI 354 - 03.06.02-40 | | April 29, 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 17, 2011 4:46 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. 354, FSAR Ch. 3, Supplement 18

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the remaining 21 questions. Supplement 2 was submitted on June 24, 2010, and included a revised schedule for Questions 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23. AREVA NP submitted Supplement 3 on July 7, 2010, responding to 1 of the remaining 21 questions. AREVA NP submitted Supplement 4 on July 30, 2010, to provide final responses to Questions 03.06.02-32, 03.06.02-41 and 03.08.02-16 and a revised schedule for Questions 03.06.02-33 through 03.06.02-40. On August 5, 2010, AREVA NP provided a revised schedule for Questions 03.06.02-42 and 03.08.05-23 in Supplement 5. AREVA NP submitted Supplement 6 on August 31, 2010, to provide final responses to 5 of the remaining 17 questions. On September 8, 2010, AREVA NP submitted Supplement 7 to provide a revised schedule for the response to Question 03.08.05-21. On September 13, 2010, AREVA NP provided an INTERIM response to Question 03.08.05-22 in Supplement 8. In Supplement 9, AREVA NP submitted a revised schedule for Question 03.08.05-23 on October 1, 2010. AREVA NP submitted Supplement 10 on October 7, 2010 and Supplement 11 on November 1, 2010 to provide a revised schedule for the response to Question 03.08.02-13. On November 17, 2010, AREVA NP submitted Supplement 12 to provide a revised schedule for Questions 03.06.02-33 through 03.06.02-40 and 03.08.05-23. On November 22, 2010, AREVA NP submitted Supplement 13 to provide an INTERIM response to Question 03.08.05-22 and a new schedule for supplemental responses to Questions 03.08.02-11 and 03.08.02-12. In Supplement 14, AREVA NP submitted a revised schedule for Question 03.08.05-23 on January 7, 2011. In Supplement 15, AREVA NP submitted a revised schedule for Question 03.08.05-22 on January 13, 2011. On February 11, 2011, AREVA NP submitted Supplement 16 to provide a revised schedule for Questions 03.08.02-11, 03.08.02-12, 03.08.02-13, 03.08.05-22 and 03.08.05-23. On March 3, 2011, AREVA NP submitted Supplement 17 to provide a technically correct and complete FINAL response to Question 03.08.02-12 and a revised schedule for Questions 03.08.02-11 and Question 03.08.02-13.

The schedule for Questions 03.06.02-33 through 03.06.02-40 has been revised in order to allow time for interaction with the NRC. 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 354 - 03.08.02-11 | | April 28, 2011 |
| RAI 354 - 03.08.02-13 | | June 14, 2011 |
| RAI 354 - 03.08.05-22 | September 15, 2010 (Actual) September 13, 2010) November 22, 2010 (Actual) | March 31, 2011 |
| RAI 354 - 03.08.05-23 | | March 31, 2011 |
| RAI 354 - 03.06.02-33 | | April 29, 2011 |
| RAI 354 - 03.06.02-34 | | April 29, 2011 |
| RAI 354 - 03.06.02-35 | | April 29, 2011 |
| RAI 354 - 03.06.02-36 | | April 29, 2011 |
| RAI 354 - 03.06.02-37 | | April 29, 2011 |
| RAI 354 - 03.06.02-38 | | April 29, 2011 |
| RAI 354 - 03.06.02-39 | | April 29, 2011 |
| RAI 354 - 03.06.02-40 | | April 29, 2011 |

Sincerely,

Russ Wells

U.S. EPR Design Certification Licensing Manager

AREVA NP, Inc.

3315 Old Forest Road, P.O. Box 10935

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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 03, 2011 6:10 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. 354, FSAR Ch. 3, Supplement 17

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the remaining 21 questions. Supplement 2 was submitted on June 24, 2010, and included a revised schedule for Questions 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23. AREVA NP submitted Supplement 3 on July 7, 2010, responding to 1 of the remaining 21 questions. AREVA NP submitted Supplement 4 on July 30, 2010, to provide final responses to Questions 03.06.02-32, 03.06.02-41 and 03.08.02-16 and a revised schedule for Questions 03.06.02-33 through 03.06.02-40. On August 5, 2010, AREVA NP provided a revised schedule for Questions 03.06.02-42 and 03.08.05-23 in Supplement 5. AREVA NP submitted Supplement 6 on August 31, 2010, to provide final responses to 5 of the remaining 17 questions. On September 8, 2010, AREVA NP submitted Supplement 7 to provide a revised schedule for the response to Question 03.08.05-21. On September 13, 2010, AREVA NP provided an INTERIM response to Question 03.08.05-22 in Supplement 8. In Supplement 9, AREVA NP submitted a revised schedule for Question 03.08.05-23 on October 1, 2010. AREVA NP submitted Supplement 10 on October 7, 2010 and Supplement 11 on November 1, 2010 to provide a revised schedule for the response to Question 03.08.02-13. On November 17, 2010, AREVA NP submitted Supplement 12 to provide a revised schedule for Questions 03.06.02-33 through 03.06.02-40 and 03.08.05-23. On November 22, 2010, AREVA NP submitted Supplement 13 to provide an INTERIM response to Question 03.08.05-22 and a new schedule for supplemental responses to Questions 03.08.02-11 and 03.08.02-12. In Supplement 14, AREVA NP submitted a revised schedule for Question 03.08.05-23 on January 7, 2011. In Supplement 15, AREVA NP submitted a revised schedule for Question 03.08.05-22 on January 13, 2011. On February 11, 2011, AREVA NP submitted Supplement 16 to provide a revised schedule for Questions 03.08.02-11, 03.08.02-12, 03.08.02-13, 03.08.05-22 and 03.08.05-23.

The attached file, "RAI 354 Supplement 17 Response US EPR DC.pdf" provides a technically correct and complete FINAL response to the Question 03.08.02-12, as committed.

The following table indicates the page in the response document, "RAI 354 Supplement 17 Response US EPR DC.pdf" that contains AREVA NP's response to the subject question.

| Question # | Start Page | End Page |
|-----------------------|------------|----------|
| RAI 354 – 03.08.02-12 | 2 | 3 |

The schedule for Question 03.08.02-11 and Question 03.08.02-13 is being revised to allow AREVA NP additional time to address NRC audit comments. 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 354 - 03.08.02-11 | | April 28, 2011 |
| RAI 354 - 03.08.02-13 | | June 14, 2011 |
| RAI 354 - 03.08.05-22 | September 15, 2010 (Actual September 13, 2010) November 22, 2010 (Actual) | March 31, 2011 |
| RAI 354 - 03.08.05-23 | | March 31, 2011 |
| RAI 354 - 03.06.02-33 | | March 31, 2011 |
| RAI 354 - 03.06.02-34 | | March 31, 2011 |
| RAI 354 - 03.06.02-35 | | March 31, 2011 |
| RAI 354 - 03.06.02-36 | | March 31, 2011 |
| RAI 354 - 03.06.02-37 | | March 31, 2011 |
| RAI 354 - 03.06.02-38 | | March 31, 2011 |
| RAI 354 - 03.06.02-39 | | March 31, 2011 |
| RAI 354 - 03.06.02-40 | | March 31, 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 1:20 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. 354, FSAR Ch. 3, Supplement 16

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the remaining 21 questions. Supplement 2 was submitted on June 24, 2010, and included a revised schedule for Questions 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23. AREVA NP submitted Supplement 3 on July 7, 2010, responding to 1 of the remaining 21 questions. AREVA NP submitted Supplement 4 on July 30, 2010, to provide final responses to Questions 03.06.02-32, 03.06.02-41 and 03.08.02-16 and a revised schedule for Questions 03.06.02-33 through 03.06.02-40. On August 5, 2010, AREVA NP provided a revised schedule for Questions 03.06.02-42 and 03.08.05-23 in Supplement 5. AREVA NP submitted Supplement 6 on August 31, 2010, to provide final responses to 5 of the remaining 17 questions. On September 8, 2010, AREVA NP submitted Supplement 7 to provide a revised schedule for the response to Question 03.08.05-21. On September 13, 2010, AREVA NP provided an INTERIM response to

Question 03.08.05-22 in Supplement 8. In Supplement 9, AREVA NP submitted a revised schedule for Question 03.08.05-23 on October 1, 2010. AREVA NP submitted Supplement 10 on October 7, 2010 and Supplement 11 on November 1, 2010 to provide a revised schedule for the response to Question 03.08.02-13. On November 17, 2010, AREVA NP submitted Supplement 12 to provide a revised schedule for Questions 03.06.02-33 through 03.06.02-40 and 03.08.05-23. On November 22, 2010, AREVA NP submitted Supplement 13 to provide an INTERIM response to Question 03.08.05-22 and a new schedule for supplemental responses to Questions 03.08.02-11 and 03.08.02-12. In Supplement 14, AREVA NP submitted a revised schedule for Question 03.08.05-23 on January 7, 2011. In Supplement 15, AREVA NP submitted a revised schedule for Question 03.08.05-22 on January 13, 2011.

The schedule for Questions 03.08.02-11, 03.08.02-12, 03.08.02-13, and 03.08.05-22 has changed. The schedule for Question 03.08.05-23 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 354 - 03.08.02-11 | | March 4, 2011 |
| RAI 354 - 03.08.02-12 | | March 4, 2011 |
| RAI 354 - 03.08.02-13 | | March 4, 2011 |
| RAI 354 - 03.08.05-22 | September 15, 2010 (Actual September 13, 2010) November 22, 2010 (Actual) | March 31, 2011 |
| RAI 354 - 03.08.05-23 | | March 31, 2011 |
| RAI 354 - 03.06.02-33 | | March 31, 2011 |
| RAI 354 - 03.06.02-34 | | March 31, 2011 |
| RAI 354 - 03.06.02-35 | | March 31, 2011 |
| RAI 354 - 03.06.02-36 | | March 31, 2011 |
| RAI 354 - 03.06.02-37 | | March 31, 2011 |
| RAI 354 - 03.06.02-38 | | March 31, 2011 |
| RAI 354 - 03.06.02-39 | | March 31, 2011 |
| RAI 354 - 03.06.02-40 | | March 31, 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 13, 2011 5:34 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. 354, FSAR Ch. 3, Supplement 15

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the remaining 21 questions. Supplement 2 was submitted on June 24, 2010, and included a revised schedule for Questions 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23. AREVA NP submitted Supplement 3 on July 7, 2010, responding to 1 of the remaining 21 questions. AREVA NP submitted Supplement 4 on July 30, 2010, to provide final responses to Questions 03.06.02-32, 03.06.02-41 and 03.08.02-16 and a revised schedule for Questions 03.06.02-33 through 03.06.02-40. On August 5, 2010, AREVA NP provided a revised schedule for Questions 03.06.02-42 and 03.08.05-23 in Supplement 5. AREVA NP submitted Supplement 6 on August 31, 2010, to provide final responses to 5 of the remaining 17 questions. On September 8, 2010, AREVA NP submitted Supplement 7 to provide a revised schedule for the response to Question 03.08.05-21. On September 13, 2010, AREVA NP provided an INTERIM response to Question 03.08.05-22 in Supplement 8. In Supplement 9, AREVA NP submitted a revised schedule for Question 03.08.05-23 on October 1, 2010. AREVA NP submitted Supplement 10 on October 7, 2010 and Supplement 11 on November 1, 2010 to provide a revised schedule for the response to Question 03.08.02-13. On November 17, 2010, AREVA NP submitted Supplement 12 to provide a revised schedule for Questions 03.06.02-33 through 03.06.02-40 and 03.08.05-23. On November 22, 2010, AREVA NP submitted Supplement 13 to provide an INTERIM response to Question 03.08.05-22 and a new schedule for supplemental responses to Questions 03.08.02-11 and 03.08.02-12. In Supplement 9, AREVA NP submitted a revised schedule for Question 03.08.05-23 on January 7, 2011.

The schedule for Question 03.08.05-22 is being revised to allow AREVA NP additional time for to address NRC feedback. 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 354 - 03.08.02-11 | | February 15, 2011 |
| RAI 354 - 03.08.02-12 | | February 15, 2011 |
| RAI 354 - 03.08.02-13 | | February 15, 2011 |
| RAI 354 - 03.08.05-22 | September 15, 2010 (Actual September 13, 2010) November 22, 2010 | March 17, 2011 |
| RAI 354 - 03.08.05-23 | | February 15, 2011 |
| RAI 354 - 03.06.02-33 | | March 31, 2011 |
| RAI 354 - 03.06.02-34 | | March 31, 2011 |
| RAI 354 - 03.06.02-35 | | March 31, 2011 |
| RAI 354 - 03.06.02-36 | | March 31, 2011 |
| RAI 354 - 03.06.02-37 | | March 31, 2011 |
| RAI 354 - 03.06.02-38 | | March 31, 2011 |
| RAI 354 - 03.06.02-39 | | March 31, 2011 |
| RAI 354 - 03.06.02-40 | | March 31, 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: Friday, January 07, 2011 2:57 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. 354, FSAR Ch. 3, Supplement 14

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the remaining 21 questions. Supplement 2 was submitted on June 24, 2010, and included a revised schedule for Questions 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23. AREVA NP submitted Supplement 3 on July 7, 2010, responding to 1 of the remaining 21 questions. AREVA NP submitted Supplement 4 on July 30, 2010, to provide final responses to Questions 03.06.02-32, 03.06.02-41 and 03.08.02-16 and a revised schedule for Questions 03.06.02-33 through 03.06.02-40. On August 5, 2010, AREVA NP provided a revised schedule for Questions 03.06.02-42 and 03.08.05-23 in Supplement 5. AREVA NP submitted Supplement 6 on August 31, 2010, to provide final responses to 5 of the remaining 17 questions. On September 8, 2010, AREVA NP submitted Supplement 7 to provide a revised schedule for the response to Question 03.08.05-21. On September 13, 2010, AREVA NP provided an INTERIM response to Question 03.08.05-22 in Supplement 8. In Supplement 9, AREVA NP submitted a revised schedule for Question 03.08.05-23 on October 1, 2010. AREVA NP submitted Supplement 10 on October 7, 2010 and Supplement 11 on November 1, 2010 to provide a revised schedule for the response to Question 03.08.02-13. On November 17, 2010, AREVA NP submitted Supplement 12 to provide a revised schedule for Questions 03.06.02-33 through 03.06.02-40 and 03.08.05-23. On November 22, 2010, AREVA NP submitted Supplement 13 to provide an INTERIM response to Question 03.08.05-22 and a new schedule for supplemental responses to Questions 03.08.02-11 and 03.08.02-12.

The schedule for Question 03.08.05-23 is being revised to allow additional time for AREVA NP to interact with the NRC. The schedule for the remaining questions is unchanged. Please note that in Supplement 13 the information for Questions 03.06.02-33 through 40 was inadvertently not included in the table, but it has been now been added back.

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

| Question # | Interim Response Date | Response Date |
|-----------------------|---|----------------------|
| RAI 354 - 03.08.02-11 | | February 15, 2011 |
| RAI 354 - 03.08.02-12 | | February 15, 2011 |
| RAI 354 - 03.08.02-13 | | February 15, 2011 |
| RAI 354 - 03.08.05-22 | September 15, 2010 (Actual September 13, 2010) November 22, 2010 | January 13, 2011 |
| RAI 354 - 03.08.05-23 | | February 15, 2011 |
| RAI 354 - 03.06.02-33 | | March 31, 2011 |
| RAI 354 - 03.06.02-34 | | March 31, 2011 |
| RAI 354 - 03.06.02-35 | | March 31, 2011 |
| RAI 354 - 03.06.02-36 | | March 31, 2011 |
| RAI 354 - 03.06.02-37 | | March 31, 2011 |

| Question # | Interim Response Date | Response Date |
|-----------------------|-----------------------|----------------|
| RAI 354 - 03.06.02-38 | | March 31, 2011 |
| RAI 354 - 03.06.02-39 | | March 31, 2011 |
| RAI 354 - 03.06.02-40 | | March 31, 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, November 22, 2010 7:40 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. 354, FSAR Ch. 3, Supplement 13

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the remaining 21 questions. Supplement 2 was submitted on June 24, 2010, and included a revised schedule for Questions 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23. AREVA NP submitted Supplement 3 on July 7, 2010, responding to 1 of the remaining 21 questions. AREVA NP submitted Supplement 4 on July 30, 2010, to provide final responses to Questions 03.06.02-32, 03.06.02-41 and 03.08.02-16 and a revised schedule for Questions 03.06.02-33 through 03.06.02-40. On August 5, 2010, AREVA NP provided a revised schedule for Questions 03.06.02-42 and 03.08.05-23 in Supplement 5. AREVA NP submitted Supplement 6 on August 31, 2010, to provide final responses to 5 of the remaining 17 questions. On September 8, 2010, AREVA NP submitted Supplement 7 to provide a revised schedule for the response to Question 03.08.05-21. On September 13, 2010, AREVA NP provided an INTERIM response to Question 03.08.05-22 in Supplement 8. In Supplement 9, AREVA NP submitted a revised schedule for Question 03.08.05-23 on October 1, 2010. AREVA NP submitted Supplement 10 on October 7, 2010 and Supplement 11 on November 1, 2010 to provide a revised schedule for the response to Question 03.08.02-13. On November 17, 2010, AREVA NP submitted Supplement 12 to provide a revised schedule for Questions 03.06.02-33 through 03.06.02-40 and 03.08.05-23.

The attached file, "RAI 354 Supplement 13 Response US EPR DC-INTERIM.pdf" provides a technically correct and complete INTERIM response to question 03.08.05-22, as committed.

Appended to this file are the affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which supports the response to RAI 354 Supplement 13 question 03.08.05-22.

The following table indicates the respective pages in the response document, "RAI 354 Supplement 13 Response US EPR DC-INTERIM.pdf," that contain AREVA NP's response to the subject question.

| Question # | Start Page | End Page |
|-----------------------|------------|----------|
| RAI 354 — 03.08.05-22 | 2 | 11 |

A new schedule for supplemental responses to Questions 03.08.02-11 and 03.08.02-12 is added. The supplemental responses will address open items identified during the NRC October 28-29, 2010, containment appurtenances audit. 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 354 - 03.08.02-11 | | February 15, 2011 |
| RAI 354 - 03.08.02-12 | | February 15, 2011 |
| RAI 354 - 03.08.02-13 | | February 15, 2011 |
| RAI 354 - 03.08.05-22 | September 15, 2010 (Actual September 13, 2010) November 22, 2010 (Actual) | January 13, 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: Wednesday, November 17, 2010 11:35 AM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); WELLS Russell (RS/NB); 'Miernicki, Michael'
Subject: Response to U.S. EPR Design Certification Application RAI No. 354, FSAR Ch. 3, Supplement 12

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the remaining 21 questions. Supplement 2 was submitted on June 24, 2010, and included a revised schedule for Questions 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23. AREVA NP submitted Supplement 3 on July 7, 2010, responding to 1 of the remaining 21 questions. AREVA NP submitted Supplement 4 on July 30, 2010, to provide final responses to Questions 03.06.02-32, 03.06.02-41 and 03.08.02-16 and a revised schedule for Questions 03.06.02-33 through 03.06.02-40. On August 5, 2010, AREVA NP provided a revised schedule for Questions 03.06.02-42 and 03.08.05-23 in Supplement 5. AREVA NP submitted Supplement 6 on August 31, 2010, to provide final responses to 5 of the remaining 17 questions. On September 8, 2010, AREVA NP submitted Supplement 7 to provide a revised schedule for the response to Question 03.08.05-21. On September 13, 2010, AREVA NP provided an INTERIM response to Question 03.08.05-22 in Supplement 8. In Supplement 9, AREVA NP submitted a revised schedule for Question 03.08.05-23 on October 1, 2010. AREVA NP submitted Supplement 10 on October 7, 2010 and Supplement 11 on November 1, 2010 to provide a revised schedule for the response to Question 03.08.02-13.

A meeting with NRC regarding Questions 03.06.02-33 through 03.06.02-40 was held on November 1, 2010. As a result of that meeting the schedule for the final response to Questions 03.06.02-33 through 03.06.02-40 is being revised to allow additional time for AREVA NP to address NRC comments. Additionally, AREVA plans to prepare a technical report to be submitted with the final response to reflect the information on jet impingement that has been provided to NRC in the RAI responses and the meeting on November 1, 2010. The schedule for Question 03.08.05-23 is also being revised to allow additional time for AREVA NP to interact with the NRC. 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 354 - 03.08.02-13 | | February 15, 2011 |
| RAI 354 - 03.08.05-22 | September 15, 2010 (Actual September 13, 2010) November 22, 2010 | January 13, 2011 |
| RAI 354 - 03.08.05-23 | | January 7, 2011 |
| RAI 354 - 03.06.02-33 | | March 31, 2011 |
| RAI 354 - 03.06.02-34 | | March 31, 2011 |
| RAI 354 - 03.06.02-35 | | March 31, 2011 |
| RAI 354 - 03.06.02-36 | | March 31, 2011 |
| RAI 354 - 03.06.02-37 | | March 31, 2011 |
| RAI 354 - 03.06.02-38 | | March 31, 2011 |
| RAI 354 - 03.06.02-39 | | March 31, 2011 |
| RAI 354 - 03.06.02-40 | | March 31, 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, November 01, 2010 5:39 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. 354, FSAR Ch. 3, Supplement 11

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the

remaining 21 questions. Supplement 2 was submitted on June 24, 2010, and included a revised schedule for Questions 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23. AREVA NP submitted Supplement 3 on July 7, 2010, responding to 1 of the remaining 21 questions. AREVA NP submitted Supplement 4 on July 30, 2010, to provide final responses to Questions 03.06.02-32, 03.06.02-41 and 03.08.02-16 and a revised schedule for Questions 03.06.02-33 through 03.06.02-40. On August 5, 2010, AREVA NP provided a revised schedule for Questions 03.06.02-42 and 03.08.05-23 in Supplement 5. AREVA NP submitted Supplement 6 on August 31, 2010, to provide final responses to 5 of the remaining 17 questions. On September 8, 2010, AREVA NP submitted Supplement 7 to provide a revised schedule for the response to Question 03.08.05-21. On September 13, 2010, AREVA NP provided an INTERIM response to Question 03.08.05-22 in Supplement 8. In Supplement 9, AREVA NP submitted a revised schedule for Question 03.08.05-23 on October 1, 2010. AREVA NP submitted Supplement 10 on October 7, 2010, to provide a revised schedule for the response to Question 03.08.02-13.

The schedule for Question 03.08.02-13 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 354 - 03.08.02-13 | | February 15, 2011 |
| RAI 354 - 03.08.05-22 | September 15, 2010 (Actual September 13, 2010) November 22, 2010 | January 13, 2011 |
| RAI 354 - 03.08.05-23 | | November 18, 2010 |
| RAI 354 - 03.06.02-33 | | November 18, 2010 |
| RAI 354 - 03.06.02-34 | | November 18, 2010 |
| RAI 354 - 03.06.02-35 | | November 18, 2010 |
| RAI 354 - 03.06.02-36 | | November 18, 2010 |
| RAI 354 - 03.06.02-37 | | November 18, 2010 |
| RAI 354 - 03.06.02-38 | | November 18, 2010 |
| RAI 354 - 03.06.02-39 | | November 18, 2010 |
| RAI 354 - 03.06.02-40 | | November 18, 2010 |

Sincerely,

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

From: BRYAN Martin (External RS/NB)
Sent: Thursday, October 07, 2010 2:41 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. 354, FSAR Ch. 3, Supplement 10

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the remaining 21 questions. Supplement 2 was submitted on June 24, 2010, and included a revised schedule for Questions 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23. AREVA NP submitted Supplement 3 on July 7, 2010, responding to 1 of the remaining 21 questions. AREVA NP submitted Supplement 4 on July 30, 2010, to provide final responses to Questions 03.06.02-32, 03.06.02-41 and 03.08.02-16 and a revised schedule for Questions 03.06.02-33 through 03.06.02-40. On August 5, 2010, AREVA NP provided a revised schedule for Questions 03.06.02-42 and 03.08.05-23 in Supplement 5. AREVA NP submitted Supplement 6 on August 31, 2010, to provide final responses to 5 of the remaining 17 questions. On September 8, 2010, AREVA NP submitted Supplement 7 to provide a revised schedule for the response to Question 03.08.05-21. On September 13, 2010, AREVA NP provided an INTERIM response to Question 03.08.05-22 in Supplement 8. In Supplement 9, AREVA NP submitted a revised schedule for Question 03.08.05-23 on October 1, 2010.

The attached file, "RAI 354 Supplement 10 Response US EPR DC.pdf" provides a technically correct and complete FINAL response to Question 03.08.05-21, as committed. The following table indicates the respective pages in the response document, "RAI 354 Supplement 10 Response US EPR DC.pdf," that contains AREVA NP's response to the subject question.

| Question # | Start Page | End Page |
|-----------------------|------------|----------|
| RAI 354 - 03.08.05-21 | 2 | 3 |

The schedule for a revised INTERIM response to Question 03.08.05-22 is added to provide the NRC additional information on AREVA NP's settlement approach. 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 354 - 03.08.02-13 | | November 1, 2010 |
| RAI 354 - 03.08.05-22 | September 15, 2010 (Actual September 13, 2010) November 22, 2010 | January 13, 2011 |
| RAI 354 - 03.08.05-23 | | November 18, 2010 |
| RAI 354 - 03.06.02-33 | | November 18, 2010 |
| RAI 354 - 03.06.02-34 | | November 18, 2010 |
| RAI 354 - 03.06.02-35 | | November 18, 2010 |
| RAI 354 - 03.06.02-36 | | November 18, 2010 |
| RAI 354 - 03.06.02-37 | | November 18, 2010 |
| RAI 354 - 03.06.02-38 | | November 18, 2010 |
| RAI 354 - 03.06.02-39 | | November 18, 2010 |
| RAI 354 - 03.06.02-40 | | November 18, 2010 |

Sincerely,

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

From: BRYAN Martin (External RS/NB)
Sent: Friday, October 01, 2010 2:31 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. 354, FSAR Ch. 3, Supplement 9

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the remaining 21 questions. Supplement 2 was submitted on June 24, 2010, and included a revised schedule for Questions 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23. AREVA NP submitted Supplement 3 on July 7, 2010, responding to 1 of the remaining 21 questions. AREVA NP submitted Supplement 4 on July 30, 2010, to provide final responses to Questions 03.06.02-32, 03.06.02-41 and 03.08.02-16 and a revised schedule for Questions 03.06.02-33 through 03.06.02-40. On August 5, 2010, AREVA NP provided a revised schedule for Questions 03.06.02-42 and 03.08.05-23 in Supplement 5. AREVA NP submitted Supplement 6 on August 31, 2010, to provide final responses to 5 of the remaining 17 questions. On September 8, 2010, AREVA NP submitted Supplement 7 to provide a revised schedule for the response to Question 03.08.05-21. On September 13, 2010, AREVA NP provided an INTERIM response to Question 03.08.05-22 in Supplement 8.

The schedule for Question 03.08.05-23 is being revised to allow additional time for AREVA NP to interact with the NRC. 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 354 - 03.08.02-13 | | November 1, 2010 |
| RAI 354 - 03.08.05-21 | | October 7, 2010 |
| RAI 354 - 03.08.05-22 | September 15, 2010 (Actual September 13, 2010) | January 13, 2011 |
| RAI 354 - 03.08.05-23 | | November 18, 2010 |
| RAI 354 - 03.06.02-33 | | November 18, 2010 |
| RAI 354 - 03.06.02-34 | | November 18, 2010 |
| RAI 354 - 03.06.02-35 | | November 18, 2010 |
| RAI 354 - 03.06.02-36 | | November 18, 2010 |
| RAI 354 - 03.06.02-37 | | November 18, 2010 |
| RAI 354 - 03.06.02-38 | | November 18, 2010 |
| RAI 354 - 03.06.02-39 | | November 18, 2010 |
| RAI 354 - 03.06.02-40 | | November 18, 2010 |

Sincerely,

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

From: BRYAN Martin (External RS/NB)

Sent: Monday, September 13, 2010 5:09 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. 354, FSAR Ch. 3, Supplement 8

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the remaining 21 questions. Supplement 2 was submitted on June 24, 2010, and included a revised schedule for Questions 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23. AREVA NP submitted Supplement 3 on July 7, 2010, responding to 1 of the remaining 21 questions. AREVA NP submitted Supplement 4 on July 30, 2010, to provide final responses to Questions 03.06.02-32, 03.06.02-41 and 03.08.02-16 and a revised schedule for Questions 03.06.02-33 through 03.06.02-40. On August 5, 2010, AREVA NP provided a revised schedule for Questions 03.06.02-42 and 03.08.05-23 in Supplement 5. AREVA NP submitted Supplement 6 on August 31, 2010, to provide final responses to 5 of the remaining 17 questions. On September 8, 2010, AREVA NP submitted Supplement 7 to provide a revised schedule for the response to Question 03.08.05-21.

AREVA NP recently notified the NRC of its intent to submit an INTERIM response to Question 03.08.05-22. The attached file, "RAI 354 Supplement 8 Response US EPR DC-INTERIM.pdf" provides a technically correct and complete INTERIM response to Question 03.08.05-22, as committed. The schedule for the remaining questions is unchanged.

The following table indicates the respective pages in the response document, RAI 354 Supplement 8 Response US EPR DC - INTERIM.pdf," that contains AREVA NP's response to the subject question.

| Question # | Start Page | End Page |
|-----------------------|------------|----------|
| RAI 354 - 03.08.05-22 | 2 | 3 |

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

| Question # | Interim Response Date | Response Date |
|-----------------------|--|-------------------|
| RAI 354 - 03.08.02-13 | | November 1, 2010 |
| RAI 354 - 03.08.05-21 | | October 7, 2010 |
| RAI 354 - 03.08.05-22 | September 15, 2010 (Actual September 13, 2010) | January 13, 2011 |
| RAI 354 - 03.08.05-23 | | October 1, 2010 |
| RAI 354 - 03.06.02-33 | | November 18, 2010 |
| RAI 354 - 03.06.02-34 | | November 18, 2010 |
| RAI 354 - 03.06.02-35 | | November 18, 2010 |
| RAI 354 - 03.06.02-36 | | November 18, 2010 |
| RAI 354 - 03.06.02-37 | | November 18, 2010 |
| RAI 354 - 03.06.02-38 | | November 18, 2010 |
| RAI 354 - 03.06.02-39 | | November 18, 2010 |
| RAI 354 - 03.06.02-40 | | November 18, 2010 |

Sincerely,

Martin (Marty) C. Bryan
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.

Tel: (434) 832-3016
702 561-3528 cell
Martin.Bryan.ext@areva.com

From: BRYAN Martin (External RS/NB)
Sent: Wednesday, September 08, 2010 6:09 PM
To: Tesfaye, Getachew
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); 'Miernicki, Michael'; CORNELL Veronica (External RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 354, FSAR Ch. 3, Supplement 7

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the remaining 21 questions. Supplement 2 was submitted on June 24, 2010, and included a revised schedule for Questions 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23. AREVA NP submitted Supplement 3 on July 7, 2010, responding to 1 of the remaining 21 questions. AREVA NP submitted Supplement 4 on July 30, 2010, to provide final responses to Questions 03.06.02-32, 03.06.02-41 and 03.08.02-16 and a revised schedule for Questions 03.06.02-33 through 03.06.02-40. On August 5, 2010 AREVA NP provided a revised schedule for Questions 03.06.02-42 and 03.08.05-23 in Supplement 5. On August 31, 2010, AREVA NP submitted final responses to 5 of the remaining 17 questions.

The schedule for Question 03.08.05-21 is being revised to allow additional time for AREVA NP to interact with the NRC on the draft 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 # | Response Date |
|-----------------------|------------------------|
| RAI 354 - 03.08.02-13 | November 1, 2010 |
| RAI 354 - 03.08.05-21 | October 7, 2010 |
| RAI 354 - 03.08.05-22 | January 13, 2011 |
| RAI 354 - 03.08.05-23 | October 1, 2010 |
| RAI 354 - 03.06.02-33 | November 18, 2010 |
| RAI 354 - 03.06.02-34 | November 18, 2010 |
| RAI 354 - 03.06.02-35 | November 18, 2010 |
| RAI 354 - 03.06.02-36 | November 18, 2010 |
| RAI 354 - 03.06.02-37 | November 18, 2010 |
| RAI 354 - 03.06.02-38 | November 18, 2010 |
| RAI 354 - 03.06.02-39 | November 18, 2010 |
| RAI 354 - 03.06.02-40 | November 18, 2010 |

Sincerely,

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

From: BRYAN Martin (External RS/NB)
Sent: Tuesday, August 31, 2010 4:28 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. 354, FSAR Ch. 3, Supplement 6

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the remaining 21 questions. Supplement 2 was submitted on June 24, 2010, and included a revised schedule for Questions 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23. AREVA NP submitted Supplement 3 on July 7, 2010, responding to 1 of the remaining 21 questions. AREVA NP submitted Supplement 4 on July 30, 2010, to provide final responses to Questions 03.06.02-32, 03.06.02-41 and 03.08.02-16 and a revised schedule for Questions 03.06.02-33 through 03.06.02-40. On August 5, 2010 AREVA NP provided a revised schedule for Questions 03.06.02-42 and 03.08.05-23 in Supplement 5.

The attached file, "RAI 354 Supplement 6 Response US EPR DC.pdf" provides technically correct and complete FINAL responses to Questions 03.06.02-42 and 03.08.02-11 to 03.08.02-15, as committed. Because the response file contains security-related sensitive information that should be withheld from public disclosure in accordance with 10 CFR 2.390, a public version is provided with the security-related sensitive information redacted. This email and attached file do not contain any security-related information. An unredacted security-related version is provided under separate email.

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 354 Supplement 6.

The schedule for Question 03.08.02-13 is being revised to allow additional time for AREVA NP to address NRC comments. The schedule for the remaining questions is unchanged.

The following table indicates the respective pages in the response document, RAI 354 Supplement 6 Response US EPR DC.pdf," that contains AREVA NP's response to the subject question.

| Question # | Start Page | End Page |
|-----------------------|------------|----------|
| RAI 354 - 03.08.02-11 | 2 | 4 |
| RAI 354 - 03.08.02-12 | 5 | 6 |
| RAI 354 - 03.08.02-14 | 7 | 8 |
| RAI 354 - 03.08.02-15 | 9 | 10 |
| RAI 354 - 03.06.02-42 | 11 | 12 |

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

| Question # | Response Date |
|-----------------------|-------------------------|
| RAI 354 - 03.08.02-13 | November 1, 2010 |
| RAI 354 - 03.08.05-21 | September 8, 2010 |
| RAI 354 - 03.08.05-22 | January 13, 2011 |
| RAI 354 - 03.08.05-23 | October 1, 2010 |
| RAI 354 - 03.06.02-33 | November 18, 2010 |
| RAI 354 - 03.06.02-34 | November 18, 2010 |
| RAI 354 - 03.06.02-35 | November 18, 2010 |

| Question # | Response Date |
|-----------------------|-------------------|
| RAI 354 - 03.06.02-36 | November 18, 2010 |
| RAI 354 - 03.06.02-37 | November 18, 2010 |
| RAI 354 - 03.06.02-38 | November 18, 2010 |
| RAI 354 - 03.06.02-39 | November 18, 2010 |
| RAI 354 - 03.06.02-40 | November 18, 2010 |

Sincerely,

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

From: BRYAN Martin (EXT)
Sent: Thursday, August 05, 2010 6:23 PM
To: 'Tsfaye, Getachew'
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); CORNELL Veronica (EXT); WELLS Russell (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 354, FSAR Ch. 3, Supplement 5

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the remaining 21 questions. Supplement 2 was submitted on June 24, 2010, and included a revised schedule for Questions 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23. AREVA NP submitted Supplement 3 on July 7, 2010, responding to 1 of the remaining 21 questions. AREVA NP submitted Supplement 4 on July 30, 2010, to provide final responses to Questions 03.06.02-32, 03.06.02-41 and 03.08.02-16 and a revised schedule for Questions 03.06.02-33 through 03.06.02-40.

The schedule for Questions 03.06.02-42 and 03.08.05-23 is being revised to allow additional time for AREVA NP to address NRC comments. The schedule for the remaining 15 questions is unchanged.

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

| Question # | Response Date |
|-----------------------|------------------------|
| RAI 354 - 03.08.02-11 | August 31, 2010 |
| RAI 354 - 03.08.02-12 | August 31, 2010 |
| RAI 354 - 03.08.02-13 | August 31, 2010 |
| RAI 354 - 03.08.02-14 | August 31, 2010 |
| RAI 354 - 03.08.02-15 | August 31, 2010 |
| RAI 354 - 03.08.05-21 | September 8, 2010 |
| RAI 354 - 03.08.05-22 | January 13, 2011 |
| RAI 354 - 03.08.05-23 | October 1, 2010 |
| RAI 354 - 03.06.02-33 | November 18, 2010 |
| RAI 354 - 03.06.02-34 | November 18, 2010 |
| RAI 354 - 03.06.02-35 | November 18, 2010 |
| RAI 354 - 03.06.02-36 | November 18, 2010 |

| Question # | Response Date |
|-----------------------|------------------------|
| RAI 354 - 03.06.02-37 | November 18, 2010 |
| RAI 354 - 03.06.02-38 | November 18, 2010 |
| RAI 354 - 03.06.02-39 | November 18, 2010 |
| RAI 354 - 03.06.02-40 | November 18, 2010 |
| RAI 354 - 03.06.02-42 | August 31, 2010 |

Sincerely,

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

From: BRYAN Martin (EXT)
Sent: Thursday, July 29, 2010 7:40 PM
To: 'Tsfaye, Getachew'
Cc: DELANO Karen V (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); ROMINE Judy (AREVA NP INC); CORNELL Veronica (EXT)
Subject: Response to U.S. EPR Design Certification Application RAI No. 354, FSAR Ch. 3, Supplement 4

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the remaining 21 questions. Supplement 2 was submitted on June 24, 2010, and included a revised schedule for Questions 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23. AREVA NP submitted Supplement 3 on July 7, 2010, responding to 1 of the remaining 21 questions.

The attached file, "RAI 354 Supplement 4 Response U.S. EPR DC.pdf" provides technically correct and complete responses to Questions 03.06.02-32, 03.06.02-41, and 03.08.02-16. Because the response file contains security-related sensitive information that should be withheld from public disclosure in accordance with 10 CFR 2.390, a public version is provided with the security-related sensitive information redacted. This email and attached file do not contain any security-related information. An unredacted security-related version is provided under separate email.

The schedules for Questions 03.06.02-33 through 03.06.02-40 are being revised to allow additional time for AREVA NP to address NRC comments. The schedule for the remaining 9 questions is unchanged.

The following table indicates the respective pages in the response document, "RAI 354 Supplement 4 Response U.S. EPR DC," that contain the AREVA NP response to the subject questions.

| Question # | Start Page | End Page |
|-----------------------|------------|----------|
| RAI 354 - 03.06.02-32 | 2 | 3 |
| RAI 354 - 03.06.02-41 | 4 | 6 |
| RAI 354 - 03.08.02-16 | 7 | 7 |

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

| Question # | Response Date |
|-----------------------|-------------------|
| RAI 354 - 03.08.02-11 | August 31, 2010 |
| RAI 354 - 03.08.02-12 | August 31, 2010 |
| RAI 354 - 03.08.02-13 | August 31, 2010 |
| RAI 354 - 03.08.02-14 | August 31, 2010 |
| RAI 354 - 03.08.02-15 | August 31, 2010 |
| RAI 354 - 03.08.05-21 | September 8, 2010 |
| RAI 354 - 03.08.05-22 | January 13, 2011 |
| RAI 354 - 03.08.05-23 | August 10, 2010 |
| RAI 354 - 03.06.02-33 | November 18, 2010 |
| RAI 354 - 03.06.02-34 | November 18, 2010 |
| RAI 354 - 03.06.02-35 | November 18, 2010 |
| RAI 354 - 03.06.02-36 | November 18, 2010 |
| RAI 354 - 03.06.02-37 | November 18, 2010 |
| RAI 354 - 03.06.02-38 | November 18, 2010 |
| RAI 354 - 03.06.02-39 | November 18, 2010 |
| RAI 354 - 03.06.02-40 | November 18, 2010 |
| RAI 354 - 03.06.02-42 | August 5, 2010 |

Sincerely,

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

From: BRYAN Martin (EXT)
Sent: Wednesday, July 07, 2010 5:27 PM
To: 'Tefaye, 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. 354, FSAR Ch. 3, Supplement 3

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 on June 3, 2010, to provide a schedule for the remaining 21 questions.

On June 9, 2010, AREVA NP submitted draft Supplement 2 responses to questions 03.08.05-20, 03.08.05-21, 03.06.02-32, 03.06.02-41 and 03.06.02-42. Supplement 2 was submitted on June 24, 2010, and included a revised schedule to reflect the civil/structural re-planning activities and time allowance to interact with the NRC on the responses for 03.08.02-11, 12, 13, 14, 15, 16; 03.08.05-22 and 03.08.05-23.

The attached file, "RAI 354 Response U.S. EPR DC.pdf" provides a technically correct and complete response to Question 03.08.05-20.

The schedule for Question 03.08.05-21 is being revised to accommodate development of a revised response and to allow time to interact with the NRC on the response. The schedule for Questions 03.06.02-32, 03.06.02-41 and 03.06.02-42 is also being revised to provide additional time to interact with the NRC on the responses. The schedule for the remaining 16 questions is unchanged.

The following table indicates the respective pages in the response document, "RAI 354 Response U.S. EPR DC," that contain the AREVA NP response to the subject questions.

| Question # | Start Page | End Page |
|-----------------------|------------|----------|
| RAI 354 — 03.08.05-20 | 2 | 3 |

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

| Question # | Response Date |
|-----------------------|-------------------|
| RAI 354 - 03.08.02-11 | August 31, 2010 |
| RAI 354 - 03.08.02-12 | August 31, 2010 |
| RAI 354 - 03.08.02-13 | August 31, 2010 |
| RAI 354 - 03.08.02-14 | August 31, 2010 |
| RAI 354 - 03.08.02-15 | August 31, 2010 |
| RAI 354 - 03.08.02-16 | August 10, 2010 |
| RAI 354 - 03.08.05-21 | September 8, 2010 |
| RAI 354 - 03.08.05-22 | January 13, 2011 |
| RAI 354 - 03.08.05-23 | August 10, 2010 |
| RAI 354 - 03.06.02-32 | August 5, 2010 |
| RAI 354 - 03.06.02-33 | July 30, 2010 |
| RAI 354 - 03.06.02-34 | July 30, 2010 |
| RAI 354 - 03.06.02-35 | July 30, 2010 |
| RAI 354 - 03.06.02-36 | July 30, 2010 |
| RAI 354 - 03.06.02-37 | July 30, 2010 |
| RAI 354 - 03.06.02-38 | July 30, 2010 |
| RAI 354 - 03.06.02-39 | July 30, 2010 |
| RAI 354 - 03.06.02-40 | July 30, 2010 |
| RAI 354 - 03.06.02-41 | August 5, 2010 |
| RAI 354 - 03.06.02-42 | August 5, 2010 |

Sincerely,

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

From: BRYAN Martin (EXT)
Sent: Thursday, June 24, 2010 12:29 PM

To: 'Tesfaye, Getachew'

Cc: ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); CORNELL Veronica (EXT); VAN NOY Mark (EXT); RYAN Tom (AREVA NP INC); GARDNER George Darrell (AREVA NP INC); DELANO Karen V (AREVA NP INC)

Subject: Response to U.S. EPR Design Certification Application RAI No. 354, FSAR Ch. 3, Supplement 2

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. AREVA NP submitted Supplement 1 to the response on June 3, 2010, to provide a schedule for the remaining 21 questions, one of which was 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 for questions 03.08.02-11, 12, 13, 14, 15, 16, 03.08.05-22 and 03.08.05-23 has been changed. The schedule for the remaining 13 questions remains unchanged.

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

| Question # | Response Date |
|-----------------------|------------------|
| RAI 354 - 03.08.02-11 | August 31 |
| RAI 354 - 03.08.02-12 | August 31 |
| RAI 354 - 03.08.02-13 | August 31 |
| RAI 354 - 03.08.02-14 | August 31 |
| RAI 354 - 03.08.02-15 | August 31 |
| RAI 354 - 03.08.02-16 | August 10, 2010 |
| RAI 354 - 03.08.05-20 | July 7, 2010 |
| RAI 354 - 03.08.05-21 | July 7, 2010 |
| RAI 354 - 03.08.05-22 | January 13, 2011 |
| RAI 354 - 03.08.05-23 | August 10, 2010 |
| RAI 354 - 03.06.02-32 | July 7, 2010 |
| RAI 354 - 03.06.02-33 | July 30, 2010 |
| RAI 354 - 03.06.02-34 | July 30, 2010 |
| RAI 354 - 03.06.02-35 | July 30, 2010 |
| RAI 354 - 03.06.02-36 | July 30, 2010 |
| RAI 354 - 03.06.02-37 | July 30, 2010 |
| RAI 354 - 03.06.02-38 | July 30, 2010 |
| RAI 354 - 03.06.02-39 | July 30, 2010 |
| RAI 354 - 03.06.02-40 | July 30, 2010 |
| RAI 354 - 03.06.02-41 | July 7, 2010 |
| RAI 354 - 03.06.02-42 | July 7, 2010 |

Sincerely,

Martin (Marty) C. Bryan
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.

Tel: (434) 832-3016
702 561-3528 cell
Martin.Bryan.ext@areva.com

From: BRYAN Martin (EXT)
Sent: Thursday, June 03, 2010 6:39 PM
To: 'Tesfaye, 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. 354, FSAR Ch. 3, Supplement 1

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 22 questions of RAI No. 354 on April 15, 2010, and a schedule for the remaining 21 questions. The schedule for questions 03.08.02-11 through 15 is not being changed by this supplement. To allow time to interact with the NRC, the schedule for 16 questions is being changed. The date provided below for question 03.08.05-22 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 354 - 03.08.02-11 | July 30, 2010 |
| RAI 354 - 03.08.02-12 | July 30, 2010 |
| RAI 354 - 03.08.02-13 | July 30, 2010 |
| RAI 354 - 03.08.02-14 | July 30, 2010 |
| RAI 354 - 03.08.02-15 | July 30, 2010 |
| RAI 354 - 03.08.02-16 | July 30, 2010 |
| RAI 354 - 03.08.05-20 | July 7, 2010 |
| RAI 354 - 03.08.05-21 | July 7, 2010 |
| RAI 354 - 03.08.05-22 | July 30, 2010 |
| RAI 354 - 03.08.05-23 | July 30, 2010 |
| RAI 354 - 03.06.02-32 | July 7, 2010 |
| RAI 354 - 03.06.02-33 | July 30, 2010 |
| RAI 354 - 03.06.02-34 | July 30, 2010 |
| RAI 354 - 03.06.02-35 | July 30, 2010 |
| RAI 354 - 03.06.02-36 | July 30, 2010 |
| RAI 354 - 03.06.02-37 | July 30, 2010 |
| RAI 354 - 03.06.02-38 | July 30, 2010 |
| RAI 354 - 03.06.02-39 | July 30, 2010 |
| RAI 354 - 03.06.02-40 | July 30, 2010 |
| RAI 354 - 03.06.02-41 | July 7, 2010 |
| RAI 354 - 03.06.02-42 | July 7, 2010 |

Sincerely,

Martin (Marty) C. Bryan
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.

Tel: (434) 832-3016
702 561-3528 cell
Martin.Bryan.ext@areva.com

From: BRYAN Martin (EXT)
Sent: Thursday, April 15, 2010 5:46 PM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); VAN NOY Mark (EXT)
Subject: Response to U.S. EPR Design Certification Application RAI No. 354, FSAR Ch. 3

Getachew,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 354 Response US EPR DC.pdf" provides technically correct and complete responses to 1 of the 22 questions.

Appended to this file are affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which support the response to RAI 354 Question 03.08.05-19.

The following table indicates the respective pages in the response document, "RAI 354 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

| Question # | Start Page | End Page |
|-----------------------|------------|----------|
| RAI 354 - 03.08.02-11 | 2 | 2 |
| RAI 354 - 03.08.02-12 | 3 | 3 |
| RAI 354 - 03.08.02-13 | 4 | 4 |
| RAI 354 - 03.08.02-14 | 5 | 5 |
| RAI 354 - 03.08.02-15 | 6 | 6 |
| RAI 354 - 03.08.02-16 | 7 | 7 |
| RAI 354 - 03.08.05-19 | 8 | 8 |
| RAI 354 - 03.08.05-20 | 9 | 9 |
| RAI 354 - 03.08.05-21 | 10 | 10 |
| RAI 354 - 03.08.05-22 | 11 | 11 |
| RAI 354 - 03.08.05-23 | 12 | 12 |
| RAI 354 - 03.06.02-32 | 13 | 13 |
| RAI 354 - 03.06.02-33 | 14 | 14 |
| RAI 354 - 03.06.02-34 | 15 | 15 |
| RAI 354 - 03.06.02-35 | 16 | 16 |
| RAI 354 - 03.06.02-36 | 17 | 17 |
| RAI 354 - 03.06.02-37 | 18 | 18 |
| RAI 354 - 03.06.02-38 | 19 | 19 |
| RAI 354 - 03.06.02-39 | 20 | 20 |
| RAI 354 - 03.06.02-40 | 21 | 21 |
| RAI 354 - 03.06.02-41 | 22 | 22 |
| RAI 354 - 03.06.02-42 | 23 | 24 |

A complete answer is not provided for 21 of the 22 questions. The schedule for a technically correct and complete response to these questions is provided below.

| Question # | Response Date |
|-----------------------|---------------|
| RAI 354 - 03.08.02-11 | July 30, 2010 |
| RAI 354 - 03.08.02-12 | July 30, 2010 |
| RAI 354 - 03.08.02-13 | July 30, 2010 |
| RAI 354 - 03.08.02-14 | July 30, 2010 |
| RAI 354 - 03.08.02-15 | July 30, 2010 |
| RAI 354 - 03.08.02-16 | June 3, 2010 |
| RAI 354 - 03.08.05-20 | June 3, 2010 |
| RAI 354 - 03.08.05-21 | June 3, 2010 |
| RAI 354 - 03.08.05-22 | June 3, 2010 |
| RAI 354 - 03.08.05-23 | June 3, 2010 |
| RAI 354 - 03.06.02-32 | June 3, 2010 |
| RAI 354 - 03.06.02-33 | June 3, 2010 |
| RAI 354 - 03.06.02-34 | June 3, 2010 |
| RAI 354 - 03.06.02-35 | June 3, 2010 |
| RAI 354 - 03.06.02-36 | June 3, 2010 |
| RAI 354 - 03.06.02-37 | June 3, 2010 |
| RAI 354 - 03.06.02-38 | June 3, 2010 |
| RAI 354 - 03.06.02-39 | June 3, 2010 |
| RAI 354 - 03.06.02-40 | June 3, 2010 |
| RAI 354 - 03.06.02-41 | June 3, 2010 |
| RAI 354 - 03.06.02-42 | June 3, 2010 |

Sincerely,

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

From: Tesfaye, Getachew [mailto:Getachew.Tesfaye@nrc.gov]
Sent: Tuesday, March 16, 2010 12:29 PM
To: ZZ-DL-A-USEPR-DL
Cc: Xu, Jim; Hawkins, Kimberly; Ng, Ching; Dixon-Herrity, Jennifer; Miernicki, Michael; Patel, Jay; Colaccino, Joseph; ArevaEPRDCPEm Resource
Subject: U.S. EPR Design Certification Application RAI No. 354 (4106,4107,4220), FSAR Ch. 3

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on January 8, 2010, and discussed with your staff on February 25, 2010. Drat RAI Questions 03.08.05-23 was modified as a result of that discussion. The schedule we have established for review of your application assumes technically correct and complete responses within 30 days of receipt of RAIs. For any RAIs that cannot be answered within 30 days, it is expected that a date for receipt of this information will be provided to the staff within the 30 day period so that the staff can assess how this information will impact the published schedule.

Thanks,
Getachew Tesfaye

Sr. Project Manager
NRO/DNRL/NARP
(301) 415-3361

Hearing Identifier: AREVA_EPR_DC_RAIs
Email Number: 4754

Mail Envelope Properties (8D35DF68A379A34E8526B758FDCFC0420B71565A)

Subject: Response to U.S. EPR Design Certification Application RAI No. 354, FSAR Ch. 3, Supplement 43
Sent Date: 12/19/2013 11:34:36 AM
Received Date: 12/19/2013 11:35:12 AM
From: HOTTLE Nathan (AREVA)

Created By: Nathan.Hottle@areva.com

Recipients:

"Miernicki, Michael" <Michael.Miernicki@nrc.gov>
Tracking Status: None
"GUCWA Len (EXTERNAL AREVA)" <Len.Gucwa.ext@areva.com>
Tracking Status: None
"UYEDA Graydon (AREVA)" <Graydon.Uyeda@areva.com>
Tracking Status: None
"RANSOM Jim (AREVA)" <James.Ransom@areva.com>
Tracking Status: None
"LEIGHLITER John (AREVA)" <John.Leighliter@areva.com>
Tracking Status: None
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Response to

Request for Additional Information No. 354, Supplement 43

3/16/2010

U. S. EPR Standard Design Certification

AREVA NP Inc.

Docket No. 52-020

SRP Section: 03.08.02 - Steel Containment

SRP Section: 03.08.05 - Foundations

**SRP Section: 03.06.02 - Determination of Rupture Locations and Dynamic Effects
Associated with the Postulated Rupture of Piping**

Application Section: FSAR Ch. 3

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

**QUESTIONS for Engineering Mechanics Branch 2 (ESBWR/ABWR Projects)
(EMB2)**

Question 03.06.02-35:**Follow-up to RAI 222, Question No. 03.06.02-23 and RAI 107, Question No. 03.06.02-8**

In its RAI response to RAI 3.6.2-23, AREVA stated that to account for the dynamic loads caused by blast waves, Areva will use information in:

<http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA446084&Location=U2&doc=GetTRDoc.pdf>.

However, this manual is 1797 pages long and AREVA did not address how this manual will be used. Areva is therefore, requested to provide a summary of their planned evaluation approach, citing specific chapters, tables, and figures in the Army/Navy/Air Force manual, along with a demonstration calculation representative of a blast wave in the EPR design. AREVA is also requested to explain how they plan to account for the different fluid properties in an EPR blast (steam and/or water) compared to those of air considered in the Army/Navy/Air Force manual.

Additional NRC Comments:

In an e-mail dated January 26, 2011, NRC provided the below additional comments:

AREVA's clarification of the use of the military guidelines for blast wave amplitude quantification is helpful. However, the spatial distribution of the blast wave pressures, and the resulting analysis of structural response is still not rigorously explained, and may not be conservative. AREVA appears to consider spherically expanding blasts, but does not seem to account for the event that the initial forming blast would issue from a broken pipe and therefore be directed by structural surfaces, be asymmetric and of directionally greater intensity than an isolated spherically expanding blast. This effect would diminish away from the source and is separate from the incident reflections that AREVA is considering.

We suggest AREVA pursue a more rigorous structural response analysis, or suggest a definitely conservative means of computing the upper bound of structural response.

Some other questions: under what conditions will static analyses using dynamic load factors be performed, and when will force time history analyses be performed? Define/cite the force time-history dynamic analysis procedure(s) to be used. How many structural natural frequencies will be considered (hopefully not just the fundamentals)? Are the pressures assumed to be uniformly distributed over the impacted structure and acting at the same time (completely in-phase)? If so, how can this be proven to be conservative for spherically shaped wavefronts which are distorted by the presence of the structure itself (along with any nearby barriers)? How are pressures on the opposite side of the structure, which oscillate out of phase with those on the front side, handled?

Based on a telecon with NRC on April 20, 2011, NRC provided the additional follow-up comments:

The method applied by AREVA to compute blast wave pressure loads on surrounding structures appears to be based on physically sound and reasonable assumptions, and on previously accepted reports and literature. However, their procedure has not yet been demonstrated to be conservative for the EPR design. AREVA should apply their methodology to a "validative" study based on the EPR configuration with either reputable physical test data or a reputable

computationally based tool. A finite-volume or finite-difference computational approach based on numerical solution of the three-dimensional time dependent equations of gas dynamics (ideal gas based Euler equations) would be appropriate. It is particularly noted that the complex interaction of shock waves with all but the simplest structures may cause local over pressures greater than found from simple analytic wave analyses.

- The staff is aware of other proprietary calculations (made using Computational Fluid Dynamics models) which show that the assumption of cubic dependence of the effective blast distance/charge weight on distance may not be conservative. AREVA is therefore asked to provide supporting calculations or measurements to substantiate a cubic dependence on distance in their calculation procedure for enclosed environments in an EPR.
- The staff is aware of other proprietary calculations which show that simplified models of the reflected pressure amplitudes may be nonconservative. AREVA is therefore asked to provide supporting calculations or measurements to substantiate Figure 2.6 of the Army/Navy/Air Force explosions document. AREVA is also asked to provide a substantiated means of conservatively estimating the effects of reflections from multiple reflecting surfaces, such as near two walls joined at an edge, and near two walls and a ceiling or floor joined at a corner.
- It appears from AREVA's sample structural evaluation calculations that they intend to use equivalent static analyses for all blast wave calculations. The staff is concerned about all structural resonances which could be strongly excited by a blast wave, even those at higher frequencies, particularly those which have time periods similar to that of the blast wave impulse. The staff is also concerned about conservatively capturing the time-varying behavior of incident and reflected blast waveforms on SSCs. AREVA is asked to either (a) provide a conservative, multi-modal approach for establishing the integrity of SSCs impacted by blast loads, including the effects of time-varying incident and reflected waves, or (b) provide design information and calculations for the EPR design which conclusively show that the approach requested in (a) is unnecessary, perhaps by showing that the blast loads are small with respect to other design qualification loads. For (a), AREVA should consider the effects of uncertainty in blast wave time period (and frequency) and structural resonance frequencies, and ensure conservative calculations are conducted. Finally, in the event that AREVA chooses option (b), they should provide either (c) a commitment that the EPR design parameters which affect their response will not change for future plants or (d) a comprehensive conservative procedure for determining the effects of any future EPR design changes.

Response to Question 03.06.02-35:

This response provides an update to the response provided in RAI 354, Supplement 40.

In RAI 354, Supplement 40, AREVA NP Inc. referenced Revision 1 of Technical Report ANP-10318P. This technical report provides methodologies used in the calculation of blast loadings on essential target structures, systems and components (SSC). The report performs validation of methods used to develop computational fluid dynamics (CFD) models for use in performing blast analyses, caused by the rupture of high-energy piping. In addition, this report provides a sample analysis to demonstrate the use of these methods in a typical case.

On November 19, 2013, a teleconference was held with the NRC Staff to discuss content of the technical report. Based on this call, AREVA NP Inc. has revised select wording in Section 3.4.1.3.2 of the technical report to clarify the blast loading method and has reissued the technical report as Revision 2. Therefore, this RAI response provides update to revision number of the technical report provided in Supplement 40 and updates the applicable FSAR Tier 2 sections. The remaining response provided in Supplement 40 is still valid.

References for Question 03.06.02-35:

1. ANP-10318P, Revision 2, "Pipe Rupture External Loading Effects on U.S. EPR Essential Structures, Systems, and Components Technical Report," December 2013.

FSAR Impact:

U.S. EPR FSAR Tier 2, Table 1.6-1 and Section 3.6.2 will be revised as described in the response and indicated on the enclosed markup.

U.S. EPR Final Safety Analysis Report Markups



Table 1.6-1—Reports Referenced
Sheet 3 of 5

| Report No. (See Notes 1, 2, and 3) | Title | Date Submitted to NRC | FSAR Section Number(s) |
|--|---|--------------------------------------|-----------------------------------|
| [ANP-10310P Revision 2 | <i>Methodology for 100% Combinatorial Testing of the U.S. EPR Priority Module Technical Report</i>]* | 3/13 | 7.1 |
| ANP-10314 | The Operating Strategies for Severe Accidents Methodology for the U.S. EPR Technical Report | 7/10 | 19.2 |
| [ANP-10315P Revision 2 | <i>U.S. EPR Protection System Surveillance Testing and Teleperm XS Self-Monitoring Technical Report</i>]* | 5/13 | 7.1,7.3 |
| ANP-10317 Revision 1 3 | Design Requirements for the U.S. EPR Aircraft Hazard Protection Structures | 4 7/13 | 19.2.7.4 |
| ANP-10318P <u>Revision 2</u> | Pipe Rupture External Loading Effects on U.S. EPR Essential Structures, Systems, and Components Technical Report | <u>12/13</u> 3/11 | 3.6.2 |
| ANP-10322P | Qualification and Testing of the U.S. EPR Passive Autocatalytic Recombiner | 6/12 | 6.2.5 |
| [ANP-10324P | <i>U.S. EPR Implementation Plan for the Integration of Human Reliability Analysis (HRA) with the Human Factors Engineering (HFE) Program</i>]* | 1/13 | 18.6 |
| ANP-10325P ANP-10325NP | U.S. EPR Fuel Assembly - Faulted Condition Analysis | 5/23/2013 | 4, 15.6 |
| [ANP-10327P | <i>U.S. EPR HFE Program Management Plan</i>]* | 4/13 | 18 |
| [ANP-10328P | <i>U.S. EPR Human System Interface Design Implementation Plan</i>]* | 4/13 | 18 |
| ANP-10329 | U.S. EPR Mitigation Strategies for Extended Loss of AC Power Event Technical Report | 5/13 | 6.3, 7.1, 8.3, 19.2 |
| BAW-10132-A | Analytical Methods Description – Reactor Coolant System Hydrodynamic Loadings During a Loss-of-Coolant Accident | 7/20/79 | App. 3C |
| BAW-10133P-A BAW-10133-A Revision 1, Addendum 1 and 2 | Mark-C Fuel Assembly LOCA-Seismic Analysis | 10/30/00 | 4.2 |



Spray wetting is assumed to affect electrical components in the compartment where the rupture occurs. Spray wetting is not assumed to affect mechanical components, subcomponents, or other passive, non-electrical components, such as piping in the compartment. Essential system electrical components are protected against the effects of spray wetting by using spray shields or housing the equipment in NEMA 4 or NEMA 12 rated enclosures.

Pipe ruptures, both breaks and cracks, can also cause water buildup in a compartment, which may lead to flooding of essential system components in the same, or a connecting, compartment. Flooding effects are described further in Section 3.4.

3.6.2.6

References

1. Branch Technical Position 3-4, Revision 2, "Postulated Rupture Locations in Fluid System Piping Inside and Outside Containment," U.S. Nuclear Regulatory Commission, March 2007.
2. ASME Boiler and Pressure Vessel Code, Section III, "Rules for Construction of Nuclear Facility Components," The American Society of Mechanical Engineers, 2004.
3. ASME Piping and Pipelines Code, B31.1, "Power Piping," The American Society of Mechanical Engineers, 2004.
4. ASME Boiler and Pressure Vessel Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," The American Society of Mechanical Engineers, 2004.
5. AREVA Technical Report ANP-10318P, Revision 0020, "Pipe Rupture External Loading Effects on U.S. EPR Essential Structures, Systems, and Components Technical Report." ~~December 2013~~ ~~March 2011~~.
6. NEA Report NEA/CSNI/R(95)11, "Knowledge Base for Emergency Core Cooling System Recirculation Reliability," February 1996.
7. ~~Deleted.~~ ~~Army TM 5-1300/Navy NAVFAC P 397/Air Force AFR 88-22, "Joint Departments of the Army, the Navy, and the Air Force, Structures to Resist the Effects of Accidental Explosions," November 1990.~~
8. ~~Deleted.~~ ~~Kinney, G. and Graham, K., "Explosive Shocks in Air," Springer Verlag, New York, 1985.~~
9. NUREG/CR-2913, "Two-Phase Jet Loads," Nuclear Regulatory Commission, January 1983.