

ArevaEPRDCPEm Resource

From: WILLIFORD Dennis (AREVA) [Dennis.Williford@areva.com]
Sent: Wednesday, May 25, 2011 5:35 PM
To: Tesfaye, Getachew
Cc: BENNETT Kathy (AREVA); DELANO Karen (AREVA); ROMINE Judy (AREVA); RYAN Tom (AREVA); GUCWA Len (EXTERNAL AREVA)
Subject: Response to U.S. EPR Design Certification Application RAI No. 378, FSAR Ch. 6, Supplement 13
Attachments: RAI 378 Supplement 13 Response US EPR DC.pdf

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 15 questions of RAI 378 on May 24, 2010. Supplement 1 response to RAI 378 was sent on July 8, 2010 with a revised response schedule to provide an opportunity to interact with the NRC staff on Questions 6.2.01-83, 6.2.1-85, 6.2.1-87, 6.2.1-91, 6.2.2-45, and 6.2.3-06. Supplement 2 response to RAI 378 was sent on August 5, 2010 with a revised response schedule for Questions 6.2.1-83, 6.2.1-85, 6.2.1-87 and 6.2.1-91. Supplement 3 response to RAI 378 was sent on August 12, 2010 and provided a response to 4 questions. Supplement 3 also changed the response schedule for 2 of the remaining 10 questions. Supplement 4 response to RAI 378 was sent on August 31, 2010 to provide technically correct and complete response to three questions - 6.2.1-84, 6.2.1-86 and 6.2.1-92. In addition, the schedule for question 6.2.1-93 was revised in Supplement 4. Supplement 5 response to RAI 378 was sent on September 9, 2010 with a revised schedule for Questions 6.2.1-83, 6.2.1-85, 6.2.1-87 and 6.2.1-91. Supplement 6 response to RAI 378 was sent on September 30, 2010 with a revised schedule for Question 6.2.3-6. Supplement 7 response to RAI 378 was sent on October 7, 2010 to provide technically correct and complete responses to 4 questions. Supplement 8 response to RAI 378 was sent on October 26, 2010 to provide a technically correct and complete response to one question and revise the schedule for Question 6.2.3-6. Supplement 9 response to RAI 378 was sent on November 29, 2010 with a revised schedule for Questions 6.2.1-93 and 6.2.3-6. Supplement 10 response to RAI 378 was sent on February 2, 2011 with a revised schedule for Questions 6.2.1-93 and 6.2.3-6. Supplement 11 and Supplement 12 responses to RAI 378 were sent on February 11, 2011 and April 15, 2011, respectively, with revised schedules for Questions 6.2.1-93 and 6.2.3-6.

The attached file, "RAI 378 Supplement 13 Response US EPR DC.pdf" provides a technically correct and complete response to Question 6.2.3-06.

The following table indicates the respective pages in the response document, "RAI 378 Supplement 13 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 378 — 06.02.03-6	2	2

AREVA NP is providing a revised schedule for responding to Question 6.2.1-93. The schedule for a technically correct and complete response to this question is provided below.

Question #	Final Response Date
RAI 378 — 06.02.01-93	June 22, 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, April 15, 2011 5:04 PM
To: Tesfaye, Getachew
Cc: GUCWA Len (External RS/NB); BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB)
Subject: RE: Response to U.S. EPR Design Certification Application RAI No. 378, FSAR Ch. 6, Supplement 12

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 15 questions of RAI 378 on May 24, 2010. Supplement 1 response to RAI 378 was sent on July 8, 2010 with a revised response schedule to provide an opportunity to interact with the NRC staff on Questions 6.2.01-83, 6.2.1-85, 6.2.1-87, 6.2.1-91, 6.2.2-45, and 6.2.3-06. Supplement 2 response to RAI 378 was sent on August 5, 2010 with a revised response schedule for Questions 6.2.1-83, 6.2.1-85, 6.2.1-87 and 6.2.1-91. Supplement 3 response to RAI 378 was sent on August 12, 2010 and provided a response to 4 questions. Supplement 3 also changed the response schedule for 2 of the remaining 10 questions. Supplement 4 response to RAI 378 was sent on August 31, 2010 to provide technically correct and complete response to three questions - 6.2.1-84, 6.2.1-86 and 6.2.1-92. In addition, the schedule for question 6.2.1-93 was revised in Supplement 4. Supplement 5 response to RAI 378 was sent on September 9, 2010 with a revised schedule for Questions 6.2.1-83, 6.2.1-85, 6.2.1-87 and 6.2.1-91. Supplement 6 response to RAI 378 was sent on September 30, 2010 with a revised schedule for Question 6.2.3-6. Supplement 7 response to RAI 378 was sent on October 7, 2010 to provide technically correct and complete responses to 4 questions. Supplement 8 response to RAI 378 was sent on October 26, 2010 to provide a technically correct and complete response to one question and revise the schedule for Question 6.2.3-6. Supplement 9 response to RAI 378 was sent on November 29, 2010 with a revised schedule for Questions 6.2.1-93 and 6.2.3-6. Supplement 10 response to RAI 378 was sent on February 2, 2011 with a revised schedule for Questions 6.2.1-93 and 6.2.3-6. Supplement 11 response to RAI 378 was sent on February 11, 2011 with a revised schedule for Questions 6.2.1-93 and 6.2.3-6.

The response schedule for Question 6.2.1-93 and Question 6.2.3-6 is changed to provide additional opportunity to interact with the NRC staff as shown below.

Question #	Final Response Date
RAI 378 — 06.02.01-93	May 25, 2011
RAI 378 — 06.02.03-6	May 25, 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 3:23 PM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); GUCWA Len (External RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 378, Supplement 11, FSAR Ch. 6

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 15 questions of RAI 378 on May 24, 2010. Supplement 1 response to RAI 378 was sent on July 8, 2010 with a revised response schedule to provide an opportunity to interact with the NRC staff on Questions 6.2.01-83, 6.2.1-85, 6.2.1-87, 6.2.1-91, 6.2.2-45, and 6.2.3-06. Supplement 2 response to RAI 378 was sent on August 5, 2010 with a revised response schedule for Questions 6.2.1-83, 6.2.1-85, 6.2.1-87 and 6.2.1-91. Supplement 3 response to RAI 378 was sent on August 12, 2010 and provided a response to 4 questions. Supplement 3 also changed the response schedule for 2 of the remaining 10 questions. Supplement 4 response to RAI 378 was sent on August 31, 2010 to provide technically correct and complete response to three questions - 6.2.1-84, 6.2.1-86 and 6.2.1-92. In addition, the schedule for question 6.2.1-93 was revised in Supplement 4. Supplement 5 response to RAI 378 was sent on September 9, 2010 with a revised schedule for Questions 6.2.1-83, 6.2.1-85, 6.2.1-87 and 6.2.1-91. Supplement 6 response to RAI 378 was sent on September 30, 2010 with a revised schedule for Question 6.2.3-6. Supplement 7 response to RAI 378 was sent on October 7, 2010 to provide technically correct and complete responses to 4 questions. Supplement 8 response to RAI 378 was sent on October 26, 2010 to provide a technically correct and complete response to one question and revise the schedule for Question 6.2.3-6. Supplement 9 response to RAI 378 was sent on November 29, 2010 with a revised schedule for Questions 6.2.1-93 and 6.2.3-6. Supplement 10 response to RAI 378 was sent on February 2, 2011 with a revised schedule for Questions 6.2.1-93 and 6.2.3-6.

The response schedule for Question 6.2.1-93 and Question 6.2.3-6 is changed to provide additional opportunity to interact with the NRC staff as shown below.

Question #	Final Response Date
RAI 378 — 06.02.01-93	April 28, 2011
RAI 378 — 06.02.03-6	April 28, 2011

Sincerely,

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

From: BRYAN Martin (External RS/NB)
Sent: Wednesday, February 02, 2011 4:59 PM
To: Tesfaye, Getachew
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); GUCWA Len (External RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 378, Supplement 10, FSAR Ch. 6

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 15 questions of RAI 378 on May 24, 2010. Supplement 1 response to RAI 378 was sent on July 8, 2010 with a revised response schedule to provide an

opportunity to interact with the NRC staff on Questions 6.2.01-83, 6.2.1-85, 6.2.1-87, 6.2.1-91, 6.2.2-45, and 6.2.3-06. Supplement 2 response to RAI 378 was sent on August 5, 2010 with a revised response schedule for Questions 6.2.1-83, 6.2.1-85, 6.2.1-87 and 6.2.1-91. Supplement 3 response to RAI 378 was sent on August 12, 2010 and provided a response to 4 questions. Supplement 3 also changed the response schedule for 2 of the remaining 10 questions. Supplement 4 response to RAI 378 was sent on August 31, 2010 to provide technically correct and complete response to three questions - 6.2.1-84, 6.2.1-86 and 6.2.1-92. In addition, the schedule for question 6.2.1-93 was revised in Supplement 4. Supplement 5 response to RAI 378 was sent on September 9, 2010 with a revised schedule for Questions 6.2.1-83, 6.2.1-85, 6.2.1-87 and 6.2.1-91. Supplement 6 response to RAI 378 was sent on September 30, 2010 with a revised schedule for Question 6.2.3-6. Supplement 7 response to RAI 378 was sent on October 7, 2010 to provide technically correct and complete responses to 4 questions. Supplement 8 response to RAI 378 was sent on October 26, 2010 to provide a technically correct and complete response to one question and revise the schedule for Question 6.2.3-6. Supplement 9 response to RAI 378 was sent on November 29, 2010 to provide a revised schedule for Question 6.2.1-93 and 6.2.3-6. To allow additional time to interact with the NRC staff, a revised schedule for the two remaining questions is provided below.

The response schedule for Question 6.2.1-93 and Question 6.2.3-6 is changed as shown below.

Question #	Final Response Date
RAI 378 — 06.02.01-93	March 16, 2011
RAI 378 — 06.02.03-6	March 16, 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 29, 2010 5:37 PM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); GUCWA Len (External RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 378, Supplement 9, FSAR Ch. 6

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 15 questions of RAI 378 on May 24, 2010. Supplement 1 response to RAI 378 was sent on July 8, 2010 with a revised response schedule to provide an opportunity to interact with the NRC staff on Questions 6.2.01-83, 6.2.1-85, 6.2.1-87, 6.2.1-91, 6.2.2-45, and 6.2.3-06. Supplement 2 response to RAI 378 was sent on August 5, 2010 with a revised response schedule for Questions 6.2.1-83, 6.2.1-85, 6.2.1-87 and 6.2.1-91. Supplement 3 response to RAI 378 was sent on August 12, 2010 and provided a response to 4 questions. Supplement 3 also changed the response schedule for 2 of the remaining 10 questions. Supplement 4 response to RAI 378 was sent on August 31, 2010 to provide technically correct and complete response to three questions - 6.2.1-84, 6.2.1-86 and 6.2.1-92. In addition, the schedule for question 6.2.1-93 was revised in Supplement 4. Supplement 5 response to RAI 378 was sent on September 9, 2010 with a revised schedule for Questions 6.2.1-83, 6.2.1-85, 6.2.1-87 and 6.2.1-91. Supplement 6 response to RAI 378 was sent on September 30, 2010 with a revised schedule for Question 6.2.3-6. Supplement 7 response to RAI 378 was sent on October 7, 2010 to provide technically correct and complete responses to 4 questions. Supplement 8 response to RAI 378 was sent on October 26, 2010 to provide a technically correct and complete response to one question and revise the schedule for Question 6.2.3-6.

The response schedule for Question 6.2.1-93 and Question 6.2.3-6 is changed to provide additional opportunity to interact with the NRC staff as shown below.

Question #	Final Response Date
RAI 378 — 06.02.01-93	February 2, 2011
RAI 378 — 06.02.03-6	February 2, 2011

Sincerely,

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

From: BRYAN Martin (External RS/NB)
Sent: Tuesday, October 26, 2010 3:16 PM
To: 'Tefsaye, Getachew'
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); GUCWA Len (External RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 378, Supplement 8, FSAR Ch. 6

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 15 questions of RAI 378 on May 24, 2010. Supplement 1 response to RAI 378 was sent on July 8, 2010 with a revised response schedule to provide an opportunity to interact with the NRC staff on Questions 6.2.01-83, 6.2.1-85, 6.2.1-87, 6.2.1-91, 6.2.2-45, and 6.2.3-06. Supplement 2 response to RAI 378 was sent on August 5, 2010 with a revised response schedule for Questions 6.2.1-83, 6.2.1-85, 6.2.1-87 and 6.2.1-91. Supplement 3 response to RAI 378 was sent on August 12, 2010 and provided a response to 4 questions. Supplement 3 also changed the response schedule for 2 of the remaining 10 questions. Supplement 4 response to RAI 378 was sent on August 31, 2010 to provide technically correct and complete response to three questions - 6.2.1-84, 6.2.1-86 and 6.2.1-92. In addition, the schedule for question 6.2.1-93 was revised in Supplement 4. Supplement 5 response to RAI 378 was sent on September 9, 2010 with a revised schedule for Questions 6.2.1-83, 6.2.1-85, 6.2.1-87 and 6.2.1-91. Supplement 6 response to RAI 378 was sent on September 30, 2010 with a revised schedule for Question 6.2.3-6. Supplement 7 response to RAI 378 was sent on October 7, 2010 to provide technically correct and complete responses to 4 questions.

The attached file, "RAI 378 Supplement 8 Response US EPR DC.pdf" provides a technically correct and complete response to one question (Question 6.2.2-45).

The following table indicates the respective pages in the response document, "RAI 378 Supplement 8 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 378 — 06.02.02-45	2	3

The response schedule for Question 6.2.3-6 is changed to provide additional opportunity to interact with the NRC staff as shown below. The response schedule for Question 6.2.1-93 is unchanged.

Question #	Final Response Date
RAI 378 — 06.02.01-93	November 30, 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 5:20 PM
To: 'Tesyfaye, Getachew'
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); GUCWA Len (External RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 378, Supplement 7, FSAR Ch. 6

Getachew,

AREVA NP Inc. letter NRC 10:91 dated October 7, 2010, provides technically correct and complete responses to four of the remaining seven questions. 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.

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

Question #	Start Page	End Page
RAI 378 — 06.02.01-83	2	3
RAI 378 — 06.02.01-85	4	15
RAI 378 — 06.02.01-87	16	66
RAI 378 — 06.02.01-91	67	67

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

Question #	Final Response Date
RAI 378 — 06.02.01-93	November 30, 2010
RAI 378 — 06.02.02-45	October 27, 2010
RAI 378 — 06.02.03-6	October 27, 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, September 30, 2010 2:24 PM

To: 'Tesfaye, Getachew'

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

Subject: Response to U.S. EPR Design Certification Application RAI No. 378, Supplement 6, FSAR Ch. 6

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 15 questions of RAI 378 on May 24, 2010. Supplement 1 response to RAI 378 was sent on July 8, 2010 with a revised response schedule to provide an opportunity to interact with the NRC staff on Questions 6.2.01-83, 6.2.1-85, 6.2.1-87, 6.2.1-91, 6.2.2-45, and 6.2.3-06. Supplement 2 response to RAI 378 was sent on August 5, 2010 with a revised response schedule for Questions 6.2.1-83, 6.2.1-85, 6.2.1-87 and 6.2.1-91. Supplement 3 response to RAI 378 was sent on August 12, 2010 and provided a response to 4 questions. Supplement 3 also changed the response schedule for 2 of the remaining 10 questions. Supplement 4 response to RAI 378 was sent on August 31, 2010 to provide technically correct and complete response to three questions - 6.2.1-84, 6.2.1-86 and 6.2.1-92. In addition, the schedule for question 6.2.1-93 was revised in Supplement 4. Supplement 5 response to RAI 378 was sent on September 9, 2010 with a revised response schedule.

To provide more time interact with the staff on question 06.02.03-6 a revised schedule is provided below. The response dates for the other six questions remains unchanged.

Question #	Final Response Date
RAI 378 — 06.02.01-83	October 14, 2010
RAI 378 — 06.02.01-85	October 14, 2010
RAI 378 — 06.02.01-87	October 14, 2010
RAI 378 — 06.02.01-91	October 14, 2010
RAI 378 — 06.02.01-93	November 30, 2010
RAI 378 — 06.02.02-45	October 27, 2010
RAI 378 — 06.02.03-6	October 27, 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, September 09, 2010 2:40 PM

To: 'Tesfaye, Getachew'

Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); GUCWA Len (External RS/NB)

Subject: Response to U.S. EPR Design Certification Application RAI No. 378, Supplement 5, FSAR Ch. 6

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 15 questions of RAI 378 on May 24, 2010. Supplement 1 response to RAI 378 was sent on July 8, 2010 with a revised response schedule to provide an opportunity to interact with the NRC staff on Questions 6.2.01-83, 6.2.1-85, 6.2.1-87, 6.2.1-91, 6.2.2-45, and 6.2.3-06. Supplement 2 response to RAI 378 was sent on August 5, 2010 with a revised response schedule for Questions 6.2.1-83, 6.2.1-85, 6.2.1-87 and 6.2.1-91. Supplement 3 response to RAI 378 was sent on August 12, 2010 and provided a response to 4 questions. Supplement 3 also changed the response schedule for 2 of the remaining 10 questions. Supplement 4 response to RAI 378 was sent on August 31, 2010 to provide technically correct and complete response to three questions - 6.2.1-84, 6.2.1-86 and 6.2.1-92. In addition, the schedule for question 6.2.1-93 was revised in Supplement 4.

To provide more time to finalize the responses and interact with the staff on questions 6.2.1-83, 85, 87, and 91 a revised schedule is provided below :

Question #	Final Response Date
RAI 378 — 06.02.01-83	October 14, 2010
RAI 378 — 06.02.01-85	October 14, 2010
RAI 378 — 06.02.01-87	October 14, 2010
RAI 378 — 06.02.01-91	October 14, 2010
RAI 378 — 06.02.01-93	November 30, 2010
RAI 378 — 06.02.02-45	October 27, 2010
RAI 378 — 06.02.03-6	September 30, 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 9:43 AM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); GUCWA Len (External RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 378, Supplement 4, FSAR Ch. 6

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 15 questions of RAI 378 on May 24, 2010. Supplement 1 response to RAI 378 was sent on July 8, 2010 with a revised response schedule to provide an opportunity to interact with the NRC staff on Questions 6.2.01-83, 6.2.1-85, 6.2.1-87, 6.2.1-91, 6.2.2-45, and 6.2.3-06. Supplement 2 response to RAI 378 was sent on August 5, 2010 with a revised response schedule for Questions 6.2.1-83, 6.2.1-85, 6.2.1-87 and 6.2.1-91. Supplement 3 response to RAI 378 was sent on August 12, 2010 and provided a response to 4 questions. Supplement 3 also changed the response schedule for 2 of the remaining 10 questions.

The attached file, "RAI 378 Supplement 4 Response US EPR DC.pdf" provides a technically correct and complete response to three questions (Question 6.2.1-84, 6.2.1-86 and 6.2.1-92).

The following table indicates the respective pages in the response document, "RAI 378 Supplement 4 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 378 — 06.02.01-84	2	5
RAI 378 — 06.02.01-86	6	7
RAI 378 — 06.02.01-92	8	10

The response schedule for the remaining 7 questions is changed to provide additional opportunity to finalize the response and interact with the NRC staff on Question 6.2.1-93 as provided below:

Question #	Final Response Date
RAI 378 — 06.02.01-83	September 9, 2010
RAI 378 — 06.02.01-85	September 9, 2010
RAI 378 — 06.02.01-87	September 9, 2010
RAI 378 — 06.02.01-91	September 9, 2010
RAI 378 — 06.02.01-93	November 30, 2010
RAI 378 — 06.02.02-45	October 27, 2010
RAI 378 — 06.02.03-6	September 30, 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 12, 2010 2:33 PM
To: 'Tefsaye, Getachew'
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); GUCWA Len T (EXT)
Subject: Response to U.S. EPR Design Certification Application RAI No. 378, Supplement 3, FSAR Ch. 6

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 15 questions of RAI 378 on May 24, 2010. Supplement 1 response to RAI 378 was sent on July 8, 2010 with a revised response schedule to provide an opportunity to interact with the NRC staff on Questions 6.2.01-83, 6.2.1-85, 6.2.1-87, 6.2.1-91, 6.2.2-45, and 6.2.3-06. Supplement 2 response to RAI 378 was sent on August 5, 2010 with a revised response schedule for Questions 6.2.1-83, 6.2.1-85, 6.2.1-87 and 6.2.1-91.

The attached file, "RAI 378 Supplement 3 Response US EPR DC.pdf" provides a technically correct and complete response to four questions (Question 6.2.1-82, 6.2.1-88, 6.2.1-89 and 6.2.1-90).

The following table indicates the respective pages in the response document, "RAI 378 Supplement 3 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 378 — 06.02.01-82	2	3

RAI 378 — 06.02.01-88	4	18
RAI 378 — 06.02.01-89	19	56
RAI 378 — 06.02.01-90	57	64

The response schedule for the remaining 10 questions is changed to provide additional opportunity to interact with the NRC staff on Questions 6.2.1-84 and 6.2.3-6 as provided below:

Question #	Final Response Date
RAI 378 — 06.02.01-83	September 9, 2010
RAI 378 — 06.02.01-84	September 30, 2010
RAI 378 — 06.02.01-85	September 9, 2010
RAI 378 — 06.02.01-86	August 31, 2010
RAI 378 — 06.02.01-87	September 9, 2010
RAI 378 — 06.02.01-91	September 9, 2010
RAI 378 — 06.02.01-92	August 31, 2010
RAI 378 — 06.02.01-93	August 31, 2010
RAI 378 — 06.02.02-45	October 27, 2010
RAI 378 — 06.02.03-6	September 30, 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 5:24 PM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); GUCWA Len T (EXT)
Subject: Response to U.S. EPR Design Certification Application RAI No. 378, Supplement 2, FSAR Ch. 7

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 15 questions of RAI 378 on May 24, 2010. A revised schedule was provided in Supplement 1 on July 8, 2010. To provide an additional opportunity to interact with the NRC on the responses, a revised schedule is provided below for providing technically correct and complete responses to RAI 378 questions 6.2.1-83, 6.2.1-85, 6.2.1-87, and 6.2.1-91.

Question #	Response Date
RAI 378 — 06.02.01-82	August 12, 2010
RAI 378 — 06.02.01-83	September 9, 2010
RAI 378 — 06.02.01-84	August 12, 2010
RAI 378 — 06.02.01-85	September 9, 2010
RAI 378 — 06.02.01-86	August 31, 2010
RAI 378 — 06.02.01-87	September 9, 2010
RAI 378 — 06.02.01-88	August 12, 2010

RAI 378 — 06.02.01-89	August 12, 2010
RAI 378 — 06.02.01-90	August 12, 2010
RAI 378 — 06.02.01-91	September 9, 2010
RAI 378 — 06.02.01-92	August 31, 2010
RAI 378 — 06.02.01-93	August 31, 2010
RAI 378 — 06.02.02-45	October 27, 2010
RAI 378 — 06.02.03-6	August 12, 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 08, 2010 1:50 PM
To: 'Tesyfaye, Getachew'
Cc: DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); GUCWA Len T (EXT)
Subject: Response to U.S. EPR Design Certification Application RAI No. 378, Supplement 1, FSAR Ch. 6

Getachew,

AREVA NP Inc. (AREVA NP) provided a response to 1 of the 15 questions of RAI 378 on May 24, 2010. To provide an opportunity to interact with the NRC on the response, a revised schedule is provided below for providing technically correct and complete responses to RAI 378 questions 6.2.01-83, 6.2.1-85, 6.2.1-87, 6.2.1-91, 6.2.2-45, and 6.2.3.06.

Question #	Response Date
RAI 378 — 06.02.01-82	August 12, 2010
RAI 378 — 06.02.01-83	August 5, 2010
RAI 378 — 06.02.01-84	August 12, 2010
RAI 378 — 06.02.01-85	August 5, 2010
RAI 378 — 06.02.01-86	August 31, 2010
RAI 378 — 06.02.01-87	August 5, 2010
RAI 378 — 06.02.01-88	August 12, 2010
RAI 378 — 06.02.01-89	August 12, 2010
RAI 378 — 06.02.01-90	August 12, 2010
RAI 378 — 06.02.01-91	August 5, 2010
RAI 378 — 06.02.01-92	August 31, 2010
RAI 378 — 06.02.01-93	August 31, 2010
RAI 378 — 06.02.02-45	October 27, 2010
RAI 378 — 06.02.03-6	August 12, 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: Monday, May 24, 2010 5:50 PM
To: 'Tesyfaye, Getachew'
Cc: DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); GUCWA Len T (EXT)
Subject: Response to U.S. EPR Design Certification Application RAI No. 378, FSAR Ch. 6

Getachew,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 378 Response US EPR DC.pdf" provides a technically correct and complete response to 1 of the 15 questions.

The following table indicates the respective pages in the response document, "RAI 378 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 378 — 06.02.01-82	2	2
RAI 378 — 06.02.01-83	3	3
RAI 378 — 06.02.01-84	4	4
RAI 378 — 06.02.01-85	5	5
RAI 378 — 06.02.01-86	6	6
RAI 378 — 06.02.01-87	7	7
RAI 378 — 06.02.01-88	8	8
RAI 378 — 06.02.01-89	9	9
RAI 378 — 06.02.01-90	10	10
RAI 378 — 06.02.01-91	11	11
RAI 378 — 06.02.01-92	12	12
RAI 378 — 06.02.01-93	13	13
RAI 378 — 06.02.02-45	14	14
RAI 378 — 06.02.02-46	15	16
RAI 378 — 06.02.03-6	17	17

A complete answer is not provided for 14 of the 15 questions. The schedule for a technically correct and complete response to these questions is provided below.

Question #	Response Date
RAI 378 — 06.02.01-82	August 12, 2010
RAI 378 — 06.02.01-83	July 8, 2010
RAI 378 — 06.02.01-84	August 12, 2010
RAI 378 — 06.02.01-85	July 8, 2010
RAI 378 — 06.02.01-86	August 31, 2010
RAI 378 — 06.02.01-87	July 8, 2010
RAI 378 — 06.02.01-88	August 12, 2010
RAI 378 — 06.02.01-89	August 12, 2010

RAI 378 — 06.02.01-90	August 12, 2010
RAI 378 — 06.02.01-91	July 8, 2010
RAI 378 — 06.02.01-92	August 31, 2010
RAI 378 — 06.02.01-93	August 31, 2010
RAI 378 — 06.02.02-45	July 8, 2010
RAI 378 — 06.02.03-6	July 14, 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: Tesfaye, Getachew [mailto:Getachew.Tesfaye@nrc.gov]

Sent: Friday, April 23, 2010 9:41 AM

To: ZZ-DL-A-USEPR-DL

Cc: Jensen, Walton; Peng, Shie-Jeng; Hayes(NRO), Michelle; Ashley, Clinton; Jackson, Christopher; McKirgan, John; Carneal, Jason; Colaccino, Joseph; ArevaEPRDCPEM Resource

Subject: U.S. EPR Design Certification Application RAI No. 378 (4409,4513,4490), FSAR Ch. 6

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on March 17, 2010, and discussed with your staff on April 13 and 16, 2010. Draft RAI Questions 06.02.01-87 and 06.02.01-89 were modified as a result of those discussions. 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: 3031

Mail Envelope Properties (2FBE1051AEB2E748A0F98DF9EEE5A5D4727BE5)

Subject: Response to U.S. EPR Design Certification Application RAI No. 378, FSAR Ch. 6, Supplement 13
Sent Date: 5/25/2011 5:35:25 PM
Received Date: 5/25/2011 5:35:28 PM
From: WILLIFORD Dennis (AREVA)

Created By: Dennis.Williford@areva.com

Recipients:

"BENNETT Kathy (AREVA)" <Kathy.Bennett@areva.com>
Tracking Status: None
"DELANO Karen (AREVA)" <Karen.Delano@areva.com>
Tracking Status: None
"ROMINE Judy (AREVA)" <Judy.Romine@areva.com>
Tracking Status: None
"RYAN Tom (AREVA)" <Tom.Ryan@areva.com>
Tracking Status: None
"GUCWA Len (EXTERNAL AREVA)" <Len.Gucwa.ext@areva.com>
Tracking Status: None
"Tsfaye, Getachew" <Getachew.Tsfaye@nrc.gov>
Tracking Status: None

Post Office: auscharm02.adom.ad.corp

Files	Size	Date & Time
MESSAGE	33339	5/25/2011 5:35:28 PM
RAI 378 Supplement 13 Response US EPR DC.pdf		64275

Options

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

Response to

Request for Additional Information No. 378, Supplement 13

4/23/2010

U.S. EPR Standard Design Certification

AREVA NP Inc.

Docket No. 52-020

SRP Section: 06.02.01 - Containment Functional Design

SRP Section: 06.02.02 - Containment Heat Removal Systems

SRP Section: 06.02.03 - Secondary Containment Functional Design

Application Section: 06.02.

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

Question 06.02.03-6:

As a follow-up to question 6.2.3-3 the staff was unable to reproduce the conclusions in the RAI response. The applicant stated that it would take 23 hours for post-accident heat to diffuse through the metal penetrations. However, the staff believes that it is possible for the large metal penetrations like the equipment hatch or personnel hatch to conduct heat into the secondary containment in less than 23 hours. Provide a more detailed explanation as to why it will take 23 hours to conduct heat through the steel components. Include analysis assumptions in the explanation so that the staff can perform confirmatory calculations. Alternatively, the applicant could conservatively calculate the heat transfer and include it in the design basis of the ventilation system.

Response to Question 06.02.03-6:

AREVA NP performed an analysis, using the HEATING7 computer code, to determine the time it would take for post-accident heat to diffuse from the U.S. EPR primary containment, through the large metal penetrations, and into the secondary containment annulus.

A finite difference model of a typical penetration was used in the analysis. This axisymmetric model has a steel cylindrical penetration, typical of equipment hatch sleeves, penetrating the inner containment wall, surrounded by concrete. During the analysis, the inner-end face surface of the sleeve is suddenly exposed to containment steam. The temperature along the length of the sleeve versus time is calculated.

Input parameters used to maximize the temperature response are:

- The primary containment wall consists of layers of various materials. The main portion of the containment in contact with the annulus is concrete. There is an air gap between the concrete and a painted stainless steel liner. In this analysis, the primary containment wall is considered to be made only of concrete. This is conservative because there is less resistance to heat transfer.
- The primary containment design temperature is used for the primary containment loss of coolant accident (LOCA) steam temperature. This creates a bounding analysis that is conservative.
- The far edge of the model's steel cylinder is conservatively modeled as adiabatic; in fact, it will be exposed to containment annulus air and will stay cool longer.

The results show that 305 seconds into the event, the temperature increase (of at least 0.1°F) has penetrated 13.4 inches along the 51.2 inch long sleeve penetration. Therefore, the temperature will not have increased by the time the annulus ventilation system starts and actively cools the outer face of the inner containment wall. This is consistent with the earlier conclusion that penetrations are not a significant source of heat leakage.

FSAR Impact:

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