

ArevaEPRDCPEm Resource

From: WILLIFORD Dennis (AREVA) [Dennis.Williford@areva.com]
Sent: Monday, September 19, 2011 5:24 PM
To: Tesfaye, Getachew
Cc: BENNETT Kathy (AREVA); DELANO Karen (AREVA); ROMINE Judy (AREVA); RYAN Tom (AREVA); LENTZ Tony (EXTERNAL AREVA)
Subject: Response to U.S. EPR Design Certification Application RAI No. 300, FSAR Ch. 16 OPEN ITEM, Supplement 16
Attachments: RAI 300 Supplement 16 Response US EPR DC.pdf

Getachew,

AREVA NP Inc. provided responses to the four questions of RAI No. 300 on March 26, 2010. Supplement 1, Supplement 2, and Supplement 3 responses to RAI No. 300 were sent on May 3, 2010, June 15, 2010, and August 27, 2010, respectively, to provide a revised schedule. Supplement 4 response to RAI No. 300 was sent on October 07, 2010, to provide a partial response to 29 parts of the remaining four questions. Supplement 5, Supplement 6, and Supplement 7 responses to RAI No. 300 were sent on October 20, 2010, December 11, 2010, and January 26, 2011, respectively, to provide a revised schedule. Supplement 8 response to RAI No. 300 was sent on February 8, 2011, to provide a partial response to three of the remaining questions. Supplement 9 response to RAI No. 300 was sent on March 22, 2011 to provide a revised schedule. Supplement 10 response to RAI No. 300 was sent on April 15, 2011, to provide a partial response to thirteen of the remaining questions. Supplement 11 and Supplement 12 responses to RAI No. 300 were sent on April 21, 2011 and June 7, 2011, respectively, to provide a revised schedule. Supplement 13 response to RAI No. 300 was sent on February 8, 2011, to provide a partial response to six of the remaining questions. Supplement 14 and Supplement 15 responses to RAI No. 300 were sent on July 19, 2011 and September 9, 2011, respectively, to provide a revised schedule.

The attached file, "RAI 300 Supplement 16 US EPR DC.pdf," provides a partial response that completes the response to Question 16-313. 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 300 Question 16-313, Part 16-51.

The following table indicates the respective pages in the response document, "RAI 300 Supplement 16 US EPR DC.pdf," that contain AREVA NP's response to the remaining part of the subject question.

Question #	Start Page	End Page
RAI 300 — 16-313, Part 16-51	2	4

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

Question #	Response Date
RAI 300 — 16-311	November 17, 2011
RAI 300 — 16-312	November 17, 2011
RAI 300 — 16-315	November 17, 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

From: WILLIFORD Dennis (RS/NB)
Sent: Friday, September 09, 2011 1:54 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. 300, FSAR Ch. 16 OPEN ITEM, Supplement 15

Getachew,

AREVA NP Inc. provided responses to the four questions of RAI No. 300 on March 26, 2010. Supplement 1, Supplement 2, and Supplement 3 responses to RAI No. 300 were sent on May 3, 2010, June 15, 2010, and August 27, 2010, respectively, to provide a revised schedule. Supplement 4 response to RAI No. 300 was sent on October 07, 2010, to provide a partial response to 29 parts of the remaining four questions. Supplement 5, Supplement 6, and Supplement 7 responses to RAI No. 300 were sent on October 20, 2010, December 11, 2010, and January 26, 2011, respectively, to provide a revised schedule. Supplement 8 response to RAI No. 300 was sent on February 8, 2011, to provide a partial response to three of the remaining questions. Supplement 9 response to RAI No. 300 was sent on March 22, 2011 to provide a revised schedule. Supplement 10 response to RAI No. 300 was sent on April 15, 2011, to provide a partial response to thirteen of the remaining questions. Supplement 11 and Supplement 12 responses to RAI No. 300 were sent on April 21, 2011 and June 7, 2011, respectively, to provide a revised schedule. Supplement 13 response to RAI No. 300 was sent on June 15, 2011, to provide a partial response to 2 of the remaining 4 questions. Supplement 14 response to RAI No. 300 was sent on July 19, 2011, to provide a revised schedule.

The schedule for a technically correct and complete response to the remaining parts of the four questions has been changed and is provided below.

Question #	Response Date
RAI 300 — 16-311	November 17, 2011
RAI 300 — 16-312	November 17, 2011
RAI 300 — 16-313	November 17, 2011
RAI 300 — 16-315	November 17, 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, July 19, 2011 10:42 AM
To: Tesfaye, Getachew
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 300, FSAR Ch. 16 OPEN ITEM, Supplement 14

Getachew,

AREVA NP Inc. provided responses to the four questions of RAI No. 300 on March 26, 2010. Supplement 1, Supplement 2, and Supplement 3 responses to RAI No. 300 were sent on May 3, 2010, June 15, 2010, and August 27, 2010, respectively, to provide a revised schedule. Supplement 4 response to RAI No. 300 was sent on October 07, 2010, to provide a partial response to 29 parts of the remaining four questions. Supplement 5, Supplement 6, and Supplement 7 responses to RAI No. 300 were sent on October 20, 2010, December 11, 2010, and January 26, 2011, respectively, to provide a revised schedule. Supplement 8 response to RAI No. 300 was sent on February 8, 2011, to provide a partial response to three of the remaining questions. Supplement 9 response to RAI No. 300 was sent on March 22, 2011 to provide a revised schedule. Supplement 10 response to RAI No. 300 was sent on April 15, 2011, to provide a partial response to thirteen of the remaining questions. Supplement 11 and Supplement 12 responses to RAI No. 300 were sent on April 21, 2011 and June 7, 2011, respectively, to provide a revised schedule. Supplement 13 response to RAI No. 300 was sent on June 15, 2011, to provide a partial response to 2 of the remaining 4 questions.

The schedule for a technically correct and complete response to the remaining parts of the four questions has been changed and is provided below.

Question #	Response Date
RAI 300 — 16-311	September 12, 2011
RAI 300 — 16-312	September 12, 2011
RAI 300 — 16-313	September 12, 2011
RAI 300 — 16-315	September 12, 2011

Sincerely,

Dennis Williford, P.E.
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
 7207 IBM Drive, Mail Code CLT 2B
 Charlotte, NC 28262
 Phone: 704-805-2223
 Email: Dennis.Williford@areva.com

From: RYAN Tom (RS/NB)
Sent: Wednesday, June 15, 2011 8:10 AM
To: 'Tefaye, Getachew'
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); LENTZ Tony (External RS/NB); WILLIFORD Dennis (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 300, FSAR Ch. 16 OPEN ITEM, Supplement 13

Getachew,

AREVA NP Inc. provided responses to the four questions of RAI No. 300 on March 26, 2010. Supplement 1, Supplement 2, and Supplement 3 responses to RAI No. 300 were sent on May 3, 2010, June 15, 2010, and August 27, 2010, respectively, to provide a revised schedule. Supplement 4 response to RAI No. 300 was sent on October 07, 2010, to provide a partial response to 29 parts of the remaining four questions. Supplement 5, Supplement 6, and Supplement 7 responses to RAI No. 300 were sent on October 20, 2010, December 11, 2010, and January 26, 2011, respectively, to provide a revised schedule. Supplement 8 response to RAI No. 300 was sent on February 8, 2011, to provide a partial response to three of the remaining questions. Supplement 9 response to RAI No. 300 was sent on March 22, 2011 to provide a revised schedule. Supplement 10 response to RAI No. 300 was sent on April 15, 2011, to provide a partial response to thirteen of the remaining questions. Supplement 11 and Supplement 12 responses to RAI No. 300 were sent on April 21, 2011 and June 7, 2011, respectively, to provide a revised schedule.

The attached file, "RAI 300 Supplement 13 US EPR DC.pdf," provides a partial response.

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 300.

The following table indicates the respective pages in the response document, "RAI 300 Supplement 13 US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 300 — 16-311, Part 16-150(a)	3	4
RAI 300 — 16-311, Part 16-153	5	5
RAI 300 — 16-311, Part 16-198	6	6
RAI 300 — 16-311, Part 16-204	7	11
RAI 300 — 16-313, Part 16-22	13	14
RAI 300 — 16-313, Part 16-26	15	16

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

Question #	Response Date
RAI 300 — 16-311	July 20, 2011
RAI 300 — 16-312	July 20, 2011
RAI 300 — 16-313	July 20, 2011
RAI 300 — 16-315	July 20, 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: Tuesday, June 07, 2011 9:28 AM
To: Tesfaye, Getachew
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); LENTZ Tony (External RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 300, FSAR Ch. 16 OPEN ITEM, Supplement 12

Getachew,

AREVA NP Inc. provided responses to the four questions of RAI No. 300 on March 26, 2010. Supplement 1, Supplement 2, and Supplement 3 responses to RAI No. 300 were sent on May 3, 2010, June 15, 2010, and August 27, 2010, respectively, to provide a revised schedule. Supplement 4 response to RAI No. 300 was sent on October 07, 2010, to provide a partial response to 29 parts of the remaining four questions. Supplement 5, Supplement 6, and Supplement 7 responses to RAI No. 300 were sent on October 20, 2010, December 11, 2010, and January 26, 2011, respectively, to provide a revised schedule. Supplement 8 response to RAI No. 300 was sent on February 8, 2011, to provide a partial response to three of the remaining

questions. Supplement 9 response to RAI No. 300 was sent on March 22, 2011 to provide a revised schedule. Supplement 10 response to RAI No. 300 was sent on April 15, 2011, to provide a partial response to three of the remaining questions. Supplement 11 response to RAI No. 300 was sent on April 21, 2011, to provide a revised schedule for the remaining four questions.

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

Question #	Response Date
RAI 300 — 16-311	July 20, 2011
RAI 300 — 16-312	July 20, 2011
RAI 300 — 16-313	July 20, 2011
RAI 300 — 16-315	July 20, 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: Thursday, April 21, 2011 12:47 PM
To: Tesfaye, Getachew
Cc: LENTZ Tony (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. 300, FSAR Ch. 16 OPEN ITEM, Supplement 11

Getachew,

AREVA NP Inc. provided responses to the four questions of RAI No. 300 on March 26, 2010. Supplement 1, Supplement 2, and Supplement 3 responses to RAI No. 300 were sent on May 3, 2010, June 15, 2010, and August 27, 2010, respectively, to provide a revised schedule. Supplement 4 response to RAI No. 300 was sent on October 07, 2010, to provide a partial response to 29 parts of the remaining four questions. Supplement 5, Supplement 6, and Supplement 7 responses to RAI No. 300 were sent on October 20, 2010, December 11, 2010, and January 26, 2011, respectively, to provide a revised schedule. Supplement 8 response to RAI No. 300 was sent on February 8, 2011, to provide a partial response to three of the remaining questions. Supplement 9 response to RAI No. 300 was sent on March 22, 2011 to provide a revised schedule. Supplement 10 response to RAI No. 300 was sent on April 15, 2011, to provide a partial response to three of the remaining questions.

Additional time is required to interact with the NRC staff.

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

Question #	Response Date
RAI 300 — 16-311	June 7, 2011
RAI 300 — 16-312	June 7, 2011

RAI 300 — 16-313	June 7, 2011
RAI 300 — 16-315	June 7, 2011

Sincerely,

Russ Wells

U.S. EPR Design Certification Licensing Manager

AREVA NP, Inc.

3315 Old Forest Road, P.O. Box 10935

Mail Stop OF-57

Lynchburg, VA 24506-0935

Phone: 434-832-3884 (work)

434-942-6375 (cell)

Fax: 434-382-3884

Russell.Wells@Areva.com

From: WELLS Russell (RS/NB)

Sent: Friday, April 15, 2011 7:24 AM

To: 'Tesfaye, Getachew'

Cc: LENTZ Tony (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. 300, FSAR Ch. 16 OPEN ITEM, Supplement 10

Getachew,

AREVA NP Inc. provided responses to the four questions of RAI No. 300 on March 26, 2010. Supplement 1, Supplement 2, and Supplement 3 responses to RAI No. 300 were sent on May 3, 2010, June 15, 2010, and August 27, 2010, respectively, to provide a revised schedule. Supplement 4 response to RAI No. 300 was sent on October 07, 2010, to provide a partial response to 29 parts of the remaining four questions. Supplement 5, Supplement 6, and Supplement 7 responses to RAI No. 300 were sent on October 20, 2010, December 11, 2010, and January 26, 2011, respectively, to provide a revised schedule. Supplement 8 response to RAI No. 300 was sent on February 8, 2011, to provide a partial response to three of the remaining questions. Supplement 9 response to RAI No. 300 was sent on March 22, 2011 to provide a revised schedule.

The attached file, "RAI 300 Supplement 10 US EPR DC.pdf," provides a partial response to 3 of the 4 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 300 Questions 16-311 and 16-313.

The following table indicates the respective pages in the response document, "RAI 300 Supplement 10 US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 300 — 16-311, Part 16-145(a)	2	3
RAI 300 — 16-311, Part 16-145(c)	4	4
RAI 300 — 16-311, Part 16-145(d)	5	6
RAI 300 — 16-311, Part 16-149(a)	7	9
RAI 300 — 16-311, Part 16-149(b)	10	10
RAI 300 — 16-311, Part 16-166	11	11
RAI 300 — 16-311, Part 16-190(f)	12	12

Question #	Start Page	End Page
RAI 300 — 16-311, Part 16-209	13	13
RAI 300 — 16-312, Part 16-213	14	16
RAI 300 — 16-313, Part 16-11	17	19
RAI 300 — 16-313, Part 16-23(a)	20	21
RAI 300 — 16-313, Part 16-29(b)	22	22
RAI 300 — 16-313, Part 16-53	23	25

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

Question #	Response Date
RAI 300 — 16-311	April 26, 2011
RAI 300 — 16-312	April 26, 2011
RAI 300 — 16-313	April 26, 2011
RAI 300 — 16-315	April 26, 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 22, 2011 1:02 PM

To: Tesfaye, Getachew

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

Subject: Response to U.S. EPR Design Certification Application RAI No. 300, FSAR Ch. 16 OPEN ITEM, Supplement 9

Getachew,

AREVA NP Inc. provided responses to the four questions of RAI No. 300 on March 26, 2010. Supplement 1, Supplement 2, and Supplement 3 responses to RAI No. 300 were sent on May 3, 2010, June 15, 2010, and August 27, 2010, respectively, to provide a revised schedule. Supplement 4 response to RAI No. 300 was sent on October 07, 2010, to provide a partial response to 29 parts of the remaining four questions. Supplement 5 response to RAI No. 300 was sent on October 20, 2010, to provide a revised schedule. Supplement 6 response to RAI No. 300 was sent on December 11, 2010, to provide a revised schedule. Supplement 7 response to RAI No. 300 was sent on January 26, 2011, to provide a revised schedule. Supplement 8 response to RAI No. 300 was sent on February 8, 2011, to provide a partial response to three of the remaining questions.

A revised schedule is provided below to allow additional time to address comments and have additional interaction with the staff on the remaining parts of the four questions.

A complete answer is not provided for the remaining 4 questions. The schedule for a technically correct and complete response to these questions is changed and is provided below.

Question #	Response Date
RAI 300 - 16 — 311	April 26, 2011
RAI 300 - 16 — 312	April 26, 2011
RAI 300 - 16 — 313	April 26, 2011
RAI 300 - 16 — 315	April 26, 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: Tuesday, February 08, 2011 3:22 PM

To: Tesfaye, Getachew

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

Subject: Response to U.S. EPR Design Certification Application RAI No. 300, FSAR Ch. 16 OPEN ITEM, Supplement 8

Getachew,

AREVA NP Inc. provided responses to the four questions of RAI No. 300 on March 26, 2010. Supplement 1, Supplement 2, and Supplement 3 responses to RAI No. 300 were sent on May 3, 2010, June 15, 2010, and August 27, 2010, respectively, to provide a revised schedule. Supplement 4 response to RAI No. 300 was sent on October 07, 2010, to provide a partial response to 29 parts of the remaining four questions. Supplement 5, Supplement 6, and Supplement 7 responses to RAI No. 300 were sent on October 20, 2010, December 11, 2010, and January 26, 2011, respectively, to provide a revised schedule.

The attached file, "RAI 300 Supplement 8 US EPR DC.pdf," provides a partial response.

The following table indicates the respective pages in the response document, "RAI 300 Supplement 8 US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 300 — 16-311, Part 16-129(c)	3	3

Question #	Start Page	End Page
RAI 300 — 16-311, Part 16-131(a)	4	4
RAI 300 — 16-311, Part 16-131(b)	5	5
RAI 300 — 16-311, Part 16-131(c)	6	6
RAI 300 — 16-311, Part 16-141(a)	7	7
RAI 300 — 16-311, Part 16-145(b)	8	8
RAI 300 — 16-311, Part 16-147(a)	9	9
RAI 300 — 16-311, Part 16-149(a)	10	12
RAI 300 — 16-311, Part 16-150(b)	13	13
RAI 300 — 16-311, Part 16-150(c)	14	14
RAI 300 — 16-311, Part 16-151	15	15
RAI 300 — 16-311, Part 16-154	16	17
RAI 300 — 16-311, Part 16-162(a)	18	18
RAI 300 — 16-311, Part 16-162(b)	19	19
RAI 300 — 16-311, Part 16-167	20	20
RAI 300 — 16-311, Part 16-169(b)	21	21
RAI 300 — 16-311, Part 16-174(a)	22	22
RAI 300 — 16-311, Part 16-180(b)	23	23
RAI 300 — 16-311, Part 16-182(a)	24	24
RAI 300 — 16-311, Part 16-182(c)	25	25
RAI 300 — 16-311, Part 16-190(a)	26	26
RAI 300 — 16-311, Part 16-190(b)	27	27
RAI 300 — 16-311, Part 16-190(d)	28	28
RAI 300 — 16-311, Part 16-190(e)	29	29
RAI 300 — 16-311, Part 16-190(f)	30	30
RAI 300 — 16-311, Part 16-190(g)	31	31
RAI 300 — 16-311, Part 16-193(c)	32	32
RAI 300 — 16-311, Part 16-204	33	36
RAI 300 — 16-311, Part 16-205	37	39
RAI 300 — 16-311, Part 16-208	40	40
RAI 300 — 16-311, Part 16-209	41	42
RAI 300 — 16-312, Part 16-212(a)	43	44
RAI 300 — 16-312, Part 16-212(b)	45	45
RAI 300 — 16-312, Part 16-217(b)	46	46
RAI 300 — 16-312, Part 16-217(c)	47	47
RAI 300 — 16-312, Part 16-217(d)	48	48
RAI 300 — 16-312, Part 16-219	49	49
RAI 300 — 16-312, Part 16-226	50	50
RAI 300 — 16-312, Part 16-227	51	52
RAI 300 — 16-312, Part 16-234(b)	53	54
RAI 300 — 16-313, Part 16-23(b)	55	55
RAI 300 — 16-313, Part 16-27	56	56
RAI 300 — 16-313, Part 16-33	57	57
RAI 300 — 16-313, Part 16-36	58	58
RAI 300 — 16-313, Part 16-39	59	59
RAI 300 — 16-313, Part 16-40(a)	60	60
RAI 300 — 16-313, Part 16-40(b)	61	61
RAI 300 — 16-313, Part 16-42	62	62
RAI 300 — 16-313, Part 16-43	63	63
RAI 300 — 16-313, Part 16-49(a)	64	64

The schedule for a technically correct and complete response to the remaining parts of the four questions remains unchanged and will be provided by March 24, 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, January 26, 2011 3:13 PM
To: 'Tefaye, Getachew'
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); RYAN Tom (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 300, FSAR Ch. 16 OPEN ITEM, Supplement 7

Getachew,

AREVA NP Inc. provided responses to the four questions of RAI No. 300 on March 26, 2010. Supplement 1, Supplement 2, and Supplement 3 responses to RAI No. 300 were sent on May 3, 2010, June 15, 2010, and August 27, 2010, respectively, to provide a revised schedule. Supplement 4 response to RAI No. 300 was sent on October 07, 2010, to provide a partial response to 29 parts of the remaining four questions. Supplement 5 response to RAI No. 300 was sent on October 20, 2010, to provide a revised schedule. Supplement 6 response to RAI No. 300 was sent on December 11, 2010, to provide a revised schedule.

A revised schedule is provided below to allow additional time to address comments and have additional interaction with the staff on the remaining parts of the four questions.

A complete answer is not provided for the remaining 4 questions. The schedule for a technically correct and complete response to these questions is changed and is provided below.

Question #	Response Date
RAI 300 - 16 — 311	March 24, 2011
RAI 300 - 16 — 312	March 24, 2011
RAI 300 - 16 — 313	March 24, 2011
RAI 300 - 16 — 315	March 24, 2011

Sincerely,

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

From: BRYAN Martin (External RS/NB)

Sent: Saturday, December 11, 2010 9:13 PM

To: Tesfaye, Getachew

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

Subject: Response to U.S. EPR Design Certification Application RAI No. 300, FSAR Ch. 16 OPEN ITEM, Supplement 6

Getachew,

AREVA NP Inc. provided responses to the four questions of RAI No. 300 on March 26, 2010. Supplement 1, Supplement 2, and Supplement 3 responses to RAI No. 300 were sent on May 3, 2010, June 15, 2010, and August 27, 2010, respectively, to provide a revised schedule. Supplement 4 response to RAI No. 300 was sent on October 07, 2010, to provide a partial response to 29 parts of the remaining four questions. Supplement 5 response to RAI No. 300 was sent on October 20, 2010, to provide a revised schedule.

A revised schedule is provided below to allow additional time to address comments and have additional interaction with the staff on the remaining parts of the four questions.

Note that question 16-314 was shown as still outstanding in Supplement 4 and Supplement 5, but the responses sent in Supplement 4 completed the response to question 16-314, so it has been removed from the schedule below. Also note that the response to question 16-315 was not complete as reported in the initial response, so question 16-315 has been added back to the schedule below.

A complete answer is not provided for the remaining 4 questions. The schedule for a technically correct and complete response to these questions is changed and is provided below.

Question #	Response Date
RAI 16 — 311	January 27, 2011
RAI 16 — 312	January 27, 2011
RAI 16 — 313	January 27, 2011
RAI 16 — 315	January 27, 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, October 20, 2010 3:30 PM

To: 'Tefaye, Getachew'

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

Subject: Response to U.S. EPR Design Certification Application RAI No. 300, FSAR Ch. 16 OPEN ITEM, Supplement 5

Getachew,

AREVA NP Inc. provided responses to the four questions of RAI No. 300 on March 26, 2010. Supplement 1, Supplement 2, and Supplement 3 responses to RAI No. 300 were sent on May 3, 2010, June 15, 2010, and August 27, 2010, respectively, to provide a revised schedule. Supplement 4 response to RAI No. 300 was sent on October 07, 2010, to provide a partial response to 29 parts of the remaining four questions.

A revised schedule is provided below to allow additional time to address comments and have additional interaction with the staff on the remaining parts of the four questions.

A complete answer is not provided for the remaining 4 questions. The schedule for a technically correct and complete response to these questions is changed and is provided below.

Question #	Response Date
RAI 16 — 311	December 16, 2010
RAI 16 — 312	December 16, 2010
RAI 16 — 313	December 16, 2010
RAI 16 — 314	December 16, 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 10:55 AM

To: Tefaye, Getachew

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

Subject: Response to U.S. EPR Design Certification Application RAI No. 300, FSAR Ch. 16 OPEN ITEM, Supplement 4

Getachew,

AREVA NP Inc. provided responses to the four questions of RAI No. 300 on March 26, 2010. Supplement 1, Supplement 2, and Supplement 3 responses to RAI No. 300 were sent on May 3, 2010, June 15, 2010, and August 27, 2010, respectively, to provide a revised schedule.

The attached file, "RAI 300 Supplement 4 US EPR DC.pdf," provides a partial response.

The following table indicates the respective pages in the response document, "RAI 300 Supplement 4 US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 300 — 16-311, Part 16-129(b)	3	3
RAI 300 — 16-311, Part 16-130	4	4
RAI 300 — 16-311, Part 16-138(b)	5	5
RAI 300 — 16-311, Part 16-138(c)	6	6
RAI 300 — 16-311, Part 16-141(b)	7	7
RAI 300 — 16-311, Part 16-144	8	8
RAI 300 — 16-311, Part 16-147(b)	9	9
RAI 300 — 16-311, Part 16-147(c)	10	10
RAI 300 — 16-311, Part 16-147(d)	11	11
RAI 300 — 16-311, Part 16-147(e)	12	12
RAI 300 — 16-311, Part 16-150(d)	13	13
RAI 300 — 16-311, Part 16-162(c)	14	14
RAI 300 — 16-311, Part 16-169(a)	15	15
RAI 300 — 16-311, Part 16-174(b)	16	16
RAI 300 — 16-311, Part 16-185	17	17
RAI 300 — 16-311, Part 16-190(h)	18	18
RAI 300 — 16-311, Part 16-191(a)	19	19
RAI 300 — 16-311, Part 16-191(b)	20	20
RAI 300 — 16-311, Part 16-200	21	21
RAI 300 — 16-311, Part 16-207	22	23
RAI 300 — 16-312, Part 16-217(a)	25	25
RAI 300 — 16-312, Part 16-217(e)	26	26
RAI 300 — 16-312, Part 16-223	27	27
RAI 300 — 16-313, Part 16-18	29	29
RAI 300 — 16-313, Part 16-29(a)	30	30
RAI 300 — 16-313, Part 16-46	31	31
RAI 300 — 16-313, Part 16-49(b)	32	32
RAI 300 — 16-314, Part 16-237(a)	34	34
RAI 300 — 16-314, Part 16-237(b)	35	35

The schedule for a technically correct and complete response to the remaining parts of the four questions remains unchanged and will be provided on October 21, 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, August 27, 2010 12:00 PM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); RYAN Tom (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 300, FSAR Ch. 16 OPEN ITEM, Supplement 3

Getachew,

AREVA NP provided technically correct and complete responses to 2 of the 6 questions on March 26, 2010. In a meeting with the NRC on April 27-28, 2010, it was agreed that further interactions should take place prior to formal submittal of the remaining 4 RAI responses. AREVA provided an updated schedule for the remaining 4 responses on May 3, 2010. AREVA provided an updated schedule for the remaining 4 responses on June 15, 2010 to allow for additional interaction with the NRC.

A revised schedule is provided below to allow additional time to address comments and have additional interaction with the staff on the four remaining questions.

A complete answer is not provided for the remaining 4 questions. The schedule for a technically correct and complete response to these questions is changed and is provided below.

Question #	Response Date
RAI 16 — 311	October 21, 2010
RAI 16 — 312	October 21, 2010
RAI 16 — 313	October 21, 2010
RAI 16 — 314	October 21, 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: Tuesday, June 15, 2010 2:32 PM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); RYAN Tom (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 300, FSAR Ch. 16 OPEN ITEM, Supplement 2

Getachew,

AREVA NP provided technically correct and complete responses to 2 of the 6 questions on March 26, 2010. In a meeting with the NRC on April 27-28, 2010, it was agreed that further interactions should take place prior to formal submittal of the remaining 4 RAI responses. AREVA provided an updated schedule for the remaining 4 responses on May 3, 2010.

Based on the stated availability of the NRC staff, as well as preparation time for their input to these interactions, AREVA is providing a revised schedule below.

A complete answer is not provided for the remaining 4 questions. The schedule for a technically correct and complete response to these questions is changed and is provided below.

Question #	Response Date
RAI 16 — 311	August 31, 2010
RAI 16 — 312	August 31, 2010
RAI 16 — 313	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: Monday, May 03, 2010 5:55 PM
To: 'Tsfaye, Getachew'
Cc: DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); PANNELL George L (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 300, FSAR Ch. 16 OPEN ITEM, Supplement 1

Getachew,

AREVA NP provided technically correct and complete responses to 2 of the 6 questions on March 26, 2010. In a meeting with the NRC on April 27-28, 2010, it was agreed that further interactions should take place prior to formal submittal of the remaining 4 RAI responses. Based on the stated availability of the NRC staff, as well as preparation time for their input to these interactions, AREVA is providing a revised schedule below.

A complete answer is not provided for the remaining 4 questions. The schedule for a technically correct and complete response to these questions is changed and is provided below.

Question #	Response Date
RAI 16 — 311	June 24, 2010
RAI 16 — 312	June 24, 2010
RAI 16 — 313	June 24, 2010
RAI 16 — 314	June 24, 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: Friday, March 26, 2010 5:39 PM
To: 'Tsfaye, Getachew'
Cc: DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); PANNELL George L (AREVA NP INC); WILLIFORD Dennis C (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 300, FSAR Ch. 16 OPEN ITEM

Getachew,

Attached please find AREVA NP Inc.'s response to the subject request for additional information RAI 300. The attached file, "RAI 300 Response US EPR DC.pdf" provides technically correct and complete responses to 2 of the 6 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 16-310.

The following table indicates the respective pages in the response document, "RAI 300 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 16 — 310	2	3
RAI 16 — 311	4	9
RAI 16 — 312	10	11
RAI 16 — 313	12	16
RAI 16 — 314	17	17
RAI 16 — 315	18	23

A complete answer is not provided for 4 of the 6 questions. The schedule for a technically correct and complete response to these questions is provided below.

Question #	Response Date
RAI 16 — 311	May 3, 2010
RAI 16 — 312	May 3, 2010
RAI 16 — 313	May 3, 2010
RAI 16 — 314	May 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: Thursday, November 19, 2009 5:49 PM

To: ZZ-DL-A-USEPR-DL

Cc: Le, Hien; DeMarshall, Joseph; Kowal, Mark; Hearn, Peter; Colaccino, Joseph; ArevaEPRDCPEm Resource

Subject: U.S. EPR Design Certification Application RAI No. 300 (3730,3742),FSAR Ch. 16 OPEN ITEM

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on September 23, 2009, and discussed with your staff on November 18, 2009. Draft RAI Question 16-311 was revised as a result of that discussion to request a revised response to RAI 16-199. The questions in this RAI are OPEN ITEMS in the safety evaluation report for Chapter 16 for Phases 2 and 3 reviews. As such, the schedule we have established for your application assumes technically correct and complete responses prior to the start of Phase 4 review. For any RAI that cannot be answered prior to the start of Phase 4 review, it is

expected that a date for receipt of this information will be provided so that the staff can assess how this information will impact the published schedule.

Thanks,

Thanks,
Getachew Tesfaye
Sr. Project Manager
NRO/DNRL/NARP
(301) 415-3361

Hearing Identifier: AREVA_EPR_DC_RAIs
Email Number: 3418

Mail Envelope Properties (2FBE1051AEB2E748A0F98DF9EEE5A5D48A8197)

Subject: Response to U.S. EPR Design Certification Application RAI No. 300, FSAR Ch. 16 OPEN ITEM, Supplement 16
Sent Date: 9/19/2011 5:23:37 PM
Received Date: 9/19/2011 5:24:04 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
"LENTZ Tony (EXTERNAL AREVA)" <Tony.Lentz.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	39226	9/19/2011 5:24:04 PM
RAI 300 Supplement 16 Response US EPR DC.pdf		89613

Options

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

Response to
Request for Additional Information No. 300 (3730, 3742), Supplement 16

11/19/2009

U. S. EPR Standard Design Certification
AREVA NP Inc.
Docket No. 52-020
SRP Section: 16 - Technical Specifications
Application Section: FSAR Chapter 16

QUESTIONS for Technical Specification Branch (CTSB)

Question 16-313

Potential Open Item

Provide the additional information and update the following RAI responses for each of the Electrical Power System Tech Spec items identified, based on the results of Audit Meeting between AREVA NP and NRC Staff on 6/24/09.

Request for Additional Information No. 74 (953)

Question 16-313**Followup to Question 16-51:**

The applicant is requested to enhance the Distribution Systems - Operating Bases (B 3.8.9) LCO discussion regarding the ability of redundant equipment with divisional pairs to maintain safety-related functional capabilities when alternate power feed cross tie breakers are closed. The Bases does not adequately describe the capabilities of the inter-divisional alternate feed protection and coordination scheme to provide protection so that a fault on one division does not degrade the other division below an acceptable level with a tie breaker closed.

Response to Question 16-51:

This issue was further clarified on Page 16-82 of the NRC's March 10, 2010 Safety Evaluation, which states:

In RAI 74, Question 16-51, the staff requested that the applicant enhance the Bases discussion associated with LCO 3.8.9, "Distribution Systems – Operating," to describe how redundant electrical power distribution subsystem equipment within a divisional pair is considered operable and capable of performing its safety-related functions when alternate feed cross tie breakers are closed. In an October 30, 2008, response to RAI 74, Question 16-51, the applicant adequately described the capabilities of the inter-divisional alternate feed protection and coordination scheme to provide protection so that a fault on one division does not degrade the other division below an acceptable level with a tie breaker closed. The FSAR markup, however, did not include this information in the associated Bases discussion.

The following information was added to U.S. EPR FSAR Tier 2, Chapter 16, Technical Specifications LCO 3.8.9 Bases in U.S. EPR FSAR, Revision 2:

"Each division can be aligned to power a subset of loads ("alternate fed loads") in the other division in its divisional pair by means of an "alternate feed". An alternate feed provides a standby source of power to required safety systems, safety support systems, or components that do not have the required redundant trains to support extended EDG maintenance. An OPERABLE EDG supporting the alternate feed loads and the remaining OPERABLE EDG(S) can power the minimum required ESF functions and achieve completion of required safety function following an AOO or postulated accident, regardless of which two EDGs are inoperable."

The following information is already contained in U.S. EPR FSAR Tier 2, Chapter 16, Technical Specifications LCO 3.8.9 Bases:

"With a tie breaker closed to implement alternate feed, a fault within the alternate fed divisional pair may affect two redundant subsystems within the divisional pair. During alternate feed, this is acceptable since the other divisional pair power distribution subsystems are available to support redundant subsystems."

During a Loss of Offsite Power, with one EDG inoperable and the other EDG in the divisional pair running with its alternate feed aligned, a subsequent single failure could cause the loss of power to the divisional pair. The remaining divisional pair would have sufficient capability to mitigate the consequences of a postulated design basis event or abnormal operational occurrence. Additional

information regarding the inter-divisional alternate feeds protections and coordination will be added to the LCO description in the Bases for Section 3.8.9.

FSAR Impact:

U.S. EPR FSAR Tier 2, Chapter 16, Technical Specifications Bases will be revised as described in the response and indicated on the enclosed markup.

U.S. EPR Final Safety Analysis Report Markups

BASES

LCO (continued)

In addition, tie breakers between redundant safety related AC, DC, and AC vital bus power distribution subsystems, if they exist, must be open unless they are being utilized to align the alternate feed.

Each division can be aligned to power a subset of loads ("alternate fed loads") in the other division in its divisional pair by means of an "alternate feed." An alternate feed provides a standby source of power to required safety systems, safety support systems, or components that do not have the required redundant trains to support maintenance. An OPERABLE EDG supporting the alternate feed loads and the remaining OPERABLE EDG(s) can power the minimum required ESF functions and achieve completion of required safety function following an AOO or postulated

accident, ~~regardless of which two EDGs are inoperable.~~ The alternate feed is interlocked to prevent sources from two divisions supplying a bus at the same time. In addition, interlocks prevent inadvertently paralleling two EDGs together. Open tie breakers prevent any electrical malfunction in any power distribution subsystem from propagating to the redundant subsystem, that could cause the failure of a redundant subsystem and a loss of essential safety function(s). With a tie breaker closed to implement alternate feed, a fault within the alternate fed divisional pair may affect two redundant subsystems within the divisional pair. ~~During alternate feed, this is acceptable since the other divisional pair power distribution subsystems are available to support redundant subsystems.~~ The inter-divisional alternate feeds have a protection and coordination scheme to provide protection so that a fault on one division does not degrade the other division below an acceptable level. The alternate feed circuit protection scheme uses circuit breakers so that a malfunction of the components performing the alternate feed function or a malfunction of the components being alternately fed does not result in unacceptable influences in the division that supplies the power. This applies to the onsite, safety related redundant electrical power distribution subsystems. It does not, however, preclude redundant Class 1E 6.9 kV buses from being powered from the same offsite circuit.

16-313, Part 16-51



APPLICABILITY

The electrical power distribution subsystems are required to be OPERABLE in MODES 1, 2, 3, and 4 to ensure that:

- Acceptable fuel design limits and reactor coolant pressure boundary limits are not exceeded as a result of AOOs or abnormal transients; and
- Adequate core cooling is provided, and containment OPERABILITY and other vital functions are maintained in the event of a postulated accident.