

ArevaEPRDCPEm Resource

From: WELLS Russell (AREVA) [Russell.Wells@areva.com]
Sent: Wednesday, April 27, 2011 8:34 AM
To: Tesfaye, Getachew
Cc: HAMMOND Philip (AREVA); HARRINGTON James (AREVA); WILLIAMSON Rick (AREVA); BENNETT Kathy (AREVA); DELANO Karen (AREVA); HALLINGER Pat (EXTERNAL AREVA); ROMINE Judy (AREVA); RYAN Tom (AREVA); WILLIFORD Dennis (AREVA)
Subject: Draft Response to U.S. EPR Design Certification Application RAI No. 422, FSARCh. 3, Questions 3.9.2-82, 98, and 145
Attachments: RAI 422 Questions 03.09.02-82, -98, and -145 Response US EPR DC - DRAFT.pdf

Getachew,

To support the final response date of June 15, 2011, attached is a draft response to RAI 422 questions 3.9.2-82, 98, and 145. Let me know if the staff has questions or if this can be sent as a final response.

Sincerely,

Russ Wells

*U.S. EPR Design Certification Licensing Manager
AREVA NP, Inc.*

3315 Old Forest Road, P.O. Box 10935

Mail Stop OF-57

Lynchburg, VA 24506-0935

Phone: 434-832-3884 (work)

434-942-6375 (cell)

Fax: 434-382-3884

Russell.Wells@Areva.com

From: WELLS Russell (RS/NB)
Sent: Wednesday, April 20, 2011 6:32 AM
To: 'Tesfaye, Getachew'
Cc: HAMMOND Philip (RS/PT); 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. 422, FSARCh. 3, Supplement 17

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 422 on September 2, 2010, noting that the schedule for 61 of the 63 questions was being further evaluated with additional schedule information to be provided by October 4, 2010.

AREVA NP provided technically correct and complete FINAL responses to 2 of the remaining 63 questions on September 9, 2010, as committed.

The schedule for a technically correct and complete response to the remaining 61 questions was revised based on the additional evaluations performed since the initial schedule was provided on September 2, 2010. This revised schedule was provided on September 27, 2010.

The schedule for a technically correct and complete response to 6 of the remaining 61 questions was revised based on additional evaluations performed since the revised schedule was provided on September 27, 2010. This revised schedule was provided on November 2, 2010.

The schedule for a technically correct and complete response to 16 of the remaining 61 questions was revised November 22, 2010 to allow additional time for AREVA NP to interact with the NRC.

AREVA NP provided technically correct and complete FINAL responses to 11 of the remaining 61 questions on December 22, 2010, as committed.

The schedule for a technically correct and complete response to 13 of the remaining 50 questions was revised January 12, 2011 to allow additional time for AREVA NP to interact with the NRC.

The schedule for a technically correct and complete response to 5 of the remaining 50 questions was revised January 13, 2011 to allow additional time for AREVA NP to address NRC comments.

The schedule for a technically correct and complete response to 3 of the remaining 50 questions was revised January 27, 2011 based on additional evaluations performed since the initial schedule was provided.

The schedule for a technically correct and complete response to 13 of the remaining 50 questions was revised February 8, 2011 to allow additional time for AREVA NP to interact with the NRC.

The schedule for a technically correct and complete response to 13 of the remaining 50 questions was revised February 10, 2011 based on additional evaluations performed since the initial schedule was provided.

The schedule for a technically correct and complete response to 16 of the remaining 50 questions was revised February 17, 2011 based on additional evaluations performed since the initial schedule was provided.

The schedule for a technically correct and complete response to 18 of the remaining 50 questions was revised with Supplement 12 on March 16, 2011 to allow additional time for AREVA NP to interact with the NRC.

AREVA NP provided a technically correct and complete FINAL response to 1 of the remaining 50 questions with Supplement 13 on March 24, 2011, as committed.

AREVA NP provided technically correct and complete FINAL responses to 8 of the remaining 49 questions with Supplement 14 on March 30, 2011, as committed.

The schedule for a technically correct and complete response to 32 of the remaining 41 questions was revised with Supplement 15 on March 31, 2011 to allow additional time for AREVA NP to interact with the NRC.

The schedule for a technically correct and complete response to 6 of the remaining 41 questions was revised with Supplement 16 on April 13, 2011 to allow additional time for AREVA NP to interact with the NRC and is provided below.

The schedule for a technically correct and complete response to 3 of the remaining 41 questions, as shown in bold, is revised to allow additional time for AREVA NP to interact with the NRC and is provided below. The schedule for the remaining questions is unchanged.

Question #	Response Date
RAI 422 — 03.09.02-82	June 15, 2011
RAI 422 — 03.09.02-84	May 12, 2011
RAI 422 — 03.09.02-85	May 12, 2011
RAI 422 — 03.09.02-87	June 1, 2011
RAI 422 — 03.09.02-88	June 1, 2011
RAI 422 — 03.09.02-90	June 1, 2011

Question #	Response Date
RAI 422 — 03.09.02-94	June 1, 2011
RAI 422 — 03.09.02-98	June 15, 2011
RAI 422 — 03.09.02-99	May 12, 2011
RAI 422 — 03.09.02-100	May 12, 2011
RAI 422 — 03.09.02-101	May 12, 2011
RAI 422 — 03.09.02-102	May 12, 2011
RAI 422 — 03.09.02-103	May 12, 2011
RAI 422 — 03.09.02-104	May 12, 2011
RAI 422 — 03.09.02-105	May 12, 2011
RAI 422 — 03.09.02-106	May 12, 2011
RAI 422 — 03.09.02-107	May 12, 2011
RAI 422 — 03.09.02-108	May 12, 2011
RAI 422 — 03.09.02-109	May 12, 2011
RAI 422 — 03.09.02-110	May 12, 2011
RAI 422 — 03.09.02-111	May 12, 2011
RAI 422 — 03.09.02-112	May 12, 2011
RAI 422 — 03.09.02-113	May 12, 2011
RAI 422 — 03.09.02-114	May 12, 2011
RAI 422 — 03.09.02-115	May 12, 2011
RAI 422 — 03.09.02-116	May 12, 2011
RAI 422 — 03.09.02-117	May 12, 2011
RAI 422 — 03.09.02-118	May 12, 2011
RAI 422 — 03.09.02-119	May 12, 2011
RAI 422 — 03.09.02-120	May 12, 2011
RAI 422 — 03.09.02-121	May 12, 2011
RAI 422 — 03.09.02-122	May 12, 2011
RAI 422 — 03.09.02-123	May 12, 2011
RAI 422 — 03.09.02-124	June 1, 2011
RAI 422 — 03.09.02-127	June 1, 2011
RAI 422 — 03.09.02-131	May 12, 2011
RAI 422 — 03.09.02-134	June 1, 2011
RAI 422 — 03.09.02-138	June 1, 2011
RAI 422 — 03.09.02-140	June 1, 2011
RAI 422 — 03.09.02-144	May 12, 2011
RAI 422 — 03.09.02-145	June 15, 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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Russell.Wells@Areva.com

From: WELLS Russell (RS/NB)

Sent: Wednesday, April 13, 2011 6:09 PM

To: 'Tesfaye, Getachew'

Cc: HAMMOND Philip (RS/PT); 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. 422, FSARCh. 3, Supplement 16

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 422 on September 2, 2010, noting that the schedule for 61 of the 63 questions was being further evaluated with additional schedule information to be provided by October 4, 2010.

AREVA NP provided technically correct and complete FINAL responses to 2 of the remaining 63 questions on September 9, 2010, as committed.

The schedule for a technically correct and complete response to the remaining 61 questions was revised based on the additional evaluations performed since the initial schedule was provided on September 2, 2010. This revised schedule was provided on September 27, 2010.

The schedule for a technically correct and complete response to 6 of the remaining 61 questions was revised based on additional evaluations performed since the revised schedule was provided on September 27, 2010. This revised schedule was provided on November 2, 2010.

The schedule for a technically correct and complete response to 16 of the remaining 61 questions was revised November 22, 2010 to allow additional time for AREVA NP to interact with the NRC.

AREVA NP provided technically correct and complete FINAL responses to 11 of the remaining 61 questions on December 22, 2010, as committed.

The schedule for a technically correct and complete response to 13 of the remaining 50 questions was revised January 12, 2011 to allow additional time for AREVA NP to interact with the NRC.

The schedule for a technically correct and complete response to 5 of the remaining 50 questions was revised January 13, 2011 to allow additional time for AREVA NP to address NRC comments.

The schedule for a technically correct and complete response to 3 of the remaining 50 questions was revised January 27, 2011 based on additional evaluations performed since the initial schedule was provided.

The schedule for a technically correct and complete response to 13 of the remaining 50 questions was revised February 8, 2011 to allow additional time for AREVA NP to interact with the NRC.

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AREVA NP provided a technically correct and complete FINAL response to 1 of the remaining 50 questions with Supplement 13 on March 24, 2011, as committed.

AREVA NP provided technically correct and complete FINAL responses to 8 of the remaining 49 questions with Supplement 14 on March 30, 2011, as committed.

The schedule for a technically correct and complete response to 32 of the remaining 41 questions was revised with Supplement 15 on March 31, 2011 to allow additional time for AREVA NP to interact with the NRC.

The schedule for a technically correct and complete response to 6 of the remaining 41 questions, as shown in bold, is revised to allow additional time for AREVA NP to interact with the NRC and is provided below. The schedule for the remaining questions is unchanged.

Question #	Response Date
RAI 422 — 03.09.02-82	May 5, 2011
RAI 422 — 03.09.02-84	May 12, 2011
RAI 422 — 03.09.02-85	May 12, 2011
RAI 422 — 03.09.02-87	June 1, 2011
RAI 422 — 03.09.02-88	June 1, 2011
RAI 422 — 03.09.02-90	June 1, 2011
RAI 422 — 03.09.02-94	June 1, 2011
RAI 422 — 03.09.02-98	May 5, 2011
RAI 422 — 03.09.02-99	May 12, 2011
RAI 422 — 03.09.02-100	May 12, 2011
RAI 422 — 03.09.02-101	May 12, 2011
RAI 422 — 03.09.02-102	May 12, 2011
RAI 422 — 03.09.02-103	May 12, 2011
RAI 422 — 03.09.02-104	May 12, 2011
RAI 422 — 03.09.02-105	May 12, 2011
RAI 422 — 03.09.02-106	May 12, 2011
RAI 422 — 03.09.02-107	May 12, 2011
RAI 422 — 03.09.02-108	May 12, 2011
RAI 422 — 03.09.02-109	May 12, 2011
RAI 422 — 03.09.02-110	May 12, 2011
RAI 422 — 03.09.02-111	May 12, 2011
RAI 422 — 03.09.02-112	May 12, 2011
RAI 422 — 03.09.02-113	May 12, 2011
RAI 422 — 03.09.02-114	May 12, 2011
RAI 422 — 03.09.02-115	May 12, 2011
RAI 422 — 03.09.02-116	May 12, 2011
RAI 422 — 03.09.02-117	May 12, 2011
RAI 422 — 03.09.02-118	May 12, 2011
RAI 422 — 03.09.02-119	May 12, 2011
RAI 422 — 03.09.02-120	May 12, 2011
RAI 422 — 03.09.02-121	May 12, 2011
RAI 422 — 03.09.02-122	May 12, 2011
RAI 422 — 03.09.02-123	May 12, 2011
RAI 422 — 03.09.02-124	June 1, 2011
RAI 422 — 03.09.02-127	June 1, 2011
RAI 422 — 03.09.02-131	May 12, 2011
RAI 422 — 03.09.02-134	June 1, 2011
RAI 422 — 03.09.02-138	June 1, 2011
RAI 422 — 03.09.02-140	June 1, 2011
RAI 422 — 03.09.02-144	May 12, 2011
RAI 422 — 03.09.02-145	May 5, 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

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Fax: 434-382-3884

Russell.Wells@Areva.com

From: WELLS Russell (RS/NB)

Sent: Thursday, March 31, 2011 9:37 AM

To: 'Tesyfaye, Getachew'

Cc: HAMMOND Philip (RS/PT); 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. 422, FSARCh. 3, Supplement 15

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 422 on September 2, 2010, noting that the schedule for 61 of the 63 questions was being further evaluated with additional schedule information to be provided by October 4, 2010.

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AREVA NP provided technically correct and complete FINAL responses to 8 of the remaining 49 questions with Supplement 14 on March 30, 2011, as committed.

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Question #	Response Date
RAI 422 — 03.09.02-82	May 5, 2011
RAI 422 — 03.09.02-84	May 12, 2011
RAI 422 — 03.09.02-85	May 12, 2011
RAI 422 — 03.09.02-87	April 28, 2011
RAI 422 — 03.09.02-88	April 28, 2011
RAI 422 — 03.09.02-90	June 1, 2011
RAI 422 — 03.09.02-94	June 1, 2011
RAI 422 — 03.09.02-98	May 5, 2011
RAI 422 — 03.09.02-99	May 12, 2011
RAI 422 — 03.09.02-100	May 12, 2011
RAI 422 — 03.09.02-101	May 12, 2011
RAI 422 — 03.09.02-102	May 12, 2011
RAI 422 — 03.09.02-103	May 12, 2011
RAI 422 — 03.09.02-104	May 12, 2011
RAI 422 — 03.09.02-105	May 12, 2011
RAI 422 — 03.09.02-106	May 12, 2011
RAI 422 — 03.09.02-107	May 12, 2011
RAI 422 — 03.09.02-108	May 12, 2011
RAI 422 — 03.09.02-109	May 12, 2011
RAI 422 — 03.09.02-110	May 12, 2011
RAI 422 — 03.09.02-111	May 12, 2011
RAI 422 — 03.09.02-112	May 12, 2011
RAI 422 — 03.09.02-113	May 12, 2011
RAI 422 — 03.09.02-114	May 12, 2011
RAI 422 — 03.09.02-115	May 12, 2011
RAI 422 — 03.09.02-116	May 12, 2011
RAI 422 — 03.09.02-117	May 12, 2011
RAI 422 — 03.09.02-118	May 12, 2011
RAI 422 — 03.09.02-119	May 12, 2011

Question #	Response Date
RAI 422 — 03.09.02-120	May 12, 2011
RAI 422 — 03.09.02-121	May 12, 2011
RAI 422 — 03.09.02-122	May 12, 2011
RAI 422 — 03.09.02-123	May 12, 2011
RAI 422 — 03.09.02-124	April 28, 2011
RAI 422 — 03.09.02-127	April 28, 2011
RAI 422 — 03.09.02-131	May 12, 2011
RAI 422 — 03.09.02-134	April 28, 2011
RAI 422 — 03.09.02-138	June 1, 2011
RAI 422 — 03.09.02-140	April 28, 2011
RAI 422 — 03.09.02-144	May 12, 2011
RAI 422 — 03.09.02-145	May 5, 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)

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Fax: 434-382-3884

Russell.Wells@Areva.com

From: WELLS Russell (RS/NB)

Sent: Wednesday, March 30, 2011 2:41 PM

To: Tesfaye, Getachew

Cc: HAMMOND Philip (RS/PT); 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. 422, FSARCh. 3, Supplement 14

Getachew,

AREVA NP Inc. letter NRC 11:033 dated March 29, 2011 provides a technically correct and complete response to 8 of the 49 remaining questions for RAI 422. 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 that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 422 — 03.09.02-89	2	2
RAI 422 — 03.09.02-91	3	3
RAI 422 — 03.09.02-92	4	5
RAI 422 — 03.09.02-93	6	7

RAI 422 — 03.09.02-95	8	9
RAI 422 — 03.09.02-96	10	11
RAI 422 — 03.09.02-97	12	12
RAI 422 — 03.09.02-142	13	13

The schedule for the technically correct and complete response to the remaining 41 questions is unchanged and is provided below.

Question #	Response Date
RAI 422 — 03.09.02-82	May 5, 2011
RAI 422 — 03.09.02-84	April 7, 2011
RAI 422 — 03.09.02-85	April 7, 2011
RAI 422 — 03.09.02-87	April 28, 2011
RAI 422 — 03.09.02-88	April 28, 2011
RAI 422 — 03.09.02-90	April 28, 2011
RAI 422 — 03.09.02-94	April 28, 2011
RAI 422 — 03.09.02-98	May 5, 2011
RAI 422 — 03.09.02-99	April 6, 2011
RAI 422 — 03.09.02-100	April 6, 2011
RAI 422 — 03.09.02-101	April 6, 2011
RAI 422 — 03.09.02-102	April 6, 2011
RAI 422 — 03.09.02-103	April 6, 2011
RAI 422 — 03.09.02-104	April 6, 2011
RAI 422 — 03.09.02-105	April 6, 2011
RAI 422 — 03.09.02-106	April 6, 2011
RAI 422 — 03.09.02-107	April 6, 2011
RAI 422 — 03.09.02-108	April 6, 2011
RAI 422 — 03.09.02-109	April 7, 2011
RAI 422 — 03.09.02-110	April 6, 2011
RAI 422 — 03.09.02-111	April 6, 2011
RAI 422 — 03.09.02-112	April 6, 2011
RAI 422 — 03.09.02-113	April 7, 2011
RAI 422 — 03.09.02-114	April 7, 2011
RAI 422 — 03.09.02-115	April 7, 2011
RAI 422 — 03.09.02-116	April 7, 2011
RAI 422 — 03.09.02-117	April 7, 2011
RAI 422 — 03.09.02-118	April 7, 2011
RAI 422 — 03.09.02-119	April 7, 2011
RAI 422 — 03.09.02-120	April 7, 2011
RAI 422 — 03.09.02-121	April 7, 2011
RAI 422 — 03.09.02-122	April 7, 2011
RAI 422 — 03.09.02-123	April 7, 2011
RAI 422 — 03.09.02-124	April 28, 2011
RAI 422 — 03.09.02-127	April 28, 2011
RAI 422 — 03.09.02-131	April 7, 2011
RAI 422 — 03.09.02-134	April 28, 2011
RAI 422 — 03.09.02-138	April 28, 2011
RAI 422 — 03.09.02-140	April 28, 2011
RAI 422 — 03.09.02-144	April 7, 2011

Question #	Response Date
RAI 422 — 03.09.02-145	May 5, 2011

Sincerely,

Russ Wells

U.S. EPR Design Certification Licensing Manager

AREVA NP, Inc.

3315 Old Forest Road, P.O. Box 10935

Mail Stop OF-57

Lynchburg, VA 24506-0935

Phone: 434-832-3884 (work)

434-942-6375 (cell)

Fax: 434-382-3884

Russell.Wells@Areva.com

From: WELLS Russell (RS/NB)

Sent: Thursday, March 24, 2011 6:01 PM

To: Tesfaye, Getachew

Cc: HAMMOND Philip (RS/PT); 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. 422, FSARCh. 3, Supplement 13

Getachew,

AREVA NP Inc. letter NRC 11:027 dated March 24, 2011 provides a technically correct and complete response to 1 of the 50 remaining questions (i.e., 03.09.02-126) for RAI 422. 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 that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 422 — 03.09.02-126	2	5

The schedule for the technically correct and complete response to the remaining 49 questions is unchanged and is provided below.

Question #	Response Date
RAI 422 — 03.09.02-82	May 5, 2011
RAI 422 — 03.09.02-84	April 7, 2011
RAI 422 — 03.09.02-85	April 7, 2011
RAI 422 — 03.09.02-87	April 28, 2011
RAI 422 — 03.09.02-88	April 28, 2011
RAI 422 — 03.09.02-89	April 28, 2011
RAI 422 — 03.09.02-90	April 28, 2011
RAI 422 — 03.09.02-91	April 28, 2011
RAI 422 — 03.09.02-92	April 28, 2011

Question #	Response Date
RAI 422 — 03.09.02-93	April 28, 2011
RAI 422 — 03.09.02-94	April 28, 2011
RAI 422 — 03.09.02-95	April 28, 2011
RAI 422 — 03.09.02-96	April 28, 2011
RAI 422 — 03.09.02-97	April 28, 2011
RAI 422 — 03.09.02-98	May 5, 2011
RAI 422 — 03.09.02-99	April 6, 2011
RAI 422 — 03.09.02-100	April 6, 2011
RAI 422 — 03.09.02-101	April 6, 2011
RAI 422 — 03.09.02-102	April 6, 2011
RAI 422 — 03.09.02-103	April 6, 2011
RAI 422 — 03.09.02-104	April 6, 2011
RAI 422 — 03.09.02-105	April 6, 2011
RAI 422 — 03.09.02-106	April 6, 2011
RAI 422 — 03.09.02-107	April 6, 2011
RAI 422 — 03.09.02-108	April 6, 2011
RAI 422 — 03.09.02-109	April 7, 2011
RAI 422 — 03.09.02-110	April 6, 2011
RAI 422 — 03.09.02-111	April 6, 2011
RAI 422 — 03.09.02-112	April 6, 2011
RAI 422 — 03.09.02-113	April 7, 2011
RAI 422 — 03.09.02-114	April 7, 2011
RAI 422 — 03.09.02-115	April 7, 2011
RAI 422 — 03.09.02-116	April 7, 2011
RAI 422 — 03.09.02-117	April 7, 2011
RAI 422 — 03.09.02-118	April 7, 2011
RAI 422 — 03.09.02-119	April 7, 2011
RAI 422 — 03.09.02-120	April 7, 2011
RAI 422 — 03.09.02-121	April 7, 2011
RAI 422 — 03.09.02-122	April 7, 2011
RAI 422 — 03.09.02-123	April 7, 2011
RAI 422 — 03.09.02-124	April 28, 2011
RAI 422 — 03.09.02-127	April 28, 2011
RAI 422 — 03.09.02-131	April 7, 2011
RAI 422 — 03.09.02-134	April 28, 2011
RAI 422 — 03.09.02-138	April 28, 2011
RAI 422 — 03.09.02-140	April 28, 2011
RAI 422 — 03.09.02-142	April 28, 2011
RAI 422 — 03.09.02-144	April 7, 2011
RAI 422 — 03.09.02-145	May 5, 2011

Sincerely,

Russ Wells

U.S. EPR Design Certification Licensing Manager

AREVA NP, Inc.

3315 Old Forest Road, P.O. Box 10935

Mail Stop OF-57

Lynchburg, VA 24506-0935

Phone: 434-832-3884 (work)

434-942-6375 (cell)

Fax: 434-382-3884

Russell.Wells@Areva.com

From: WELLS Russell (RS/NB)

Sent: Wednesday, March 16, 2011 3:08 PM

To: 'Tesfaye, Getachew'

Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); HAMMOND Philip (RS/PT)

Subject: Response to U.S. EPR Design Certification Application RAI No. 422, FSARCh. 3, Supplement 12

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 422 on September 2, 2010, noting that the schedule for 61 of the 63 questions was being further evaluated with additional schedule information to be provided by October 4, 2010.

AREVA NP provided technically correct and complete FINAL responses to 2 of the remaining 63 questions on September 9, 2010, as committed.

The schedule for a technically correct and complete response to the remaining 61 questions was revised based on the additional evaluations performed since the initial schedule was provided on September 2, 2010. This revised schedule was provided on September 27, 2010.

The schedule for a technically correct and complete response to 6 of the remaining 61 questions was revised based on additional evaluations performed since the revised schedule was provided on September 27, 2010. This revised schedule was provided on November 2, 2010.

The schedule for a technically correct and complete response to 16 of the remaining 61 questions was revised November 22, 2010 to allow additional time for AREVA NP to interact with the NRC.

AREVA NP provided technically correct and complete FINAL responses to 11 of the remaining 61 questions on December 22, 2010, as committed.

The schedule for a technically correct and complete response to 13 of the remaining 50 questions was revised January 12, 2011 to allow additional time for AREVA NP to interact with the NRC.

The schedule for a technically correct and complete response to 5 of the remaining 50 questions was revised January 13, 2011 to allow additional time for AREVA NP to address NRC comments.

The schedule for a technically correct and complete response to 3 of the remaining 50 questions was revised January 27, 2011 based on additional evaluations performed since the initial schedule was provided.

The schedule for a technically correct and complete response to 13 of the remaining 50 questions was revised February 8, 2011 to allow additional time for AREVA NP to interact with the NRC.

The schedule for a technically correct and complete response to 13 of the remaining 50 questions was revised February 10, 2011 based on additional evaluations performed since the initial schedule was provided.

The schedule for a technically correct and complete response to 16 of the remaining 50 questions was revised February 17 based on additional evaluations performed since the initial schedule was provided.

The schedule for a technically correct and complete response to 18 of the remaining 50 questions is revised to allow additional time for AREVA NP to interact with the NRC and is provided below.

Question #	Response Date
RAI 422 — 03.09.02-87	April 28, 2011
RAI 422 — 03.09.02-88	April 28, 2011
RAI 422 — 03.09.02-89	April 28, 2011
RAI 422 — 03.09.02-90	April 28, 2011
RAI 422 — 03.09.02-91	April 28, 2011
RAI 422 — 03.09.02-92	April 28, 2011
RAI 422 — 03.09.02-93	April 28, 2011
RAI 422 — 03.09.02-94	April 28, 2011
RAI 422 — 03.09.02-95	April 28, 2011
RAI 422 — 03.09.02-96	April 28, 2011
RAI 422 — 03.09.02-97	April 28, 2011
RAI 422 — 03.09.02-124	April 28, 2011
RAI 422 — 03.09.02-126	April 28, 2011
RAI 422 — 03.09.02-127	April 28, 2011
RAI 422 — 03.09.02-134	April 28, 2011
RAI 422 — 03.09.02-138	April 28, 2011
RAI 422 — 03.09.02-140	April 28, 2011
RAI 422 — 03.09.02-142	April 28, 2011

The schedule for a technically correct and complete response to the remaining 50 questions is provided below.

Question #	Response Date
RAI 422 — 03.09.02-82	May 5, 2011
RAI 422 — 03.09.02-84	April 7, 2011
RAI 422 — 03.09.02-85	April 7, 2011
RAI 422 — 03.09.02-87	April 28, 2011
RAI 422 — 03.09.02-88	April 28, 2011
RAI 422 — 03.09.02-89	April 28, 2011
RAI 422 — 03.09.02-90	April 28, 2011
RAI 422 — 03.09.02-91	April 28, 2011
RAI 422 — 03.09.02-92	April 28, 2011
RAI 422 — 03.09.02-93	April 28, 2011
RAI 422 — 03.09.02-94	April 28, 2011
RAI 422 — 03.09.02-95	April 28, 2011
RAI 422 — 03.09.02-96	April 28, 2011
RAI 422 — 03.09.02-97	April 28, 2011
RAI 422 — 03.09.02-98	May 5, 2011
RAI 422 — 03.09.02-99	April 6, 2011
RAI 422 — 03.09.02-100	April 6, 2011
RAI 422 — 03.09.02-101	April 6, 2011
RAI 422 — 03.09.02-102	April 6, 2011
RAI 422 — 03.09.02-103	April 6, 2011
RAI 422 — 03.09.02-104	April 6, 2011
RAI 422 — 03.09.02-105	April 6, 2011
RAI 422 — 03.09.02-106	April 6, 2011
RAI 422 — 03.09.02-107	April 6, 2011
RAI 422 — 03.09.02-108	April 6, 2011

Question #	Response Date
RAI 422 — 03.09.02-109	April 7, 2011
RAI 422 — 03.09.02-110	April 6, 2011
RAI 422 — 03.09.02-111	April 6, 2011
RAI 422 — 03.09.02-112	April 6, 2011
RAI 422 — 03.09.02-113	April 7, 2011
RAI 422 — 03.09.02-114	April 7, 2011
RAI 422 — 03.09.02-115	April 7, 2011
RAI 422 — 03.09.02-116	April 7, 2011
RAI 422 — 03.09.02-117	April 7, 2011
RAI 422 — 03.09.02-118	April 7, 2011
RAI 422 — 03.09.02-119	April 7, 2011
RAI 422 — 03.09.02-120	April 7, 2011
RAI 422 — 03.09.02-121	April 7, 2011
RAI 422 — 03.09.02-122	April 7, 2011
RAI 422 — 03.09.02-123	April 7, 2011
RAI 422 — 03.09.02-124	April 28, 2011
RAI 422 — 03.09.02-126	April 28, 2011
RAI 422 — 03.09.02-127	April 28, 2011
RAI 422 — 03.09.02-131	April 7, 2011
RAI 422 — 03.09.02-134	April 28, 2011
RAI 422 — 03.09.02-138	April 28, 2011
RAI 422 — 03.09.02-140	April 28, 2011
RAI 422 — 03.09.02-142	April 28, 2011
RAI 422 — 03.09.02-144	April 7, 2011
RAI 422 — 03.09.02-145	May 5, 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: Thursday, February 17, 2011 10:23 AM

To: 'Tefaye, Getachew'

Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); HAMMOND Philip (RS/PT)

Subject: Response to U.S. EPR Design Certification Application RAI No. 422, FSARCh. 3, Supplement 11

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 422 on September 2, 2010, noting that the schedule for 61 of the 63 questions was being further evaluated with additional schedule information to be provided by October 4, 2010.

AREVA NP provided technically correct and complete FINAL responses to 2 of the remaining 63 questions on September 9, 2010, as committed.

The schedule for a technically correct and complete response to the remaining 61 questions was revised based on the additional evaluations performed since the initial schedule was provided on September 2, 2010. This revised schedule was provided on September 27, 2010.

The schedule for a technically correct and complete response to 6 of the remaining 61 questions was revised based on additional evaluations performed since the revised schedule was provided on September 27, 2010. This revised schedule was provided on November 2, 2010.

The schedule for a technically correct and complete response to 16 of the remaining 61 questions was revised November 22, 2010 to allow additional time for AREVA NP to interact with the NRC.

AREVA NP provided technically correct and complete FINAL responses to 11 of the remaining 61 questions on December 22, 2010, as committed.

The schedule for a technically correct and complete response to 13 of the remaining 50 questions was revised January 12, 2011 to allow additional time for AREVA NP to interact with the NRC.

The schedule for a technically correct and complete response to 5 of the remaining 50 questions was revised January 13, 2011 to allow additional time for AREVA NP to address NRC comments.

The schedule for a technically correct and complete response to 3 of the remaining 50 questions was revised January 27, 2011 based on additional evaluations performed since the initial schedule was provided.

The schedule for a technically correct and complete response to 13 of the remaining 50 questions was revised February 8, 2011 to allow additional time for AREVA NP to interact with the NRC.

The schedule for a technically correct and complete response to 13 of the remaining 50 questions was revised February 10, 2011 based on additional evaluations performed since the initial schedule was provided and is provided below.

The schedule for a technically correct and complete response to 16 of the remaining 50 questions is revised based on additional evaluations performed since the initial schedule was provided and is provided below.

Question #	Response Date
RAI 422 — 03.09.02-84	April 7, 2011
RAI 422 — 03.09.02-85	April 7, 2011
RAI 422 — 03.09.02-109	April 7, 2011
RAI 422 — 03.09.02-113	April 7, 2011
RAI 422 — 03.09.02-114	April 7, 2011
RAI 422 — 03.09.02-115	April 7, 2011
RAI 422 — 03.09.02-116	April 7, 2011
RAI 422 — 03.09.02-117	April 7, 2011
RAI 422 — 03.09.02-118	April 7, 2011
RAI 422 — 03.09.02-119	April 7, 2011
RAI 422 — 03.09.02-120	April 7, 2011
RAI 422 — 03.09.02-121	April 7, 2011
RAI 422 — 03.09.02-122	April 7, 2011

Question #	Response Date
RAI 422 — 03.09.02-123	April 7, 2011
RAI 422 — 03.09.02-131	April 7, 2011
RAI 422 — 03.09.02-144	April 7, 2011

The schedule for a technically correct and complete response to the remaining 50 questions (including the information above) is provided below.

Question #	Response Date
RAI 422 — 03.09.02-82	May 5, 2011
RAI 422 — 03.09.02-84	April 7, 2011
RAI 422 — 03.09.02-85	April 7, 2011
RAI 422 — 03.09.02-87	March 24, 2011
RAI 422 — 03.09.02-88	March 24, 2011
RAI 422 — 03.09.02-89	March 24, 2011
RAI 422 — 03.09.02-90	March 24, 2011
RAI 422 — 03.09.02-91	March 24, 2011
RAI 422 — 03.09.02-92	March 24, 2011
RAI 422 — 03.09.02-93	March 24, 2011
RAI 422 — 03.09.02-94	March 24, 2011
RAI 422 — 03.09.02-95	March 24, 2011
RAI 422 — 03.09.02-96	March 24, 2011
RAI 422 — 03.09.02-97	March 24, 2011
RAI 422 — 03.09.02-98	May 5, 2011
RAI 422 — 03.09.02-99	April 6, 2011
RAI 422 — 03.09.02-100	April 6, 2011
RAI 422 — 03.09.02-101	April 6, 2011
RAI 422 — 03.09.02-102	April 6, 2011
RAI 422 — 03.09.02-103	April 6, 2011
RAI 422 — 03.09.02-104	April 6, 2011
RAI 422 — 03.09.02-105	April 6, 2011
RAI 422 — 03.09.02-106	April 6, 2011
RAI 422 — 03.09.02-107	April 6, 2011
RAI 422 — 03.09.02-108	April 6, 2011
RAI 422 — 03.09.02-109	April 7, 2011
RAI 422 — 03.09.02-110	April 6, 2011
RAI 422 — 03.09.02-111	April 6, 2011
RAI 422 — 03.09.02-112	April 6, 2011
RAI 422 — 03.09.02-113	April 7, 2011
RAI 422 — 03.09.02-114	April 7, 2011
RAI 422 — 03.09.02-115	April 7, 2011
RAI 422 — 03.09.02-116	April 7, 2011
RAI 422 — 03.09.02-117	April 7, 2011
RAI 422 — 03.09.02-118	April 7, 2011
RAI 422 — 03.09.02-119	April 7, 2011
RAI 422 — 03.09.02-120	April 7, 2011
RAI 422 — 03.09.02-121	April 7, 2011
RAI 422 — 03.09.02-122	April 7, 2011
RAI 422 — 03.09.02-123	April 7, 2011

Question #	Response Date
RAI 422 — 03.09.02-124	March 23, 2011
RAI 422 — 03.09.02-126	March 23, 2011
RAI 422 — 03.09.02-127	March 23, 2011
RAI 422 — 03.09.02-131	April 7, 2011
RAI 422 — 03.09.02-134	March 23, 2011
RAI 422 — 03.09.02-138	March 24, 2011
RAI 422 — 03.09.02-140	March 23, 2011
RAI 422 — 03.09.02-142	March 24, 2011
RAI 422 — 03.09.02-144	April 7, 2011
RAI 422 — 03.09.02-145	May 5, 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, February 10, 2011 9:06 AM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); HAMMOND Philip (RS/PT)
Subject: Response to U.S. EPR Design Certification Application RAI No. 422, FSARCh. 3, Supplement 10

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 422 on September 2, 2010, noting that the schedule for 61 of the 63 questions was being further evaluated with additional schedule information to be provided by October 4, 2010.

AREVA NP provided technically correct and complete FINAL responses to 2 of the remaining 63 questions on September 9, 2010, as committed.

The schedule for a technically correct and complete response to the remaining 61 questions was revised based on the additional evaluations performed since the initial schedule was provided on September 2, 2010. This revised schedule was provided on September 27, 2010.

The schedule for a technically correct and complete response to 6 of the remaining 61 questions was revised based on additional evaluations performed since the revised schedule was provided on September 27, 2010. This revised schedule was provided on November 2, 2010.

The schedule for a technically correct and complete response to 16 of the remaining 61 questions was revised November 22, 2010 to allow additional time for AREVA NP to interact with the NRC.

AREVA NP provided technically correct and complete FINAL responses to 11 of the remaining 61 questions on December 22, 2010, as committed.

The schedule for a technically correct and complete response to 13 of the remaining 50 questions was revised January 12, 2011 to allow additional time for AREVA NP to interact with the NRC.

The schedule for a technically correct and complete response to 5 of the remaining 50 questions was revised January 13, 2011 to allow additional time for AREVA NP to address NRC comments.

The schedule for a technically correct and complete response to 3 of the remaining 50 questions was revised January 27, 2011 based on additional evaluations performed since the initial schedule was provided.

The schedule for a technically correct and complete response to 13 of the remaining 50 questions was revised February 8, 2011 to allow additional time for AREVA NP to interact with the NRC.

The schedule for a technically correct and complete response to 13 of the remaining 50 questions is revised based on additional evaluations performed since the initial schedule was provided and is provided below.

Question #	Response Date
RAI 422 — 03.09.02-99	April 6, 2011
RAI 422 — 03.09.02-100	April 6, 2011
RAI 422 — 03.09.02-101	April 6, 2011
RAI 422 — 03.09.02-102	April 6, 2011
RAI 422 — 03.09.02-103	April 6, 2011
RAI 422 — 03.09.02-104	April 6, 2011
RAI 422 — 03.09.02-105	April 6, 2011
RAI 422 — 03.09.02-106	April 6, 2011
RAI 422 — 03.09.02-107	April 6, 2011
RAI 422 — 03.09.02-108	April 6, 2011
RAI 422 — 03.09.02-110	April 6, 2011
RAI 422 — 03.09.02-111	April 6, 2011
RAI 422 — 03.09.02-112	April 6, 2011

The schedule for a technically correct and complete response to the remaining 50 questions is provided below.

Question #	Response Date
RAI 422 — 03.09.02-82	May 5, 2011
RAI 422 — 03.09.02-84	February 24, 2011
RAI 422 — 03.09.02-85	February 24, 2011
RAI 422 — 03.09.02-87	March 24, 2011
RAI 422 — 03.09.02-88	March 24, 2011
RAI 422 — 03.09.02-89	March 24, 2011
RAI 422 — 03.09.02-90	March 24, 2011
RAI 422 — 03.09.02-91	March 24, 2011
RAI 422 — 03.09.02-92	March 24, 2011
RAI 422 — 03.09.02-93	March 24, 2011
RAI 422 — 03.09.02-94	March 24, 2011
RAI 422 — 03.09.02-95	March 24, 2011
RAI 422 — 03.09.02-96	March 24, 2011

Question #	Response Date
RAI 422 — 03.09.02-97	March 24, 2011
RAI 422 — 03.09.02-98	May 5, 2011
RAI 422 — 03.09.02-99	April 6, 2011
RAI 422 — 03.09.02-100	April 6, 2011
RAI 422 — 03.09.02-101	April 6, 2011
RAI 422 — 03.09.02-102	April 6, 2011
RAI 422 — 03.09.02-103	April 6, 2011
RAI 422 — 03.09.02-104	April 6, 2011
RAI 422 — 03.09.02-105	April 6, 2011
RAI 422 — 03.09.02-106	April 6, 2011
RAI 422 — 03.09.02-107	April 6, 2011
RAI 422 — 03.09.02-108	April 6, 2011
RAI 422 — 03.09.02-109	February 24, 2011
RAI 422 — 03.09.02-110	April 6, 2011
RAI 422 — 03.09.02-111	April 6, 2011
RAI 422 — 03.09.02-112	April 6, 2011
RAI 422 — 03.09.02-113	February 24, 2011
RAI 422 — 03.09.02-114	February 24, 2011
RAI 422 — 03.09.02-115	February 24, 2011
RAI 422 — 03.09.02-116	February 24, 2011
RAI 422 — 03.09.02-117	February 24, 2011
RAI 422 — 03.09.02-118	February 24, 2011
RAI 422 — 03.09.02-119	February 24, 2011
RAI 422 — 03.09.02-120	February 24, 2011
RAI 422 — 03.09.02-121	February 24, 2011
RAI 422 — 03.09.02-122	February 24, 2011
RAI 422 — 03.09.02-123	February 24, 2011
RAI 422 — 03.09.02-124	March 23, 2011
RAI 422 — 03.09.02-126	March 23, 2011
RAI 422 — 03.09.02-127	March 23, 2011
RAI 422 — 03.09.02-131	February 24, 2011
RAI 422 — 03.09.02-134	March 23, 2011
RAI 422 — 03.09.02-138	March 24, 2011
RAI 422 — 03.09.02-140	March 23, 2011
RAI 422 — 03.09.02-142	March 24, 2011
RAI 422 — 03.09.02-144	February 24, 2011
RAI 422 — 03.09.02-145	May 5, 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, February 08, 2011 11:19 AM
To: Tesfaye, Getachew
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); HAMMOND Philip (RS/PT)
Subject: Response to U.S. EPR Design Certification Application RAI No. 422, FSARCh. 3, Supplement 9

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 422 on September 2, 2010, noting that the schedule for 61 of the 63 questions was being further evaluated with additional schedule information to be provided by October 4, 2010.

AREVA NP provided technically correct and complete FINAL responses to 2 of the remaining 63 questions on September 9, 2010, as committed.

The schedule for a technically correct and complete response to the remaining 61 questions was revised based on the additional evaluations performed since the initial schedule was provided on September 2, 2010. This revised schedule was provided on September 27, 2010.

The schedule for a technically correct and complete response to 6 of the remaining 61 questions was revised based on additional evaluations performed since the revised schedule was provided on September 27, 2010. This revised schedule was provided on November 2, 2010.

The schedule for a technically correct and complete response to 16 of the remaining 61 questions was revised November 22, 2010 to allow additional time for AREVA NP to interact with the NRC.

AREVA NP provided technically correct and complete FINAL responses to 11 of the remaining 61 questions on December 22, 2010, as committed.

The schedule for a technically correct and complete response to 13 of the remaining 50 questions was revised January 12, 2011 to allow additional time for AREVA NP to interact with the NRC.

The schedule for a technically correct and complete response to 5 of the remaining 50 questions was revised January 13, 2011 to allow additional time for AREVA NP to address NRC comments.

The schedule for a technically correct and complete response to 3 of the remaining 50 questions was revised January 27, 2011 based on additional evaluations performed since the initial schedule was provided.

The schedule for a technically correct and complete response to 13 of the remaining 50 questions is revised to allow additional time for AREVA NP to interact with the NRC and is provided below.

Question #	Response Date
RAI 422 — 03.09.02-87	March 24, 2011
RAI 422 — 03.09.02-88	March 24, 2011
RAI 422 — 03.09.02-89	March 24, 2011
RAI 422 — 03.09.02-90	March 24, 2011
RAI 422 — 03.09.02-91	March 24, 2011
RAI 422 — 03.09.02-92	March 24, 2011
RAI 422 — 03.09.02-93	March 24, 2011
RAI 422 — 03.09.02-94	March 24, 2011
RAI 422 — 03.09.02-95	March 24, 2011

Question #	Response Date
RAI 422 — 03.09.02-96	March 24, 2011
RAI 422 — 03.09.02-97	March 24, 2011
RAI 422 — 03.09.02-138	March 24, 2011
RAI 422 — 03.09.02-142	March 24, 2011

The schedule for a technically correct and complete response to the remaining 50 questions (including the information above) is provided below.

Question #	Response Date
RAI 422 — 03.09.02-82	May 5, 2011
RAI 422 — 03.09.02-84	February 24, 2011
RAI 422 — 03.09.02-85	February 24, 2011
RAI 422 — 03.09.02-87	March 24, 2011
RAI 422 — 03.09.02-88	March 24, 2011
RAI 422 — 03.09.02-89	March 24, 2011
RAI 422 — 03.09.02-90	March 24, 2011
RAI 422 — 03.09.02-91	March 24, 2011
RAI 422 — 03.09.02-92	March 24, 2011
RAI 422 — 03.09.02-93	March 24, 2011
RAI 422 — 03.09.02-94	March 24, 2011
RAI 422 — 03.09.02-95	March 24, 2011
RAI 422 — 03.09.02-96	March 24, 2011
RAI 422 — 03.09.02-97	March 24, 2011
RAI 422 — 03.09.02-98	May 5, 2011
RAI 422 — 03.09.02-99	February 15, 2011
RAI 422 — 03.09.02-100	February 15, 2011
RAI 422 — 03.09.02-101	February 15, 2011
RAI 422 — 03.09.02-102	February 15, 2011
RAI 422 — 03.09.02-103	February 15, 2011
RAI 422 — 03.09.02-104	February 15, 2011
RAI 422 — 03.09.02-105	February 15, 2011
RAI 422 — 03.09.02-106	February 15, 2011
RAI 422 — 03.09.02-107	February 15, 2011
RAI 422 — 03.09.02-108	February 15, 2011
RAI 422 — 03.09.02-109	February 24, 2011
RAI 422 — 03.09.02-110	February 15, 2011
RAI 422 — 03.09.02-111	February 15, 2011
RAI 422 — 03.09.02-112	February 15, 2011
RAI 422 — 03.09.02-113	February 24, 2011
RAI 422 — 03.09.02-114	February 24, 2011
RAI 422 — 03.09.02-115	February 24, 2011
RAI 422 — 03.09.02-116	February 24, 2011
RAI 422 — 03.09.02-117	February 24, 2011
RAI 422 — 03.09.02-118	February 24, 2011
RAI 422 — 03.09.02-119	February 24, 2011
RAI 422 — 03.09.02-120	February 24, 2011
RAI 422 — 03.09.02-121	February 24, 2011
RAI 422 — 03.09.02-122	February 24, 2011

Question #	Response Date
RAI 422 — 03.09.02-123	February 24, 2011
RAI 422 — 03.09.02-124	March 23, 2011
RAI 422 — 03.09.02-126	March 23, 2011
RAI 422 — 03.09.02-127	March 23, 2011
RAI 422 — 03.09.02-131	February 24, 2011
RAI 422 — 03.09.02-134	March 23, 2011
RAI 422 — 03.09.02-138	March 24, 2011
RAI 422 — 03.09.02-140	March 23, 2011
RAI 422 — 03.09.02-142	March 24, 2011
RAI 422 — 03.09.02-144	February 24, 2011
RAI 422 — 03.09.02-145	May 5, 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 27, 2011 11:41 AM
To: 'Tefaye, Getachew'
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); HAMMOND Philip (RS/PT)
Subject: Response to U.S. EPR Design Certification Application RAI No. 422, FSARCh. 3, Supplement 8

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 422 on September 2, 2010, noting that the schedule for 61 of the 63 questions was being further evaluated with additional schedule information to be provided by October 4, 2010.

AREVA NP provided technically correct and complete FINAL responses to 2 of the remaining 63 questions on September 9, 2010, as committed.

The schedule for a technically correct and complete response to the remaining 61 questions was revised based on the additional evaluations performed since the initial schedule was provided on September 2, 2010. This revised schedule was provided on September 27, 2010.

The schedule for a technically correct and complete response to 6 of the remaining 61 questions was revised based on additional evaluations performed since the revised schedule was provided on September 27, 2010. This revised schedule was provided on November 2, 2010.

The schedule for a technically correct and complete response to 16 of the remaining 61 questions was revised November 22, 2010 to allow additional time for AREVA NP to interact with the NRC.

AREVA NP provided technically correct and complete FINAL responses to 11 of the remaining 61 questions on December 22, 2010, as committed.

The schedule for a technically correct and complete response to 13 of the remaining 50 questions was revised January 12, 2011 to allow additional time for AREVA NP to interact with the NRC.

The schedule for a technically correct and complete response to 5 of the remaining 50 questions was revised January 13, 2011 to allow additional time for AREVA NP to address NRC comments.

The schedule for a technically correct and complete response to 3 of the remaining 50 questions is revised based on additional evaluations performed since the initial schedule was provided and is provided below.

Question #	Response Date
RAI 422 — 03.09.02-82	May 5, 2011
RAI 422 — 03.09.02-98	May 5, 2011
RAI 422 — 03.09.02-145	May 5, 2011

The schedule for a technically correct and complete response to the remaining 50 questions is provided below.

Question #	Response Date
RAI 422 — 03.09.02-82	May 5, 2011
RAI 422 — 03.09.02-84	February 24, 2011
RAI 422 — 03.09.02-85	February 24, 2011
RAI 422 — 03.09.02-87	February 16, 2011
RAI 422 — 03.09.02-88	February 16, 2011
RAI 422 — 03.09.02-89	February 16, 2011
RAI 422 — 03.09.02-90	February 16, 2011
RAI 422 — 03.09.02-91	February 16, 2011
RAI 422 — 03.09.02-92	February 16, 2011
RAI 422 — 03.09.02-93	February 16, 2011
RAI 422 — 03.09.02-94	February 16, 2011
RAI 422 — 03.09.02-95	February 16, 2011
RAI 422 — 03.09.02-96	February 16, 2011
RAI 422 — 03.09.02-97	February 16, 2011
RAI 422 — 03.09.02-98	May 5, 2011
RAI 422 — 03.09.02-99	February 15, 2011
RAI 422 — 03.09.02-100	February 15, 2011
RAI 422 — 03.09.02-101	February 15, 2011
RAI 422 — 03.09.02-102	February 15, 2011
RAI 422 — 03.09.02-103	February 15, 2011
RAI 422 — 03.09.02-104	February 15, 2011
RAI 422 — 03.09.02-105	February 15, 2011
RAI 422 — 03.09.02-106	February 15, 2011
RAI 422 — 03.09.02-107	February 15, 2011
RAI 422 — 03.09.02-108	February 15, 2011
RAI 422 — 03.09.02-109	February 24, 2011
RAI 422 — 03.09.02-110	February 15, 2011
RAI 422 — 03.09.02-111	February 15, 2011
RAI 422 — 03.09.02-112	February 15, 2011
RAI 422 — 03.09.02-113	February 24, 2011

Question #	Response Date
RAI 422 — 03.09.02-114	February 24, 2011
RAI 422 — 03.09.02-115	February 24, 2011
RAI 422 — 03.09.02-116	February 24, 2011
RAI 422 — 03.09.02-117	February 24, 2011
RAI 422 — 03.09.02-118	February 24, 2011
RAI 422 — 03.09.02-119	February 24, 2011
RAI 422 — 03.09.02-120	February 24, 2011
RAI 422 — 03.09.02-121	February 24, 2011
RAI 422 — 03.09.02-122	February 24, 2011
RAI 422 — 03.09.02-123	February 24, 2011
RAI 422 — 03.09.02-124	March 23, 2011
RAI 422 — 03.09.02-126	March 23, 2011
RAI 422 — 03.09.02-127	March 23, 2011
RAI 422 — 03.09.02-131	February 24, 2011
RAI 422 — 03.09.02-134	March 23, 2011
RAI 422 — 03.09.02-138	February 16, 2011
RAI 422 — 03.09.02-140	March 23, 2011
RAI 422 — 03.09.02-142	February 16, 2011
RAI 422 — 03.09.02-144	February 24, 2011
RAI 422 — 03.09.02-145	May 5, 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 5:44 PM
To: 'Tefaye, Getachew'
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); HAMMOND Philip (RS/PT)
Subject: Response to U.S. EPR Design Certification Application RAI No. 422, FSARCh. 3, Supplement 7

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 422 on September 2, 2010, noting that the schedule for 61 of the 63 questions was being further evaluated with additional schedule information to be provided by October 4, 2010.

AREVA NP provided technically correct and complete FINAL responses to 2 of the remaining 63 questions on September 9, 2010, as committed.

The schedule for a technically correct and complete response to the remaining 61 questions was revised based on the additional evaluations performed since the initial schedule was provided on September 2, 2010. This revised schedule was provided on September 27, 2010.

The schedule for a technically correct and complete response to 6 of the remaining 61 questions was revised based on additional evaluations performed since the revised schedule was provided on September 27, 2010. This revised schedule was provided on November 2, 2010.

The schedule for a technically correct and complete response to 16 of the remaining 61 questions was revised November 22, 2010 to allow additional time for AREVA NP to interact with the NRC.

AREVA NP provided technically correct and complete FINAL responses to 11 of the remaining 61 questions on December 22, 2010, as committed.

The schedule for a technically correct and complete response to 13 of the remaining 50 questions was revised January 12, 2011 to allow additional time for AREVA NP to interact with the NRC.

The schedule for a technically correct and complete response to 5 of the remaining 50 questions is revised to allow additional time for AREVA NP to address NRC comments and is provided below.

Question #	Response Date
RAI 422 — 03.09.02-124	March 23, 2011
RAI 422 — 03.09.02-126	March 23, 2011
RAI 422 — 03.09.02-127	March 23, 2011
RAI 422 — 03.09.02-134	March 23, 2011
RAI 422 — 03.09.02-140	March 23, 2011

The schedule for a technically correct and complete response to the remaining 50 questions is provided below.

Question #	Response Date
RAI 422 — 03.09.02-82	February 24, 2011
RAI 422 — 03.09.02-84	February 24, 2011
RAI 422 — 03.09.02-85	February 24, 2011
RAI 422 — 03.09.02-87	February 16, 2011
RAI 422 — 03.09.02-88	February 16, 2011
RAI 422 — 03.09.02-89	February 16, 2011
RAI 422 — 03.09.02-90	February 16, 2011
RAI 422 — 03.09.02-91	February 16, 2011
RAI 422 — 03.09.02-92	February 16, 2011
RAI 422 — 03.09.02-93	February 16, 2011
RAI 422 — 03.09.02-94	February 16, 2011
RAI 422 — 03.09.02-95	February 16, 2011
RAI 422 — 03.09.02-96	February 16, 2011
RAI 422 — 03.09.02-97	February 16, 2011
RAI 422 — 03.09.02-98	February 24, 2011
RAI 422 — 03.09.02-99	February 15, 2011
RAI 422 — 03.09.02-100	February 15, 2011
RAI 422 — 03.09.02-101	February 15, 2011
RAI 422 — 03.09.02-102	February 15, 2011
RAI 422 — 03.09.02-103	February 15, 2011

Question #	Response Date
RAI 422 — 03.09.02-104	February 15, 2011
RAI 422 — 03.09.02-105	February 15, 2011
RAI 422 — 03.09.02-106	February 15, 2011
RAI 422 — 03.09.02-107	February 15, 2011
RAI 422 — 03.09.02-108	February 15, 2011
RAI 422 — 03.09.02-109	February 24, 2011
RAI 422 — 03.09.02-110	February 15, 2011
RAI 422 — 03.09.02-111	February 15, 2011
RAI 422 — 03.09.02-112	February 15, 2011
RAI 422 — 03.09.02-113	February 24, 2011
RAI 422 — 03.09.02-114	February 24, 2011
RAI 422 — 03.09.02-115	February 24, 2011
RAI 422 — 03.09.02-116	February 24, 2011
RAI 422 — 03.09.02-117	February 24, 2011
RAI 422 — 03.09.02-118	February 24, 2011
RAI 422 — 03.09.02-119	February 24, 2011
RAI 422 — 03.09.02-120	February 24, 2011
RAI 422 — 03.09.02-121	February 24, 2011
RAI 422 — 03.09.02-122	February 24, 2011
RAI 422 — 03.09.02-123	February 24, 2011
RAI 422 — 03.09.02-124	March 23, 2011
RAI 422 — 03.09.02-126	March 23, 2011
RAI 422 — 03.09.02-127	March 23, 2011
RAI 422 — 03.09.02-131	February 24, 2011
RAI 422 — 03.09.02-134	March 23, 2011
RAI 422 — 03.09.02-138	February 16, 2011
RAI 422 — 03.09.02-140	March 23, 2011
RAI 422 — 03.09.02-142	February 16, 2011
RAI 422 — 03.09.02-144	February 24, 2011
RAI 422 — 03.09.02-145	February 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 12, 2011 3:58 PM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); HAMMOND Philip (RS/PT)
Subject: Response to U.S. EPR Design Certification Application RAI No. 422, FSARCh. 3, Supplement 6

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 422 on September 2, 2010, noting that the schedule for 61 of the 63 questions was being further evaluated with additional schedule information to be provided by October 4, 2010.

AREVA NP provided technically correct and complete FINAL responses to 2 of the remaining 63 questions on September 9, 2010, as committed.

The schedule for a technically correct and complete response to the remaining 61 questions was revised based on the additional evaluations performed since the initial schedule was provided on September 2, 2010. This revised schedule was provided on September 27, 2010.

The schedule for a technically correct and complete response to 6 of the remaining 61 questions was revised based on additional evaluations performed since the revised schedule was provided on September 27, 2010. This revised schedule was provided on November 2, 2010.

The schedule for a technically correct and complete response to 16 of the remaining 61 questions was revised November 22, 2010 to allow additional time for AREVA NP to interact with the NRC.

AREVA NP provided technically correct and complete FINAL responses to 11 of the remaining 61 questions on December 22, 2010, as committed.

The schedule for a technically correct and complete response to 13 of the remaining 50 questions is revised to allow additional time for AREVA NP to interact with the NRC and is provided below.

Question #	Response Date
RAI 422 — 03.09.02-87	February 16, 2011
RAI 422 — 03.09.02-88	February 16, 2011
RAI 422 — 03.09.02-89	February 16, 2011
RAI 422 — 03.09.02-90	February 16, 2011
RAI 422 — 03.09.02-91	February 16, 2011
RAI 422 — 03.09.02-92	February 16, 2011
RAI 422 — 03.09.02-93	February 16, 2011
RAI 422 — 03.09.02-94	February 16, 2011
RAI 422 — 03.09.02-95	February 16, 2011
RAI 422 — 03.09.02-96	February 16, 2011
RAI 422 — 03.09.02-97	February 16, 2011
RAI 422 — 03.09.02-138	February 16, 2011
RAI 422 — 03.09.02-142	February 16, 2011

The schedule for a technically correct and complete response to the remaining 50 questions is provided below.

Question #	Response Date
RAI 422 — 03.09.02-82	February 24, 2011
RAI 422 — 03.09.02-84	February 24, 2011
RAI 422 — 03.09.02-85	February 24, 2011
RAI 422 — 03.09.02-87	February 16, 2011
RAI 422 — 03.09.02-88	February 16, 2011
RAI 422 — 03.09.02-89	February 16, 2011
RAI 422 — 03.09.02-90	February 16, 2011
RAI 422 — 03.09.02-91	February 16, 2011
RAI 422 — 03.09.02-92	February 16, 2011

Question #	Response Date
RAI 422 — 03.09.02-93	February 16, 2011
RAI 422 — 03.09.02-94	February 16, 2011
RAI 422 — 03.09.02-95	February 16, 2011
RAI 422 — 03.09.02-96	February 16, 2011
RAI 422 — 03.09.02-97	February 16, 2011
RAI 422 — 03.09.02-98	February 24, 2011
RAI 422 — 03.09.02-99	February 15, 2011
RAI 422 — 03.09.02-100	February 15, 2011
RAI 422 — 03.09.02-101	February 15, 2011
RAI 422 — 03.09.02-102	February 15, 2011
RAI 422 — 03.09.02-103	February 15, 2011
RAI 422 — 03.09.02-104	February 15, 2011
RAI 422 — 03.09.02-105	February 15, 2011
RAI 422 — 03.09.02-106	February 15, 2011
RAI 422 — 03.09.02-107	February 15, 2011
RAI 422 — 03.09.02-108	February 15, 2011
RAI 422 — 03.09.02-109	February 24, 2011
RAI 422 — 03.09.02-110	February 15, 2011
RAI 422 — 03.09.02-111	February 15, 2011
RAI 422 — 03.09.02-112	February 15, 2011
RAI 422 — 03.09.02-113	February 24, 2011
RAI 422 — 03.09.02-114	February 24, 2011
RAI 422 — 03.09.02-115	February 24, 2011
RAI 422 — 03.09.02-116	February 24, 2011
RAI 422 — 03.09.02-117	February 24, 2011
RAI 422 — 03.09.02-118	February 24, 2011
RAI 422 — 03.09.02-119	February 24, 2011
RAI 422 — 03.09.02-120	February 24, 2011
RAI 422 — 03.09.02-121	February 24, 2011
RAI 422 — 03.09.02-122	February 24, 2011
RAI 422 — 03.09.02-123	February 24, 2011
RAI 422 — 03.09.02-124	January 20, 2011
RAI 422 — 03.09.02-126	January 20, 2011
RAI 422 — 03.09.02-127	January 20, 2011
RAI 422 — 03.09.02-131	February 24, 2011
RAI 422 — 03.09.02-134	January 20, 2011
RAI 422 — 03.09.02-138	February 16, 2011
RAI 422 — 03.09.02-140	January 20, 2011
RAI 422 — 03.09.02-142	February 16, 2011
RAI 422 — 03.09.02-144	February 24, 2011
RAI 422 — 03.09.02-145	February 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, December 22, 2010 7:28 PM

To: Tesfaye, Getachew

Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); HAMMOND Philip (RS/PT); 'Carneal, Jason'

Subject: Response to U.S. EPR Design Certification Application RAI No. 422, FSARCh. 3, Supplement 5

Getachew,

The proprietary and non-proprietary versions of RAI 422 are submitted via AREVA NP Inc. letter, "Response to U.S. EPR Design Certification Application RAI No. 422, Supplement 5" NRC10:116, dated December 22, 2010. An affidavit to support withholding of information from public disclosure, per 10CFR2.390(b), is provided as an enclosure to that letter.

The following table indicates the respective pages in the response that contain AREVA NP's response to 11 of the remaining 61 questions.

Question #	Start Page	End Page
RAI 422 — 03.09.02-125	2	3
RAI 422 — 03.09.02-128	4	5
RAI 422 — 03.09.02-129	6	7
RAI 422 — 03.09.02-130	8	9
RAI 422 — 03.09.02-132	10	12
RAI 422 — 03.09.02-133	13	13
RAI 422 — 03.09.02-135	14	15
RAI 422 — 03.09.02-136	16	18
RAI 422 — 03.09.02-137	19	19
RAI 422 — 03.09.02-139	20	22
RAI 422 — 03.09.02-141	23	25

The schedule for the technically correct and complete responses to the remaining 50 questions is unchanged and is provided below.

Question #	Response Date
RAI 422 — 03.09.02-82	February 24, 2011
RAI 422 — 03.09.02-84	February 24, 2011
RAI 422 — 03.09.02-85	February 24, 2011
RAI 422 — 03.09.02-87	January 12, 2011
RAI 422 — 03.09.02-88	January 12, 2011
RAI 422 — 03.09.02-89	January 12, 2011
RAI 422 — 03.09.02-90	January 12, 2011
RAI 422 — 03.09.02-91	January 12, 2011
RAI 422 — 03.09.02-92	January 12, 2011
RAI 422 — 03.09.02-93	January 12, 2011
RAI 422 — 03.09.02-94	January 12, 2011
RAI 422 — 03.09.02-95	January 12, 2011
RAI 422 — 03.09.02-96	January 12, 2011

Question #	Response Date
RAI 422 — 03.09.02-97	January 12, 2011
RAI 422 — 03.09.02-98	February 24, 2011
RAI 422 — 03.09.02-99	February 15, 2011
RAI 422 — 03.09.02-100	February 15, 2011
RAI 422 — 03.09.02-101	February 15, 2011
RAI 422 — 03.09.02-102	February 15, 2011
RAI 422 — 03.09.02-103	February 15, 2011
RAI 422 — 03.09.02-104	February 15, 2011
RAI 422 — 03.09.02-105	February 15, 2011
RAI 422 — 03.09.02-106	February 15, 2011
RAI 422 — 03.09.02-107	February 15, 2011
RAI 422 — 03.09.02-108	February 15, 2011
RAI 422 — 03.09.02-109	February 24, 2011
RAI 422 — 03.09.02-110	February 15, 2011
RAI 422 — 03.09.02-111	February 15, 2011
RAI 422 — 03.09.02-112	February 15, 2011
RAI 422 — 03.09.02-113	February 24, 2011
RAI 422 — 03.09.02-114	February 24, 2011
RAI 422 — 03.09.02-115	February 24, 2011
RAI 422 — 03.09.02-116	February 24, 2011
RAI 422 — 03.09.02-117	February 24, 2011
RAI 422 — 03.09.02-118	February 24, 2011
RAI 422 — 03.09.02-119	February 24, 2011
RAI 422 — 03.09.02-120	February 24, 2011
RAI 422 — 03.09.02-121	February 24, 2011
RAI 422 — 03.09.02-122	February 24, 2011
RAI 422 — 03.09.02-123	February 24, 2011
RAI 422 — 03.09.02-124	January 20, 2011
RAI 422 — 03.09.02-126	January 20, 2011
RAI 422 — 03.09.02-127	January 20, 2011
RAI 422 — 03.09.02-131	February 24, 2011
RAI 422 — 03.09.02-134	January 20, 2011
RAI 422 — 03.09.02-138	January 12, 2011
RAI 422 — 03.09.02-140	January 20, 2011
RAI 422 — 03.09.02-142	January 12, 2011
RAI 422 — 03.09.02-144	February 24, 2011
RAI 422 — 03.09.02-145	February 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: Monday, November 22, 2010 12:11 PM

To: 'Tesfaye, Getachew'

Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); HAMMOND Philip (RS/PT)

Subject: Response to U.S. EPR Design Certification Application RAI No. 422, FSARCh. 3, Supplement 4

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 422 on September 2, 2010, noting that the schedule for 61 of the 63 questions was being further evaluated with additional schedule information to be provided by October 4, 2010.

AREVA NP provided technically correct and complete FINAL responses to 2 of the remaining 63 questions on September 9, 2010, as committed.

The schedule for a technically correct and complete response to the remaining 61 questions was revised based on the additional evaluations performed since the initial schedule was provided on September 2, 2010. This revised schedule was provided on September 27, 2010.

The schedule for a technically correct and complete response to 6 of the remaining 61 questions was revised based on additional evaluations performed since the revised schedule was provided on September 27, 2010. This revised schedule was provided on November 2, 2010.

The schedule for 16 of the remaining 61 questions is being revised and provided below to allow additional time for AREVA NP to interact with the NRC.

Question #	Response Date
RAI 422 — 03.09.02-124	January 20, 2011
RAI 422 — 03.09.02-125	January 20, 2011
RAI 422 — 03.09.02-126	January 20, 2011
RAI 422 — 03.09.02-127	January 20, 2011
RAI 422 — 03.09.02-128	January 20, 2011
RAI 422 — 03.09.02-129	January 20, 2011
RAI 422 — 03.09.02-130	January 20, 2011
RAI 422 — 03.09.02-132	January 20, 2011
RAI 422 — 03.09.02-133	January 20, 2011
RAI 422 — 03.09.02-134	January 20, 2011
RAI 422 — 03.09.02-135	January 20, 2011
RAI 422 — 03.09.02-136	January 20, 2011
RAI 422 — 03.09.02-137	January 20, 2011
RAI 422 — 03.09.02-139	January 20, 2011
RAI 422 — 03.09.02-140	January 20, 2011
RAI 422 — 03.09.02-141	January 20, 2011

The schedule for a technically correct and complete response to the remaining 61 questions is provided below.

Question #	Response Date
RAI 422 — 03.09.02-82	February 24, 2011
RAI 422 — 03.09.02-84	February 24, 2011
RAI 422 — 03.09.02-85	February 24, 2011
RAI 422 — 03.09.02-87	January 12, 2011
RAI 422 — 03.09.02-88	January 12, 2011

Question #	Response Date
RAI 422 — 03.09.02-89	January 12, 2011
RAI 422 — 03.09.02-90	January 12, 2011
RAI 422 — 03.09.02-91	January 12, 2011
RAI 422 — 03.09.02-92	January 12, 2011
RAI 422 — 03.09.02-93	January 12, 2011
RAI 422 — 03.09.02-94	January 12, 2011
RAI 422 — 03.09.02-95	January 12, 2011
RAI 422 — 03.09.02-96	January 12, 2011
RAI 422 — 03.09.02-97	January 12, 2011
RAI 422 — 03.09.02-98	February 24, 2011
RAI 422 — 03.09.02-99	February 15, 2011
RAI 422 — 03.09.02-100	February 15, 2011
RAI 422 — 03.09.02-101	February 15, 2011
RAI 422 — 03.09.02-102	February 15, 2011
RAI 422 — 03.09.02-103	February 15, 2011
RAI 422 — 03.09.02-104	February 15, 2011
RAI 422 — 03.09.02-105	February 15, 2011
RAI 422 — 03.09.02-106	February 15, 2011
RAI 422 — 03.09.02-107	February 15, 2011
RAI 422 — 03.09.02-108	February 15, 2011
RAI 422 — 03.09.02-109	February 24, 2011
RAI 422 — 03.09.02-110	February 15, 2011
RAI 422 — 03.09.02-111	February 15, 2011
RAI 422 — 03.09.02-112	February 15, 2011
RAI 422 — 03.09.02-113	February 24, 2011
RAI 422 — 03.09.02-114	February 24, 2011
RAI 422 — 03.09.02-115	February 24, 2011
RAI 422 — 03.09.02-116	February 24, 2011
RAI 422 — 03.09.02-117	February 24, 2011
RAI 422 — 03.09.02-118	February 24, 2011
RAI 422 — 03.09.02-119	February 24, 2011
RAI 422 — 03.09.02-120	February 24, 2011
RAI 422 — 03.09.02-121	February 24, 2011
RAI 422 — 03.09.02-122	February 24, 2011
RAI 422 — 03.09.02-123	February 24, 2011
RAI 422 — 03.09.02-124	January 20, 2011
RAI 422 — 03.09.02-125	January 20, 2011
RAI 422 — 03.09.02-126	January 20, 2011
RAI 422 — 03.09.02-127	January 20, 2011
RAI 422 — 03.09.02-128	January 20, 2011
RAI 422 — 03.09.02-129	January 20, 2011
RAI 422 — 03.09.02-130	January 20, 2011
RAI 422 — 03.09.02-131	February 24, 2011
RAI 422 — 03.09.02-132	January 20, 2011
RAI 422 — 03.09.02-133	January 20, 2011
RAI 422 — 03.09.02-134	January 20, 2011
RAI 422 — 03.09.02-135	January 20, 2011
RAI 422 — 03.09.02-136	January 20, 2011
RAI 422 — 03.09.02-137	January 20, 2011
RAI 422 — 03.09.02-138	January 12, 2011

Question #	Response Date
RAI 422 — 03.09.02-139	January 20, 2011
RAI 422 — 03.09.02-140	January 20, 2011
RAI 422 — 03.09.02-141	January 20, 2011
RAI 422 — 03.09.02-142	January 12, 2011
RAI 422 — 03.09.02-144	February 24, 2011
RAI 422 — 03.09.02-145	February 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: Tuesday, November 02, 2010 3:35 PM
To: 'Tesyfaye, Getachew'
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); HAMMOND Philip (RS/PT); CORNELL Veronica (External RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 422, FSARCh. 3, Supplement 3

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 422 on September 2, 2010, noting that the schedule for 61 of the 63 questions was being further evaluated with additional schedule information to be provided by October 4, 2010.

AREVA NP provided technically correct and complete FINAL responses to 2 of the remaining 63 questions on September 9, 2010, as committed.

The schedule for a technically correct and complete response to the remaining 61 questions was revised based on the additional evaluations performed since the initial schedule was provided on September 2, 2010. This revised schedule was provided on September 27, 2010.

The schedule for a technically correct and complete response to 6 of the remaining 61 questions is revised and provided below based on additional evaluations.

Question #	Response Date
RAI 422 — 03.09.02-82	February 24, 2011
RAI 422 — 03.09.02-84	February 24, 2011
RAI 422 — 03.09.02-85	February 24, 2011
RAI 422 — 03.09.02-98	February 24, 2011
RAI 422 — 03.09.02-144	February 24, 2011
RAI 422 — 03.09.02-145	February 24, 2011

The schedule for a technically correct and complete response to the remaining 61 questions is provided below.

Question #	Response Date
RAI 422 — 03.09.02-82	February 24, 2011
RAI 422 — 03.09.02-84	February 24, 2011
RAI 422 — 03.09.02-85	February 24, 2011
RAI 422 — 03.09.02-87	January 12, 2011
RAI 422 — 03.09.02-88	January 12, 2011
RAI 422 — 03.09.02-89	January 12, 2011
RAI 422 — 03.09.02-90	January 12, 2011
RAI 422 — 03.09.02-91	January 12, 2011
RAI 422 — 03.09.02-92	January 12, 2011
RAI 422 — 03.09.02-93	January 12, 2011
RAI 422 — 03.09.02-94	January 12, 2011
RAI 422 — 03.09.02-95	January 12, 2011
RAI 422 — 03.09.02-96	January 12, 2011
RAI 422 — 03.09.02-97	January 12, 2011
RAI 422 — 03.09.02-98	February 24, 2011
RAI 422 — 03.09.02-99	February 15, 2011
RAI 422 — 03.09.02-100	February 15, 2011
RAI 422 — 03.09.02-101	February 15, 2011
RAI 422 — 03.09.02-102	February 15, 2011
RAI 422 — 03.09.02-103	February 15, 2011
RAI 422 — 03.09.02-104	February 15, 2011
RAI 422 — 03.09.02-105	February 15, 2011
RAI 422 — 03.09.02-106	February 15, 2011
RAI 422 — 03.09.02-107	February 15, 2011
RAI 422 — 03.09.02-108	February 15, 2011
RAI 422 — 03.09.02-109	February 24, 2011
RAI 422 — 03.09.02-110	February 15, 2011
RAI 422 — 03.09.02-111	February 15, 2011
RAI 422 — 03.09.02-112	February 15, 2011
RAI 422 — 03.09.02-113	February 24, 2011
RAI 422 — 03.09.02-114	February 24, 2011
RAI 422 — 03.09.02-115	February 24, 2011
RAI 422 — 03.09.02-116	February 24, 2011
RAI 422 — 03.09.02-117	February 24, 2011
RAI 422 — 03.09.02-118	February 24, 2011
RAI 422 — 03.09.02-119	February 24, 2011
RAI 422 — 03.09.02-120	February 24, 2011
RAI 422 — 03.09.02-121	February 24, 2011
RAI 422 — 03.09.02-122	February 24, 2011
RAI 422 — 03.09.02-123	February 24, 2011
RAI 422 — 03.09.02-124	December 1, 2010
RAI 422 — 03.09.02-125	December 1, 2010
RAI 422 — 03.09.02-126	December 1, 2010
RAI 422 — 03.09.02-127	December 1, 2010
RAI 422 — 03.09.02-128	December 1, 2010
RAI 422 — 03.09.02-129	December 1, 2010
RAI 422 — 03.09.02-130	December 1, 2010
RAI 422 — 03.09.02-131	February 24, 2011

Question #	Response Date
RAI 422 — 03.09.02-132	December 1, 2010
RAI 422 — 03.09.02-133	December 1, 2010
RAI 422 — 03.09.02-134	December 1, 2010
RAI 422 — 03.09.02-135	December 1, 2010
RAI 422 — 03.09.02-136	December 1, 2010
RAI 422 — 03.09.02-137	December 1, 2010
RAI 422 — 03.09.02-138	January 12, 2011
RAI 422 — 03.09.02-139	December 1, 2010
RAI 422 — 03.09.02-140	December 1, 2010
RAI 422 — 03.09.02-141	December 1, 2010
RAI 422 — 03.09.02-142	January 12, 2011
RAI 422 — 03.09.02-144	February 24, 2011
RAI 422 — 03.09.02-145	February 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: Monday, September 27, 2010 7:37 PM
To: 'Tefaye, Getachew'
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); HAMMOND Philip (RS/PT)
Subject: Response to U.S. EPR Design Certification Application RAI No. 422, FSARCh. 3, Supplement 2

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 422 on September 2, 2010, noting that the schedule for 61 of the 63 questions was being further evaluated with additional schedule information to be provided by October 4, 2010.

AREVA NP provided technically correct and complete FINAL responses to 2 of the remaining 63 questions on September 9, 2010, as committed.

The schedule for a technically correct and complete response to the remaining 61 questions is revised and provided below based on the additional evaluations performed since the initial schedule was provided on September 2, 2010.

Question #	Response Date
RAI 422 — 03.09.02-82	February 15, 2011
RAI 422 — 03.09.02-84	February 15, 2011
RAI 422 — 03.09.02-85	February 15, 2011
RAI 422 — 03.09.02-87	January 12, 2011
RAI 422 — 03.09.02-88	January 12, 2011
RAI 422 — 03.09.02-89	January 12, 2011

Question #	Response Date
RAI 422 — 03.09.02-90	January 12, 2011
RAI 422 — 03.09.02-91	January 12, 2011
RAI 422 — 03.09.02-92	January 12, 2011
RAI 422 — 03.09.02-93	January 12, 2011
RAI 422 — 03.09.02-94	January 12, 2011
RAI 422 — 03.09.02-95	January 12, 2011
RAI 422 — 03.09.02-96	January 12, 2011
RAI 422 — 03.09.02-97	January 12, 2011
RAI 422 — 03.09.02-98	February 15, 2011
RAI 422 — 03.09.02-99	February 15, 2011
RAI 422 — 03.09.02-100	February 15, 2011
RAI 422 — 03.09.02-101	February 15, 2011
RAI 422 — 03.09.02-102	February 15, 2011
RAI 422 — 03.09.02-103	February 15, 2011
RAI 422 — 03.09.02-104	February 15, 2011
RAI 422 — 03.09.02-105	February 15, 2011
RAI 422 — 03.09.02-106	February 15, 2011
RAI 422 — 03.09.02-107	February 15, 2011
RAI 422 — 03.09.02-108	February 15, 2011
RAI 422 — 03.09.02-109	February 24, 2011
RAI 422 — 03.09.02-110	February 15, 2011
RAI 422 — 03.09.02-111	February 15, 2011
RAI 422 — 03.09.02-112	February 15, 2011
RAI 422 — 03.09.02-113	February 24, 2011
RAI 422 — 03.09.02-114	February 24, 2011
RAI 422 — 03.09.02-115	February 24, 2011
RAI 422 — 03.09.02-116	February 24, 2011
RAI 422 — 03.09.02-117	February 24, 2011
RAI 422 — 03.09.02-118	February 24, 2011
RAI 422 — 03.09.02-119	February 24, 2011
RAI 422 — 03.09.02-120	February 24, 2011
RAI 422 — 03.09.02-121	February 24, 2011
RAI 422 — 03.09.02-122	February 24, 2011
RAI 422 — 03.09.02-123	February 24, 2011
RAI 422 — 03.09.02-124	December 1, 2010
RAI 422 — 03.09.02-125	December 1, 2010
RAI 422 — 03.09.02-126	December 1, 2010
RAI 422 — 03.09.02-127	December 1, 2010
RAI 422 — 03.09.02-128	December 1, 2010
RAI 422 — 03.09.02-129	December 1, 2010
RAI 422 — 03.09.02-130	December 1, 2010
RAI 422 — 03.09.02-131	February 24, 2011
RAI 422 — 03.09.02-132	December 1, 2010
RAI 422 — 03.09.02-133	December 1, 2010
RAI 422 — 03.09.02-134	December 1, 2010
RAI 422 — 03.09.02-135	December 1, 2010
RAI 422 — 03.09.02-136	December 1, 2010
RAI 422 — 03.09.02-137	December 1, 2010
RAI 422 — 03.09.02-138	January 12, 2011
RAI 422 — 03.09.02-139	December 1, 2010

Question #	Response Date
RAI 422 — 03.09.02-140	December 1, 2010
RAI 422 — 03.09.02-141	December 1, 2010
RAI 422 — 03.09.02-142	January 12, 2011
RAI 422 — 03.09.02-144	January 12, 2011
RAI 422 — 03.09.02-145	January 12, 2011

Sincerely,

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

From: BRYAN Martin (External RS/NB)
Sent: Thursday, September 09, 2010 11:40 AM
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. 422, FSARCh. 3, Supplement 1

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 422 on September 2, 2010.

The attached file, "RAI 422 Supplement 1 Response US EPR DC.pdf" provides technically correct and complete FINAL responses to 2 of the remaining 63 questions, as committed

The following table indicates the respective pages in the response document, "RAI 422 Supplement 1 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 422 — 03.09.02-86	2	2
RAI 422 — 03.09.02-143	3	5

The schedule for the technically correct and complete responses to the remaining 61 questions is unchanged and is provided below.

Question #	Response Date
RAI 422 — 03.09.02-82	October 4, 2010
RAI 422 — 03.09.02-84	October 4, 2010
RAI 422 — 03.09.02-85	October 4, 2010
RAI 422 — 03.09.02-87	October 4, 2010
RAI 422 — 03.09.02-88	October 4, 2010
RAI 422 — 03.09.02-89	October 4, 2010
RAI 422 — 03.09.02-90	October 4, 2010
RAI 422 — 03.09.02-91	October 4, 2010
RAI 422 — 03.09.02-92	October 4, 2010
RAI 422 — 03.09.02-93	October 4, 2010

Question #	Response Date
RAI 422 — 03.09.02-94	October 4, 2010
RAI 422 — 03.09.02-95	October 4, 2010
RAI 422 — 03.09.02-96	October 4, 2010
RAI 422 — 03.09.02-97	October 4, 2010
RAI 422 — 03.09.02-98	October 4, 2010
RAI 422 — 03.09.02-99	October 4, 2010
RAI 422 — 03.09.02-100	October 4, 2010
RAI 422 — 03.09.02-101	October 4, 2010
RAI 422 — 03.09.02-102	October 4, 2010
RAI 422 — 03.09.02-103	October 4, 2010
RAI 422 — 03.09.02-104	October 4, 2010
RAI 422 — 03.09.02-105	October 4, 2010
RAI 422 — 03.09.02-106	October 4, 2010
RAI 422 — 03.09.02-107	October 4, 2010
RAI 422 — 03.09.02-108	October 4, 2010
RAI 422 — 03.09.02-109	October 4, 2010
RAI 422 — 03.09.02-110	October 4, 2010
RAI 422 — 03.09.02-111	October 4, 2010
RAI 422 — 03.09.02-112	October 4, 2010
RAI 422 — 03.09.02-113	October 4, 2010
RAI 422 — 03.09.02-114	October 4, 2010
RAI 422 — 03.09.02-115	October 4, 2010
RAI 422 — 03.09.02-116	October 4, 2010
RAI 422 — 03.09.02-117	October 4, 2010
RAI 422 — 03.09.02-118	October 4, 2010
RAI 422 — 03.09.02-119	October 4, 2010
RAI 422 — 03.09.02-120	October 4, 2010
RAI 422 — 03.09.02-121	October 4, 2010
RAI 422 — 03.09.02-122	October 4, 2010
RAI 422 — 03.09.02-123	October 4, 2010
RAI 422 — 03.09.02-124	October 4, 2010
RAI 422 — 03.09.02-125	October 4, 2010
RAI 422 — 03.09.02-126	October 4, 2010
RAI 422 — 03.09.02-127	October 4, 2010
RAI 422 — 03.09.02-128	October 4, 2010
RAI 422 — 03.09.02-129	October 4, 2010
RAI 422 — 03.09.02-130	October 4, 2010
RAI 422 — 03.09.02-131	October 4, 2010
RAI 422 — 03.09.02-132	October 4, 2010
RAI 422 — 03.09.02-133	October 4, 2010
RAI 422 — 03.09.02-134	October 4, 2010
RAI 422 — 03.09.02-135	October 4, 2010
RAI 422 — 03.09.02-136	October 4, 2010
RAI 422 — 03.09.02-137	October 4, 2010
RAI 422 — 03.09.02-138	October 4, 2010
RAI 422 — 03.09.02-139	October 4, 2010
RAI 422 — 03.09.02-140	October 4, 2010
RAI 422 — 03.09.02-141	October 4, 2010
RAI 422 — 03.09.02-142	October 4, 2010
RAI 422 — 03.09.02-144	October 4, 2010

Question #	Response Date
RAI 422 — 03.09.02-145	October 4, 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 02, 2010 5:18 PM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); CORNELL Veronica (External RS/NB); Miernicki, Michael
Subject: Response to U.S. EPR Design Certification Application RAI No. 422, FSARCh. 3

Getachew,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 422 Response US EPR DC.pdf," provides a schedule since a technically correct and complete response to the RAI 422 questions is not provided. The schedule for questions OTHER than 03.09.02-86 and 03.09.02-143 is being further evaluated with additional information to be provided by the date listed below of October 4, 2010.

The following table indicates the respective pages in the response document, "RAI 422 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 422 — 03.09.02-82	2	3
RAI 422 — 03.09.02-84	4	4
RAI 422 — 03.09.02-85	5	5
RAI 422 — 03.09.02-86	6	6
RAI 422 — 03.09.02-87	7	7
RAI 422 — 03.09.02-88	8	8
RAI 422 — 03.09.02-89	9	9
RAI 422 — 03.09.02-90	10	10
RAI 422 — 03.09.02-91	11	11
RAI 422 — 03.09.02-92	12	12
RAI 422 — 03.09.02-93	13	13
RAI 422 — 03.09.02-94	14	14
RAI 422 — 03.09.02-95	15	15
RAI 422 — 03.09.02-96	16	16
RAI 422 — 03.09.02-97	17	17
RAI 422 — 03.09.02-98	18	18
RAI 422 — 03.09.02-99	19	19
RAI 422 — 03.09.02-100	20	20
RAI 422 — 03.09.02-101	21	21
RAI 422 — 03.09.02-102	22	22

Question #	Start Page	End Page
RAI 422 — 03.09.02-103	23	23
RAI 422 — 03.09.02-104	24	24
RAI 422 — 03.09.02-105	25	25
RAI 422 — 03.09.02-106	26	26
RAI 422 — 03.09.02-107	27	27
RAI 422 — 03.09.02-108	28	28
RAI 422 — 03.09.02-109	29	29
RAI 422 — 03.09.02-110	30	30
RAI 422 — 03.09.02-111	31	31
RAI 422 — 03.09.02-112	32	32
RAI 422 — 03.09.02-113	33	33
RAI 422 — 03.09.02-114	34	34
RAI 422 — 03.09.02-115	35	35
RAI 422 — 03.09.02-116	36	36
RAI 422 — 03.09.02-117	37	37
RAI 422 — 03.09.02-118	38	38
RAI 422 — 03.09.02-119	39	39
RAI 422 — 03.09.02-120	40	40
RAI 422 — 03.09.02-121	41	41
RAI 422 — 03.09.02-122	42	42
RAI 422 — 03.09.02-123	43	43
RAI 422 — 03.09.02-124	44	44
RAI 422 — 03.09.02-125	45	45
RAI 422 — 03.09.02-126	46	46
RAI 422 — 03.09.02-127	47	47
RAI 422 — 03.09.02-128	48	48
RAI 422 — 03.09.02-129	49	49
RAI 422 — 03.09.02-130	50	50
RAI 422 — 03.09.02-131	51	51
RAI 422 — 03.09.02-132	52	52
RAI 422 — 03.09.02-133	53	53
RAI 422 — 03.09.02-134	54	54
RAI 422 — 03.09.02-135	55	55
RAI 422 — 03.09.02-136	56	56
RAI 422 — 03.09.02-137	57	57
RAI 422 — 03.09.02-138	58	58
RAI 422 — 03.09.02-139	59	60
RAI 422 — 03.09.02-140	61	61
RAI 422 — 03.09.02-141	62	62
RAI 422 — 03.09.02-142	63	63
RAI 422 — 03.09.02-143	64	65
RAI 422 — 03.09.02-144	66	66
RAI 422 — 03.09.02-145	67	67

A complete answer is not provided for 63 of the 63 questions. The schedule for a technically correct and complete response to these questions is provided below.

Question #	Response Date
RAI 422 — 03.09.02-82	October 4, 2010
RAI 422 — 03.09.02-84	October 4, 2010

Question #	Response Date
RAI 422 — 03.09.02-85	October 4, 2010
RAI 422 — 03.09.02-86	October 12, 2010
RAI 422 — 03.09.02-87	October 4, 2010
RAI 422 — 03.09.02-88	October 4, 2010
RAI 422 — 03.09.02-89	October 4, 2010
RAI 422 — 03.09.02-90	October 4, 2010
RAI 422 — 03.09.02-91	October 4, 2010
RAI 422 — 03.09.02-92	October 4, 2010
RAI 422 — 03.09.02-93	October 4, 2010
RAI 422 — 03.09.02-94	October 4, 2010
RAI 422 — 03.09.02-95	October 4, 2010
RAI 422 — 03.09.02-96	October 4, 2010
RAI 422 — 03.09.02-97	October 4, 2010
RAI 422 — 03.09.02-98	October 4, 2010
RAI 422 — 03.09.02-99	October 4, 2010
RAI 422 — 03.09.02-100	October 4, 2010
RAI 422 — 03.09.02-101	October 4, 2010
RAI 422 — 03.09.02-102	October 4, 2010
RAI 422 — 03.09.02-103	October 4, 2010
RAI 422 — 03.09.02-104	October 4, 2010
RAI 422 — 03.09.02-105	October 4, 2010
RAI 422 — 03.09.02-106	October 4, 2010
RAI 422 — 03.09.02-107	October 4, 2010
RAI 422 — 03.09.02-108	October 4, 2010
RAI 422 — 03.09.02-109	October 4, 2010
RAI 422 — 03.09.02-110	October 4, 2010
RAI 422 — 03.09.02-111	October 4, 2010
RAI 422 — 03.09.02-112	October 4, 2010
RAI 422 — 03.09.02-113	October 4, 2010
RAI 422 — 03.09.02-114	October 4, 2010
RAI 422 — 03.09.02-115	October 4, 2010
RAI 422 — 03.09.02-116	October 4, 2010
RAI 422 — 03.09.02-117	October 4, 2010
RAI 422 — 03.09.02-118	October 4, 2010
RAI 422 — 03.09.02-119	October 4, 2010
RAI 422 — 03.09.02-120	October 4, 2010
RAI 422 — 03.09.02-121	October 4, 2010
RAI 422 — 03.09.02-122	October 4, 2010
RAI 422 — 03.09.02-123	October 4, 2010
RAI 422 — 03.09.02-124	October 4, 2010
RAI 422 — 03.09.02-125	October 4, 2010
RAI 422 — 03.09.02-126	October 4, 2010
RAI 422 — 03.09.02-127	October 4, 2010
RAI 422 — 03.09.02-128	October 4, 2010
RAI 422 — 03.09.02-129	October 4, 2010
RAI 422 — 03.09.02-130	October 4, 2010
RAI 422 — 03.09.02-131	October 4, 2010
RAI 422 — 03.09.02-132	October 4, 2010
RAI 422 — 03.09.02-133	October 4, 2010
RAI 422 — 03.09.02-134	October 4, 2010

Question #	Response Date
RAI 422 — 03.09.02-135	October 4, 2010
RAI 422 — 03.09.02-136	October 4, 2010
RAI 422 — 03.09.02-137	October 4, 2010
RAI 422 — 03.09.02-138	October 4, 2010
RAI 422 — 03.09.02-139	October 4, 2010
RAI 422 — 03.09.02-140	October 4, 2010
RAI 422 — 03.09.02-141	October 4, 2010
RAI 422 — 03.09.02-142	October 4, 2010
RAI 422 — 03.09.02-143	October 12, 2010
RAI 422 — 03.09.02-144	October 4, 2010
RAI 422 — 03.09.02-145	October 4, 2010

Sincerely,

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

From: Tesfaye, Getachew [mailto:Getachew.Tesfaye@nrc.gov]
Sent: Tuesday, August 03, 2010 2:01 PM
To: ZZ-DL-A-USEPR-DL
Cc: Wong, Yuken; Dixon-Herrity, Jennifer; Patel, Jay; Miernicki, Michael; Colaccino, Joseph; ArevaEPRDCPEm Resource
Subject: U.S. EPR Design Certification Application RAI No. 422 (4792), FSARCh. 3

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on June 15, 2010, and discussed with your staff on July 29, 2010. Drat RAI Question 03.09.02-83 was deleted 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: 2897

Mail Envelope Properties (1F1CC1BBDC66B842A46CAC03D6B1CD410446C55B)

Subject: Draft Response to U.S. EPR Design Certification Application RAI No. 422, FSARCh. 3, Questions 3.9.2-82, 98, and 145
Sent Date: 4/27/2011 8:33:37 AM
Received Date: 4/27/2011 8:34:02 AM
From: WELLS Russell (AREVA)

Created By: Russell.Wells@areva.com

Recipients:

"HAMMOND Philip (AREVA)" <Philip.Hammond@areva.com>
Tracking Status: None
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"WILLIAMSON Rick (AREVA)" <Rick.Williamson@areva.com>
Tracking Status: None
"BENNETT Kathy (AREVA)" <Kathy.Bennett@areva.com>
Tracking Status: None
"DELANO Karen (AREVA)" <Karen.Delano@areva.com>
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"RYAN Tom (AREVA)" <Tom.Ryan@areva.com>
Tracking Status: None
"WILLIFORD Dennis (AREVA)" <Dennis.Williford@areva.com>
Tracking Status: None
"Tsfaye, Getachew" <Getachew.Tsfaye@nrc.gov>
Tracking Status: None

Post Office: AUSLYNCMX02.adom.ad.corp

Files	Size	Date & Time
MESSAGE	97670	4/27/2011 8:34:02 AM
RAI 422 Questions 03.09.02-82, -98, and -145 Response US EPR DC - DRAFT.pdf		
554781		

Options

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

Response to

**Request for Additional Information No. 422(4792),
Questions 03.09.02-82, -98, and -145**

8/3/2010

U. S. EPR Standard Design Certification

AREVA NP Inc.

Docket No. 52-020

**SRP Section: 03.09.02 - Dynamic Testing and Analysis of Systems Structures and
Components**

Application Section: 3.9.2

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

DRAFT

Question 03.09.02-82:**Follow-up to RAI 245, Question 03.09.02-42**

The staff issued RAI 03.09.02-42 to request further clarification of three items described below:

Item 1. piping attached to the reactor cooling system (RCS) was selected for measurement;

Item 2. the required specifications for the handhelds;

Item 3. discussion for the plans for use of handhelds in characterizing the piping system response relative to the analytical predictions.

The applicant responded to RAI 03.09.02-42 in the Response to RAI 245, Question 03.09.02-42, on August 12, 2009 by stating that that clarifications requested in items 1 and 3 are contained in Comprehensive Vibration Assessment Program (CVAP) Technical Report (AREVA NP Inc. Technical Report ANP-10306P, dated 12/11/09), Appendix A and the required specifications for the handhelds, Item 2, will be determined as part of the initial test program. References to the CVAP Technical Report will be added to the U.S. EPR FSAR Tier 2, Section 3.9.2.1.1 and Table 1.6-1 as shown below (underlined):

The staff reviewed CVAP Appendix A and noted that the applicant provided general plans in Figure A-3 for instrumenting each loop of the RCS to determine fluctuating pressure, in-plane displacement of the reactor coolant pump shaft, in-plane reactor coolant pump frame velocity, and the relative displacement of the RCS cold legs. The placement of these transducers will follow the guidelines of ASME OM-SG 2007, Part 3 (reference 12 of ANP 10306P), for vibration monitoring group 2, VMG2, and that the actual placement will be made by experienced engineering personnel. The applicant also stated that small bore piping that is difficult to access will be monitored per the ASME OM-SG guidelines for vibration monitoring group 3, VMG3. VMG3 involves visual inspection of vibration by trained personnel. However, the applicant is requested to provide an explanation of how piping attached to the reactor cooling system (RCS) was selected for measurement. Therefore, Item 1 of RAI 03.09.02-42 remains open.

In reviewing CVAP section 5, appendix A, and the applicant's "Response to Request for Additional Information No 245 (2981, 3036), Revision 0", the applicant did not provide the detailed information described in SRP 3.9.2 and RG 1.20 for all instrumentation, including the hand held devices. This information includes specifications, locations, and bias and error information; therefore Item 2 of 03.09.02-42 remains open.

In responding to Item 3 of RAI 03.09.02-42, the applicant stated that discussion of the plans for using handheld devices in characterizing the piping system response relative to analytical predictions is found in Appendix A of the CVAP. The staff noted that CVAP Section A.3 of Appendix A provides a discussion that frequency limits associated with accelerometers mounted to an object and hand-held vibration instruments will be considered in the choice of which vibration instrument is selected for a particular application. Both handheld devices and mounted instrumentation are used in assessing piping system vibrations. However, the applicant is requested to provide the plans for use of handhelds in characterizing the piping system response relative to the analytical predictions. Therefore Item 3 of 03.09.02-42 remains open.

Response to Question 03.09.02-82:

The main coolant line, main steam line (MSL), and main feedwater line (MFWL) are selected for instrumentation based on international experience and their critical nature. Other piping attached to the reactor coolant system (RCS) will be evaluated for susceptibility for flow induced vibrations (FIVs). As described in Technical Report ANP-10306P, the piping will be categorized into vibration monitoring group (VMG) 2 or VMG 3, and instrumentation and measurement will follow the guidance of ASME OM-SG 2007. See the Response to RAI 422, Question 03.09.02-144 for more information concerning the selection of representative piping for measurement.

Details of the instrumentation, including types, locations, specifications/accuracy, and bias/error information, will be developed later in the design process as part of the vibration measurement and inspection program in accordance with RG 1.20. See also the Response to RAI 422, Question 03.09.02-98 for more information.

The representative specifications in this response are for a signal processor and triaxial accelerometer transducer. Similar instrumentation will be used for U.S. EPR vibration monitoring. Detailed instrument specifications will be developed later in the design process as part of the vibration measurement and inspection program in accordance with RG 1.20.

Transducer**TriAxial Acclerometer**

Measuring range (calibrated)	50	g
Sensitivity	100	mV/g
Linearity	+/-1	%
Natural frequency	23	kHz
Frequency response (nominal +/- 5%)	2-3500	Hz
Weight	0.175	kg

Signal processor**Scanner**

Input channels (analog)	2, internal multiplexer for triaxial measurements
AD converter	16 Bit
Dynamic Range	96 dB
Input coupling	DC
Frequency Range	DC-80 kHz

Handheld devices are used as an investigative tool. Frequency peaks observed from the mounted instrumentation may be investigated by utilizing the handheld instrumentation. Potential sources can be investigated by sampling locations on systems connected to the recirculating steam generator (RSG) with the handheld instrumentation. In addition, any unusual or unanticipated noises reported during walk downs may be investigated with the handheld instrumentation. Details of the handheld devices including types, specifications/accuracy, and bias/error information will be developed later in the design process as part of the vibration measurement and inspection program in accordance with RG 1.20.

FSAR Impact:

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

Technical Report Impact:

ANP-10306P, "Comprehensive Vibration Assessment Program for U.S. EPR Reactor Internals Technical Report," Revision 0 will not be changed as a result of this question.

DRAFT

Question 03.09.02-98:**This is related to RAI 03.09.02-59.**

The staff reviewed the applicant's description of the instrumentation for the piping systems external to the RSG but have a contact with RSG (e.g. the main steam, main feedwater and the reactor cooling system) as outlined in Appendix A.3 and shown in Figures A-2 and A-3. The applicant is requested to provide the details of the instrumentation, including types, locations, specifications/ accuracy and ability to detect acoustic resonances that affect the RSG.

Response to Question 03.09.02-98:

Main steam lines (MSL) and main feedwater lines (MFWL) instrumentation plans include permanent and temporary instrumentation. Representative instrumentation details, from a reference EPR plant design, are provided in this response. The U.S. EPR instrumentation will follow this general arrangement. Details of the instrumentation, including types, locations, and specifications/accuracy, will be developed later in the design process as part of the vibration measurement and inspection program in accordance with RG 1.20.

The MSL and MFWL will be instrumented with accelerometers in a triaxial configuration on each of the four loops as part of the permanent vibration monitoring system (VMS) (see Figure 03.09.02-98-1). During initial startup, additional temporary sensors will be located on a single loop (see Figure 03.09.02-98-2 and Figure 03.09.02-98-3), similar to the temporary instrumentation on a single loop for the reactor coolant system (RCS). The same loop will be instrumented in both cases. The results from this loop will be compared to analysis to determine acceptability. The results from the permanent sensors of the four loops are compared to determine the acceptability of the three loops that do not have the additional temporary sensors.

The maximum velocity of a homogenous piping run between two fix-points occurs at mid-length if the vibration is dominated by the first mode. This position is a vibration node for the second mode and is, thus, not suitable if the vibration is dominated by the second mode. Therefore, the sensors are located close to the center of the piping run but not exactly at mid-length, where low-frequency modes are expected to have no nodal point. The vibration at points where the velocity is not maximum can be measured if a relationship is established between the maximum velocity and the vibration state which is being measured. This will be used if a measurement at the point of maximum vibration velocity is not feasible.

Figure 3.9.2-98-1 provides an overview of MSL and MFWL permanent sensor locations. Figure 3.9.2-98-2 shows MFWL permanent and temporary sensor positions. Figure 3.9.2-98-3 shows MSL permanent and temporary sensor positions.

Instrument specifications for the permanent monitoring system (VMS) are provided in this response. Instruments for the temporary monitoring system will be similar.

Transducers**Acceleration transducer**

Measuring range (calibrated)	100	g
Sensitivity	50	pC/g

Max. allowed ambient pressure	250	bar
Max. allowed ambient temperature	600	°C
Natural frequency	7.5	kHz
Frequency response (nominal +/- 5%)	2-1500	Hz
Weight	0.45	kg
Gamma flux (no effect)	10 ¹¹	erg/g
neutron flux (no effect)	10 ¹⁸	n/cm ²

Preamplifier station

Modules	Charge Amplifier DC/AC Isolation Amplifier
Max. channels	14
Current supply	100 mA (30 V)
Max. input range	± 1100 pC
Gain fine setting	93 – 108 %
Bandwidth	78 kHz
Interchannel isolation	66 dB
Dimensions (WxHxD)	600x600x250 mm
Weight	30 kg
Max. temperature	45°C
Max. humidity	85 % / non-condensing

Signal processor**Scanner**

Input channels (analog)	33
AD converter	16 Bit
Converter resolution	15 Bit
Input ranges	2 V, 10 V
Input voltage protection	± 35
Max. common-mode voltage	± 10
Common-mode rejection (10V range)	70 dB
Input coupling	DC
Max. sampling rate	80 kHz
Input noise (10V range)	1,8 mV pk-pk

FSAR Impact:

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

Technical Report Impact:

ANP-10306P, "Comprehensive Vibration Assessment Program for U.S. EPR Reactor Internals Technical Report," Revision 0 will not be changed as a result of this question.

Figure 03.09.02-98-1—Permanent Sensor Locations – Main Steam and Main Feed Water Overview

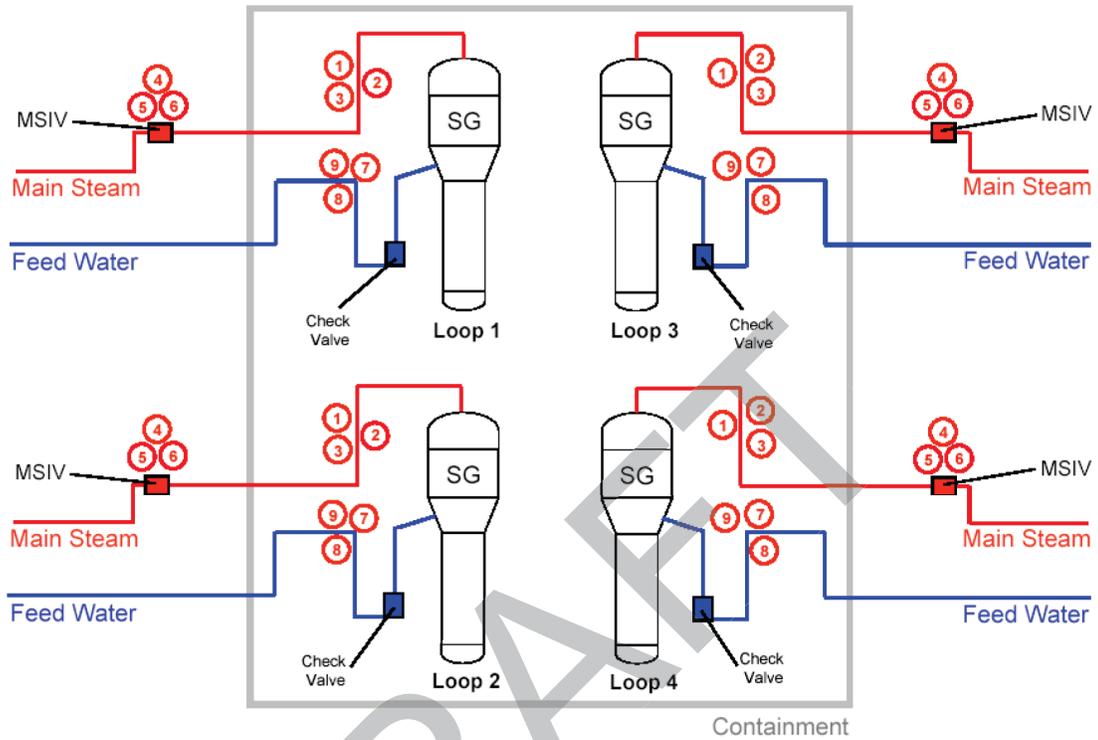
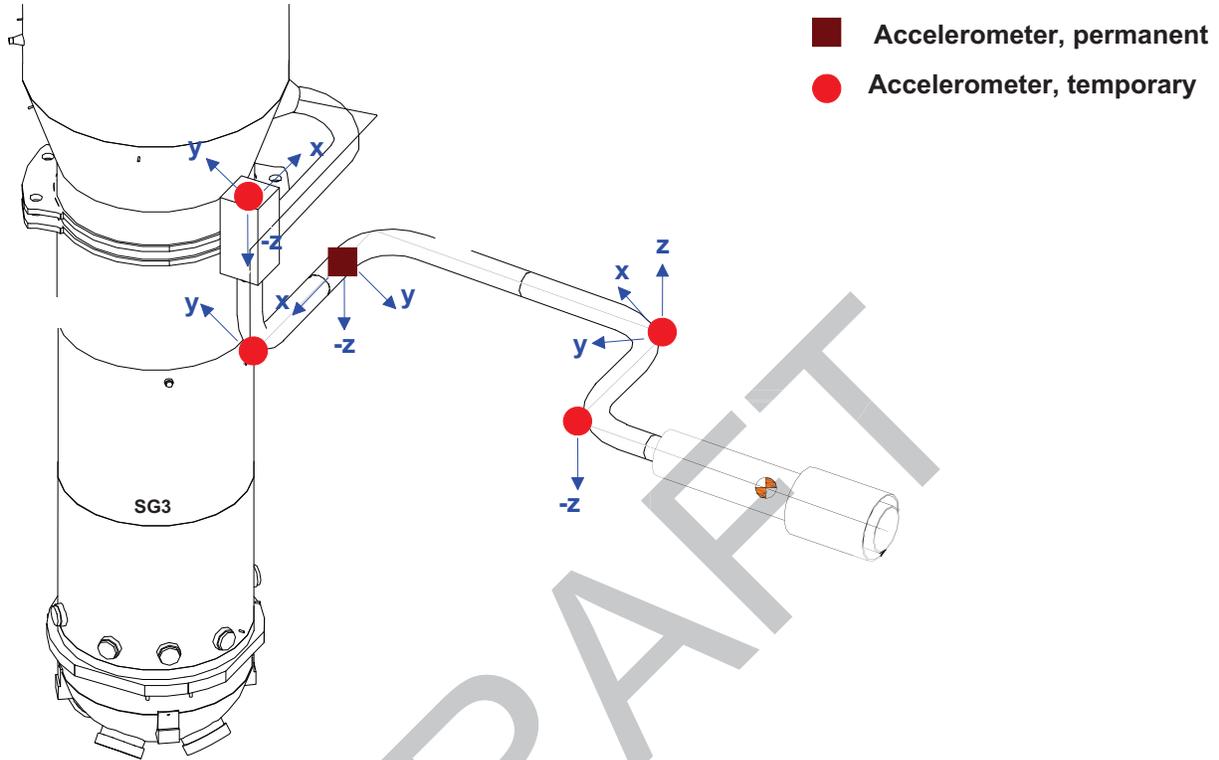


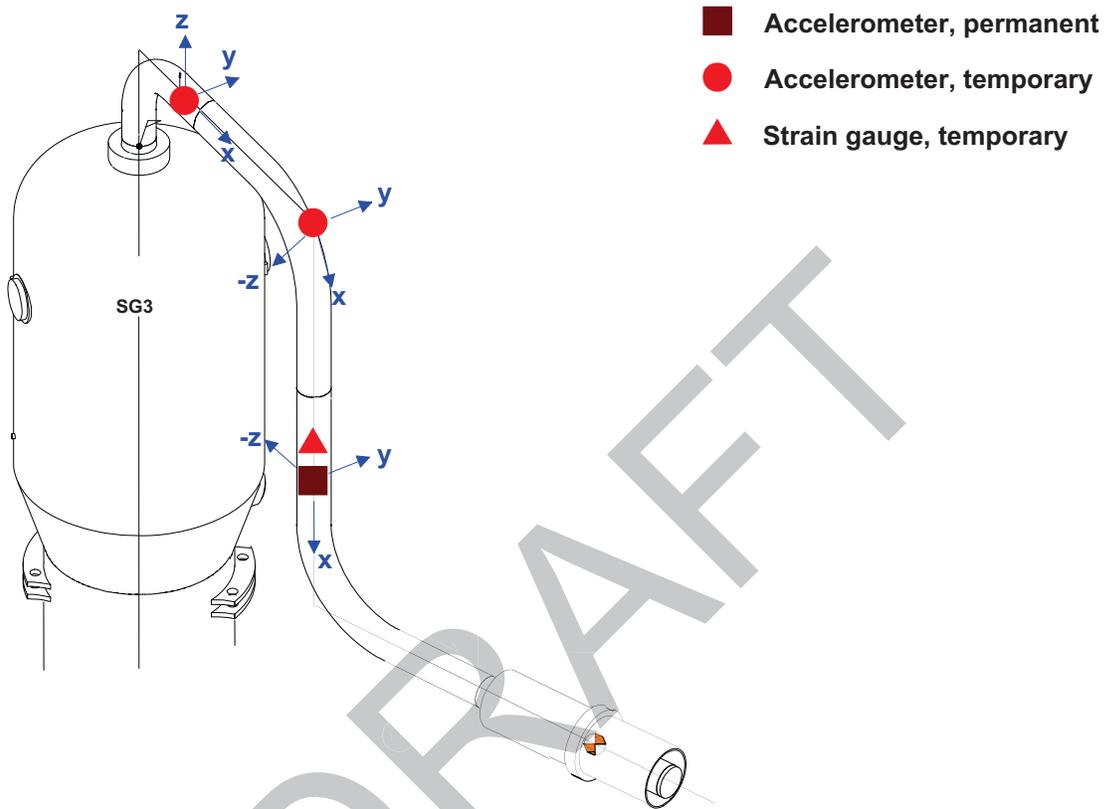
Figure 03.09.02-98-2—Main Feedwater Line Sensor Positions



Notes:

1. The MFWL will be instrumented on a single loop inside the containment. This figure shows an overview of the sensor positions. Sensors at elbow positions are positioned along the angle bisector of the elbow radius.

Figure 03.09.02-98-3—Main Steam Line Sensor Positions



Notes:

1. The MSL is instrumented on a loop inside and outside the containment and on loop four only outside the containment. This figure shows an overview of the sensor locations. Mounting blocks at elbow positions are positioned along the angle bisector of the elbow radius.

Question 03.09.02-145:**Follow-up to RAI 331, Question 03.09.02-66 (follow-up to RAI 03.09.02-60).**

The staff noted that detailed information requested in RAI 03.09.02-60, such as sensitivities of the steam system components and operating points which could result in flow-induced resonance in the steam piping or steam generator were not provided. In addition, the staff could not locate where the applicant discussed how the startup test plan will demonstrate that no flow-induced resonance effects will occur during the design life of the plant that could lead to excessive vibration and damage to components in the recirculating steam generator (RSG). The applicant responded to the request for this information by citing the responses to RAI 331 Questions 03.09.02-64 and 03.09.02-65, which state that screening for acoustic resonances will be performed to determine if acoustic resonances will occur, and preventive actions will be taken if needed in the design of the piping.

The staff reviewed the applicant's response and noted that it does not explain if there are mechanisms or pumps that may produce high level acoustic tones (vane rate, shaft rate, etc) that can excite components, structures or volumes of the RSG into resonance. (Note - This information has been requested in RAI 03.09.02-59-5 and 03.09.02-59-9.) In addition, the applicant is requesting an exception to SRP 3.9.2 to include instrumentation within the RSG. The staff noted that without this instrumentation, RSG internal vibration test data will not be available. The applicant is proposing that test data from accelerometers placed on piping systems will be used to determine that there are acceptable stress and vibration levels within the RSG and that no resonance response to operating conditions has occurred. The applicant stated that the specific details of the test plan will be developed later in the design process. The staff cannot determine if this approach is acceptable without reviewing the actual test plan. The applicant is requested to supply the startup test plan that will demonstrate that no flow-induced resonance effects will occur that could lead to excessive vibration and damage to components in the RSG during the design life of the plant. Therefore, this item remains open.

Response to Question 03.09.02-145:

As described in the Response to RAI 331, Questions 03.09.02-64 and 03.09.02-65, screening for acoustic resonances will be performed to determine if acoustic resonances will occur, and preventive actions will be taken if needed in the piping design to eliminate the sources of acoustic resonances.

As described in the Responses to RAI 245, Question 03.09.02-59, RAI 384, Question 03.09.02-68, and RAI 422, Question 03.09.02-87, high level acoustic tones do not excite the components, structures, or volumes in the U.S. EPR recirculating steam generator (RSG).

The structural integrity issues caused by acoustic resonances in the steam dryers or separators are mainly related to BWR designs and not PWR designs, such as the U.S. EPR design. The NRC staff has accepted similar approaches by other PWR design applicants, such as the MHI US-APWR.

U.S. EPR FSAR Tier 2, Section 14.2 describes the startup test program, including hold points, specified activities during hold points, monitored plant parameters, and acceptance criteria.

Power ascension tests are scheduled and conducted at predetermined power levels. The power ascension plateaus are the following:

- 5 percent.
- 25 percent.
- 50 percent.
- 75 percent.
- ≥ 98 percent.

U.S. EPR FSAR Tier 2, Section 14.2, Test #200 describes the vibration tests performed on the piping systems, including the RSG at various power levels to verify the RSG's ability to meet different loads and load swings as designed.

Detailed acceptance criteria and actions to be taken if acceptance criteria are not met will be developed later in the design process as part of the vibration measurement and inspection program in accordance with RG 1.20.

FSAR Impact:

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

Technical Report Impact:

ANP-10306P, "Comprehensive Vibration Assessment Program for U.S. EPR Reactor Internals Technical Report," Revision 0 will not be changed as a result of this question.