

ArevaEPRDCPEm Resource

From: WILLIFORD Dennis (AREVA) [Dennis.Williford@areva.com]
Sent: Wednesday, August 10, 2011 4:45 PM
To: Tesfaye, Getachew
Cc: BENNETT Kathy (AREVA); DELANO Karen (AREVA); ROMINE Judy (AREVA); RYAN Tom (AREVA); NOXON David (AREVA)
Subject: Response to U.S. EPR Design Certification Application RAI No. 405, FSAR Ch. 11 PHASE 4 RAI, Supplement 10
Attachments: RAI 405 Supplement 10 Response US EPR DC.pdf

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the 8 questions in RAI No. 405 on June 24, 2010. Supplement 1 response to RAI No. 405 was sent on July 29, 2010, and provided technically correct and complete responses to 7 of the 8 questions. RAI 405 Supplement 2 sent on September 16, 2010, Supplement 3 sent on November 11, 2010, Supplement 4 sent on December 17, 2010, Supplement 5 sent on January 21, 2011, Supplement 6 sent on March 3, 2011, Supplement 7 sent on April 13, 2011, Supplement 8 sent on June 10, 2011, and Supplement 9 sent on August 9, 2011 provided a revised schedule for Question 11.05-24. The attached file, "RAI 405 Supplement 10 Response US EPR DC.pdf" provides a technically correct and complete FINAL response to the one remaining question, as committed.

Appended to this file are affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which support the response to RAI 405 Question 11.05-24.

The following table indicates the respective pages in the response document, "RAI 405 Supplement 10 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 405 — 11.05-24	2	2

This concludes the formal AREVA NP response to RAI 405, and there are no questions from this RAI for which AREVA NP has not provided responses.

Sincerely,

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

7207 IBM Drive, Mail Code CLT 2B
Charlotte, NC 28262
Phone: 704-805-2223
Email: Dennis.Williford@areva.com

From: WILLIFORD Dennis (RS/NB)
Sent: Tuesday, August 09, 2011 6:42 PM
To: Getachew.Tesfaye@nrc.gov
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); NOXON David (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No.405, FSAR Ch. 11 PHASE 4 RAI, Supplement 9

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the 8 questions in RAI No. 405 on June 24, 2010. Supplement 1 response to RAI No. 405 was sent on July 29, 2010, and provided technically correct and complete responses to 7 of the 8 questions. RAI 405 Supplement 2 sent on September 16, 2010, Supplement 3 sent on November 11, 2010, Supplement 4 sent on December 17, 2010, Supplement 5 sent on January 21, 2011, Supplement 6 sent on March 3, 2011, Supplement 7 sent on April 13, 2011, and Supplement 8 sent on June 10, 2011 provided a revised schedule for Question 11.05-24.

The schedule for providing a complete response to the remaining question has been revised as indicated below.

Question #	Response Date
RAI 405 — 11.05-24	August 16, 2011

Sincerely,

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

7207 IBM Drive, Mail Code CLT 2B
Charlotte, NC 28262
Phone: 704-805-2223
Email: Dennis.Williford@areva.com

From: WILLIFORD Dennis (RS/NB)
Sent: Friday, June 10, 2011 8:06 AM
To: 'Tefaye, Getachew'
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); NOXON David (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No.405, FSAR Ch. 11 PHASE 4 RAI, Supplement 8

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the 8 questions in RAI No. 405 on June 24, 2010. Supplement 1 response to RAI No. 405 was sent on July 29, 2010, and provided technically correct and complete responses to 7 of the 8 questions. RAI 405 Supplement 2 sent on September 16, 2010, Supplement 3 sent on November 11, 2010, Supplement 4 sent on December 17, 2010, Supplement 5 sent on January 21, 2011, Supplement 6 sent on March 3, 2011, and Supplement 7 sent on April 13, 2011, provided a revised schedule for the remaining question.

The schedule for providing a complete response to the remaining question has been revised as indicated below.

Question #	Response Date
RAI 405 — 11.05-24	August 9, 2011

Sincerely,

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

7207 IBM Drive, Mail Code CLT 2B
Charlotte, NC 28262

From: WELLS Russell (RS/NB)
Sent: Wednesday, April 13, 2011 8:20 AM
To: 'Tesfaye, Getachew'
Cc: NOXON David (RS/NB); BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No.405, FSAR Ch. 11 PHASE 4 RAI, Supplement 7

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the 8 questions in RAI No. 405 on June 24, 2010. A Supplement 1 response to RAI No. 405 was sent on July 29, 2010, and provided technically correct and complete responses to 7 of the 8 questions in RAI No. 405. RAI 405 Supplement 2 sent on September 16, 2010, Supplement 3 sent on November 11, 2010, Supplement 4 sent on December 17, 2010, Supplement 5 on January 21, 2011, and Supplement 6 on March 3, 2011, provided a revised schedule for question 11.05-24.

Additional time is required to interact with the NRC staff.

The schedule for providing a complete response to the remaining question has been revised as indicated below.

Question #	Response Date
RAI 405 — 11.05-24	June 10, 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 03, 2011 8:48 AM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); NOXON David (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No.405, FSAR Ch. 11 PHASE 4 RAI, Supplement 6

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the 8 questions in RAI No. 405 on June 24, 2010. A Supplement 1 response to RAI No. 405 was sent on July 29, 2010, and provided technically correct and complete responses to 7 of the 8 questions in RAI No. 405. RAI 405 Supplement 2

sent on September 16, 2010, Supplement 3 sent on November 11, 2010, Supplement 4 sent on December 17, 2010, and Supplement 5 on January 21, 2011 provided a revised schedule for question 11.05-24.

Additional time is required to interact with the NRC staff.

The schedule for providing a complete response to the remaining question has been revised as indicated below.

Question #	Response Date
RAI 405 — 11.05-24	April 14, 2011

Sincerely,

Russ Wells

U.S. EPR Design Certification Licensing Manager

AREVA NP, Inc.

3315 Old Forest Road, P.O. Box 10935

Mail Stop OF-57

Lynchburg, VA 24506-0935

Phone: 434-832-3884 (work)

434-942-6375 (cell)

Fax: 434-382-3884

Russell.Wells@Areva.com

From: BRYAN Martin (External RS/NB)

Sent: Friday, January 21, 2011 8:14 AM

To: 'Tesyfaye, Getachew'

Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); NOXON David (RS/NB)

Subject: Response to U.S. EPR Design Certification Application RAI No.405, FSAR Ch. 11 PHASE 4 RAI, Supplement 5

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the 8 questions in RAI No. 405 on June 24, 2010. A Supplement 1 response to RAI No. 405 was sent on July 29, 2010, and provided technically correct and complete responses to 7 of the 8 questions in RAI No. 405. RAI 405 Supplement 2 sent on September 16, 2010, Supplement 3 sent on November 11, 2010, and Supplement 4 sent on December 17, 2010 provided a revised schedule for question 11.05-24.

Additional time is required to interact with the NRC staff.

The schedule for providing a complete response to the remaining question has been revised as indicated below.

Question #	Response Date
RAI 405 — 11.05-24	March 3, 2011

Sincerely,

Martin (Marty) C. Bryan

U.S. EPR Design Certification Licensing Manager

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

From: BRYAN Martin (External RS/NB)
Sent: Friday, December 17, 2010 10:15 AM
To: Tesfaye, Getachew
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); NOXON David (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No.405, FSAR Ch. 11 PHASE 4 RAI, Supplement 4

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the 8 questions in RAI No. 405 on June 24, 2010. A Supplement 1 response to RAI No. 405 was sent on July 29, 2010, and provided technically correct and complete responses to 7 of the 8 questions in RAI No. 405. RAI 405 Supplement 2 sent on September 16, 2010 and Supplement 3 sent on November 11, 2010 provided a revised schedule for question 11.05-24.

Additional time is required to interact with the NRC staff.

The schedule for providing a complete response to the remaining question has been revised as indicated below.

Question #	Response Date
RAI 405 — 11.05-24	January 21, 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 2:16 PM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); NOXON David (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No.405, FSAR Ch. 11 PHASE 4 RAI, Supplement 3

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the 8 questions in RAI No. 405 on June 24, 2010. A Supplement 1 response to RAI No. 405 was sent on July 29, 2010, and provided technically correct and complete responses to 7 of the 8 questions in RAI No. 405. Supplement 2 on September 16, 2010 to RAI 405 provided a revised schedule to question 11.05-24

Additional time is required to complete a response to the remaining question and to interact with the NRC staff.

The schedule for providing a complete response to the remaining question has been revised as indicated below.

Question #	Response Date
RAI 405 — 11.05-24	December 17, 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 16, 2010 4:36 PM
To: 'Getachew.Tesfaye@nrc.gov'
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); NOXON David (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No.405, FSAR Ch. 11 PHASE 4 RAI, Supplement 2

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the 8 questions in RAI No. 405 on June 24, 2010. A Supplement 1 response to RAI No. 405 was sent on July 29, 2010, and provided technically correct and complete responses to 7 of the 8 questions in RAI No. 405.

Additional time is required to complete a response to the remaining question and to interact with the NRC staff.

The schedule for providing a complete response to the remaining question has been revised as indicated below.

Question #	Response Date
RAI 405 — 11.05-24	November 22, 2010

Sincerely,

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

From: BRYAN Martin (EXT)
Sent: Thursday, July 29, 2010 8:57 PM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); NOXON David B (AREVA NP INC); WILLIFORD Dennis C (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No.405, FSAR Ch. 11 PHASE 4 RAI, Supplement 1

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete response to the one question in RAI No. 405 on June 24, 2010. The attached file, "RAI 405 Supplement 1 Response US EPR DC" provides technically correct and complete responses to 7 of the 8 questions, as committed.

Appended to this file are affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which support the response to RAI 405 Questions 11.02-24, 11.03-18, and 11.05-23. Additional U.S. EPR Final Safety Analysis Report markups related to RAI 405 Supplement 1 can be found with the response to RAI 301, Supplement 5.

The following table indicates the respective pages in the response document, "RAI 405 Supplement 1 Response US EPR DC," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 405 — 11.02-22	2	3
RAI 405 — 11.02-23	4	5
RAI 405 — 11.02-24	6	6
RAI 405 — 11.03-18	7	7
RAI 405 — 11.05-22	8	10
RAI 405 — 11.05-23	11	12
RAI 405 — 11.05-25	12	14

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

Question #	Response Date
RAI 405 — 11.05-24	September 16, 2010

Sincerely,

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

From: BRYAN Martin (EXT)

Sent: Thursday, June 24, 2010 2:20 PM

To: 'Tsfaye, Getachew'

Cc: DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); WILLIFORD Dennis C (AREVA NP INC); NOXON David B (AREVA NP INC)

Subject: Response to U.S. EPR Design Certification Application RAI No.405, FSAR Ch. 11 PHASE 4 RAI

Getachew,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 405 Response US EPR DC.pdf," provides the schedule for technically correct and complete responses to these questions.

The following table indicates the respective pages in the response document, "RAI 405 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 405 — 11.02-22	2	3
RAI 405 — 11.02-23	4	4
RAI 405 — 11.02-24	5	5
RAI 405 — 11.03-18	6	6
RAI 405 — 11.05-22	7	8
RAI 405 — 11.05-23	9	9
RAI 405 — 11.05-24	10	10
RAI 405 — 11.05-25	11	11

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

Question #	Response Date
RAI 405 — 11.02-22	July 30, 2010
RAI 405 — 11.02-23	July 30, 2010
RAI 405 — 11.02-24	July 30, 2010
RAI 405 — 11.03-18	July 30, 2010
RAI 405 — 11.05-22	July 30, 2010
RAI 405 — 11.05-23	July 30, 2010
RAI 405 — 11.05-24	September 16, 2010
RAI 405 — 11.05-25	July 30, 2010

Sincerely,

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

From: Tesfaye, Getachew [mailto:Getachew.Tesfaye@nrc.gov]

Sent: Wednesday, May 26, 2010 12:44 PM

To: ZZ-DL-A-USEPR-DL

Cc: Dehmel, Jean-Claude; Roach, Edward; Jennings, Jason; Patel, Jay; Colaccino, Joseph; ArevaEPRDCPEm Resource

Subject: U.S. EPR Design Certification Application RAI No.405(4691,4724,4674), FSAR Ch. 11 PHASE 4 RAI

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on May 14, 2010, and discussed with your staff on May 25, 2010. No changes were made to the draft RAI 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: 3316

Mail Envelope Properties (2FBE1051AEB2E748A0F98DF9EEE5A5D482D627)

Subject: Response to U.S. EPR Design Certification Application RAI No. 405, FSAR Ch. 11 PHASE 4 RAI, Supplement 10
Sent Date: 8/10/2011 4:45:25 PM
Received Date: 8/10/2011 4:46:20 PM
From: WILLIFORD Dennis (AREVA)

Created By: Dennis.Williford@areva.com

Recipients:
"BENNETT Kathy (AREVA)" <Kathy.Bennett@areva.com>
Tracking Status: None
"DELANO Karen (AREVA)" <Karen.Delano@areva.com>
Tracking Status: None
"ROMINE Judy (AREVA)" <Judy.Romine@areva.com>
Tracking Status: None
"RYAN Tom (AREVA)" <Tom.Ryan@areva.com>
Tracking Status: None
"NOXON David (AREVA)" <David.Noxon@areva.com>
Tracking Status: None
"Tsfaye, Getachew" <Getachew.Tsfaye@nrc.gov>
Tracking Status: None

Post Office: auscharm02.adom.ad.corp

Files	Size	Date & Time
MESSAGE	17706	8/10/2011 4:46:20 PM
RAI 405 Supplement 10 Response US EPR DC.pdf		86472

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

Response to

Request for Additional Information No. 405, Supplement 10

5/26/2010

U.S. EPR Standard Design Certification

AREVA NP Inc.

Docket No. 52-020

SRP Section: 11.02 - Liquid Waste Management System

SRP Section: 11.03 - Gaseous Waste Management System

**SRP Section: 11.05 - Process and Effluent Radiological Monitoring
Instrumentation and Sampling Systems**

Application Section: 11.2

QUESTIONS for Health Physics Branch (CHPB)

Question 11.05-24:**PHASE 4 RAI****Follow-up to Open Item 276, Supplement 1, Question 11.05-14**

In the response dated Nov. 6, 2009, along with discussions held with the applicant during the audit of March 24, 2010, the applicant provides information addressing staff questions about inconsistent descriptions supporting the design basis of PERMSS subsystems. A review of the response indicates that the new information is incomplete for all items. Specifically, the responses do not provide adequate details for the staff to evaluate and conclude with reasonable assurance that the revised FSAR sections will include an updated listing of the design basis. In addition, the proposed revisions to FSAR Table 9.3.2-1 (Primary Side Sampling Points) and Table 9.3.2-2 (Secondary Side Sampling Points) identify process measurements as “activity” with no other qualifiers. The table entries, under process measurement, should describe the type radiological analyses that would be conducted and which default or surrogate radionuclides would be analyzed for the listed process and blowdown streams. Also, the systems listed for the secondary side should be reviewed for completeness in considering whether the turbine building drains system, main condenser evacuation system, and turbine gland sealing system should be included as well in Table 9.3.2-2.

Response to Question 11.05-24:

U.S. EPR FSAR Tier 2, Section 9.3.2.2.1.2, and Tables 9.3.2-1 and 9.3.2-2 will be revised to add design basis information. In addition, U.S. EPR FSAR Tier 2 Table 11.5-1 has also been revised to reflect the requested information (See the Response to RAI 273, Question 11.05-02, in Supplement 15).

Revised U.S. EPR FSAR Tier 2, Tables 9.3.2-1 and 9.3.2-2 provide information about the process and effluent monitor location, and reference U.S. EPR FSAR Tier 2, Table 11.5-1 for further details (e.g., monitor range, type, description).

The turbine building drains, main condenser evacuation and turbine gland sealing system will be added to the secondary side sampling points listed in U.S. EPR FSAR Tier 2, Table 9.3.2-2.

U.S. EPR FSAR Tier 2, Section 9.3.2.2.1.2 will be revised to provide information about the gamma activity measurement of the steam generator blowdown system.

FSAR Impact:

U.S. EPR FSAR, Tier 2, Section 9.3.2.2.1.2 will be revised as described in the response and indicated on the enclosed markup.

U.S. EPR FSAR Tier 2, Table 9.3.2-1, Table 9.3.2-2 and Table 11.5-1, will be revised as described in the response. See the U.S. EPR FSAR markups associated with the response to RAI 273, Question 11.05-02.

U.S. EPR Final Safety Analysis Report Markups

9.3.2.2.1.2 Secondary Sampling System

The SECSS consists of the following:

- Steam generator blowdown sampling system.
- Turbine Island (TI) SECSS.

The steam generator blowdown sampling system collects liquid samples from the steam generators (SG), steam generator blowdown system (SGBS) and the SG blowdown demineralizing system in order to perform water quality analyses.

There are four SG blowdown sampling lines, one coming from each SG. Each sample line has provisions to take a sample from three different locations of its associated SG. There are three sampling lines coming from the SG blowdown demineralizing system

11.05-24

allowing for analysis at these locations. Flow is extracted from these lines and fed to gamma activity measurement equipment. This allows each steam generator to be monitored separately and continuously for radioactivity carryover to the secondary side. These monitors enable the identification or verification of the defective steam generator.

SG blowdown samples that are collected with enough residual pressure to be transported are directed to the sample backfeed tank for recycle. As much liquid as possible is routed to the tank in order to minimize liquid waste. Samples are continuously recycled to the SGBS by the sample backfeed pump. The samples are recycled upstream of the SG blowdown demineralizing system processing equipment to allow regular treatment. In the event that the SGBS path is unavailable, the liquids are directed to a sump in the NIDVS.

The TI SECSS monitors key chemical parameters that relate to the quality of process fluids in the steam-condensate-feedwater cycle and the quality of various other process fluids. It provides a centralized sampling and analysis facility in the Turbine Building (TB), where both continuous monitoring and manual grab samples are taken from selected points in the secondary side, main cycle and auxiliary piping systems. The interconnecting sample transport tubing runs between the process sampling extraction point and the centralized sampling and analysis facility.

9.3.2.2.1.3 Severe Accident Sampling System

The SASS collects representative gaseous and liquid samples from inside the containment following a severe accident for the purpose of confirming whether the containment atmosphere contains airborne activity. Samples are obtained from:

- Equipment rooms inside containment.
- Annular rooms inside containment.