ArevaEPRDCPEm Resource

From: WILLIFORD Dennis (AREVA) [Dennis.Williford@areva.com]
Sent: Wednesday, June 06, 2012 9:52 AM
To: Tesfaye, Getachew
Cc: BENNETT Kathy (AREVA); DELANO Karen (AREVA); LEIGHLITER John (AREVA); ROMINE Judy (AREVA); RYAN Tom (AREVA); WELLS Russell (AREVA); GUCWA Len (EXTERNAL AREVA); BALLARD Bob (AREVA)
Subject: DRAFT Response to U.S. EPR Design Certification Application RAI No. 540 (6300, 6308, 6329), FSAR Ch. 6, Question 06.02.01.01.A-3
Attachments: RAI 540 Question 6.2.1.1.A-3 Draft Response US EPR DC.pdf

Getachew,

To support a final response date of July 6, 2012, a draft response for RAI No. 540, Question 06.02.01.01.A-3 is provided in the attached file, "RAI 540 Question 6.2.1.1.A-3 Draft Response US EPR DC.pdf."

Let me know if the staff has questions or if this can be sent as a final response.

Sincerely,

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

From: WILLIFORD Dennis (RS/NB)
Sent: Monday, April 23, 2012 1:29 PM
To: Getachew.Tesfaye@nrc.gov
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); GUCWA Len (External RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 540 (6300, 6308, 6329), FSAR Ch. 6

Getachew,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 540 Response US EPR DC.pdf," provides a schedule since a technically correct and complete response to the six questions cannot be provided at this time.

The following table indicates the respective pages in the response document, "RAI 540 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 540 — 06.02.01.01.A-3	2	2
RAI 540 — 06.02.01.05-2	3	3
RAI 540 — 06.02.05-27	4	4

RAI 540 — 06.02.05-28	5	5
RAI 540 — 06.02.05-29	6	6
RAI 540 — 06.02.05-30	7	7

The schedule for a technically correct and complete response to these 6 questions is provided below.

Question #	Response Date
RAI 540 — 06.02.01.01.A-3	**July 6, 2012**
RAI 540 — 06.02.01.05-2	**June 14, 2012**
RAI 540 — 06.02.05-27	**July 17, 2012**
RAI 540 — 06.02.05-28	**July 17, 2012**
RAI 540 — 06.02.05-29	**July 17, 2012**
RAI 540 — 06.02.05-30	**July 17, 2012**

Sincerely,

Dennis Williford, P.E.
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
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From: Tesfaye, Getachew [mailto:Getachew.Tesfaye@nrc.gov]
Sent: Thursday, March 22, 2012 4:43 PM
To: ZZ-DL-A-USEPR-DL
Cc: Peng, Shie-Jeng; Grady, Anne-Marie; McKirgan, John; Gleaves, Bill; Segala, John; ArevaEPRDCPEm Resource
Subject: U.S. EPR Design Certification Application RAI No. 540 (6300, 6308, 6329), FSAR Ch. 6

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on March 5, 2012, and discussed with your staff on March 15 and 22, 2012. Draft RAI Question 06.02.01.01.A-2 was deleted and Draft RAI Question 06.02.01.05-2 (a) was modified as a result of those discussions. The schedule we have established for review of your application assumes technically correct and complete responses within 30 days of receipt of RAIs. For any RAIs that cannot be answered within 30 days, it is expected that a date for receipt of this information will be provided to the staff within the 30 day period so that the staff can assess how this information will impact the published schedule.

Thanks,
Getachew Tesfaye
Sr. Project Manager
NRO/DNRL/LB1
(301) 415-3361

Hearing Identifier: AREVA_EPR_DC_RAIs
Email Number: 3941

Mail Envelope Properties (2FBE1051AEB2E748A0F98DF9EEE5A5D4CC0873)

Subject: DRAFT Response to U.S. EPR Design Certification Application RAI No. 540 (6300, 6308, 6329), FSAR Ch. 6, Question 06.02.01.01.A-3
Sent Date: 6/6/2012 9:52:06 AM
Received Date: 6/6/2012 9:52:09 AM
From: WILLIFORD Dennis (AREVA)

Created By: Dennis.Williford@areva.com

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Files	**Size**	**Date & Time**	
MESSAGE	3654	6/6/2012 9:52:09 AM	
RAI 540 Question 6.2.1.1.A-3 Draft Response US EPR DC.pdf			290881

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

Response to

Request for Additional Information No. 540, Question 06.02.01.01.A-3

3/22/2012

U. S. EPR Standard Design Certification
AREVA NP Inc.
Docket No. 52-020
SRP Section: 06.02.01.01.A - PWR Dry Containments, Including Subatmospheric Containments
SRP Section: 06.02.01.05 - Minimum Containment Pressure Analysis for Emergency Core Cooling System Performance Capability Studies
SRP Section: 06.02.05 - Combustible Gas Control in Containment

Application Section: 6.2

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

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Question 06.02.01.01.A-3:

OPEN ITEM

Follow-up to RAI 437, Question 06.02.01-98

Based on GDC 4, 13 and 50, the purpose of this RAI is to ensure that the components important to safety be designed to accommodate the effects of postulated accidents.

Part "b" of Question RAI 437, Question 06.02.01-98 requested demonstration that the containment temperatures resulting from main steam line break calculations using the FSAR Chapter 15 assumptions to compute the liquid entrainment from the break, will fall within the limits of the Environmental Qualification Temperature Profile. The applicant's response to RAI No. 437, Question 06.02.01-98, dated June 15, 2011did not provide the required information.

Provide the containment temperature results of the MSLB cases presented in the Response to RAI No. 266, Question 06.02.01.04-4 (in Supplement 7). These cases used the Chapter 15 methodology (S-RELAP5) for mass and energy release into the containment. Compare the calculated maximum temperature histories against the FSAR Environmental Qualification Temperature Profile. Demonstrate that the Environmental Profile bounds all containment temperature results obtained with the Chapter 15 mass and energy release methodology.

Response to Question 06.02.01.01.A-3:

The comparison between the methodology, models, initial conditions, boundary conditions, and analytical assumptions for the U.S. EPR FSAR, Tier 2, Chapter 15 and Chapter 6 main steam line break (MSLB) analyses was included in the response to RAI 266, Supplement 7 and discussed during an NRC audit held in Rockville on April 30, 2010. The conclusion of the audit noted that the set of bounding initial conditions, assumptions, and models for U.S. EPR FSAR, Tier 2, Chapter 15 core consequence analysis is not appropriate for Chapter 6 containment consequence analysis because they address other conditions and phenomena. The U.S. EPR FSAR, Tier 2, Chapter 6 approach is conservative and consistent with Section 6.2.1.4 of the Standard Review Plan (SRP). At the conclusion of the audit, the NRC Staff noted that the single failures identified in U.S. EPR FSAR, Tier 2, Chapter 15 were not consistent with those included in the Chapter 6 analyses, but were acceptable for Chapter 15 purposes.

RAI 437, Question 6.2.1-98 requested that AREVA provide an evaluation of the effect on containment pressure of the excess inventory added from a single failure producing the rapid full opening of a main feedwater (MFW) control valve as compared with a postulated MSLB break with the single active failure of one main steam isolation valve (MSIV) to close as described in U.S. EPR FSAR, Tier 2, Section 6.2.1.1.3. In addition to the request for single failure comparison, the NRC staff requested that AREVA demonstrate that the resulting containment temperatures utilizing the U.S. EPR FSAR, Tier 2 Chapter 15 assumptions will fall within the limits of the environmental qualification (EQ) curve which the staff requested in RAI 368, Question 6.2.1-80.

AREVA provided a response to RAI 437, Question 6.2.1-98 that concluded that the pressure and temperature response would be less in the main feedwater control valve (MFWCV) failure compared to the MSIV failure. The response did not directly address the temperature comparison between the U.S. EPR FSAR, Tier 2, Chapter 15 and Chapter 6 methodologies

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because the methodologies are used to evaluate different phenomena and do not serve the same purpose. The U.S. EPR FSAR, Tier 2, Chapter 6 methodology had already been demonstrated to be conservative and consistent with the guidance of the SRP. The models and methods used to generate a conservative core response in U.S. EPR FSAR, Tier 2, Chapter 15 are not required to be a part of the EQ profiles and, therefore, should not be compared to the EQ curves.

Based on additional discussions with the NRC staff, it was concluded that mass and energy releases using Chapter 15 assumptions would not provide a proper comparison.

FSAR Impact:

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

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