

ArevaEPRDCPEm Resource

From: BRYAN Martin (EXTERNAL AREVA) [Martin.Bryan.ext@areva.com]
Sent: Thursday, July 15, 2010 11:44 AM
To: Tesfaye, Getachew
Cc: DELANO Karen (AREVA); ROMINE Judy (AREVA); BENNETT Kathy (AREVA); VAN NOY Mark (EXTERNAL AREVA); CORNELL Veronica (EXTERNAL AREVA)
Subject: Response to U.S. EPR Design Certification Application RAI No. 396, FSARCh. 19, PHASE 4 RAI, Supplement 2
Attachments: RAI 396 Question 19-337 Response US EPR DC.pdf

Getachew,

AREVA NP Inc. provided a schedule for a technically correct and complete response to RAI No. 396 on May 27, 2010. AREVA NP submitted Supplement 1 to the response on June 24, 2010, to amend the committed response date per June 9, 2010, meeting with NRC and addressed 0 of the remaining 1 question. AREVA NP submitted a DRAFT on July 14, 2010, for NRC review of the proposed response to the remaining 1 question. The attached file, "RAI 396 Question 19-337 Response US EPR DC.pdf" provides a technically correct and complete FINAL response to the remaining 1 question, as committed.

The following table indicates the respective pages in the response document, RAI 396 Question 19-337 Response US EPR DC.pdf that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 396 — 19-337	2	6

This concludes the formal AREVA NP response to RAI 396, and there are no questions from this RAI for which AREVA NP has not provided responses.

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 12:43 PM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); VAN NOY Mark (EXT); CORNELL Veronica (EXT); RYAN Tom (AREVA NP INC); GARDNER George Darrell (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 396, FSARCh. 19, PHASE 4 RAI, Supplement 1

Getachew,

AREVA NP Inc. provided a schedule for a technically correct and complete response to RAI No. 396 on May 27, 2010. The one question in this RAI was affected by the work underway to address NRC comments from the April 26, 2010, audit.

Based upon the civil/structural re-planning activities and revised RAI response schedule presented to the NRC during the June 9, 2010, Public Meeting, and to allow time to interact with the NRC on the responses, the schedule for question 19-337 has been changed.

The revised schedule for the technically correct and complete response to this question is provided below.

Question #	Final Response Date
RAI 396 — 19-337	August 13, 2010

Sincerely,

Martin (Marty) C. Bryan
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
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Martin.Bryan.ext@areva.com

From: BRYAN Martin (EXT)
Sent: Thursday, May 27, 2010 4:15 PM
To: 'Tefaye, Getachew'
Cc: DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); VAN NOY Mark (EXT)
Subject: Response to U.S. EPR Design Certification Application RAI No. 396 (4679), FSARCh. 19, PHASE 4 RAI

Getachew,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 396 Response U.S. EPR DC" provides a schedule since a technically correct and complete response to the 1 question is not provided.

The following table indicates the respective pages in the response document, "RAI 396 Response U.S. EPR DC," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 396 — 19-337	2	2

A complete answer is not provided for the 1 question. The schedule for a technically correct and complete response to these questions is provided below.

Question #	Response Date
RAI 396 — 19-337	July 13, 2010

Sincerely,

Martin (Marty) C. Bryan
U.S. EPR Design Certification Licensing Manager

AREVA NP Inc.
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From: Tesfaye, Getachew [mailto:Getachew.Tesfaye@nrc.gov]
Sent: Thursday, April 29, 2010 8:44 AM
To: ZZ-DL-A-USEPR-DL
Cc: Xu, Jim; Hawkins, Kimberly; Chowdhury, Prosanta; Colaccino, Joseph; ArevaEPRDCPEm Resource
Subject: U.S. EPR Design Certification Application RAI No. 396 (4679), FSARCh. 19, PHASE 4 RAI

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on April 28, 2010, and on the same day, April 28, 2010, you informed us that the RAI is clear and no further clarification is needed. As a result, no change is made to the draft RAI. 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: 1703

Mail Envelope Properties (BC417D9255991046A37DD56CF597DB7106DF74F6)

Subject: Response to U.S. EPR Design Certification Application RAI No. 396, FSARCh.
19, PHASE 4 RAI, Supplement 2
Sent Date: 7/15/2010 11:43:40 AM
Received Date: 7/15/2010 11:43:43 AM
From: BRYAN Martin (EXTERNAL AREVA)

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Files	Size	Date & Time
MESSAGE	5170	7/15/2010 11:43:43 AM
RAI 396 Question 19-337 Response US EPR DC.pdf		237368

Options

Priority: Standard

Return Notification: No

Reply Requested: No

Sensitivity: Normal

Expiration Date:

Recipients Received:

Response to

Request for Additional Information No. 396 (4679), Revision 1

4/29/2010

U. S. EPR Standard Design Certification

Alternate Energy Holdings

Docket No. 52-020

SRP Section: 19 - Probabilistic Risk Assessment and Severe Accident Evaluation

Application Section: FSAR Ch 19

QUESTIONS for Structural Engineering Branch 2 (ESBWR/ABWR Projects) (SEB2)

Question 19-337:**PHASE 4 RAI****Follow-up to Open Item RAI 234, Question 19-306**

During the April 26-30, 2010, Chapter 3 audit, AREVA informed the NRC staff that Figures 19-306-1 thru 19-306-4 submitted in RAI 234, Supplement 1 response have been revised. The staff requests that these revised figures be submitted in order to complete the review of the response to the open item.

Response to Question 19-337:

Figure 19-337-1 shows the revised temperature curves cited by this question. The temperature effects considered in the Response to RAI 234, Supplement 1, Question 19-306 are conservatively based on the maximum input temperature for each controlling accident scenario. The loss of balance of plant (LBOP) analysis is based on a temperature of 331°F, while the loss of offsite power with a high pressure end state (LOOP TR) analysis is based on a peak temperature of 434°F. The new temperature inputs do not exceed 331°F. Because temperature effects are only considered in terms of the peak temperature, analyses described in the Response to RAI 234, Supplement 1, Question 19-306 are conservative with respect to temperature effects when compared with the revised inputs.

Figure 19-337-2 shows the revised pressure curves. The LBOP accident scenario (shown in blue) is has the largest peak pressure and will control. Figure 19-337-3 compares the revised and original LBOP input pressure time histories. The two time histories have the same qualitative shape, but the original time history has a higher peak pressure and is time shifted. Because temperature effects are held constant throughout the analysis and creep effects are neglected, time shifting will affect the results.

Figure 19-337-4 shows a time shifted comparison of the two input histories. The two time histories are similar, with the original input being generally conservative. In particular, the original pressure is higher at the two largest peaks. The original pressure becomes significantly less than the revised pressure only after the peak pressure. During this time frame, the pressure is significantly lower than the peak pressure, will not cause additional cracking, and will not have an adverse effect on the ultimate demand nor capacity of the structure. This is a pre-stressed concrete structure and so some of the internal pressure will relieve stress in the concrete. Because maximum and minimum pressures in the original curve envelope those in the revised curve, results using the original curve will envelope results based on the new curve.

Original input time histories are conservative when compared to the revised input time histories. Original analyses are therefore conservative and there is no need for re-analysis.

FSAR Impact:

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

Figure 19-337-2—Revised Pressure Inputs

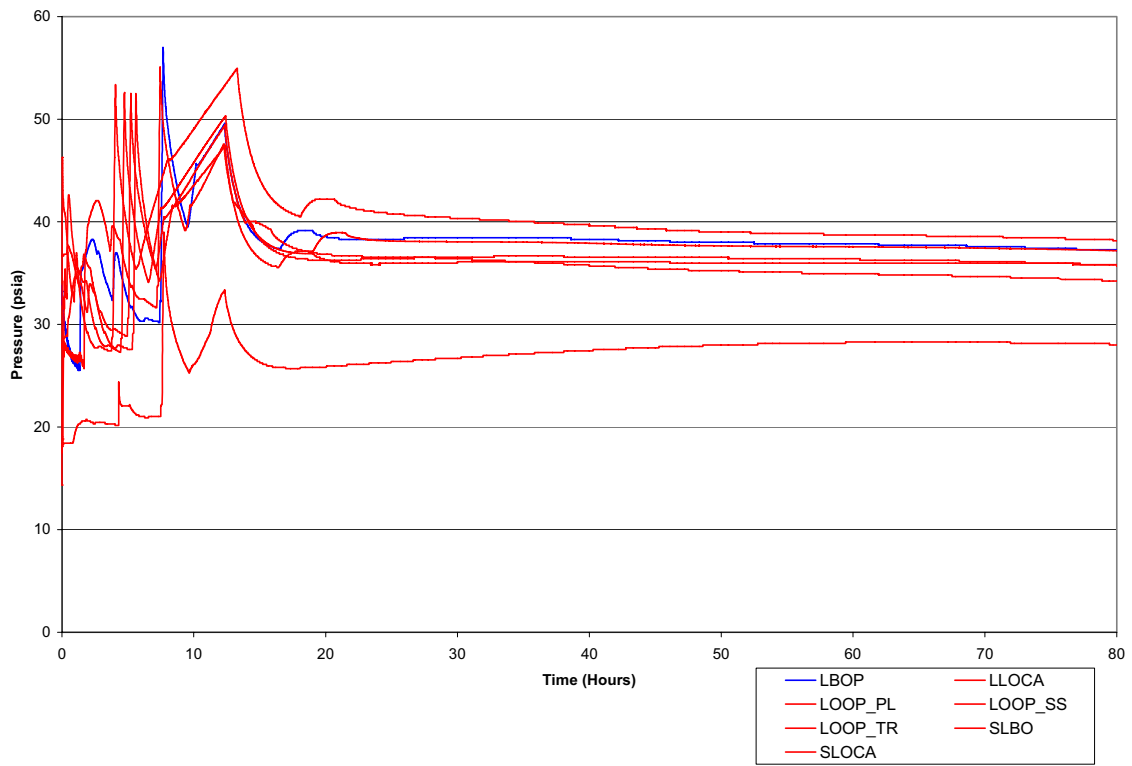


Figure 19-337-3—Comparison of LBOP Input Pressure Time Histories

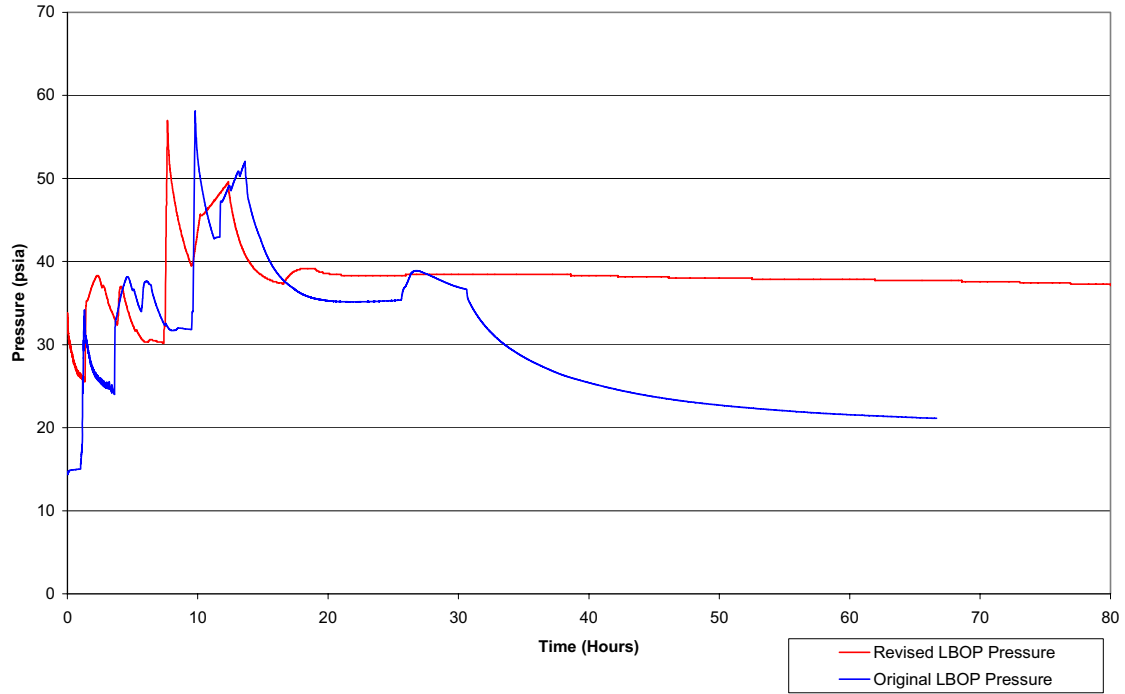


Figure 19-337-4—Time Shifted Comparison of LBOP Input Pressure Time Histories

