

ArevaEPRDCPEm Resource

From: WELLS Russell (AREVA) [Russell.Wells@areva.com]
Sent: Thursday, March 31, 2011 9:28 AM
To: Tesfaye, Getachew
Cc: CORNELL Veronica (EXTERNAL AREVA); BREDEL Daniel (AREVA); COLEMAN Sue (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. 335, FSAR Ch. 3, Question 03.08.04-09
Attachments: RAI 335 Question 03.08.04-9 Response US EPR DC - DRAFT.pdf

Getachew,

Attached is a draft response for RAI No. 335, FSAR Ch 3, Question 03.08.04-09 in advance of the April 28, 2011 final response date.

Let me know if the staff has questions or if the draft response 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: Thursday, March 03, 2011 6:04 PM
To: 'Tesfaye, Getachew'
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); CORNELL Veronica (External RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 335, FSAR Ch. 3, Supplement 8

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 335 on January 18, 2010. AREVA NP submitted Supplement 1 to the response on March 12, 2010, to address 3 of the remaining 6 questions. AREVA NP submitted Supplement 2 and Supplement 3 to the response on June 4, 2010, and June 24, 2010, respectively, to provide a revised schedule for responding to the remaining 3 questions. AREVA NP submitted Supplement 4 on July 20, 2010, to provide INTERIM responses to Question 03.08.01-44 and Question 03.08.04-09. AREVA NP submitted Supplement 5 on August 20, 2010, to provide an INTERIM response to Question 03.08.04-10. AREVA NP submitted Supplement 6 on January 13, 2011, to provide a revised schedule for Question 03.08.01-44 and Question 03.08.04-10. AREVA NP submitted Supplement 7 on February 11, 2011, to provide a revised schedule for Question 03.08.04-09 and Question 03.08.04-10.

The schedule for Question 03.08.01-44 is being revised to allow AREVA NP additional time to address NRC audit comments. The schedule for the remaining questions is unchanged.

The schedule for technically correct and complete responses to the remaining questions is provided below:

Question #	Interim Response Date	Final Response Date
RAI 335 — 03.08.01-44	July 21, 2010 (Actual)	June 14, 2011
RAI 335 — 03.08.04-09	July 21, 2010 (Actual)	April 28, 2011
RAI 335 — 03.08.04-10	August 20, 2010 (Actual)	April 8, 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, February 11, 2011 1:14 PM

To: 'Tefaye, 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. 335, FSAR Ch. 3, Supplement 7

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 335 on January 18, 2010. AREVA NP submitted Supplement 1 to the response on March 12, 2010, to address 3 of the remaining 6 questions. AREVA NP submitted Supplement 2 and Supplement 3 to the response on June 4, 2010, and June 24, 2010, respectively, to provide a revised schedule for responding to the remaining 3 questions. AREVA NP submitted Supplement 4 on July 20, 2010, to provide INTERIM responses to Question 03.08.01-44 and Question 03.08.04-09. AREVA NP submitted Supplement 5 on August 20, 2010, to provide an INTERIM response to Question 03.08.04-10. AREVA NP submitted Supplement 6 on January 13, 2011, to provide a revised schedule for Question 03.08.01-44 and Question 03.08.04-10.

The schedule for Question 03.08.04-09 and Question 03.08.04-10 has changed. The schedule for the remaining question is unchanged.

The schedule for technically correct and complete responses to the remaining questions is provided below:

Question #	Interim Response Date	Final Response Date
RAI 335 — 03.08.01-44	July 21, 2010 (Actual)	March 3, 2011
RAI 335 — 03.08.04-09	July 21, 2010 (Actual)	April 28, 2011
RAI 335 — 03.08.04-10	August 20, 2010 (Actual)	April 8, 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 5:09 PM
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. 335, FSAR Ch. 3, Supplement 6, Interim

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 335 on January 18, 2010. AREVA NP submitted Supplement 1 to the response on March 12, 2010, to address 3 of the remaining 6 questions. AREVA NP submitted Supplement 2 and Supplement 3 to the response on June 4, 2010, and June 24, 2010, respectively, to provide a revised schedule for responding to the remaining 3 questions. AREVA NP submitted Supplement 4 on July 20, 2010, to provide INTERIM responses to Question 03.08.01-44 and Question 03.08.04-09. AREVA NP submitted Supplement 5 on August 20, 2010, to provide an INTERIM response to Question 03.08.04-10.

The schedule for Question 03.08.01-44 is being revised to allow AREVA NP additional time for to address NRC feedback. The schedule for Question 03.08.04-10 is being revised to allow additional time for AREVA NP to interact with the NRC.

The schedule for technically correct and complete FINAL responses to the remaining is provided below:

Question #	Interim Response Date	Final Response Date
RAI 335 — 03.08.01-44	July 21, 2010 (Actual)	March 3, 2011
RAI 335 — 03.08.04-09	July 21, 2010 (Actual)	February 15, 2011
RAI 335 — 03.08.04-10	August 20, 2010 (Actual)	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, August 20, 2010 3:31 PM
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. 335, FSAR Ch. 3, Supplement 5, Interim

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 335 on January 18, 2010. AREVA NP submitted Supplement 1 to the response on March 12, 2010, to address 3 of the remaining 6 questions. AREVA NP submitted Supplement 2 and Supplement 3 to the response on June 4, 2010, and June 24, 2010, respectively, to provide a revised schedule for responding to the remaining 3 questions. AREVA NP submitted Supplement 4 on July 20, 2010, to provide INTERIM responses to Question 03.08.01-44 and Question 03.08.04-09.

The attached file, "RAI 335 Supplement 5 US EPR DC – INTERIM.pdf" provides technically correct and complete INTERIM response to Question 03.08.04-10, as committed.

The following table indicates the respective pages in the response document, "RAI 335 Supplement 5 US EPR DC – INTERIM.pdf," that contain AREVA NP's INTERIM response to Question 03.08.04-10.

Question #	Start Page	End Page
RAI 335 — 03.08.04-10	2	3

The schedule for technically correct and complete FINAL responses to the remaining 3 questions is unchanged and provided below:

Question #	Interim Response Date	Final Response Date
RAI 335 — 03.08.01-44	July 21, 2010 (Actual)	January 13, 2011
RAI 335 — 03.08.04-09	July 21, 2010 (Actual)	February 15, 2011
RAI 335 — 03.08.04-10	August 20, 2010 (Actual)	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 (EXT)
Sent: Tuesday, July 20, 2010 5:17 PM
To: 'Tesyfaye, Getachew'
Cc: DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); CORNELL Veronica (EXT); VAN NOY Mark (EXT)
Subject: Response to U.S. EPR Design Certification Application RAI No. 335, FSAR Ch. 3, Supplement 4, Interim

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 335 on January 18, 2010. AREVA NP submitted Supplement 1 to the response on March 12, 2010, to address 3 of the remaining 6 questions. AREVA NP submitted Supplement 2 to the response on June 4, 2010, to provide a schedule for the remaining 3 questions that were affected by the work underway to address NRC comments from the April 26, 2010, audit. AREVA NP submitted Supplement 3 to the response on June 24, 2010, to provide a revised schedule for responding to the remaining 3 questions based on the June 9, 2010, NRC public meeting with AREVA.

The attached file, "RAI 335 Supplement 4 US EPR DC – INTERIM.pdf" provides technically correct and complete INTERIM response to Question 03.08.01-44 and Question 03.08.04-09, as committed.

The following table indicates the respective pages in the response document, "RAI 335 Supplement 4 US EPR DC – INTERIM.pdf," that contain AREVA NP's INTERIM response to Question 03.08.01-44 and Question 03.08.04-09.

Question #	Start Page	End Page
RAI 335 — 03.08.01-44	2	8
RAI 335 — 03.08.04-09	9	11

The schedule for technically correct and complete FINAL response to the remaining 3 questions is unchanged and provided below:

Question #	Interim Response Date	Final Response Date
RAI 335 — 03.08.01-44	July 21, 2010 (Actual)	January 13, 2011
RAI 335 — 03.08.04-09	July 21, 2010 (Actual)	February 15, 2011
RAI 335 — 03.08.04-10	August 23, 2010	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 (EXT)
Sent: Thursday, June 24, 2010 12:27 PM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); CORNELL Veronica (EXT); VAN NOY Mark (EXT); RYAN Tom (AREVA NP INC); GARDNER George Darrell (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 335, FSAR Ch. 3, Supplement 3

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 335 on January 18, 2010. AREVA NP submitted Supplement 1 to the response on March 12, 2010, to address 3 of the remaining 6 questions. AREVA NP submitted Supplement 2 to the response on June 4, 2010, to provide a schedule for the remaining 3 questions that were 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 the remaining three questions has been changed.

Prior to submittal of the final RAI response, AREVA NP will provide an interim RAI response that includes:

- (1) a description of the technical work (e.g., methodology)
- (2) U.S. EPR FSAR revised pages, as applicable

The revised schedule for an interim response and the technically correct and complete response to these questions is provided below.

Question #	Interim Response Date	Final Response Date
RAI 335 — 03.08.01-44	July 21, 2010	January 13, 2011
RAI 335 — 03.08.04-09	July 21, 2010	February 15, 2011
RAI 335 — 03.08.04-10	August 23, 2010	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 (EXT)
Sent: Friday, June 04, 2010 3:45 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)
Subject: Response to U.S. EPR Design Certification Application RAI No. 335, FSAR Ch. 3, Supplement 2

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 335 on January 18, 2010. AREVA NP submitted Supplement 1 to the response on March 12, 2010, to address 3 of the remaining 6 questions.

The response to Question 03.08.04-09 is affected as a result of work currently underway to address NRC comments from the April 26, 2010, audit and a revised schedule is provided below. However, the response date for all three questions will be revised based on information presented at the June 9, 2010 public meeting and subsequent NRC feedback.

Question #	Response Date
RAI 335 — 03.08.01-44	August 13, 2010
RAI 335 — 03.08.04-09	August 13, 2010
RAI 335 — 03.08.04-10	August 13, 2010

Sincerely,

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

From: BRYAN Martin (EXT)
Sent: Friday, March 12, 2010 5:06 PM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen V (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); ROMINE Judy (AREVA NP INC); VAN NOY Mark (EXT); GARDNER George Darrell (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 335, FSAR Ch. 3, Supplement 1

Getachew,

AREVA NP Inc. provided a schedule for a technically correct and complete response to RAI No. 335 on January 18, 2010. The attached file, "RAI 335 Supplement 1 Response US EPR DC.pdf" provides technically correct and complete responses to 3 of the remaining 6 questions, as committed. The response to Question 03.08.04-10 is deferred due to its dependency on results of work currently underway to support other responses on related topics.

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 335 Questions 03.08.01-45, and 03.08.04-8.

The following table indicates the respective pages in the response document, "RAI 335 Supplement 1 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 335 — 03.08.01-45	2	2
RAI 335 — 03.08.01-46	3	3
RAI 335 — 03.08.04-08	4	5

The schedule for technically correct and complete responses to the remaining 3 questions has been changed and is provided below:

Question #	Response Date
RAI 335 — 03.08.01-44	August 13, 2010
RAI 335 — 03.08.04-09	June 4, 2010
RAI 335 — 08.08.04-10	August 13, 2010

Sincerely,

Martin (Marty) C. Bryan
Licensing Advisory Engineer
AREVA NP Inc.
Tel: (434) 832-3016
Martin.Bryan.ext@areva.com

From: DUNCAN Leslie E (AREVA NP INC)
Sent: Monday, January 18, 2010 3:24 PM
To: 'Tesfaye, Getachew'
Cc: BENNETT Kathy A (OFR) (AREVA NP INC); DELANO Karen V (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 335, FSAR Ch. 3

Getachew,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 335 Response US EPR DC.pdf" provides a schedule since technically correct and complete responses to the 6 questions are not provided.

The following table indicates the respective pages in the response document, "RAI 335 Response US EPR DC.pdf" that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 335 - 03.08.01-44	2	3
RAI 335 - 03.08.01-45	4	4
RAI 335 - 03.08.01-46	5	5
RAI 335 - 03.08.04-08	6	6
RAI 335 - 03.08.04-09	7	7
RAI 335 - 03.08.04-10	8	9

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

Question #	Response Date
RAI 335 - 03.08.01-44	August 13, 2010
RAI 335 - 03.08.01-45	March 12, 2010
RAI 335 - 03.08.01-46	March 12, 2010
RAI 335 - 03.08.04-08	March 12, 2010
RAI 335 - 03.08.04-09	June 4, 2010
RAI 335 - 03.08.04-10	March 12, 2010

Sincerely,

Les Duncan
Licensing Engineer
AREVA NP Inc.
An AREVA and Siemens Company
Tel: (434) 832-2849
Leslie.Duncan@areva.com

From: Tesfaye, Getachew [mailto:Getachew.Tesfaye@nrc.gov]
Sent: Saturday, December 05, 2009 6:52 AM
To: ZZ-DL-A-USEPR-DL
Cc: Xu, Jim; Hawkins, Kimberly; Patel, Jay; Miernicki, Michael; Colaccino, Joseph; ArevaEPRDCPEm Resource
Subject: U.S. EPR Design Certification Application RAI No. 335 (4059, 4061),FSAR Ch. 3

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on November 30, 2009, and on December 4, 2009, 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 with the exception of typographical error correction in Draft RAI Question 03.08.04-8 identified by AREVA. The schedule we have established for review of your application assumes technically correct and complete responses within 30 days of receipt of RAIs, excluding the time period of **December 25, 2009 thru January 3, 2010, to account for the holiday season** as discussed with AREVA NP. For any RAIs that cannot be answered **within 40 days**, it is expected that a date for receipt of this information will be provided to the staff within the 40-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: 2783

Mail Envelope Properties (1F1CC1BBDC66B842A46CAC03D6B1CD41042B9706)

Subject: Draft Response to U.S. EPR Design Certification Application RAI No. 335, FSAR
Ch. 3, Question 03.08.04-09
Sent Date: 3/31/2011 9:27:44 AM
Received Date: 3/31/2011 9:28:18 AM
From: WELLS Russell (AREVA)

Created By: Russell.Wells@areva.com

Recipients:

"CORNELL Veronica (EXTERNAL AREVA)" <Veronica.Cornell.ext@areva.com>

Tracking Status: None

"BREDEL Daniel (AREVA)" <Daniel.Bredel@areva.com>

Tracking Status: None

"COLEMAN Sue (AREVA)" <Sue.Coleman@areva.com>

Tracking Status: None

"BENNETT Kathy (AREVA)" <Kathy.Bennett@areva.com>

Tracking Status: None

"DELANO Karen (AREVA)" <Karen.Delano@areva.com>

Tracking Status: None

"HALLINGER Pat (EXTERNAL AREVA)" <Pat.Hallinger.ext@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

"WILLIFORD Dennis (AREVA)" <Dennis.Williford@areva.com>

Tracking Status: None

"Teschaye, Getachew" <Getachew.Teschaye@nrc.gov>

Tracking Status: None

Post Office: AUSLYNCMX02.adom.ad.corp

Files	Size	Date & Time	
MESSAGE	19364	3/31/2011 9:28:18 AM	
RAI 335 Question 03.08.04-9 Response US EPR DC - DRAFT.pdf			286249

Options

Priority: Standard

Return Notification: No

Reply Requested: No

Sensitivity: Normal

Expiration Date:

Recipients Received:

Response to

Request for Additional Information No. 335, Question 03.08.04-09

12/05/2009

U. S. EPR Standard Design Certification

AREVA NP Inc.

Docket No. 52-020

SRP Section: 03.08.01 - Concrete Containment

SRP Section: 03.08.04 - Other Seismic Category I Structures

Application Section: FSAR Section 3.8

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

DRAFT

Question 03.08.04-9:**Follow-up to RAI Question 03.08.04-4**

The response to Item 1 of the RAI indicates that the separation gaps provided between Seismic Category (SC) I structures and adjacent structures range between 12 inches (gap between Access Bldg. and Safeguard Bldg. 3 shield structure) and 18 inches (gap between Nuclear Auxiliary Bldg. and Fuel Bldg. shield structure, and between Nuclear Auxiliary Bldg. and Safeguard Bldg. 4). It adds that the maximum predicted seismic “interaction distance” between SC I structures and adjacent structures is 11.2 inches, including maximum tilt due to differential settlement, and that displacements corresponding to all other load cases are enveloped by the seismic load case. Finally, it mentions that displacements corresponding to the special load case of commercial aircraft impact have not been estimated.

Since the maximum interaction distance between SC I structures and adjacent structures is estimated as 11.2 inches, which is relatively close to the 12 inch gap between Access Bldg. and Safeguard Bldg. 3 shield structure, provide the additional information identified below to resolve Item 1 of the RAI.

- a. Provide a description of the seismic soil structure interaction analysis used to determine the maximum displacement results for the Access Bldg. and Safeguard Bldg. 3 shield structure used to determine the minimum required interaction distance. This should include a description of the soil representation and building model used in the seismic analysis.
- b. Clarify whether the FSAR includes sufficient information (e.g. ITAAC) to assure that the gap sizes assumed in the design are implemented by the COL applicant. These gap sizes should be clearly listed in the FSAR.
- c. It is not clear if the term “maximum interaction distance” is used in the sense of an upper bound on all possible interaction distances between all SC I structures and adjacent structures. Provide a more detailed explanation of what is meant by the term “interaction distance,” as well as corresponding results for the four interactions between SC I structures and adjacent structures listed in the RAI response. This information should also be included in the FSAR.
- d. The RAI response states that: “Time history analyses predict a maximum interaction distance of 11.2 inches between adjacent structures. This value takes into account maximum tilt due to differential settlement.” It is not clear from this statement if the calculated interaction distances include allowance for out-of-phase seismic-induced motion between adjacent structures. Clarify if out-of-phase motion between adjacent structures has been considered in the calculation of the interaction distances, and if so, indicate whether the absolute sum of the displacements of adjacent structures has been used. If the displacements of adjacent structures have been combined using some other methodology, provide the corresponding technical basis.
- e. Compare the gap between the Reactor Shield Building and the Vent Stack (SC II structure) with the corresponding calculated interaction distance (including out-of-phase motion) between these two structures.

Response to Question 03.08.04-9:

- a) The design of the Access Building is conceptual in the U.S. EPR FSAR. As stated in the Response to RAI 370, Question 03.07.02-65, the COL applicant will perform the analysis to verify that the gap between the Access Building and Nuclear Island (NI) is adequate.

The lateral wall displacements of the NI Common Basemat structures are not directly obtained from the seismic soil structure interaction (SSI) analysis applied to the NI dynamic model. Instead, the zero period accelerations (ZPAs) from the SSI analysis are used to perform an equivalent static analysis on the NI static model. The lateral wall displacements are obtained from the equivalent static analysis of NI static model. ZPAs for each of the eight soil cases (cracked and uncracked) and three orthogonal directions of earthquake motion are considered in the equivalent static analysis. U.S. EPR FSAR Tier 2, Section 3.7.2.3.1.2 and Section 3.7.2.4 describe the NI dynamic model and soil representation, respectively. U.S. EPR FSAR Tier 2, Section 3.7.2.3.1.1 describes the NI static model.

- b) U.S. EPR FSAR Tier 2, Table 1.8-2, COL Information Items 3.7-7 and 3.7-8 require the COL applicant to demonstrate that the response of the Access Building and Turbine Building to a safe shutdown earthquake (SSE) will not impair the ability of Seismic Category I systems, structures, or components (SSC) to perform their safety-related function. U.S. EPR FSAR Tier 2, Figure 3B-1 shows the gaps between structures. See the Response to RAI 370, Question 03.07.02-65 for more information. An ITAAC item to verify the gap dimension is not necessary.
- c) The maximum interaction distance referenced in the Response to RAI 155, Question 03.08.04-4 is no longer applicable to the U.S. EPR design. COL Information Items 3.7-7 and 3.7-8 require the COL applicant to demonstrate adequate separation between the Seismic Category I SSCs and the Access Building and Turbine Building, respectively. The Nuclear Auxiliary Building (NAB) is the only Seismic Category II structure in the scope of the U.S. EPR design. The gaps between the NAB and Fuel Building and between the NAB and Safeguard Building 4 are 18 inches as specified in U.S. EPR FSAR Tier 2, Section 3.7.2.8. The methodology used to determine the gap distance between the NAB and NI will be provided in the Response to RAI 370, Question 03.07.02-64. The gap size will be reconciled to confirm that no interaction occurs between the NAB and Seismic Category I SSCs. The reconciliation accounts for lateral wall displacements of the NI as discussed in Part a), NI settlement, and NAB sliding and overturning. The results will be provided in the Response to RAI 370, Question 03.07.02-64.
- d) Gaps between structures are established assuming that buildings are moving into each other (i.e., out of phase). The building displacements are absolute summed.
- e) The vent stack has been re-categorized as a Seismic Category I structure. The gap between the vent stack and the Reactor Building is 36 inches. The design of the vent stack, including lateral displacement, will be provided in the Response to RAI 155, Question 03.08.04-6.

FSAR Impact:

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