## ArevaEPRDCPEm Resource

From: Sent:	Pederson Ronda M (AREVA NP INC) [Ronda.Pederson@areva.com] Wednesday, December 02, 2009 6:21 PM
То:	Tesfaye, Getachew
Cc:	BENNETT Kathy A (OFR) (AREVA NP INC); DELANO Karen V (AREVA NP INC); BEELMAN Ronald J (AREVA NP INC)
Subject:	Response to U.S. EPR Design Certification Application RAI No. 1, FSAR Ch 6, Supplement 8
Attachments:	RAI 1 Supplement 8 Response US EPR DC.pdf

Getachew,

AREVA NP, Inc. provided responses to 6 of the 10 questions of RAI No. 1 on May 9, 2008. Supplement 1 response to RAI No. 1 was sent on September 05, 2008 to address Question 06.02.01-10. Supplement 2 response to RAI No. 1 was sent on December 19, 2008 to provide additional information concerning containment foils and dampers. Supplement 3 to RAI No.1, containing AREVA NP, Inc. Containment Technical Report, ANP-10299P, was sent on January 28, 2009, and provided a technically correct and complete response to 1 of the remaining questions. Supplement 4 response to RAI No. 1 was sent on June 10, 2009 to address 1 of the remaining questions. Supplement 5 response to RAI No. 1 was sent on June 22, 2009 to change the response schedule. Supplement 6 response to RAI No. 1 was sent on July 31, 2009 to change the response schedule. Supplement 7 response to RAI No. 1 was sent on August 7, 2009 to address 1 of the remaining 2 questions.

The attached file, "RAI 1 Supplement 8 Response US EPR DC.pdf" provides a technically correct and complete response to the remaining question, as committed.

The proprietary and non-proprietary versions of the referenced technical report, ANP-10299 Revision 2, are submitted via AREVA NP, Inc. letter, "Submittal of Revision 2 to ANP-10299P, 'Applicability of AREVA NP Containment Response Evaluation Methodology to the U.S. EPR<sup>™</sup> for Large Break LOCA Analysis - Technical Report'," NRC:09:116, dated December 2, 2009.

The following table indicates the respective pages in the response document, "RAI 1 Supplement 8 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 1 — 06.02.01-01	2	3

The following table indicates the RAI No. 1 question that is answered in the subject technical report.

Question #	Relevant Sections
RAI 01 — 06.02.01-01	4.4, Appendices B & C

This concludes the formal AREVA NP response to RAI No. 1, and there are no questions from this RAI for which AREVA NP has not provided responses.

Sincerely,

Ronda Pederson

ronda.pederson@areva.com Licensing Manager, U.S. EPR Design Certification AREVA NP Inc. An AREVA and Siemens company 3315 Old Forest Road Lynchburg, VA 24506-0935 Phone: 434-832-3694 Cell: 434-841-8788

From: Pederson Ronda M (AREVA NP INC)
Sent: Thursday, August 27, 2009 6:41 PM
To: 'Tesfaye, Getachew'
Cc: BENNETT Kathy A (OFR) (AREVA NP INC); SLIVA Dana (AREVA NP INC); DELANO Karen V (AREVA NP INC); BEELMAN Ronald J (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 1, FSAR Ch 6, Supplement 7

Getachew,

AREVA NP, Inc. provided responses to 6 of the 10 questions of RAI No. 1 on May 9, 2008. Supplement 1 response to RAI No. 1 was sent on September 05, 2008 to address Question 06.02.01-10. Supplement 2 response to RAI No. 1 was sent on December 19, 2008 to provide additional information concerning containment foils and dampers. Supplement 3 to RAI No.1, containing AREVA NP, Inc. Containment Technical Report, ANP-10299P, was sent on January 28, 2009, and provided a technically correct and complete response to 1 of the remaining 4 questions. Supplement 4 response to RAI No. 1 was sent on June 10, 2009 to address 1 of the 3 remaining questions. Supplement 5 response to RAI No. 1 was sent on June 22, 2009 to change the response schedule. Supplement 6 response to RAI No. 1 was sent on July 31, 2009 to also change the response schedule. The attached file, "RAI 1 Supplement 7 Response US EPR DC.pdf," provides technically correct and complete responses to 1 of the remaining 2 questions.

The following table indicates the respective pages in the response document, "RAI 1 Supplement 7 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 1 — 06.02.01-07d	2	202

The schedule for a technically correct and complete response to the remaining question remains unchanged and is provided below.

Question #	Response Date
RAI 01 — 06.02.01-01	December 2, 2009

Sincerely,

Ronda Pederson

ronda.pederson@areva.com Licensing Manager, U.S. EPR Design Certification **AREVA NP Inc.** An AREVA and Siemens company 3315 Old Forest Road Lynchburg, VA 24506-0935 Phone: 434-832-3694 Cell: 434-841-8788 From: Pederson Ronda M (AREVA NP INC)
Sent: Friday, July 31, 2009 1:56 PM
To: 'Tesfaye, Getachew'
Cc: BENNETT Kathy A (OFR) (AREVA NP INC); DELANO Karen V (AREVA NP INC); BEELMAN Ronald J (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 1, FSAR Ch 6, Supplement 6

Getachew,

AREVA NP, Inc. provided responses to 6 of the 10 questions of RAI No. 1 on May 9, 2008. Supplement 1 response to RAI No. 1 was sent on September 05, 2008 to address Question 06.02.01-10. Supplement 2 response to RAI No. 1 was sent on December 19, 2008 to provide additional information concerning containment foils and dampers. Supplement 3 to RAI No.1, provided AREVA NP, Inc.'s Containment Technical Report, ANP-10299P, and a technically correct and complete response to 1 of the remaining questions on January 28, 2009. Supplement 4 response to RAI No. 1 was sent on June 10, 2009 to address 1 of the remaining questions. Supplement 5 response to RAI No. 1 was sent on June 22, 2009 to change the response schedule.

AREVA NP is unable to provide a response to the remaining questions at this time. The U.S. EPR scaling analysis and distortion analysis are in process. Revision 1 of ANP-10299P includes the scaling analysis of the U.S. EPR for the initial (blowdown) pressure peak. The remaining work scope prevents a complete response according to the original RAI schedule.

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

Question #	Response Date
RAI 01 — 06.02.01-01	December 2, 2009
RAI 01 — 06.02.01-07	August 27, 2009

Sincerely,

Ronda Pederson

ronda.pederson@areva.com Licensing Manager, U.S. EPR Design Certification **AREVA NP Inc.** An AREVA and Siemens company 3315 Old Forest Road Lynchburg, VA 24506-0935 Phone: 434-832-3694 Cell: 434-841-8788

From: Pederson Ronda M (AREVA NP INC)
Sent: Monday, June 22, 2009 3:54 PM
To: 'Getachew Tesfaye'
Cc: BEELMAN Ronald J (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); DELANO Karen V (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 1, FSAR Ch 6, Supplement 5

Getachew,

AREVA NP, Inc. provided responses to 6 of the 10 questions of RAI No. 1 on May 9, 2008. Supplement 1 response to RAI No. 1 was sent on September 05, 2008 to address Question 06.02.01-10. Supplement 2 response to RAI No. 1 was sent on December 19, 2008 to provide additional information concerning containment foils and dampers. Supplement 3 to RAI No.1, containing AREVA NP, Inc. Containment Technical Report, ANP-10299P, was sent on January 28, 2009, and provided a technically correct and complete response to 1 of the remaining questions. Supplement 4 response to RAI No. 1 was sent on June 10, 2009 to address 1 of the remaining questions.

Pursuant to the NRC audit conducted in April, the U.S. EPR GOTHIC multi-node containment model has undergone substantial nodal changes that prevent a response according to the original RAI schedule.The schedule for technically correct and complete responses to the remaining questions has been changed and is provided below.

Question #	Response Date
RAI 01 — 06.02.01-01	July 31, 2009
RAI 01 — 06.02.01-07	August 27, 2009

Sincerely,

## Ronda Pederson

ronda.pederson@areva.com Licensing Manager, U.S. EPR Design Certification **AREVA NP Inc.** An AREVA and Siemens company 3315 Old Forest Road Lynchburg, VA 24506-0935 Phone: 434-832-3694 Cell: 434-841-8788

From: WELLS Russell D (AREVA NP INC)
Sent: Friday, May 22, 2009 1:22 PM
To: 'Getachew Tesfaye'
Cc: Pederson Ronda M (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); DELANO Karen V (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 1, FSAR Ch 6, Supplement 4

Getachew,

AREVA NP, Inc. (AREVA NP) provided responses to 6 of the 10 questions of RAI No. 1 on May 9, 2008. On January 27, 2009, replacement pages 28 and 29 were provided for the original response. Supplement 1 response to RAI No. 1 was sent on September 05, 2008 to address Question 06.02.01-10. Supplement 2 response to RAI No. 1 was sent on December 19, 2008 to provide additional information concerning containment foils and dampers. AREVA NP Technical Report ANP-10299P, "Applicability of AREVA NP Containment Response Evaluation Methodology to the U.S. EPR<sup>™</sup> for Large Break LOCA Analysis," submitted via AREVA NP letter NRC:09:006, dated January 28, 2009, provided technically correct and complete responses to 1 of the 4 remaining questions in RAI No. 01.

Attached please find AREVA NP Inc.'s supplemental response to the subject request for additional information (RAI). The attached file, "RAI 1 Supplement 4 Response US EPR DC.pdf" provides technically correct and complete responses to 1 of the 3 remaining questions.

The following table indicates the respective pages in the response document, "RAI 1 Supplement 4 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 01 — 06.02.01-01.a	2	4
RAI 01 — 06.02.01-01.c.4	2	4
RAI 01 — 06.02.01-03.b	5	5

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

Question #	Response Date
RAI 01 — 06.02.01-01	July 31, 2009
RAI 01 — 06.02.01-07	June 23, 2009

Sincerely,

(Russ Wells on behalf of) *Ronda Pederson* 

ronda.pederson@areva.com Licensing Manager, U.S. EPR Design Certification New Plants Deployment **AREVA NP, Inc.** An AREVA and Siemens company 3315 Old Forest Road Lynchburg, VA 24506-0935 Phone: 434-832-3694 Cell: 434-841-8788

From: Pederson Ronda M (AREVA NP INC)
Sent: Wednesday, January 28, 2009 7:17 PM
To: Getachew Tesfaye
Cc: BENNETT Kathy A (OFR) (AREVA NP INC); DELANO Karen V (AREVA NP INC); BEELMAN Ronald J (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 1, Supplement 3

Getachew,

AREVA NP, Inc. provided responses to 6 of the 10 questions of RAI No. 1 on May 9, 2008. On January 27, 2009, replacement pages 28 and 29 were provided for the original response. RAI No. 1, Supplement 1 response was sent on September 05, 2008 to address Question 06.02.01-10. RAI No. 1, Supplement 2 response was sent on December 19, 2008 to provide additional information concerning containment foils and dampers.

The proprietary and non-proprietary versions of the Containment Technical Report, ANP-10299, are submitted via AREVA NP, Inc. letter, "Submittal of ANP-10299P, 'Applicability of AREVA NP Containment Response Evaluation Methodology to the U.S. EPR<sup>™</sup> for Large Break LOCA Analysis Technical Report'," NRC:09:006, dated January 28, 2009.

The following table indicates the RAI No. 1 questions that are answered in the subject technical report.

Question #	
RAI 01 — 06.02.01-01	
RAI 01 — 06.02.01-01.b	

RAI 01 — 06.02.01-01.c.1
RAI 01 — 06.02.01-01.c.2
RAI 01 — 06.02.01-01.c.3
RAI 01 — 06.02.01-01.c.5
RAI 01 — 06.02.01-01.c.6
RAI 01 — 06.02.01-02
RAI 01 — 06.02.01-03.a

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

Question #	Response Date
RAI 01 — 06.02.01-01.a	May 22, 2009
RAI 01 — 06.02.01-01.c.4	May 22, 2009
RAI 01 — 06.02.01-03.b	May 22, 2009
RAI 01 — 06.02.01-07.d	June 23, 2009

Sincerely,

## Ronda Pederson

ronda.pederson@areva.com Licensing Manager, U.S. EPR Design Certification **AREVA NP Inc.** An AREVA and Siemens company 3315 Old Forest Road Lynchburg, VA 24506-0935 Phone: 434-832-3694 Cell: 434-841-8788

From: Pederson Ronda M (AREVA NP INC)
Sent: Tuesday, January 27, 2009 3:54 PM
To: 'Getachew Tesfaye'
Cc: BEELMAN Ronald J (AREVA NP INC); DELANO Karen V (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 1, FSAR Ch 6, Revised pages

## Getachew,

AREVA NP Inc. (AREVA NP) provided responses to 6 of the 10 questions of RAI No. 1 on May 9, 2008. Attached are AREVA NP's replacement pages (28 and 29) for the Response to U.S. EPR Design Certification Application RAI No. 1.

The attached file, "RAI 1 Response (revised pages 28 and 29) US EPR DC.pdf" provides two corrected pages of Table 6.2.1-07-3, which replace pages 28 and 29 of the 55 page response document. AREVA NP has determined that the information struck out in the attached document is obsolete and the reviewer should refer to the AREVA NP's Response to U.S. EPR Design Certification Application RAI No. 1, Supplement 2 for the relevant information. The submittal of incorrect information has been entered into AREVA NP's corrective action program.

The following table indicates the respective pages in the attached response document, "RAI 1 Response (revised pages 28 and 29) US EPR DC.pdf," that contain AREVA NP's revised pages to the subject question.

Question #	Start Page	End Page
RAI 1 — 6.2.1-07c	1	2

The schedule for technically correct and complete responses to the remaining RAI No. 1 questions is provided below and remains unchanged.

Question #	Response Date
RAI 1—6.2.1-01	January 28, 2009
RAI 1—6.2.1-02	January 28, 2009
RAI 1—6.2.1-03	January 28, 2009
RAI 1-6.2.1-07d	January 28, 2009

Sincerely,

## Ronda Pederson

ronda.pederson@areva.com Licensing Manager, U.S. EPR Design Certification **AREVA NP Inc.** An AREVA and Siemens company 3315 Old Forest Road Lynchburg, VA 24506-0935 Phone: 434-832-3694 Cell: 434-841-8788

From: WELLS Russell D (AREVA NP INC)
Sent: Friday, December 19, 2008 5:12 PM
To: 'Getachew Tesfaye'
Cc: 'John Rycyna'; Pederson Ronda M (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); DELANO Karen V (AREVA NP INC); SLIVA Dana (EXT)
Subject: Response to U.S. EPR Design Certification Application RAI No. 1, FSAR Ch 6, Supplement 2

## Getachew,

During the October 31, 2008 meeting between NRC and AREVA NP at NRC Headquarters to discuss U.S. EPR containment analysis, AREVA NP committed to providing additional information concerning containment foils and dampers. AREVA NP's original response, dated May 9, 2008, to RAI-1 Questions 6.2.1-07a and 6.2.1.-07b are hereby superseded by this supplemental response.

Appended to this file are affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which support the revised response to RAI 1 Questions 6.2.1-07a and 6.2.1-07b.

The following table indicates the respective pages in the attached response document, "RAI 1 Response Supplement 2 US EPR DC.pdf," that contain AREVA NP's revised response to the subject questions.

Question #	Start Page	End Page
RAI 1 — 6.2.1-07	2	4

The schedule for technically correct and complete responses to the remaining RAI No. 1 questions is provided below and remains unchanged.

Question #	Response Date
RAI 1—6.2.1-01	January 28, 2009
RAI 1-6.2.1-02	January 28, 2009
RAI 1—6.2.1-03	January 28, 2009
RAI 1—6.2.1-07c and -07d	January 28, 2009

Sincerely,

(Russ Wells on behalf of) *Ronda Pederson* 

ronda.pederson@areva.com Licensing Manager, U.S. EPR Design Certification New Plants Deployment **AREVA NP, Inc.** An AREVA and Siemens company 3315 Old Forest Road Lynchburg, VA 24506-0935 Phone: 434-832-3694 Cell: 434-841-8788

From: Pederson Ronda M (AREVA NP INC)
Sent: Friday, September 05, 2008 1:42 PM
To: 'Getachew Tesfaye'
Cc: 'John Rycyna'; WELLS Russell D (AREVA NP INC); DUNCAN Leslie E (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); DELANO Karen V (AREVA NP INC)
Subject: FW: Response to U.S. EPR Design Certification Application RAI No. 1, Question 06.02.01-10, Supplement 1

Getachew,

Attached is the AREVA NP Inc. supplemental response to the RAI No. 1, Question 06.02.01-10. AREVA NP Inc. provided responses to 6 of the 10 "RAI No. 1" questions on May 9, 2008. The attached file, "RAI 1, Question 06.02.01-10 Supplement 1 Response US EPR DC.pdf" provides a correct Figure 6.2.1-10-3, which replaces the previously submitted Figure 6.2.1-10-3. The submittal of an incorrect figure has been entered into AREVA NP Inc.'s corrective action program.

The following table provides the page in the response document, "RAI 1, Question 06.02.01-10 Supplement 1 Response US EPR DC.pdf" containing the supplemental information.

Question #	Start Page	End Page
RAI 1 — 06.02.01-10	2	2

Sincerely,

Ronda Pederson

ronda.pederson@areva.com Licensing Manager, U.S. EPR Design Certification New Plants Deployment From: Pederson Ronda M (AREVA NP INC)
Sent: Friday, May 09, 2008 2:49 PM
To: 'Getachew Tesfaye'
Cc: 'John Rycyna'; SHAHROKHI F (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC)
Subject: FW: U.S. EPR Design Certification Application RAI No. 1

Getachew,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 1 Response-US EPR DC.pdf" provides technically correct and complete responses to 6 of the 10 questions. Since the response file contains security-related sensitive information that should be withheld from public disclosure in accordance with 10 CFR 2.390, a public version is provided with the security-related sensitive information. The unredacted SUNSI version is provided under separate email.

The attached file, "RAI 1 US EPR FSAR Changes.pdf" provides affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format.

The following table provides the page(s) in the response document, "RAI 1 Response-US EPR DC.pdf" containing the response to each question.

Question #	Start Page	End Page
RAI 1-6.2.1-01	2	4
RAI 1-6.2.1-02	5	5
RAI 1-6.2.1-03	6	6
RAI 1-6.2.1-04	7	7
RAI 1-6.2.1-05	8	10
RAI 1-6.2.1-06	11	11
RAI 1-6.2.1-07	12	33
RAI 1-6.2.1-08	34	37
RAI 1-6.2.1-09	38	50
RAI 1-6.2.1-10	51	55

Complete answers are not provided for 4 of the questions. The schedule for technically correct and complete response to for these questions is provided below.

Question #	<b>Response Date</b>
RAI 1—6.2.1-01	January 28, 2009
RAI 1—6.2.1-02	January 28, 2009
RAI 1—6.2.1-03	January 28, 2009
RAI 1—6.2.1-07c and -07d	January 28, 2009

The provided response and schedule meet NRC's stated expectation and support the established review schedule for the U.S. EPR Design Certification application.

Sincerely,

# Ronda Pederson

ronda.pederson@areva.com Licensing Manager, U.S. EPR Design Certification New Plants Deployment **AREVA NP, Inc.** An AREVA and Siemens company 3315 Old Forest Road Lynchburg, VA 24506-0935 Phone: 434-832-3694 Cell: 434-841-8788

From: Getachew Tesfaye [mailto:Getachew.Tesfaye@nrc.gov]
Sent: Wednesday, April 09, 2008 4:16 PM
To: ZZ-DL-A-USEPR-DL
Cc: Pederson Ronda M (AREVA NP INC); Jack Donohue; Walton Jensen; Christopher Jackson; Joseph Colaccino
Subject: U.S. EPR Design Certification Application RAI No. 1

Attached please find the subject requests for additional information (RAIs). This RAI was discussed with your staff on April 2, 2008. 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.

Getachew Tesfaye Office of New Reactors U.S. Nuclear Regulatory Commission (301) 415-3361 Hearing Identifier: AREVA\_EPR\_DC\_RAIs Email Number: 1000

#### Mail Envelope Properties (5CEC4184E98FFE49A383961FAD402D310171B068)

Subject: Supplement 8	Response to U.S. EPR Design Certification Application RAI No. 1, FSAR Ch 6,
Sent Date:	12/2/2009 6:20:36 PM
Received Date:	12/2/2009 6:20:39 PM
From:	Pederson Ronda M (AREVA NP INC)

Created By: Ronda.Pederson@areva.com

**Recipients:** 

"BENNETT Kathy A (OFR) (AREVA NP INC)" <Kathy.Bennett@areva.com> Tracking Status: None "DELANO Karen V (AREVA NP INC)" <Karen.Delano@areva.com> Tracking Status: None "BEELMAN Ronald J (AREVA NP INC)" <Ronald.Beelman@areva.com> Tracking Status: None "Tesfaye, Getachew" <Getachew.Tesfaye@nrc.gov> Tracking Status: None

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RAI 1 Supplement 8 Response	e US EPR DC.pdf

Date & Time 12/2/2009 6:20:39 PM 75453

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

Response to Request for Additional Information No. 1, Supplement 8 4/9/2008 U. S. EPR Standard Design Certification AREVA NP Inc. Docket No. 52-020 SRP Section: 6.2.1 – Containment Functional Design Application Section: 6.2 SPCV Branch Response to Request for Additional Information No. 1, Supplement 8 U.S. EPR Design Certification Application

## Question 6.2.1-01

(FSAR Section 6.2.1) The NRC staff is reviewing the AREVA evaluation model for the containment functional design following a loss of coolant accident. The evaluation model includes methodology for determining the steam release and water spillage from the reactor system following a piping rupture as well as the methodology for determining the thermodynamic condition within the containment building. The EPR containment design is unlike that of operating PWRs in the US in that it does not include safety related containment sprays or fan coolers and instead relies on other containment heat removal mechanisms to a greater extent than credited in the containment analyses of operating PWRs. These heat removal mechanisms are the quenching of steam within the reactor system by incoming ECCS water and the removal of heat from the containment atmosphere by the internal containment structures.

Although the NRC staff has previously approved the AREVA evaluation model for use in safety analyses for the core reloads of operating plants, the staff did not review the methodology for application to the safety analyses of a plant without active safety related systems able to cool and mix the containment atmosphere following a postulated design basis LOCA. The NRC staff therefore requests that AREVA follow Regulatory Guide 1.203 in seeking approval of the EPR containment evaluation model. RG 1.203 describes a process that the NRC staff considers acceptable in developing and assessing evaluation models that will be used to analyze transient and accident behavior that is within the design basis of a nuclear power plant. The staff recognizes that portions of the EPR containment model have undergone a process similar to the one described in RG 1.203 for operating plants. For the portions of the model that have undergone a process similar to RG 1.203, the staff requests that AREVA provide a description or reference to the prior process and explain why the prior process bounds the application of the model for the EPR.

- a. Regulatory Guide (RG)-1.203, "Transient and Accident Methods," Regulatory Element 1 provides 20 steps for a process of evaluation model development and assessment. These elements discuss how computer codes will be assessed for adequacy for specific applications, describes their usage with other computer codes and their qualification for the specific applications for which they will be applied. Please address each of these 20 steps and show how the recommendations are met by the AREVA evaluation model for the US-EPR containment safety analysis.
- b. Regulatory Element 2 of RG-1.203 deals with quality assurance. Appendix B to 10 CFR Part 50 describes NRC requirements regarding quality assurance for nuclear power plants. Please provide descriptions of how the evaluation model for US-EPR containment analysis meets these requirements.
- c. Regulatory Element 3 of RG-1.203 deals with documentation. Please provide or provide available reference to the following documentation for the US-EPR containment evaluation model:
  - c.1. Requirements

The requirements for the evaluation model as developed in the phenomena identification and ranking table (PIRT) should be established and documented. Step 4 of Regulatory Position 1 to RG-1.203 deals with the development of the PIRT for the various applications for the evaluation model. The PIRT provides a means of determining those processes and phenomena for which code assessment should be

demonstrated. Please provide PIRTs for the evaluation of the containment functional design following a LOCA. Provide the qualifications of the PIRT panel members.

c.2. Methodology

Please provide methodology documentation as described in the regulatory guide. You should include noding diagrams as well as the selection of input options and justify the selection of each option chosen. The noding arrangement for the containment building and the reactor system should be provided and justified.

c.3. User manuals and user guidelines

Provide documentation describing user instructions for the application of the evaluation model software for US-EPR containment analysis.

c.4. Scaling Reports

Scaling analyses should be conducted to ensure that the data and the models based on those data, will be applicable to the full-scale analyses performed for the US-EPR. Provide scaling reports for the test facilities used in the validation for the US-EPR containment evaluation model as discussed in the regulatory guide.

c.5. Assessment Reports

As described in the regulatory guide, the evaluation model should be assessed against applicable experimental data to ensure that the significant phenomena and processes for containment analysis as identified in the PIRT are being adequately modeled.

c.6. Uncertainty Analysis Reports Please provide documentation of any uncertainty analysis performed for use of US-EPR containment evaluation model.

## **Response to Question 6.2.1-01:**

#### Question 6.2.1-01a:

ANP-10299P Revision 2, "Applicability of AREVA NP Containment Response Evaluation Methodology to the U.S. EPR for Large Break LOCA Analysis - Technical Report," Section 4.4 and Appendices B & C provide the response to this question.

#### *Question* 6.2.1-01c.4:

ANP-10299P Revision 2, "Applicability of AREVA NP Containment Response Evaluation Methodology to the U.S. EPR for Large Break LOCA Analysis - Technical Report," Section 4.4 and Appendices B & C provide the response to this question.

#### **FSAR Impact:**

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