

## ArevaEPRDCPEm Resource

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**From:** WILLIFORD Dennis (AREVA) [Dennis.Williford@areva.com]  
**Sent:** Friday, September 02, 2011 1:17 PM  
**To:** Tesfaye, Getachew  
**Cc:** BENNETT Kathy (AREVA); CRIBB Arnie (EXTERNAL AREVA); DELANO Karen (AREVA); HALLINGER Pat (EXTERNAL AREVA); HATHCOCK Phillip (AREVA); ROMINE Judy (AREVA); RYAN Tom (AREVA); WELLS Russell (AREVA); WILLIAMSON Rick (AREVA); HARRINGTON James (AREVA)  
**Subject:** DRAFT Revised Response to U.S. EPR Design Certification Application RAI No. 467, FSAR Ch. 3, Question 03.09.02-160  
**Attachments:** RAI 467 Q3-9-2-160 Response US EPR DC - DRAFT.pdf

Getachew,

Attached is a revised draft response for RAI No. 467, FSAR Ch. 3, Question 03.09.02-160 as shown below in advance of the September 9, 2011 final date. In addition, AREVA NP would like to know if the response to Question 03.09.02-161 (a revised draft response for this question was sent to the NRC on August 30, 2011) can be sent as final.

Let me know if the staff has questions or if the response to Question 03.09.02-160 (attached) can be sent as final.

Thanks,

**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](mailto:Dennis.Williford@areva.com)

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**From:** WILLIFORD Dennis (RS/NB)  
**Sent:** Tuesday, August 30, 2011 9:28 AM  
**To:** Getachew.Tesfaye@nrc.gov  
**Cc:** BENNETT Kathy (RS/NB); CRIBB Arnie (EXT); DELANO Karen (RS/NB); HALLINGER Pat (EXT); HATHCOCK Phillip (EP/PE); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); WELLS Russell (RS/NB); WILLIAMSON Rick (EP/PP); HARRINGTON James (EP/PE)  
**Subject:** DRAFT Revised Response to U.S. EPR Design Certification Application RAI No. 467, FSAR Ch. 3, Question 03.09.02-161

Getachew,

Attached is a draft response for RAI No. 467, FSAR Ch. 3, Question 03.09.02-161 as shown below in advance of the September 9, 2011 final date.

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

Thanks,

**Dennis Williford, P.E.**  
**U.S. EPR Design Certification Licensing Manager**  
**AREVA NP Inc.**  
7207 IBM Drive, Mail Code CLT 2B

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**From:** WILLIFORD Dennis (RS/NB)  
**Sent:** Friday, August 05, 2011 10:37 AM  
**To:** Tesfaye, Getachew  
**Cc:** BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); WELLS Russell (RS/NB)  
**Subject:** Response to U.S. EPR Design Certification Application RAI No. 467, FSAR Ch. 3, Supplement 9

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for the 14 questions of RAI No. 467 on February 24, 2011. AREVA NP submitted Supplement 1 on April 1, 2011 to provide technically correct and complete responses to 4 of the remaining 14 questions. AREVA NP submitted Supplement 2 on April 15, 2011, Supplement 3 on May 27, 2011, and Supplement 4 on June 22, 2011, to provide a revised schedule for 9 of the 10 remaining questions. AREVA NP submitted RAI 467 Supplement 5 on July 7, 2011, which provided a technically correct and complete response to 1 of the remaining 10 questions. AREVA NP submitted RAI 467 Supplement 6 on July 27, 2011, which provided a revised schedule for the remaining 9 questions. AREVA NP submitted RAI 467 Supplement 7 on July 29, 2011, which provided a technically correct and complete final responses to 3 of the remaining 9 questions. AREVA NP submitted RAI 467 Supplement 8 on August 3, 2011, which provided a technically correct and complete final response to 1 of the 6 remaining questions. The attached file, "RAI 467 Supplement 9 Response US EPR DC.pdf" provides technically correct and complete FINAL responses to 2 of the remaining 5 questions, as committed.

The following table indicates the respective pages in the response document, "RAI 467 Supplement 9 Response US EPR DC.pdf" that contain AREVA NP's final response to the subject questions.

Question #	Start Page	End Page
RAI 467 — 03.09.02-157	2	4
RAI 467 — 03.09.02-165	5	5

The schedule for technically correct and complete final responses to the remaining 3 questions is unchanged as provided below.

Question #	Response Date
RAI 467 — 03.06.03-28	September 15, 2011
RAI 467 — 03.09.02-160	September 9, 2011
RAI 467 — 03.09.02-161	September 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  
Phone: 704-805-2223  
Email: [Dennis.Williford@areva.com](mailto:Dennis.Williford@areva.com)

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**From:** WILLIFORD Dennis (RS/NB)  
**Sent:** Wednesday, August 03, 2011 12:38 PM

**To:** 'Tesfaye, Getachew'

**Cc:** BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); WELLS Russell (RS/NB)

**Subject:** Response to U.S. EPR Design Certification Application RAI No. 467, FSAR Ch. 3, Supplement 8

Getachew,

AREVA NP Inc. letter NRC:11:084 dated August 2, 2011 provides a technically correct and complete final response to 1 of the 6 remaining questions in RAI 467. AREVA NP considers some of the material contained in the response to be proprietary information. As required by 10 CFR 2.390(b), an affidavit is provided to support the withholding of the proprietary information from public disclosure. Proprietary and non-proprietary versions of the enclosure to this letter are provided separately.

The following table indicates the respective pages in the enclosed response that contain AREVA NP's final response to the subject question.

Question #	Start Page	End Page
RAI 467 — 03.09.02-163	2	5

The schedule for a technically correct and complete final response to Question 03.06.03-28 has been revised as shown below in bold. The schedule for technically correct and complete final responses to the remaining questions is unchanged as provided below.

Question #	Response Date
RAI 467 — 03.06.03-28	<b>September 15, 2011</b>
RAI 467 — 03.09.02-157	September 9, 2011
RAI 467 — 03.09.02-160	September 9, 2011
RAI 467 — 03.09.02-161	September 9, 2011
RAI 467 — 03.09.02-165	September 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

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Email: [Dennis.Williford@areva.com](mailto:Dennis.Williford@areva.com)

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**From:** WELLS Russell (RS/NB)

**Sent:** Friday, July 29, 2011 2:45 PM

**To:** Tesfaye, Getachew

**Cc:** WILLIFORD Dennis (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); RYAN Tom (RS/NB)

**Subject:** Response to U.S. EPR Design Certification Application RAI No. 467, FSAR Ch. 3, Supplement 7

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for the 14 questions of RAI No. 467 on February 24, 2011. AREVA NP submitted Supplement 1 on April 1, 2011 to provide technically correct and complete responses to 4 of the remaining 14 questions. AREVA NP submitted Supplement 2 on April 15, 2011, Supplement 3 on May 27, 2011, and Supplement 4 on June 22, 2011, to provide a revised schedule for 9 of the 10 remaining

questions. AREVA NP submitted RAI 467 Supplement 5 on July 7, 2011, which provided a technically correct and complete response to 1 of the remaining 10 questions. AREVA NP submitted RAI 467 Supplement 6 on July 27, 2011, which provided a revised schedule for the remaining 9 questions. The attached file, "RAI 467 Supplement 7 Response US EPR DC.pdf" provides technically correct and complete FINAL responses to 3 of the remaining 9 questions, as committed.

The following table indicates the respective pages in the response document, "RAI 467 Supplement 7 Response US EPR DC.pdf" that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 467 — 03.09.02-155	2	3
RAI 467 — 03.09.02-156	4	4
RAI 467 — 03.09.02-162	5	6

The schedule for technically correct and complete FINAL responses to the remaining 6 questions is unchanged as provided below.

Question #	Response Date
RAI 467 — 03.06.03-28	August 15, 2011
RAI 467 — 03.09.02-157	September 9, 2011
RAI 467 — 03.09.02-160	September 9, 2011
RAI 467 — 03.09.02-161	September 9, 2011
RAI 467 — 03.09.02-163	September 9, 2011
RAI 467 — 03.09.02-165	September 9, 2011

Sincerely,

*Russ Wells for*  
**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](mailto:Dennis.Williford@areva.com)

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**From:** WELLS Russell (RS/NB)  
**Sent:** Wednesday, July 27, 2011 10:23 AM  
**To:** 'Tefaye, Getachew'  
**Cc:** WILLIFORD Dennis (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); RYAN Tom (RS/NB)  
**Subject:** Response to U.S. EPR Design Certification Application RAI No. 467, FSAR Ch. 3, Supplement 6

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for the 14 questions of RAI No. 467 on February 24, 2011. AREVA NP submitted Supplement 1 on April 1, 2011 to provide technically correct and complete responses to 4 of the remaining 14 questions. AREVA NP submitted Supplement 2 on April 15, 2011, Supplement 3 on May 27, 2011, and Supplement 4 on June 22, 2011, to provide a revised schedule for 9 of the 10 remaining questions. AREVA NP submitted RAI 467 Supplement 5 on July 7, 2011, which provided a technically correct and complete response to 1 of the remaining 10 questions.

The schedule for technically correct and complete responses to the remaining 9 questions has been changed as provided below.

Question #	Response Date
RAI 467 — 03.06.03-28	August 15, 2011
RAI 467 — 03.09.02-155	<b>September 9, 2011</b>
RAI 467 — 03.09.02-156	<b>September 9, 2011</b>
RAI 467 — 03.09.02-157	<b>September 9, 2011</b>
RAI 467 — 03.09.02-160	<b>September 9, 2011</b>
RAI 467 — 03.09.02-161	<b>September 9, 2011</b>
RAI 467 — 03.09.02-162	<b>September 9, 2011</b>
RAI 467 — 03.09.02-163	<b>September 9, 2011</b>
RAI 467 — 03.09.02-165	<b>September 9, 2011</b>

Sincerely,

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

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

**From:** WILLIFORD Dennis (RS/NB)  
**Sent:** Thursday, July 07, 2011 11:35 AM  
**To:** Tesfaye, Getachew  
**Cc:** BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); WELLS Russell (RS/NB)  
**Subject:** Response to U.S. EPR Design Certification Application RAI No. 467, FSAR Ch. 3, Supplement 5

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for the 14 questions of RAI No. 467 on February 24, 2011. AREVA NP submitted Supplement 1 on April 1, 2011 to provide technically correct and complete responses to 4 of the remaining 14 questions. AREVA NP submitted Supplement 2 on April 15, 2011, Supplement 3 on May 27, 2011, and Supplement 4 on June 22, 2011, to provide a revised schedule for 9 of the 10 remaining questions.

The attached file, "RAI 467 Supplement 5 Response US EPR DC.pdf" provides a technically correct and complete response to 1 of the remaining 10 questions.

The following table indicates the respective pages in the response document, "RAI 467 Supplement 5 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 467 — 03.09.02-167	2	2

The schedule for technically correct and complete responses to the remaining 9 questions is unchanged as provided below.

Question #	Response Date
RAI 467 — 03.06.03-28	August 15, 2011
RAI 467 — 03.09.02-155	July 27, 2011
RAI 467 — 03.09.02-156	July 27, 2011
RAI 467 — 03.09.02-157	July 27, 2011
RAI 467 — 03.09.02-160	July 27, 2011
RAI 467 — 03.09.02-161	July 27, 2011
RAI 467 — 03.09.02-162	July 27, 2011
RAI 467 — 03.09.02-163	July 27, 2011
RAI 467 — 03.09.02-165	July 27, 2011

Sincerely,

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

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Charlotte, NC 28262  
Phone: 704-805-2223  
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**From:** WILLIFORD Dennis (RS/NB)  
**Sent:** Wednesday, June 22, 2011 12:57 PM  
**To:** 'Tesfaye, Getachew'  
**Cc:** BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); WELLS Russell (RS/NB)  
**Subject:** Response to U.S. EPR Design Certification Application RAI No. 467, FSAR Ch. 3, Supplement 4

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for the 14 questions of RAI No. 467 on February 24, 2011. AREVA NP submitted Supplement 1 on April 1, 2011 to provide technically correct and complete responses to 4 of the remaining 14 questions. AREVA NP submitted Supplement 2 on April 15, 2011 and Supplement 3 on May 27, 2011, to provide a revised schedule for 9 of the 10 remaining questions

The schedule for 9 of the 10 questions, shown in bold below, has been 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 #	Response Date
RAI 467 — 03.06.03-28	August 15, 2011
<b>RAI 467 — 03.09.02-155</b>	<b>July 27, 2011</b>
<b>RAI 467 — 03.09.02-156</b>	<b>July 27, 2011</b>
<b>RAI 467 — 03.09.02-157</b>	<b>July 27, 2011</b>
<b>RAI 467 — 03.09.02-160</b>	<b>July 27, 2011</b>
<b>RAI 467 — 03.09.02-161</b>	<b>July 27, 2011</b>
<b>RAI 467 — 03.09.02-162</b>	<b>July 27, 2011</b>
<b>RAI 467 — 03.09.02-163</b>	<b>July 27, 2011</b>
<b>RAI 467 — 03.09.02-165</b>	<b>July 27, 2011</b>
<b>RAI 467 — 03.09.02-167</b>	<b>July 27, 2011</b>

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](mailto:Dennis.Williford@areva.com)

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**From:** WILLIFORD Dennis (RS/NB)  
**Sent:** Friday, May 27, 2011 11:11 AM  
**To:** Tesfaye, Getachew  
**Cc:** BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); WELLS Russell (RS/NB); CORNELL Veronica (External RS/NB)  
**Subject:** Response to U.S. EPR Design Certification Application RAI No. 467, FSAR Ch. 3, Supplement 3

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for the 14 questions of RAI No. 467 on February 24, 2011. AREVA NP submitted Supplement 1 on April 1, 2011 to provide technically correct and complete responses to 4 of the remaining 14 questions. AREVA NP submitted Supplement 2 on April 15, 2011 to provide a revised schedule for 9 of the 10 remaining questions

The schedule for 9 of the 10 questions, shown in bold below, has been 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 #	Response Date
RAI 467 — 03.06.03-28	August 15, 2011
<b>RAI 467 — 03.09.02-155</b>	<b>June 27, 2011</b>
<b>RAI 467 — 03.09.02-156</b>	<b>June 27, 2011</b>
<b>RAI 467 — 03.09.02-157</b>	<b>June 27, 2011</b>
<b>RAI 467 — 03.09.02-160</b>	<b>June 27, 2011</b>
<b>RAI 467 — 03.09.02-161</b>	<b>June 27, 2011</b>
<b>RAI 467 — 03.09.02-162</b>	<b>June 27, 2011</b>
<b>RAI 467 — 03.09.02-163</b>	<b>June 27, 2011</b>
<b>RAI 467 — 03.09.02-165</b>	<b>June 27, 2011</b>
<b>RAI 467 — 03.09.02-167</b>	<b>June 27, 2011</b>

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](mailto:Dennis.Williford@areva.com)

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**From:** WELLS Russell (RS/NB)  
**Sent:** Friday, April 15, 2011 4:15 PM  
**To:** Tesfaye, Getachew



**Cc:** 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. 467, FSAR Ch. 3, Supplement 2

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for the 14 questions of RAI No. 467 on February 24, 2011. AREVA NP submitted Supplement 1 on April 1, 2011 to provide technically correct and complete responses to 4 of the remaining 14 questions.

To allow additional time to interact with NRC staff, the schedule for technically correct and complete responses to 9 of the 10 has been changed and is provided below. The schedule for a technically correct and complete response to the remaining question is unchanged and is provided below:

Question #	Response Date
RAI 467 — 03.06.03-28	August 15, 2011
RAI 467 — 03.09.02-155	<b>May 27, 2011</b>
RAI 467 — 03.09.02-156	<b>May 27, 2011</b>
RAI 467 — 03.09.02-157	<b>May 27, 2011</b>
RAI 467 — 03.09.02-160	<b>May 27, 2011</b>
RAI 467 — 03.09.02-161	<b>May 27, 2011</b>
RAI 467 — 03.09.02-162	<b>May 27, 2011</b>
RAI 467 — 03.09.02-163	<b>May 27, 2011</b>
RAI 467 — 03.09.02-165	<b>May 27, 2011</b>
RAI 467 — 03.09.02-167	<b>May 27, 2011</b>

*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](mailto:Russell.Wells@Areva.com)*

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**From:** WELLS Russell (RS/NB)  
**Sent:** Friday, April 01, 2011 1:24 PM  
**To:** 'Tesfaye, Getachew'  
**Cc:** 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. 467, FSAR Ch. 3, Supplement 1

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for the 14 questions of RAI No. 467 on February 24, 2011. The attached file, "RAI 467 Supplement 1 Response US EPR DC.pdf" provides technically correct and complete responses to 4 of the remaining 14 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 467 Questions 03.09.02-158, 03.09.02-159, and 03.09.02-164.

The following table indicates the respective pages in the response document, "RAI 467 Supplement 1 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 467 — 03.09.02-158	6	6
RAI 467 — 03.09.02-159	7	7
RAI 467 — 03.09.02-164	12	12
RAI 467 — 03.09.02-166	14	14

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

Question #	Response Date
RAI 467 — 03.06.03-28	August 15, 2011
RAI 467 — 03.09.02-155	April 28, 2011
RAI 467 — 03.09.02-156	April 28, 2011
RAI 467 — 03.09.02-157	April 28, 2011
RAI 467 — 03.09.02-160	April 28, 2011
RAI 467 — 03.09.02-161	April 28, 2011
RAI 467 — 03.09.02-162	April 28, 2011
RAI 467 — 03.09.02-163	April 28, 2011
RAI 467 — 03.09.02-165	April 28, 2011
RAI 467 — 03.09.02-167	April 28, 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*

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*Phone: 434-832-3884 (work)*

*434-942-6375 (cell)*

*Fax: 434-382-3884*

*[Russell.Wells@Areva.com](mailto:Russell.Wells@Areva.com)*

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**From:** WELLS Russell (RS/NB)

**Sent:** Thursday, February 24, 2011 2:08 PM

**To:** 'Tesfaye, Getachew'

**Cc:** DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); BRYAN Martin (External RS/NB)

**Subject:** Response to U.S. EPR Design Certification Application RAI No. 467, FSAR Ch. 3

Getachew,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 467 Response US EPR DC.pdf" provides a schedule for a technically correct and complete response to the 14 questions.

The following table indicates the respective pages in the response document, "RAI 467 Response US EPR DC.pdf" that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 467 — 03.06.03-28	2	2
RAI 467 — 03.09.02-155	3	3
RAI 467 — 03.09.02-156	4	4
RAI 467 — 03.09.02-157	5	5
RAI 467 — 03.09.02-158	6	6
RAI 467 — 03.09.02-159	7	7
RAI 467 — 03.09.02-160	8	8
RAI 467 — 03.09.02-161	9	9
RAI 467 — 03.09.02-162	10	10
RAI 467 — 03.09.02-163	11	11
RAI 467 — 03.09.02-164	12	12
RAI 467 — 03.09.02-165	13	13
RAI 467 — 03.09.02-166	14	14
RAI 467 — 03.09.02-167	15	15

A complete answer is not provided for the 14 questions. The schedule for a technically correct and complete response to these questions is provided below.

Question #	Response Date
RAI 467 — 03.06.03-28	August 15, 2011
RAI 467 — 03.09.02-155	April 28, 2011
RAI 467 — 03.09.02-156	April 28, 2011
RAI 467 — 03.09.02-157	April 28, 2011
RAI 467 — 03.09.02-158	April 28, 2011
RAI 467 — 03.09.02-159	April 28, 2011
RAI 467 — 03.09.02-160	April 28, 2011
RAI 467 — 03.09.02-161	April 28, 2011
RAI 467 — 03.09.02-162	April 28, 2011
RAI 467 — 03.09.02-163	April 28, 2011
RAI 467 — 03.09.02-164	April 28, 2011
RAI 467 — 03.09.02-165	April 28, 2011
RAI 467 — 03.09.02-166	April 28, 2011
RAI 467 — 03.09.02-167	April 28, 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)  
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Fax: 434-382-3884  
[Russell.Wells@Areva.com](mailto:Russell.Wells@Areva.com)

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**From:** Tesfaye, Getachew [mailto:Getachew.Tesfaye@nrc.gov]  
**Sent:** Wednesday, January 26, 2011 3:34 PM  
**To:** ZZ-DL-A-USEPR-DL  
**Cc:** Reichelt, Eric; Terao, David; Wong, Yuken; Dixon-Herrity, Jennifer; Miernicki, Michael; Colaccino, Joseph; ArevaEPRDCPEm Resource  
**Subject:** U.S. EPR Design Certification Application RAI No. 467 (5333, 5344), FSAR Ch. 3

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on January 6, 2011, and discussed with your staff on January 20 and 24, 2011. No change is made to the draft RAI 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/NARP  
(301) 415-3361

**Hearing Identifier:** AREVA\_EPR\_DC\_RAIs  
**Email Number:** 3394

**Mail Envelope Properties** (2FBE1051AEB2E748A0F98DF9EEE5A5D486D800)

**Subject:** DRAFT Revised Response to U.S. EPR Design Certification Application RAI  
No. 467, FSAR Ch. 3, Question 03.09.02-160  
**Sent Date:** 9/2/2011 1:17:24 PM  
**Received Date:** 9/2/2011 1:17:30 PM  
**From:** WILLIFORD Dennis (AREVA)

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**Response to**

**Request for Additional Information No. 467(5333, 5344)  
Question 03.09.02-160**

**1/26/2011**

**U.S. EPR Standard Design Certification**

**AREVA NP Inc.**

**Docket No. 52-020**

**SRP Section: 03.06.03 - Leak-Before-Break Evaluation Procedures**

**SRP Section: 03.09.02 - Dynamic Testing and Analysis of Systems Structures and  
Components**

**Application Section: FSAR Chapter 3**

**QUESTIONS for Component Integrity, Performance, and Testing Branch 1  
(AP1000/EPR Projects) (CIB1)**

**QUESTIONS for Engineering Mechanics Branch 2 (ESBWR/ABWR Projects)  
(EMB2)**

**Question 03.09.02-160:**

The applicant states the following in the FSAR, Appendix 3C.1.3 paragraph:

The initial conditions (pressures, enthalpies, and flow) for the RPV internals are calculated by spreadsheet using data obtained from an analysis of the RPV internal flow paths to assess bypass flows and pressure drops inside the RPV.

The applicant is requested to provide details of the methods used in the spreadsheet to verify the technical soundness of the method used as recommended by the NRC SRP 3.9.2.5.III.

**Response to Question 03.09.02-160:**

The reactor pressure vessel (RPV) hydraulic model is a more detailed version of the reactor coolant system (RCS) four-loop hydraulic model as explained in U.S. EPR FSAR Tier 2, Section 3C.1.3. The RPV model has been refined to add more control volumes and flow paths to the RPV lower head, core, downcomers, upper head, and upper plenum regions. The initial pressure and enthalpy values for the added control volumes and flow rates for the added flow paths are calculated using pressure loss and conservation of mass and energy equations from the CRAFT2 theoretical manual and the existing values from the RCS hydraulic model as a starting point.

The hydraulic modeling and analyses are performed in accordance with the methodology described in Topical Report BAW-10132P-A (U.S. EPR FSAR Tier 2, Appendix 3C, Reference 4). The spreadsheets provided in U.S. EPR FSAR Tier 2, Section 3C.1.3, are used to perform iterative calculations for the numerous control volumes and flow paths in the model in order to determine the initial control volume pressures and enthalpies. The only calculations performed using the spreadsheets are those used to determine steady-state pressures, temperatures, and flow rates in the RCS. This data is used to initialize the CRAFT RCS thermal-hydraulic model, which is used for all pipe rupture analyses. The calculations performed using spreadsheets do not incorporate a different methodology than the one described in BAW-10132P-A.

**FSAR Impact:**

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