

## ArevaEPRDCPEm Resource

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**From:** WILLIFORD Dennis (AREVA) [Dennis.Williford@areva.com]  
**Sent:** Thursday, January 19, 2012 11:19 AM  
**To:** Tesfaye, Getachew  
**Cc:** BENNETT Kathy (AREVA); DELANO Karen (AREVA); ROMINE Judy (AREVA); RYAN Tom (AREVA)  
**Subject:** Response to U.S. EPR Design Certification Application RAI No. 505 (5902,5735,5869,5754,5803,5950,5744), FSAR Ch. 7, Supplement 8  
**Attachments:** RAI 505 Response Supplement 8 - US EPR DC.pdf

Getachew,

On September 29, 2011, AREVA NP Inc. provided a schedule for technically correct and complete responses to the 34 questions in RAI 505. In Supplement 1 sent on October 27, 2011, and Supplement 2 sent on November 17, 2011, AREVA NP provided a revised schedule for technically correct and complete responses to 33 questions and a preliminary revised schedule for Question 07.01-33. AREVA NP provided Supplement 3 on November 22, 2011 to provide a final response to 4 questions. On December 9, 2011, AREVA NP provided Supplement 4 to revise the schedule for 7 questions. On December 14, 2011, AREVA NP provided Supplement 5 to revise the schedule for 5 questions. On December 15, 2011, AREVA NP provided Supplement 6 to provide a complete and final response to 6 questions. On January 10, 2012, AREVA NP provided Supplement 7 to provide a complete and final response to 2 questions.

The attached file, "RAI 505 Supplement 8 Response US EPR DC.pdf" provides a technically correct and complete final response to 1 of the remaining 22 questions.

The following table indicates the respective pages in the response document, "RAI 505 Supplement 8 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

| Question #         | Start Page | End Page |
|--------------------|------------|----------|
| RAI 505 — 07.01-42 | 2          | 2        |

The schedule for a technically correct and complete response to the remaining 21 questions is provided below. The preliminary schedule for the response to Question 07.01-33 has been revised and is being reevaluated and a new supplement with a revised schedule will be transmitted by February 21, 2012.

| Question #         | Response Date            |
|--------------------|--------------------------|
| RAI 505 — 07.01-33 | <b>February 21, 2012</b> |
| RAI 505 — 07.01-34 | April 5, 2012            |
| RAI 505 — 07.01-35 | April 26, 2012           |
| RAI 505 — 07.01-36 | February 9, 2012         |
| RAI 505 — 07.01-37 | March 8, 2012            |
| RAI 505 — 07.01-38 | February 9, 2012         |
| RAI 505 — 07.01-39 | February 9, 2012         |
| RAI 505 — 07.01-40 | February 9, 2012         |
| RAI 505 — 07.01-41 | February 9, 2012         |

|                    |                  |
|--------------------|------------------|
| RAI 505 — 07.01-44 | February 9, 2012 |
| RAI 505 — 07.01-45 | April 26, 2012   |
| RAI 505 — 07.01-46 | April 26, 2012   |
| RAI 505 — 07.01-47 | February 9, 2012 |
| RAI 505 — 07.01-48 | February 9, 2012 |
| RAI 505 — 07.01-49 | February 9, 2012 |
| RAI 505 — 07.01-50 | April 26, 2012   |
| RAI 505 — 07.01-51 | February 9, 2012 |
| RAI 505 — 07.03-38 | April 26, 2012   |
| RAI 505 — 07.05-10 | March 8, 2012    |
| RAI 505 — 07.08-47 | April 26, 2012   |
| RAI 505 — 07.09-71 | April 5, 2012    |

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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**From:** WILLIFORD Dennis (CORP/QP)  
**Sent:** Tuesday, January 10, 2012 5:21 PM  
**To:** [Getachew.Tesfaye@nrc.gov](mailto:Getachew.Tesfaye@nrc.gov)  
**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. 505 (5902,5735,5869,5754,5803,5950,5744), FSAR Ch. 7, Supplement 7

Getachew,

On September 29, 2011, AREVA NP Inc. provided a schedule for technically correct and complete responses to the 34 questions in RAI 505. In Supplement 1 sent on October 27, 2011, and Supplement 2 sent on November 17, 2011, AREVA NP provided a revised schedule for technically correct and complete responses to 33 questions and a preliminary revised schedule for Question 07.01-33. AREVA NP provided Supplement 3 on November 22, 2011 to provide a final response to 4 questions. On December 9, 2011, AREVA NP provided Supplement 4 to revise the schedule for 7 questions. On December 14, 2011, AREVA NP provided Supplement 5 to revise the schedule for 5 questions. On December 15, 2011, AREVA NP provided Supplement 6 to provide a complete and final response to 6 questions.

The attached file, "RAI 505 Supplement 7 Response US EPR DC.pdf" provides technically correct and complete final responses to 2 of the remaining 24 questions. 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 505 Question 07.08-48.

The following table indicates the respective pages in the response document, "RAI 505 Supplement 7 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

| Question #         | Start Page | End Page |
|--------------------|------------|----------|
| RAI 505 — 07.08-44 | 2          | 3        |
| RAI 505 — 07.08-48 | 4          | 5        |

The schedule for a technically correct and complete response to the remaining 22 questions has changed as provided below. The preliminary schedule for the response to Question 07.01-33 is being reevaluated and a new supplement with a revised schedule will be transmitted by January 25, 2012.

| Question #         | Response Date           |
|--------------------|-------------------------|
| RAI 505 — 07.01-33 | January 25, 2012        |
| RAI 505 — 07.01-34 | <b>April 5, 2012</b>    |
| RAI 505 — 07.01-35 | <b>April 26, 2012</b>   |
| RAI 505 — 07.01-36 | <b>February 9, 2012</b> |
| RAI 505 — 07.01-37 | <b>March 8, 2012</b>    |
| RAI 505 — 07.01-38 | <b>February 9, 2012</b> |
| RAI 505 — 07.01-39 | <b>February 9, 2012</b> |
| RAI 505 — 07.01-40 | <b>February 9, 2012</b> |
| RAI 505 — 07.01-41 | <b>February 9, 2012</b> |
| RAI 505 — 07.01-42 | <b>February 9, 2012</b> |
| RAI 505 — 07.01-44 | <b>February 9, 2012</b> |
| RAI 505 — 07.01-45 | <b>April 26, 2012</b>   |
| RAI 505 — 07.01-46 | <b>April 26, 2012</b>   |
| RAI 505 — 07.01-47 | <b>February 9, 2012</b> |
| RAI 505 — 07.01-48 | <b>February 9, 2012</b> |
| RAI 505 — 07.01-49 | <b>February 9, 2012</b> |
| RAI 505 — 07.01-50 | <b>April 26, 2012</b>   |
| RAI 505 — 07.01-51 | <b>February 9, 2012</b> |
| RAI 505 — 07.03-38 | <b>April 26, 2012</b>   |
| RAI 505 — 07.05-10 | <b>March 8, 2012</b>    |
| RAI 505 — 07.08-47 | <b>April 26, 2012</b>   |
| RAI 505 — 07.09-71 | <b>April 5, 2012</b>    |

Sincerely,

***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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Phone: 704-805-2223  
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**From:** WILLIFORD Dennis (RS/NB)  
**Sent:** Thursday, December 15, 2011 1:49 PM  
**To:** [Getachew.Tesfaye@nrc.gov](mailto:Getachew.Tesfaye@nrc.gov)

**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. 505 (5902,5735,5869,5754,5803,5950,5744), FSAR Ch. 7, Supplement 6

Getachew,

On September 29, 2011, AREVA NP Inc. provided a schedule for technically correct and complete responses to the 34 questions in RAI 505. In Supplement 1 sent on October 27, 2011, and Supplement 2 sent on November 17, 2011, AREVA NP provided a revised schedule for technically correct and complete responses to 33 questions and a preliminary revised schedule for Question 07.01-33. AREVA NP provided Supplement 3 on November 22, 2011 to provide a final response to 4 questions. On December 9, 2011, AREVA NP provided Supplement 4 to revise the schedule for 7 questions. On December 14, 2011, AREVA NP provided Supplement 5 to revise the schedule for 5 questions.

The attached file, "RAI 505 Supplement 6 Response US EPR DC.pdf" provides technically correct and complete responses to 6 of the remaining 30 questions. Appended to this file are affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which support the responses. Also appended to this file are affected pages of Technical Reports ANP-10304 and ANP-10309P. Revisions to these Technical Reports will be submitted by separate letter after completion of all responses to RAI 505.

The following table indicates the respective pages in the response document, "RAI 505 Supplement 6 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

| <b>Question #</b>  | <b>Start Page</b> | <b>End Page</b> |
|--------------------|-------------------|-----------------|
| RAI 505 — 07.03-37 | 2                 | 3               |
| RAI 505 — 07.04-15 | 4                 | 5               |
| RAI 505 — 07.05-11 | 6                 | 6               |
| RAI 505 — 07.08-43 | 7                 | 8               |
| RAI 505 — 07.08-45 | 9                 | 10              |
| RAI 505 — 07.08-49 | 11                | 12              |

The schedule for a technically correct and complete response to the remaining 24 questions remains unchanged. The preliminary schedule for the response to Question 07.01-33 is being reevaluated and a new supplement with a revised schedule will be transmitted by January 25, 2012.

| <b>Question #</b>  | <b>Response Date</b> |
|--------------------|----------------------|
| RAI 505 — 07.01-33 | January 25, 2012     |
| RAI 505 — 07.01-34 | January 10, 2012     |
| RAI 505 — 07.01-35 | February 9, 2012     |
| RAI 505 — 07.01-36 | January 10, 2012     |
| RAI 505 — 07.01-37 | January 19, 2012     |
| RAI 505 — 07.01-38 | January 10, 2012     |
| RAI 505 — 07.01-39 | January 10, 2012     |
| RAI 505 — 07.01-40 | January 10, 2012     |
| RAI 505 — 07.01-41 | January 10, 2012     |
| RAI 505 — 07.01-42 | January 10, 2012     |
| RAI 505 — 07.01-44 | January 10, 2012     |

|                    |                  |
|--------------------|------------------|
| RAI 505 — 07.01-45 | February 9, 2012 |
| RAI 505 — 07.01-46 | February 9, 2012 |
| RAI 505 — 07.01-47 | January 10, 2012 |
| RAI 505 — 07.01-48 | January 10, 2012 |
| RAI 505 — 07.01-49 | January 10, 2012 |
| RAI 505 — 07.01-50 | January 10, 2012 |
| RAI 505 — 07.01-51 | January 10, 2012 |
| RAI 505 — 07.03-38 | February 9, 2012 |
| RAI 505 — 07.05-10 | January 19, 2012 |
| RAI 505 — 07.08-44 | January 10, 2012 |
| RAI 505 — 07.08-47 | January 10, 2012 |
| RAI 505 — 07.08-48 | January 10, 2012 |
| RAI 505 — 07.09-71 | January 10, 2012 |

Sincerely,

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

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**From:** WILLIFORD Dennis (RS/NB)  
**Sent:** Wednesday, December 14, 2011 11:30 AM  
**To:** [Getachew.Tesfaye@nrc.gov](mailto:Getachew.Tesfaye@nrc.gov)  
**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. 505 (5902,5735,5869,5754,5803,5950,5744), FSAR Ch. 7, Supplement 5

Getachew,

On September 29, 2011, AREVA NP Inc. provided a schedule for technically correct and complete responses to the 34 questions in RAI 505. In Supplement 1 sent on October 27, 2011, and Supplement 2 sent on November 17, 2011, AREVA NP provided a revised schedule for technically correct and complete responses to 33 questions and a preliminary revised schedule for Question 07.01-33. AREVA NP provided Supplement 3 on November 22, 2011 to provide a final response to 4 questions. On December 9, 2011, AREVA NP provided a revised schedule for 7 questions.

The schedule for the response to four questions (Questions 7.1-35, 7.1-45, 7.1-46, and 7.3-38) is being changed, as indicated in bold below. In addition, the preliminary schedule for the response to Question 07.01-33 has been revised as indicated. This schedule is being reevaluated and a new supplement with a revised schedule will be transmitted by January 25, 2012. The schedule for a technically correct and complete response to the remaining 25 questions remains unchanged.

| Question # | Response Date |
|------------|---------------|
|------------|---------------|

|                    |                         |
|--------------------|-------------------------|
| RAI 505 — 07.01-33 | <b>January 25, 2012</b> |
| RAI 505 — 07.01-34 | January 10, 2012        |
| RAI 505 — 07.01-35 | <b>February 9, 2012</b> |
| RAI 505 — 07.01-36 | January 10, 2012        |
| RAI 505 — 07.01-37 | January 19, 2012        |
| RAI 505 — 07.01-38 | January 10, 2012        |
| RAI 505 — 07.01-39 | January 10, 2012        |
| RAI 505 — 07.01-40 | January 10, 2012        |
| RAI 505 — 07.01-41 | January 10, 2012        |
| RAI 505 — 07.01-42 | January 10, 2012        |
| RAI 505 — 07.01-44 | January 10, 2012        |
| RAI 505 — 07.01-45 | <b>February 9, 2012</b> |
| RAI 505 — 07.01-46 | <b>February 9, 2012</b> |
| RAI 505 — 07.01-47 | January 10, 2012        |
| RAI 505 — 07.01-48 | January 10, 2012        |
| RAI 505 — 07.01-49 | January 10, 2012        |
| RAI 505 — 07.01-50 | January 10, 2012        |
| RAI 505 — 07.01-51 | January 10, 2012        |
| RAI 505 — 07.03-37 | January 19, 2012        |
| RAI 505 — 07.03-38 | <b>February 9, 2012</b> |
| RAI 505 — 07.04-15 | January 19, 2012        |
| RAI 505 — 07.05-10 | January 19, 2012        |
| RAI 505 — 07.05-11 | January 19, 2012        |
| RAI 505 — 07.08-43 | January 19, 2012        |
| RAI 505 — 07.08-44 | January 10, 2012        |
| RAI 505 — 07.08-45 | January 10, 2012        |
| RAI 505 — 07.08-47 | January 10, 2012        |
| RAI 505 — 07.08-48 | January 10, 2012        |
| RAI 505 — 07.08-49 | January 19, 2012        |
| RAI 505 — 07.09-71 | January 10, 2012        |

Sincerely,

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

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**From:** RYAN Tom (RS/NB)  
**Sent:** Friday, December 09, 2011 8:35 AM  
**To:** [Getachew.Tesfaye@nrc.gov](mailto:Getachew.Tesfaye@nrc.gov)  
**Cc:** BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); WILLIFORD Dennis (RS/NB)

**Subject:** Response to U.S. EPR Design Certification Application RAI No. 505 (5902,5735,5869,5754,5803,5950,5744), FSAR Ch. 7, Supplement 4

Getachew,

On September 29, 2011, AREVA NP Inc. provided a schedule for technically correct and complete responses to the 34 questions in RAI 505. On October 27, 2011, and November 17, 2011, AREVA NP provided a revised schedule for technically correct and complete responses to 33 questions and a preliminary revised schedule for Question 07.01-33. On November 22, 2011, AREVA NP provided a final response to four questions.

The schedule for the response to the questions 7.1-37, 7.3-37, 7.4-15, 7.5-10, 7.5-11, 7.8-43, and 7.8-49 is being changed and indicated in bold below, the remaining 23 questions remains unchanged, as indicated below. In addition, the preliminary schedule for a response to Question 07.01-33 remains unchanged. The schedule for Question 07.01-33 is being reevaluated and a new supplement with a revised schedule will be transmitted by December 14, 2011.

| <b>Question #</b>  | <b>Response Date</b>    |
|--------------------|-------------------------|
| RAI 505 — 07.01-33 | December 14, 2011       |
| RAI 505 — 07.01-34 | January 10, 2012        |
| RAI 505 — 07.01-35 | January 10, 2012        |
| RAI 505 — 07.01-36 | January 10, 2012        |
| RAI 505 — 07.01-37 | <b>January 19, 2012</b> |
| RAI 505 — 07.01-38 | January 10, 2012        |
| RAI 505 — 07.01-39 | January 10, 2012        |
| RAI 505 — 07.01-40 | January 10, 2012        |
| RAI 505 — 07.01-41 | January 10, 2012        |
| RAI 505 — 07.01-42 | January 10, 2012        |
| RAI 505 — 07.01-44 | January 10, 2012        |
| RAI 505 — 07.01-45 | January 10, 2012        |
| RAI 505 — 07.01-46 | January 10, 2012        |
| RAI 505 — 07.01-47 | January 10, 2012        |
| RAI 505 — 07.01-48 | January 10, 2012        |
| RAI 505 — 07.01-49 | January 10, 2012        |
| RAI 505 — 07.01-50 | January 10, 2012        |
| RAI 505 — 07.01-51 | January 10, 2012        |
| RAI 505 — 07.03-37 | <b>January 19, 2012</b> |
| RAI 505 — 07.03-38 | January 10, 2012        |
| RAI 505 — 07.04-15 | <b>January 19, 2012</b> |
| RAI 505 — 07.05-10 | <b>January 19, 2012</b> |
| RAI 505 — 07.05-11 | <b>January 19, 2012</b> |
| RAI 505 — 07.08-43 | <b>January 19, 2012</b> |
| RAI 505 — 07.08-44 | January 10, 2012        |
| RAI 505 — 07.08-45 | January 10, 2012        |
| RAI 505 — 07.08-47 | January 10, 2012        |
| RAI 505 — 07.08-48 | January 10, 2012        |

|                    |                         |
|--------------------|-------------------------|
| RAI 505 — 07.08-49 | <b>January 19, 2012</b> |
| RAI 505 — 07.09-71 | January 10, 2012        |

Sincerely,

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

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Charlotte, NC 28262  
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**From:** WILLIFORD Dennis (RS/NB)  
**Sent:** Tuesday, November 22, 2011 2:51 PM  
**To:** [Getachew.Tesfaye@nrc.gov](mailto:Getachew.Tesfaye@nrc.gov)  
**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. 505 (5902,5735,5869,5754,5803,5950,5744), FSAR Ch. 7, Supplement 3

Getachew,

On September 29, 2011, AREVA NP Inc. provided a schedule for technically correct and complete responses to the 34 questions in RAI 505. On October 27, 2011, and November 17, 2011, AREVA NP provided a revised schedule for technically correct and complete responses to 33 questions and a preliminary revised schedule for Question 07.01-33.

After discussions with NRC staff, the attached file, "RAI 505 Supplement 3 Response US EPR DC.pdf" provides technically correct and complete responses to 4 of the 34 questions. Appended to this file are affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which support the responses to RAI 505 Question 07.07-23, Question 07.08 -46 and Question 07.09.02-72.

The following table indicates the respective pages in the response document, "RAI 505 Supplement 3 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

| <b>Question #</b>  | <b>Start Page</b> | <b>End Page</b> |
|--------------------|-------------------|-----------------|
| RAI 505 — 07.01-43 | 2                 | 3               |
| RAI 505 — 07.07-23 | 4                 | 4               |
| RAI 505 — 07.08-46 | 5                 | 5               |
| RAI 505 — 07.09-72 | 6                 | 7               |

The schedule for the response to the remaining 30 questions remains unchanged, as indicated below. In addition, the preliminary revised schedule for a response to Question 07.01-33 remains unchanged. The schedule for Question 07.01-33 is being reevaluated and a new supplement with a revised schedule will be transmitted by December 14, 2011.



| Question #         | Response Date     |
|--------------------|-------------------|
| RAI 505 — 07.01-33 | December 14, 2011 |
| RAI 505 — 07.01-34 | January 10, 2012  |
| RAI 505 — 07.01-35 | January 10, 2012  |
| RAI 505 — 07.01-36 | January 10, 2012  |
| RAI 505 — 07.01-37 | December 11, 2011 |
| RAI 505 — 07.01-38 | January 10, 2012  |
| RAI 505 — 07.01-39 | January 10, 2012  |
| RAI 505 — 07.01-40 | January 10, 2012  |
| RAI 505 — 07.01-41 | January 10, 2012  |
| RAI 505 — 07.01-42 | January 10, 2012  |
| RAI 505 — 07.01-44 | January 10, 2012  |
| RAI 505 — 07.01-45 | January 10, 2012  |
| RAI 505 — 07.01-46 | January 10, 2012  |
| RAI 505 — 07.01-47 | January 10, 2012  |
| RAI 505 — 07.01-48 | January 10, 2012  |
| RAI 505 — 07.01-49 | January 10, 2012  |
| RAI 505 — 07.01-50 | January 10, 2012  |
| RAI 505 — 07.01-51 | January 10, 2012  |
| RAI 505 — 07.03-37 | December 11, 2011 |
| RAI 505 — 07.03-38 | January 10, 2012  |
| RAI 505 — 07.04-15 | December 11, 2011 |
| RAI 505 — 07.05-10 | December 11, 2011 |
| RAI 505 — 07.05-11 | December 11, 2011 |
| RAI 505 — 07.08-43 | December 11, 2011 |
| RAI 505 — 07.08-44 | January 10, 2012  |
| RAI 505 — 07.08-45 | January 10, 2012  |
| RAI 505 — 07.08-47 | January 10, 2012  |
| RAI 505 — 07.08-48 | January 10, 2012  |
| RAI 505 — 07.08-49 | December 11, 2011 |
| RAI 505 — 07.09-71 | January 10, 2012  |

Sincerely,

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

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**From:** WILLIFORD Dennis (RS/NB)  
**Sent:** Thursday, November 17, 2011 5:44 PM  
**To:** [Getachew.Tesfaye@nrc.gov](mailto:Getachew.Tesfaye@nrc.gov)  
**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. 505 (5902,5735,5869,5754,5803,5950,5744), FSAR Ch. 7, Supplement 2

Getachew,

On September 29, 2011, AREVA NP Inc. provided a schedule for technically correct and complete responses to the 34 questions in RAI 505. On October 27, 2011, AREVA NP provided a revised schedule for technically correct and complete responses to 13 questions and a preliminary revised schedule for Question 07.01-33.

The schedule for the final responses has been revised, as indicated in bold below. In addition, the preliminary revised schedule for a response to Question 07.01-33 has been revised. The schedule for Question 07.01-33 is being reevaluated and a new supplement with a revised schedule will be transmitted by December 14, 2011.

| <b>Question #</b>  | <b>Response Date</b>     |
|--------------------|--------------------------|
| RAI 505 — 07.01-33 | <b>December 14, 2011</b> |
| RAI 505 — 07.01-34 | <b>January 10, 2012</b>  |
| RAI 505 — 07.01-35 | <b>January 10, 2012</b>  |
| RAI 505 — 07.01-36 | <b>January 10, 2012</b>  |
| RAI 505 — 07.01-37 | <b>December 11, 2011</b> |
| RAI 505 — 07.01-38 | January 10, 2012         |
| RAI 505 — 07.01-39 | <b>January 10, 2012</b>  |
| RAI 505 — 07.01-40 | <b>January 10, 2012</b>  |
| RAI 505 — 07.01-41 | <b>January 10, 2012</b>  |
| RAI 505 — 07.01-42 | <b>January 10, 2012</b>  |
| RAI 505 — 07.01-43 | <b>December 11, 2011</b> |
| RAI 505 — 07.01-44 | January 10, 2012         |
| RAI 505 — 07.01-45 | January 10, 2012         |
| RAI 505 — 07.01-46 | January 10, 2012         |
| RAI 505 — 07.01-47 | January 10, 2012         |
| RAI 505 — 07.01-48 | January 10, 2012         |
| RAI 505 — 07.01-49 | January 10, 2012         |
| RAI 505 — 07.01-50 | January 10, 2012         |
| RAI 505 — 07.01-51 | January 10, 2012         |
| RAI 505 — 07.03-37 | <b>December 11, 2011</b> |
| RAI 505 — 07.03-38 | January 10, 2012         |
| RAI 505 — 07.04-15 | <b>December 11, 2011</b> |
| RAI 505 — 07.05-10 | <b>December 11, 2011</b> |
| RAI 505 — 07.05-11 | <b>December 11, 2011</b> |
| RAI 505 — 07.07-23 | <b>December 11, 2011</b> |
| RAI 505 — 07.08-43 | <b>December 11, 2011</b> |
| RAI 505 — 07.08-44 | <b>January 10, 2012</b>  |
| RAI 505 — 07.08-45 | <b>January 10, 2012</b>  |
| RAI 505 — 07.08-46 | <b>December 11, 2011</b> |
| RAI 505 — 07.08-47 | January 10, 2012         |
| RAI 505 — 07.08-48 | January 10, 2012         |

|                    |                          |
|--------------------|--------------------------|
| RAI 505 — 07.08-49 | <b>December 11, 2011</b> |
| RAI 505 — 07.09-71 | <b>January 10, 2012</b>  |
| RAI 505 — 07.09-72 | <b>January 10, 2012</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)

---

**From:** WILLIFORD Dennis (RS/NB)  
**Sent:** Thursday, October 27, 2011 11:22 AM  
**To:** [Getachew.Tesfaye@nrc.gov](mailto:Getachew.Tesfaye@nrc.gov)  
**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. 505 (5902,5735,5869,5754,5803,5950,5744), FSAR Ch. 7, Supplement 1

Getachew,

On September 29, 2011, AREVA NP Inc. provided a schedule for a technically correct and complete response to the 34 questions in RAI 505.

The schedule for the final response to Questions 07.01-38, 07.01-44, 07.01-45, 07.01-46, 07.01-47, 07.01-48, 07.01-49, 07.01-50, 07.01-51, 07.03-38, 07.08-43, 07.08-47, 07.08-48 has been revised, as indicated in bold below. In addition, a preliminary revised schedule for a technically correct and complete response to Question 07.01-33 is provided below. The schedule for Question 07.01-33 is being reevaluated and a new supplement with a revised schedule will be transmitted by November 17, 2011.

| <b>Question #</b>  | <b>Response Date</b>     |
|--------------------|--------------------------|
| RAI 505 — 07.01-33 | <b>November 17, 2011</b> |
| RAI 505 — 07.01-34 | December 8, 2011         |
| RAI 505 — 07.01-35 | November 17, 2011        |
| RAI 505 — 07.01-36 | December 8, 2011         |
| RAI 505 — 07.01-37 | December 8, 2011         |
| RAI 505 — 07.01-38 | <b>January 10, 2012</b>  |
| RAI 505 — 07.01-39 | December 8, 2011         |
| RAI 505 — 07.01-40 | December 8, 2011         |
| RAI 505 — 07.01-41 | November 17, 2011        |
| RAI 505 — 07.01-42 | December 20, 2011        |
| RAI 505 — 07.01-43 | November 17, 2011        |
| RAI 505 — 07.01-44 | <b>January 10, 2012</b>  |
| RAI 505 — 07.01-45 | <b>January 10, 2012</b>  |
| RAI 505 — 07.01-46 | <b>January 10, 2012</b>  |

|                    |                         |
|--------------------|-------------------------|
| RAI 505 — 07.01-47 | <b>January 10, 2012</b> |
| RAI 505 — 07.01-48 | <b>January 10, 2012</b> |
| RAI 505 — 07.01-49 | <b>January 10, 2012</b> |
| RAI 505 — 07.01-50 | <b>January 10, 2012</b> |
| RAI 505 — 07.01-51 | <b>January 10, 2012</b> |
| RAI 505 — 07.03-37 | November 17, 2011       |
| RAI 505 — 07.03-38 | <b>January 10, 2012</b> |
| RAI 505 — 07.04-15 | November 17, 2011       |
| RAI 505 — 07.05-10 | November 17, 2011       |
| RAI 505 — 07.05-11 | November 17, 2011       |
| RAI 505 — 07.07-23 | November 17, 2011       |
| RAI 505 — 07.08-43 | <b>January 10, 2012</b> |
| RAI 505 — 07.08-44 | December 8, 2011        |
| RAI 505 — 07.08-45 | December 8, 2011        |
| RAI 505 — 07.08-46 | December 8, 2011        |
| RAI 505 — 07.08-47 | <b>January 10, 2012</b> |
| RAI 505 — 07.08-48 | <b>January 10, 2012</b> |
| RAI 505 — 07.08-49 | November 17, 2011       |
| RAI 505 — 07.09-71 | December 8, 2011        |
| RAI 505 — 07.09-72 | December 8, 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)

---

**From:** WILLIFORD Dennis (RS/NB)  
**Sent:** Thursday, September 29, 2011 11:04 AM  
**To:** [Getachew.Tesfaye@nrc.gov](mailto:Getachew.Tesfaye@nrc.gov)  
**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. 505 (5902,5735,5869,5754,5803,5950,5744), FSAR Ch. 7

Getachew,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 505 Response US EPR DC.pdf," provides a schedule since a technically correct and complete response to the 34 questions cannot be provided at this time.

The following table indicates the respective pages in the response document, "RAI 505 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

| Question # | Start Page | End Page |
|------------|------------|----------|
|------------|------------|----------|

|                    |    |    |
|--------------------|----|----|
| RAI 505 — 07.01-33 | 2  | 2  |
| RAI 505 — 07.01-34 | 3  | 3  |
| RAI 505 — 07.01-35 | 4  | 4  |
| RAI 505 — 07.01-36 | 5  | 5  |
| RAI 505 — 07.01-37 | 6  | 6  |
| RAI 505 — 07.01-38 | 7  | 7  |
| RAI 505 — 07.01-39 | 8  | 8  |
| RAI 505 — 07.01-40 | 9  | 9  |
| RAI 505 — 07.01-41 | 10 | 10 |
| RAI 505 — 07.01-42 | 11 | 11 |
| RAI 505 — 07.01-43 | 12 | 12 |
| RAI 505 — 07.01-44 | 13 | 13 |
| RAI 505 — 07.01-45 | 14 | 14 |
| RAI 505 — 07.01-46 | 15 | 15 |
| RAI 505 — 07.01-47 | 16 | 16 |
| RAI 505 — 07.01-48 | 17 | 18 |
| RAI 505 — 07.01-49 | 19 | 19 |
| RAI 505 — 07.01-50 | 20 | 20 |
| RAI 505 — 07.01-51 | 21 | 22 |
| RAI 505 — 07.03-37 | 23 | 23 |
| RAI 505 — 07.03-38 | 24 | 24 |
| RAI 505 — 07.04-15 | 25 | 25 |
| RAI 505 — 07.05-10 | 26 | 26 |
| RAI 505 — 07.05-11 | 27 | 27 |
| RAI 505 — 07.07-23 | 28 | 28 |
| RAI 505 — 07.08-43 | 29 | 29 |
| RAI 505 — 07.08-44 | 30 | 30 |
| RAI 505 — 07.08-45 | 31 | 31 |
| RAI 505 — 07.08-46 | 32 | 32 |
| RAI 505 — 07.08-47 | 33 | 33 |
| RAI 505 — 07.08-48 | 34 | 34 |
| RAI 505 — 07.08-49 | 35 | 35 |
| RAI 505 — 07.09-71 | 36 | 36 |
| RAI 505 — 07.09-72 | 37 | 37 |

A complete answer is not provided for the 34 questions. The schedule for a technically correct and complete response to these questions is provided below.

Please note that the date for the response to Question 07.01-33 is a commitment date to provide a final schedule for the response in a follow-up letter.

| Question #         | Response Date     |
|--------------------|-------------------|
| RAI 505 — 07.01-33 | October 27, 2011  |
| RAI 505 — 07.01-34 | December 8, 2011  |
| RAI 505 — 07.01-35 | November 17, 2011 |

|                    |                   |
|--------------------|-------------------|
| RAI 505 — 07.01-36 | December 8, 2011  |
| RAI 505 — 07.01-37 | December 8, 2011  |
| RAI 505 — 07.01-38 | December 20, 2011 |
| RAI 505 — 07.01-39 | December 8, 2011  |
| RAI 505 — 07.01-40 | December 8, 2011  |
| RAI 505 — 07.01-41 | November 17, 2011 |
| RAI 505 — 07.01-42 | December 20, 2011 |
| RAI 505 — 07.01-43 | November 17, 2011 |
| RAI 505 — 07.01-44 | December 20, 2011 |
| RAI 505 — 07.01-45 | December 20, 2011 |
| RAI 505 — 07.01-46 | December 20, 2011 |
| RAI 505 — 07.01-47 | December 8, 2011  |
| RAI 505 — 07.01-48 | December 20, 2011 |
| RAI 505 — 07.01-49 | December 20, 2011 |
| RAI 505 — 07.01-50 | December 20, 2011 |
| RAI 505 — 07.01-51 | December 20, 2011 |
| RAI 505 — 07.03-37 | November 17, 2011 |
| RAI 505 — 07.03-38 | December 20, 2011 |
| RAI 505 — 07.04-15 | November 17, 2011 |
| RAI 505 — 07.05-10 | November 17, 2011 |
| RAI 505 — 07.05-11 | November 17, 2011 |
| RAI 505 — 07.07-23 | November 17, 2011 |
| RAI 505 — 07.08-43 | December 20, 2011 |
| RAI 505 — 07.08-44 | December 8, 2011  |
| RAI 505 — 07.08-45 | December 8, 2011  |
| RAI 505 — 07.08-46 | December 8, 2011  |
| RAI 505 — 07.08-47 | December 20, 2011 |
| RAI 505 — 07.08-48 | December 20, 2011 |
| RAI 505 — 07.08-49 | November 17, 2011 |
| RAI 505 — 07.09-71 | December 8, 2011  |
| RAI 505 — 07.09-72 | December 8, 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)

---

**From:** Tesfaye, Getachew [<mailto:Getachew.Tesfaye@nrc.gov>]

**Sent:** Tuesday, August 30, 2011 1:23 PM

**To:** ZZ-DL-A-USEPR-DL

**Cc:** Zhang, Deanna; Morton, Wendell; Spaulding, Deirdre; Mott, Kenneth; Truong, Tung; Zhao, Jack; Mills, Daniel;

Jackson, Terry; Canova, Michael; Colaccino, Joseph; ArevaEPRDCPEm Resource

**Subject:** U.S. EPR Design Certification Application RAI No. 505 (5902,5735,5869,5754,5803,5950,5744), FSAR Ch. 7

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on August 12, 2011, and discussed with your staff on August 22 and 25, 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:** 3694

**Mail Envelope Properties** (2FBE1051AEB2E748A0F98DF9EEE5A5D4A542DE)

**Subject:** Response to U.S. EPR Design Certification Application RAI No. 505  
(5902,5735,5869,5754,5803,5950,5744), FSAR Ch. 7, Supplement 8  
**Sent Date:** 1/19/2012 11:18:46 AM  
**Received Date:** 1/19/2012 11:18:51 AM  
**From:** WILLIFORD Dennis (AREVA)

**Created By:** Dennis.Williford@areva.com

**Recipients:**  
"BENNETT Kathy (AREVA)" <Kathy.Bennett@areva.com>  
Tracking Status: None  
"DELANO Karen (AREVA)" <Karen.Delano@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  
"Tsfaye, Getachew" <Getachew.Tsfaye@nrc.gov>  
Tracking Status: None

**Post Office:** auscharm02.adom.ad.corp

| <b>Files</b>                                  | <b>Size</b> | <b>Date &amp; Time</b> |
|---|-------------|------------------------|
| MESSAGE                                       | 30328       | 1/19/2012 11:18:51 AM  |
| RAI 505 Response Supplement 8 - US EPR DC.pdf |             | 57741                  |

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



**Response to**

**Request for Additional Information No. 505 (5902,5735,5869,5754,5803,5950,5744),  
Supplement 8**

**8/30/2011**

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

**AREVA NP Inc.**

**Docket No. 52-020**

**SRP Section: 07.01 - Instrumentation and Controls - Introduction**

**SRP Section: 07.03 - Engineered Safety Features Systems**

**SRP Section: 07.04 - Safe Shutdown Systems**

**SRP Section: 07.05 - Information Systems Important to Safety**

**SRP Section: 07.07 - Control Systems**

**SRP Section: 07.08 - Diverse Instrumentation and Control Systems**

**SRP Section: 07.09 - Data Communication Systems**

**Application Section: FSAR Chapter 7**

**QUESTIONS for Instrumentation, Controls and Electrical Engineering 1  
(AP1000/EPR Projects) (ICE1)**

**Question 07.01-42:****OPEN ITEM**

Clarify whether the SAS is now covered by the scope of ANP-10315, with the addition of the SAS technical specification. Also clarify whether surveillance testing as documented by ANP-10315 applies to all other TXS safety systems that have an associated technical specification. This RAI question is part of a series of follow-up questions to RAI 285, Question 07.03-21.

IEEE Std. 603-1998, Clause 5.7, requires, in part, that the capability for testing and calibration of safety system equipment shall be provided while retaining the capability of the safety systems to accomplish their safety functions. The capability for testing and calibration of safety system equipment shall be provided during power operation and shall duplicate, as closely as practicable, performance of the safety function. SRP Appendix 7.1-C was used as guidance in the review. In response to RAI 442, Question 07.01-30, the applicant provided Interim Revision 3 mark-ups of U.S. EPR FSAR, Tier 2, Chapter 16, Section 3.3, which incorporated a Technical Specification for SAS.

As such, the staff has the following questions for the applicant that require clarification:

- a. With the inclusion of a SAS Technical Specification, does the applicant intend on expanding the scope of surveillances, as stated in Section 1.2 of Technical Report ANP-10315 to include SAS?
- b. Does the scope of surveillance testing, described in Technical Report ANP-10315 (excluding Section 2.2.6) apply to all other safety-related TXS systems? If not, where is this information documented?

**Response to Question 07.01-42:**

Technical Report ANP-10315 will be revised to discuss surveillance testing of the following additional safety-related systems within the scope of the document:

- Boron Concentration Measurement System (BCMS),
- Excore Instrumentation System (EIS),
- Incore Instrumentation System (ICIS),
- Priority and Actuator Control System (PACS),
- Radiation Monitoring System (RMS),
- Rod Position Measurement System (RPMS),
- Safety Automation System (SAS),
- Signal Conditioning and Distribution System (SCDS),

The Technical Report changes for this RAI are included in the Response to Question 07.01-44.

**FSAR Impact:**

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