

## ArevaEPRDCPEm Resource

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**From:** WILLIFORD Dennis (AREVA) [Dennis.Williford@areva.com]  
**Sent:** Wednesday, July 24, 2013 11:18 AM  
**To:** Snyder, Amy  
**Cc:** Chowdhury, Prosanta; ANDERSON Katherine (EXTERNAL AREVA); DELANO Karen (AREVA); LEIGHLITER John (AREVA); ROMINE Judy (AREVA); RYAN Tom (AREVA); NOXON David (AREVA)  
**Subject:** Response to U.S. EPR Design Certification Application FINAL RAI No. 581, FSAR Ch.19 - NEW PHASE 4 RAI, Supplement 1  
**Attachments:** RAI 581 Response Supplement 1 US EPR DC.pdf

Amy,

AREVA NP Inc. provided a schedule for the response to the two questions in RAI 581 on May 20, 2013.

The attached file, "RAI 581 Response Supplement 1 US EPR DC.pdf," provides a technically correct and complete final response to Question 19-368. Appended to this file is the affected page of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which supports the final response to RAI 581 Question 19-368.

The following table indicates the respective pages in the response document, "RAI 581 Supplement 1 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 581 — 19-368	2	2

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

Question #	Response Date
RAI 581 — 19-369	August 30, 2013

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:** Monday, May 20, 2013 5:26 PM  
**To:** 'Snyder, Amy'  
**Cc:** [tanya.ford@nrc.gov](mailto:tanya.ford@nrc.gov); ANDERSON Katherine (External AREVA NP INC.); DELANO Karen (RS/NB); LEIGHLITER John

(RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); NOXON David (RS/NB)

**Subject:** Response to U.S. EPR Design Certification Application FINAL RAI No. 581, FSAR Ch.19 - NEW PHASE 4 RAI

Amy,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 581 Response US EPR DC.pdf," provides a schedule since a technically correct and complete response to the two questions cannot be provided at this time.

The following table indicates the respective pages in the response document, "RAI 581 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 581 — 19-368	2	2
RAI 581 — 19-369	3	3

The schedule for a technically correct and complete response to these questions is provided below.

Question #	Advanced Response Date	NRC Comment Request Date	Response Date
RAI 581 — 19-368	June 28, 2013	August 16, 2013	August 30, 2013
RAI 581 — 19-369	N/A	N/A	August 30, 2013

AREVA NP believes that an advanced response for Question 19-369 is not necessary since there is no technical content for the NRC to review, but is an administrative tool to assist NRC staff in resolving the safety case.

Sincerely,

***Dennis Williford, P.E.***

***U.S. EPR Design Certification Licensing Manager***

***AREVA NP Inc.***

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**From:** Snyder, Amy [<mailto:Amy.Snyder@nrc.gov>]

**Sent:** Thursday, April 18, 2013 9:17 AM

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

**Cc:** Mrowca, Lynn; Ford, Tanya; Segala, John; Phan, Hanh

**Subject:** U.S. EPR Design Certification Application FINAL RAI No. 581, FSAR Ch.19 - NEW PHASE 4 RAI

Attached please find the subject request for additional information (RAI). A draft RAI was provided to you on March 19, 2013. On March 26, 2013, you informed us that the draft RAI does not contain proprietary information and that the draft RAI is clear and no further clarification is needed; As result, the RAI was not changed..

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 or May 20, 2013**, 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.

Thank You,

Amy

Amy Snyder, U.S. EPR Design Certification Lead Project Manager  
Licensing Branch 1 (LB1)  
Division of New Reactor Licensing  
Office of New Reactors  
U.S. Nuclear Regulatory Commission

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**Hearing Identifier:** AREVA\_EPR\_DC\_RAIs  
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FSAR Ch.19 - NEW PHASE 4 RAI, Supplement 1  
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**From:** WILLIFORD Dennis (AREVA)

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

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**Options**

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**Recipients Received:**

**Response to**

**Request for Additional Information No.581, Supplement 1**

**4/18/2013**

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

**AREVA NP Inc.**

**Docket No. 52-020**

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

**SRSB Branch**

**Question 19-368:**

Table 19.1-1 "Characterization of U.S. EPR PRA Relative to Supporting Requirements in ASME PRA Standard" of U.S. EPR Final Safety Analysis Report currently classifies some PRA elements as Capability Category II and/or III. Please reevaluate Table 19.1-1 based on the updated PRA and clearly justify the capability category assessment.

**Response to Question 19-368:**

U.S. EPR FSAR Tier 2, Table 19.1-1 and Section 19.1.2.3 have previously been revised in the Response to RAI 289, Question 19-329. U.S. EPR FSAR Tier 2, Section 19.1.2.3 will also be revised to reflect comments received during the audit the week of June 17, 2013. The revision provides clarification on the applicability of technical elements in the PRA standard to the design certification.

**FSAR Impact:**

U.S. EPR FSAR Tier 2, Section 19.1.2.3 will be revised as described in the response and indicated on the enclosed markup.

# U.S. EPR Final Safety Analysis Report Markups

The PRA reflects the details of system design configurations consistent with the design submitted to the NRC for design certification. A number of internal revisions of the PRA have followed the design developments. However, due to a need to “freeze” the design in reasonable time to allow for the PRA model development and quantification, some design change features have not been specifically included in the latest PRA model. Refer to Section 19.1.2.4 for information on post-“model freeze” date design changes that were not included in the current PRA results.

**19.1.2.3 PRA Technical Adequacy**

The content of the PRA and the steps taken to provide for its technical quality are consistent with the guidance in the PRA Standard (Reference 61). The ASME PRA Standard presents high-level requirements and, for each of these, a set of more detailed supporting requirements. The supporting requirements are evaluated to the three capability categories defined in the standard. These requirements were generally formulated for application to operating nuclear power plants (NPPs), and in some cases cannot be explicitly satisfied for a PRA performed in the design phase. Table 19.1-1—Characterization of U.S. EPR PRA Relative to Supporting Requirements in ASME PRA Standard provides a high-level summary of the degree to which the U.S. EPR PRA

satisfies supporting requirements applicable to design certification (at least the Capability Category I) for the applicable ~~nine of the~~ technical elements addressed in the PRA Standard. Elements of the PRA that cannot generally meet the requirements until later stages of design, construction, and operation are identified in Table 19.1-1.

RAI 581,  
Question 19-368

Because of the lack of detailed spatial information associated with the certified design, supporting requirements for internal fires and external events, were not considered in Table 19.1-1. This lack of detailed spatial information is also identified as a key source of uncertainty in Table 19.1-131, The basis for fires and other external events analysis are discussed below:

- The internal fire analysis: The U.S. EPR PRA for design certification uses ~~the general aspects of the~~ guidance provided in NUREG/CR-6850 (Reference 6) i.e., basic principles of fire areas and scenarios selection or screening, as practical. This report documents the most up-to-date methodology available for practical assessment of internal fires in nuclear power plants. However, the guidance in this report, related to detailed fire modeling and circuit analysis, is not applied in the bounding fire analysis used in the design certification phase. Limitations in applying this methodology because some design details are not yet available are identified in Table 19.1-109 and Table 19.1-131.
- Other external events: The U.S. PRA for design certification uses a screening method to address other external events that could represent challenges to safe operation. The screening approach follows guidance provided in ANSI/ANS-58.21-2003 (Reference 7) and in NUREG-1407 (Reference 8).