## ArevaEPRDCPEm Resource

**From:** WILLIFORD Dennis (AREVA) [Dennis.Williford@areva.com]
**Sent:** Friday, July 06, 2012 9:47 AM
**To:** Tesfaye, Getachew
**Cc:** BENNETT Kathy (AREVA); DELANO Karen (AREVA); ROMINE Judy (AREVA); RYAN Tom (AREVA); GUCWA Len (EXTERNAL AREVA); Gleaves, Bill
**Subject:** Response to U.S. EPR Design Certification Application RAI No. 552 (6512, 6526), FSAR Ch. 6
**Attachments:** RAI 552 Response US EPR DC.pdf

Getachew,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 552 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 552 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

| Question # | Start Page | End Page |
|---|---|---|
| RAI 552 — 06.02.02-134 | 2 | 2 |
| RAI 552 — 06.02.02-135 | 3 | 3 |

The schedule for a technically correct and complete response to these 2 questions is provided below.

| Question # | Response Date |
|---|---|
| RAI 552 — 06.02.02-134 | **September 27, 2012** |
| RAI 552 — 06.02.02-135 | **September 27, 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
Phone: 704-805-2223
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**From:** Tesfaye, Getachew [mailto:Getachew.Tesfaye@nrc.gov]
**Sent:** Thursday, June 07, 2012 6:10 PM
**To:** ZZ-DL-A-USEPR-DL
**Cc:** Ashley, Clinton; McKirgan, John; Strnisha, James; Terao, David; Gleaves, Bill; Segala, John; ArevaEPRDCPEm Resource
**Subject:** U.S. EPR Design Certification Application RAI No. 552 (6512, 6526), FSAR Ch. 6

Attached please find the subject request for additional information (RAI). A draft of the RAI was provided to you on May 31, 2012, and on June 7, 2012, you informed us that the RAI is clear and no further clarification is needed. As a result, no change is made to the draft RAI. 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/LB1
(301) 415-3361

**Hearing Identifier:** AREVA_EPR_DC_RAIs
**Email Number:** 3964

**Mail Envelope Properties** (2FBE1051AEB2E748A0F98DF9EEE5A5D4D00D01)

**Subject:** Response to U.S. EPR Design Certification Application RAI No. 552 (6512, 6526), FSAR Ch. 6
**Sent Date:** 7/6/2012 9:47:25 AM
**Received Date:** 7/6/2012 9:47:28 AM
**From:** WILLIFORD Dennis (AREVA)

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

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| **Files** | **Size** | **Date & Time** |
|---|---|---|
| MESSAGE | 2302 | 7/6/2012 9:47:28 AM |
| RAI 552 Response US EPR DC.pdf | 64462 | |

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

**Response to**

**Request for Additional Information No. 552 (6512, 6526), Revision 0**

**6/07/2012**

**U. S. EPR Standard Design Certification**
**AREVA NP Inc.**
**Docket No. 52-020**
**SRP Section: 06.02.02 - Containment Heat Removal Systems**
**Application Section: 6.2**

**QUESTIONS for Containment & Ventilation Branch (SCVB)**
**QUESTIONS for Component Integrity Branch (CIB)**

**Question 06.02.02-134:**

RG 1.206 (June 2007) Regulatory Position, Part IV: Miscellaneous Topics, describes the following:

> The creation of, and restrictions on, changing Tier 2* information resulted from the development of Tier 1 information for the advanced BWR design certification (Appendix A to 10 CFR Part 52) and the Asea Brown Boveri-Combustion Engineering System 80+ reactor design certification (Appendix B, "Design Certification Rule for the System 80+ Design," to 10 CFR Part 52). During this development process, these applicants requested that the agency minimize the amount of information in Tier 1 to allow additional flexibility for an applicant or licensee who references these appendices. Tier 2 also specified many codes, standards, and design processes that Tier 1 does not specify but that are acceptable for meeting ITAAC. As a result, certain significant information only exists in Tier 2, and the Commission does not want this significant information to be changed without prior NRC approval. The generic DCD identifies this Tier 2* information with italicized text and brackets.

NUREG-1792 "Final Safety Evaluation Report Related to Certification of the AP1000 Standard Plant Design", describes the following:

The ACRS review for the AP1000 highlighted the significance of certain assumptions about debris in containment to the adequacy of long-term core cooling, and a concern that the values not be revised without substantial additional testing and analysis. As a means of emphasizing this, the applicant proposed to designate the key information as Tier 2*, to require prior NRC approval, in a letter dated February 23, 2011. This change is included in Revision 19. The NRC agrees that this is a prudent change and will modify the final rule language to reflect this addition, as a Tier 2* item without expiration at fuel load.

In the most recent amendment (December 2011) to Appendix D to Part 52 "Design Certification Rule for the AP1000 Design" this change was put into effect.

Given ANP-10293 Appendix F "Downstream Effects Evaluation for the U.S. EPR," containment debris limits discussed in response to RAI 511 Question 06.02.02-124 and RAI 488 Question 06.02.02-91 and associated DCD Section 6.3 markup, it appears that the US EPR is similar to the AP1000 regarding assumptions about debris in containment to the adequacy of long term core cooling, specifically the debris limits for core inlet blockage evaluations. Therefore, the NRC staff request that AREVA evaluate the appropriateness of applying Tier 2* designation to items associated with long term core cooling or the appropriateness of establishing a technical specification. If information related to long term core cooling is designated as Tier 2*, the staff request AREVA identify this information in the DCD to ensure that the appropriate change process and limits are followed.

**Response to Question 06.02.02-134:**

A response to this question will be provided by September 27, 2012.

**Question 06.02.02-135:**

**Follow-up to RAI 498, Question 06.02.02-110**

In response to RAI 498, Question 6.2.2-110 dated December 18, 2011, AREVA stated that no RMI will enter the ECCS during a LBLOCA. Section G.2.4 of ANP-10293 was revised to state:

> Results of the NRC debris generation test documented in NUREG/CR-6808 show that RMI debris size distribution ranges from 0.25 inches to 6 inches. Transport testing performed by AREVA demonstrated that RMI debris pieces will sink in the retaining basket (See Appendix E, Section E.7.1). In the unlikely event that RMI debris bypasses the retaining baskets, RMI debris will not bypass the sump screens and enter the ECCS because the size of the RMI debris is greater than the mesh size of the sump screen. As a result, this evaluation assumes no RMI bypasses through the sump screen.

NRC staff does not agree with AREVA's evaluation that the RMI debris size distribution ranges from 0.25 inches to 6 inches. Section 3.2.2.4 of NUREG-6808, "Knowledge Base for the Effect of Debris on Pressurized Water Reactor Emergency Core Cooling Sump Performance," provides results of jet impact testing on RMI performed by the NRC on May 31, 1995. These tests concluded that 4.3% of the RMI generated by a large pipe break was less than ¼". The jet impact test results do not specifically identify the amount of RMI generated that was less than the ECCS strainer and retaining basket screen size of 0.08" x 0.08". However, based on the fact that 4.3% of the RMI was less than ¼", it should be assumed that some pieces less than 0.08" were generated. Therefore, staff does not consider AREVA's evaluation that no RMI bypasses the sump screen to be acceptable. Based on the jet blast testing that produced RMI sizes less than ¼", staff requests the applicant to re-evaluate their position that no RMI will enter the ECCS during a LBLOCA.

**Response to Question 06.02.02-135:**

A response to this question will be provided by September 27, 2012.