

## ArevaEPRDCPEm Resource

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**From:** Tesfaye, Getachew  
**Sent:** Wednesday, January 04, 2012 6:55 PM  
**To:** 'usepr@areva.com'  
**Cc:** Jenkins, Joel; Terao, David; Hearn, Peter; Segala, John; ArevaEPRDCPEm Resource  
**Subject:** U.S. EPR Design Certification Application RAI No. 536 (6260), FSAR Ch. 9  
**Attachments:** RAI\_536\_CIB1\_6260.doc

Attached please find the subject request for additional information (RAI). A draft of the RAI was provided to you on December 23, 2011, and on January 4, 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:** 3670

**Mail Envelope Properties** (0A64B42AAA8FD4418CE1EB5240A6FED160DC59DC12)

**Subject:** U.S. EPR Design Certification Application RAI No. 536 (6260), FSAR Ch. 9  
**Sent Date:** 1/4/2012 6:54:34 PM  
**Received Date:** 1/4/2012 6:54:36 PM  
**From:** Tesfaye, Getachew

**Created By:** Getachew.Tesfaye@nrc.gov

**Recipients:**

"Jenkins, Joel" <Joel.Jenkins@nrc.gov>  
Tracking Status: None  
"Terao, David" <David.Terao@nrc.gov>  
Tracking Status: None  
"Hearn, Peter" <Peter.Hearn@nrc.gov>  
Tracking Status: None  
"Segala, John" <John.Segala@nrc.gov>  
Tracking Status: None  
"ArevaEPRDCPEm Resource" <ArevaEPRDCPEm.Resource@nrc.gov>  
Tracking Status: None  
"usepr@areva.com" <usepr@areva.com>  
Tracking Status: None

**Post Office:** HQCLSTR02.nrc.gov

<b>Files</b>	<b>Size</b>	<b>Date &amp; Time</b>
MESSAGE	798	1/4/2012 6:54:36 PM
RAI_536_CIB1_6260.doc	33786	

**Options**

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

Request for Additional Information No. 536(6260), Revision 0

01/04/2012

U. S. EPR Standard Design Certification  
AREVA NP Inc.

Docket No. 52-020

SRP Section: 09.01.04 - Light Load Handling System (Related to Refueling)

Application Section: 9.1.4

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

09.01.04-41

OPEN ITEM

FSAR Section 3.8.3.1.1 states that a permanently installed cavity seal ring and neutron shield assembly rests on an embedded ring at the top of the wall, and is fabricated of stainless steel and radiation shielding material that bridges the annular gap between the reactor vessel and the vessel cavity concrete wall. The cavity seal is designed to meet the stress limits of ASME BPVC, Section III, Subsection ND. Seal and structural welds are made in accordance with ASME BPVC, Section IX and are examined in accordance with ASME BPVC, Section V.

The response from AREVA to RAI 337, Question 09.01.04-14, changes the name of the seal to "ring," and describes the reactor vessel cavity ring as a permanently installed stainless steel assembly welded to the reactor vessel and a support structure embedded in the reactor building concrete. It clarifies that this cavity ring is a mechanical component designed in accordance with ASME Section III, Subsection ND. Base metal and weld materials are consistent with specifications in ASME BPVC Section II. Welding procedures and welders are qualified in accordance with ASME BPVC Section IX. Welds are examined in accordance with ASME BPVC, Section V. It also includes Figure 09.01.04-14-1 showing the reactor cavity ring arrangement.

Based on these elements, especially from the Figure 09.01.04-14-1, the staff deduced that some parts of the cavity ring assembly are welded to the reactor vessel. However, the staff was not able to identify precisely which ones and how they are attached to the reactor vessel; therefore, it is not clear to the staff how the cavity ring assembly could affect the reactor vessel material and integrity.

Because of the interfaces between the cavity ring assembly and the reactor vessel, the staff requests the applicant provide the following information to assure that this ring assembly will not adversely impact the materials and integrity of the reactor vessel (e.g., to behave in a brittle manner or increase the probability of rapidly propagating failure):

- a. Describe in detail the permanent refueling cavity ring assembly, including the identification of the materials that are used;
- b. Identify any fasteners or welds used in the cavity ring assembly;

- c. Describe in detail the connections between the cavity ring assembly and the reactor vessel, particularly with the reactor vessel pressure retaining portion. If welding is used, describe any design considerations (such as weld joint type or location) or controls on welding (such as weld size or heat input limitations) that assure that welding has no adverse impact on the reactor vessel material and integrity.