

ArevaEPRDCPEm Resource

From: WELLS Russell (AREVA) [Russell.Wells@areva.com]
Sent: Monday, April 11, 2011 3:14 PM
To: Tesfaye, Getachew
Cc: Miernicki, Michael; NOXON David (AREVA); BENNETT Kathy (AREVA); DELANO Karen (AREVA); ROMINE Judy (AREVA); RYAN Tom (AREVA)
Subject: Response to U.S. EPR Design Certification Application RAI No. 470, FSARCh. 12, Supplement 2
Attachments: RAI 470 Supplement 2 Response US EPR DC - Public.pdf

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the one question in RAI No. 470 on March 3, 2011. AREVA NP provided Supplement 1 on April 8, 2011 to revise the schedule for the one remaining question.

The attached file, "RAI 470 Supplement 2 Response US EPR DC - PUBLIC.pdf" provides technically correct and a complete FINAL response to Question 12.03-12.04-27, as committed. Because the response file contains security-related sensitive information that should be withheld from public disclosure in accordance with 10 CFR 2.390, a public version is provided with the security-related sensitive information redacted. This email and attached file do not contain any security-related information. An unredacted security-related version is provided under separate email.

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 470, Question 12.03-12.04-27.

The following table indicates the respective pages in the response document, RAI 470 Supplement 2 Response US EPR DC.pdf," that contains AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 470 — 12.03-12.04-27	2	3

This concludes the formal AREVA NP response to RAI 470 and there are no questions from this RAI for which AREVA NP has not provided responses.

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)

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Russell.Wells@Areva.com

From: WELLS Russell (RS/NB)
Sent: Friday, April 08, 2011 7:38 AM
To: 'Tesfaye, Getachew'
Cc: NOXON David (RS/NB); 'Miernicki, Michael'; 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. 470, FSARCh. 12, Supplement 1

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI No. 470 on March 3, 2011.

Additional time is required to interact with the NRC staff.

The schedule for the technically correct and complete response to the one question has been changed and is provided below.

Question #	Response Date
RAI 470 — 12.03-12.04-27	May 13, 2011

Sincerely,

Russ Wells

U.S. EPR Design Certification Licensing Manager

AREVA NP, Inc.

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From: WELLS Russell (RS/NB)
Sent: Thursday, March 03, 2011 5:52 PM
To: 'Tesfaye, Getachew'
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); NOXON David (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 470, FSARCh. 12

Getachew,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 470 Response US EPR DC.pdf," provides the schedule for technically correct and complete responses to these questions.

The following table indicates the respective pages in the response document, "RAI 470 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 470 — 12.03-12.04-27	2	3

The schedule for technically correct and complete response to the one question is provided below.

Question #	Response Date
RAI 470 — 12.03-12.04-27	April 8, 2011

Sincerely,

Russ Wells

U.S. EPR Design Certification Licensing Manager

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

Sent: Tuesday, February 01, 2011 4:14 PM

To: ZZ-DL-A-USEPR-DL

Cc: Bernal, Sara; Roach, Edward; Clark, Phyllis; Colaccino, Joseph; ArevaEPRDCPEm Resource

Subject: U.S. EPR Design Certification Application RAI No. 470 (5397), FSARCh. 12

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on January 25, 2011, and on February 1, 2011, 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/NARP

(301) 415-3361

Hearing Identifier: AREVA_EPR_DC_RAIs
Email Number: 2829

Mail Envelope Properties (1F1CC1BBDC66B842A46CAC03D6B1CD4104365C40)

Subject: Response to U.S. EPR Design Certification Application RAI No. 470, FSARCh.
12, Supplement 2
Sent Date: 4/11/2011 3:13:53 PM
Received Date: 4/11/2011 3:14:07 PM
From: WELLS Russell (AREVA)

Created By: Russell.Wells@areva.com

Recipients:

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Files	Size	Date & Time
MESSAGE	5430	4/11/2011 3:14:07 PM
RAI 470 Supplement 2 Response US EPR DC - Public.pdf		61412

Options

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

Response to

**Request for Additional Information No. 470(5397), Revision 0,
Supplement 2**

2/1/2011

U.S. EPR Standard Design Certification

AREVA NP Inc.

Docket No. 52-020

SRP Section: 12.03-12.04 - Radiation Protection Design Features

Application Section: 12.3-12.4 Radiation Protection Design Features

QUESTIONS for Health Physics Branch (CHPB)

Question 12.03-12.04-27:**Follow-up to RAI 424, Question 12.03-12.04-22**

In the response to RAI 424, Question 12.03-12.04-22, it was stated that AREVA NP had implemented a design change to shield the seismic gap around the spent fuel transfer tube inside containment using a steel labyrinth. This is acceptable to the staff except for the following:

1. Provide more detail as to whether the steel plate will be permanent shielding, or whether it will be removable (for example, by being bolted to the wall instead of welded). Per the guidance of NUREG 0800 Section 12.3-12.4, all accessible portions of the spent fuel transfer tube are clearly marked with a sign stating that potentially lethal radiation fields are possible during fuel transfer. If the steel labyrinth plate described in the RAI response is removable shielding, it must also be explicitly marked as above. If other than permanent shielding is used, local audible and visible alarming radiation monitors must be installed to alert personnel if temporary fuel transfer tube shielding is removed during fuel transfer operations.
2. The revisions to FSAR Tier 2, Figures 12.3-2 and 12.3-9 provided in response to RAI 424, Question 12.3-12.4-22 are not labeled or explained in the FSAR mark-up. Revise the FSAR to include a description, or label the mark shown in the revised Figures 12.3-4 and 12.3-9, such that the reader can identify it as a labyrinth steel shield used to prevent streaming through the seismic gap during fuel transfer. If the shield will be removable, include that information in the label or in the description.
3. The labyrinth shield described in the response to RAI 424, Question 12.03-12.04-22, together with the labyrinth shielding in the containment annulus, provide shielding for accessible areas around the spent fuel transfer tube during refueling. According to RAI response 43, Question 14.3.8-1, Supplement 1, AREVA revised Tier 1 to include radiation barriers which separate high radiation areas and frequently accessed areas due to their safety significance. Because the spent fuel transfer tube labyrinth shielding is used to prevent accessible Very High Radiation Areas from occurring during spent fuel transfer they are also safety-related. Accordingly, revise FSAR Tier 1 Table 2.1.1-3, "Radiation Barriers," to include verification of the two labyrinth shielding wall thicknesses and configurations. Also revise the wording in FSAR Tier 1 Item 3.3 of Table 2.1.1-4, "Nuclear Island ITAAC," and bullet 3.3 in Tier 1 section 3.0, "Key Design Features," so that it refers to safety significant radiation barriers for normal operation in addition to post-accident barriers.

Response to Question 12.03-12.04-27:

1. The steel plate will be permanently welded.
2. U.S. EPR FSAR Tier 2, Figures 12.3-4 and 12.3-9 will be revised to identify the 8" x 14" welded steel shield plates used to prevent streaming through the seismic gap during fuel transfer.
3. Per U.S. EPR FSAR Tier 2, Section 14.3.2, the design criteria used in determining the safety-significant structures during normal operations to be included in U.S. EPR FSAR Tier 1, Table 2.1.1 is "an area where a radiation zone 3 compartment (Dose rate < 2.5 mrR/hr) is immediately adjacent to a radiation zone 7 or 8 compartment (dose rates above 5 rad/hr)." Per the response to RAI 424 Supplement 2 and the response to RAI 254 Supplement 1, the

normal operations dose rates in the adjacent areas to the high radiation areas surrounding the fuel transfer tube exceed 2.5 mR/hr. Therefore, the steel shield plates and the labyrinth shielding in the annulus do not meet the criteria and U.S. EPR FSAR Tier 1, Table 2.1.1-3 will not be revised to include the verification of these two shielding configurations. U.S. EPR FSAR Tier 1, Table 2.1.1-4, Item 3.3 and Section 2.1.1, bullet 3.3 will be revised to refer to safety-significant radiation barriers for normal operation in addition to post-accident barriers.

FSAR Impact:

U.S. EPR FSAR Tier 2, Figures 12.3-4 and 12.3-9, and U.S. EPR FSAR Tier 1, Table 2.1.1-4 and Section 2.1.1, bullet 3.3 will be revised as described in the response and as indicated on the enclosed markup.

U.S. EPR Final Safety Analysis Report Markups

3.1b Decoupling of SB 2/3 and FB internal structures from their outer external hazards barrier walls, at their exterior walls along the entire wall length and the upper ceiling, and from the RSB above elevation 0 feet, 0 inches.

3.2 The NI site grade level is located between 12 inches and 18 inches below the finish floor elevation at ground entrances.

12.03-12.04-27

| 3.3 The NI structures include safety-significant radiation barriers for normal operation and post-accident radiation shielding as described in Table 2.1.1-3.

3.4 Deleted.

3.5 Deleted.

3.6 NI Seismic Category I structural walls or floors having exterior penetrations located below grade elevation are protected against external flooding by watertight seals.

3.7 The NI structures have key dimensions that are confirmed after construction.

4.0 Interface Requirements

There are no interface requirements for the NI Structures.

5.0 Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.1.1-4 lists the NI ITAAC.

Table 2.1.1-4—Nuclear Island ITAAC (3 Sheets)

	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
3.1	<p>The basic configuration of the NI structures includes:</p> <ul style="list-style-type: none"> a. A continuous external hazards barrier. b. Decoupling of SB 2/3 and FB internal structures from their outer external hazards barrier walls, at their exterior walls along the entire wall length and the upper ceiling, and from the RSB above elevation 0 feet, 0 inches. 	<p>An inspection of the as-built basic configuration of the NI structures will be performed.</p>	<p>The as-built basic configuration of the NI structures has the following features:</p> <ul style="list-style-type: none"> a. The RB, SB 2/3, and the FB share a common boundary exterior surface at the SBs and FB structures roofs and walls to form a continuous external surface for the RB, SB 2/3 and FB structures as shown on Figure 2.1.1-2 and Figure 2.1.1-3. b. SB 2/3 and the FB are decoupled from the external hazards barrier by a minimum of 3 inches at the external SBs and FB walls along their entire length and the upper ceiling, and from the RSB above the 0' 0" elevation as shown on Figure 2.1.1-11, Figure 2.1.1-12, Figure 2.1.1-15 and Figure 2.1.1-17.
3.2	<p>The NI site grade level is located between 12 inches and 18 inches below finish floor elevation at ground entrances.</p>	<p>An inspection of the as-built NI site grade level will be performed.</p>	<p>The as-built NI site grade level is located between 12 inches and 18 inches below finish floor elevation at ground entrances.</p>
3.3	<p>The NI structures include <u>safety-significant radiation barriers for normal operation and post-accident radiation shielding</u> as described in Table 2.1.1-3.</p>	<p>An inspection of the as-built NI <u>safety-significant</u> accident radiation barriers will be performed.</p>	<p>The as-built NI structures <u>safety-significant radiation barriers that provide normal operation and post-accident radiation shielding</u> are as described in Table 2.1.1-3.</p>
3.4	Deleted.	Deleted.	Deleted.
3.5	Deleted.	Deleted.	Deleted.

12.03-12.04-27



12.03-12.04-27

Figure 12.3-4—Transfer Pit at the +17 Ft Elevation in the Reactor Building



Figure 12.3-9—Containment Building Section Looking Plant-East at the Reactor Cavity, Core Internals Storage, Transfer Pit, and Spreading Area

12.03-12.04-27

