ArevaEPRDCPEm Resource

From: Pederson Ronda M (AREVA NP INC) [Ronda.Pederson@areva.com]
Sent: Thursday, July 16, 2009 4:52 PM
To: Tesfaye, Getachew
Cc: BENNETT Kathy A (OFR) (AREVA NP INC); DELANO Karen V (AREVA NP INC); GUCWA Len T (EXT)
Subject: Response to U.S. EPR Design Certification Application RAI No. 254, FSARCh. 12
Attachments: RAI 254 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 254 Response US EPR DC.pdf" provides a schedule since technically correct and complete responses to the 4 questions are not provided.

The following table indicates the respective pages in the response document, "RAI 254 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 254 — 12.03-12.04-12	2	2
RAI 254 — 12.03-12.04-13	3	3
RAI 254 — 12.03-12.04-14	4	4
RAI 254 — 12.03-12.04-15	5	5

A complete answer is not provided for the 4 questions. The schedule for technically correct and complete responses to these questions is provided below.

Question #	Response Date
RAI 254 — 12.03-12.04-12	September 10, 2009
RAI 254 — 12.03-12.04-13	September 10, 2009
RAI 254 — 12.03-12.04-14	September 10, 2009
RAI 254 — 12.03-12.04-15	September 10, 2009

Sincerely,

Ronda Pederson
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From: Tesfaye, Getachew [mailto:Getachew.Tesfaye@nrc.gov]
Sent: Thursday, June 25, 2009 7:21 AM
To: ZZ-DL-A-USEPR-DL

Cc: Bernal, Sara; Frye, Timothy; Jennings, Jason; Colaccino, Joseph; ArevaEPRDCPEm Resource
Subject: U.S. EPR Design Certification Application RAI No. 254 (3052), FSARCh. 12

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on May 18, 2009, and on June 24, 2009, 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 except minor editorial corrections. 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: 671

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Subject: Response to U.S. EPR Design Certification Application RAI No. 254, FSARCh. 12
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From: Pederson Ronda M (AREVA NP INC)

Created By: Ronda.Pederson@areva.com

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Response to

Request for Additional Information No. 254

6/25/2009

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: Section 12.3 Radiation Protection Design Features

QUESTIONS for Health Physics Branch (CHPB)

Question 12.03-12.04-12:

Describe the criteria used in locating and designing penetrations for shield walls such that personnel radiation exposures are maintained ALARA. Update the FSAR to include these criteria.

Response to Question 12.03-12.04-12:

A response to this question will be provided by September 10, 2009.

Question 12.03-12.04-13:

According to Figure 12.03-12.04-6-1, “Reactor Building Fuel Transfer Map +5.15 m Elevation,” (provided by the applicant in response to RAI 150, Question 12.3-12.4-6), areas adjacent to the spent fuel transfer tube which lack concrete and water shielding reach dose rates of 136, 600 rads/hr at 1 meter, or well over the 500 rads in any one hour at 1 meter required to qualify the area as a very high radiation area. Figure 12.03-12.04-6-1 also shows that there are two accessible rooms where the spent fuel transfer tube is unshielded by water or concrete – one inside containment (shown in the Figure above as having a dose rate of 136,600 rads/hr at 1 meter) and one inside the containment annulus. Because these areas will have extremely high dose rates during fuel transfer, they should be designated as “very high radiation areas.”

However, the EPR FSAR, Tier 2, Section 12.3.1.8, “Access to Radiologically Restricted Areas,” does not call out these two locations as very high radiation areas. Modify Section 12.3.1.8 so that it identifies these areas as requiring design and administrative access controls in accordance with 10 CFR 20.1602 and RG 8.38. Also include in Section 12.3.1.8 of the FSAR a description of the design features which prevent unauthorized access to both areas.

Response to Question 12.03-12.04-13:

A response to this question will be provided by September 10, 2009.

Question 12.03-12.04-14:

According to Figure 12.03-12.04-6-1, “Reactor Building Fuel Transfer Map +5.15 m Elevation,” provided in the applicant’s response to RAI 150, Question 12.3-12.4-6, areas adjacent to the spent fuel transfer tube which lack concrete and water shielding reach dose rates of 136, 600 rads/hr at 1 meter, or well over the 500 rads in any one hour at 1 meter required to qualify the area as a very high radiation area.

Figure 12.03-12.04-6-1, “Reactor Building Fuel Transfer Map +5.15 m Elevation,” also illustrates that the unshielded portion of the spent fuel transfer tube located inside the containment annulus is accessible via a set of stairs and a labyrinth shield. The labyrinth prevents radiation from streaming to the stairway, but does not prevent access to the unshielded tube. In addition, it is not clear whether there is a lockable gate or door located at the stair access point, at the entrance of the labyrinth, or at some other location, such that physical access to the labyrinth (and therefore the spent fuel transfer tube) could be controlled separately from access to the rest of the containment annulus, particularly during outages.

According to SRP section 12.3-12.4, very high radiation areas should be remote from normally occupied rooms and corridors such that personnel access to these areas can be controlled in accordance with the requirements of 10 CFR 20.1602 and the guidance in Regulatory Guide 8.38. The guidance in RG 8.38 and the requirements of 20.1602 dictate that entrances to very high radiation areas be kept locked and additional measures be instituted to prevent unauthorized or inadvertent access. Therefore, please provide greater detail on the physical access controls (such as unmovable barriers and/or locked doors/gates) incorporated into the EPR design such that unauthorized access to the spent fuel transfer tube via the labyrinth shielding can be prevented. If no barriers or locked doors exist (other than the entrances to the annulus), discribed the shielding that will be installed adjacent to the tube such that the resultant contact radiation levels will be no greater than 1 Gy per hour (100 rads per hour) during fuel transfer in accordance with the guidance provided in SRP section 12.3-12.4.

Response to Question 12.03-12.04-14:

A response to this question will be provided by September 10, 2009.

Question 12.03-12.04-15:

Section 12.3-12.4 of the U.S. EPR FSAR describes the use of the RANKERN computer code to determine the post-LOCA dose rates in the lower elevations of the Safeguards Building Divisions 1 and 2 (identified as radiological vital areas in the FSAR). However, the RANKERN shielding code is not commonly used in the United States and is therefore not contained in the code description file of the Radiation Safety Information Computational Center at Oak Ridge National Laboratory. As a result, NRC staff and their contractors are unfamiliar with the RANKERN code methodology, including whether its assumptions regarding radiation transport are conservative. Therefore in accordance with the guidance in SRP Section 12.3-12.4, please provide the locations and geometry characteristics of the various sources (pipes, heat exchangers) modeled in the RANKERN post-LOCA calculations such that the mission doses for Safeguard Building 2 could be reproduced by NRC staff.

Response to Question 12.03-12.04-15:

A response to this question will be provided by September 10, 2009.