ArevaEPRDCPEm Resource

From: Pederson Ronda M (AREVA NP INC) [Ronda.Pederson@areva.com]
Sent: Friday, January 23, 2009 9:44 AM
To: Getachew Tesfaye
Cc: SALAS Pedro (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); LANIER Dave (EXT); DELANO Karen V (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 164 (1727), FSARCh. 12
Attachments: RAI 164 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 164 Response US EPR DC.pdf" provides a schedule since a technically correct and complete response to the one (1) question is not provided.

The following table indicates the respective pages in the response document, "RAI 164 Response US EPR DC.pdf," that contain AREVA NP's schedule for response to the subject question.

Question #	Start Page	End Page
RAI 164 — 12.03-12.04-8	1	2

The schedule for a technically correct and complete response to this question is provided below.

Question #	Response Date
RAI 164 — 12.03-12.04-8	March 10, 2009

Sincerely,

Ronda Pederson
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Licensing Manager, U.S. EPR Design Certification
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From: Getachew Tesfaye [mailto:Getachew.Tesfaye@nrc.gov]
Sent: Friday, January 09, 2009 7:24 PM
To: ZZ-DL-A-USEPR-DL
Cc: Sara Bernal; Timothy Frye; Surinder Arora; Joseph Colaccino; ArevaEPRDCPEm Resource
Subject: U.S. EPR Design Certification Application RAI No. 164 (1727), FSARCh. 12

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on December 23, 2008, and on January 7, 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. 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: 146

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Received Date: 1/23/2009 10:14:58 AM
From: Pederson Ronda M (AREVA NP INC)

Created By: Ronda.Pederson@areva.com

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MESSAGE	2176	1/23/2009 10:14:58 AM
RAI 164 Response US EPR DC.pdf	63715	

Options
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Reply Requested: No
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Response to

Request for Additional Information No. 164 (1727), Revision 0

01/09/2009

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: 12.3, Radiation Protection Design Features

QUESTIONS for Health Physics Branch (CHPB)

Question 12.03-12.04-8:

1. RG 1.206, Part C.I.12.1.2, Design Considerations, states that the applicant should address the detailed facility design features for radiation protection to ensure that occupational radiation exposures will be ALARA, in accordance with the requirements of 10 CFR 20.1101(b).

   a. The EPR FSAR Tier 2, Section 12.1.2.3.1, Material Selection, discusses the minimization of cobalt-containing alloys for parts that make up the primary system. However, in addition to cobalt, experience has shown that the presence of antimony (Sb-124 and Sb-125) in Reactor Coolant Pump (RCP) journal bearings has in some current generation plants resulted in an increased number of hot particles at these plants.

      Discuss whether, or to what extent, antimony will be present in the EPR design, particularly Reactor Coolant Pump journal bearings.

   b. EPR FSAR Section 12.3.1.9.2, Equipment Design Features, describes features that result in the reduction of personnel radiation exposure. For the EPR Steam Generators, Section 12.3.1.9.2 states:

      "…numerous features have been incorporated to improve reliability and minimize maintenance worker occupancy times when special maintenance is necessary. An example of one such improvement is the material selection of low cobolt content alloys…"

      However, the "numerous features" mentioned in Section 12.3.1.9.2 are not described anywhere in chapter 12. Provide more information and examples to support the claim that the EPR Steam Generator design has improved reliability and minimizes worker occupancy times.

   c. The EPR FSAR Section 11.4.1.2.4 "Controlled Releases," states that the radioactive concentrates processing system receives evaporator concentrates and sludge generated in the liquid waste processing and storage system as well as spent resins generated in the coolant purification system and the liquid waste processing system.

      It is not clear to what extent the guidance provided in RG 8.8 (Regulatory Position 2.g) was applied to the EPR piping design for systems that transport, store, or process resins or slurries. Discuss to what extent the RG 8.8 design features for resin and sludge treatment systems were incorporated into the EPR design, or justify why not. If piping were to become plugged, discuss any design features which will allow for unplugging the piping while maintaining dose to workers ALARA.

   d. Compliance with GDC 61 requires that the occupational radiation protection aspects of fuel storage, handling, radioactive waste and other systems that may contain radioactivity be designed with suitable shielding as wells as appropriate containment and filtering systems such that adequate safety is assured during normal and postulated accident conditions.

RG 1.206, Part C.I.12.3.1, Facility Design Features, states that the applicant should provide scaled layout and arrangement drawings of the facility with radiation zone designations and boundaries for normal operations, refueling outages, and postaccident conditions. However the EPR FSAR, Section 12.3 does not provide containment layout drawings with radiation zone designations for refueling, specifically, radiation zones for some areas within containment that would be occupied during outages. Therefore in accordance with the guidance in RG 1.206 and the requirements of GDC 61, provide the following in the FSAR:

i) EPR FSAR Tier 2, Figure 12.3-8, "Containment Building Section Looking Plant-West at the reactor Cavity, Core Internals Storage, Instrument Lance Storage, and Spreading Area," shows areas (on the left side of the drawing) inside containment that personnel may access. Provide radiation zones for these areas during refueling when the instrument lances would be located in the instrument lance storage area.

2. Personnel access to radiological vital areas under accident conditions should be demonstrated in accordance with 10 CFR 50.34(f)(2)(vii), using the methods listed in Section II.B.2 of NUREG-0737. Section II.B.2 of NUREG-0737 provides a dose rate criteria for vital areas requiring continuous occupancy (such as the Main Control Room or MCR) of less than 15 mrem/hr (averaged over 30 days).

EPR FSAR Tier 2, Table 12.3-12, U.S. Estimated Accident Mission Dose, provides a total dose per person for the "MCR, TSC and nearby stations" of 4.0 rem, accumulated over 30 days post-LOCA. However, dose rate is not specified. Provide information on the dose rate as a function of time for the MCR, TSC and nearby stations for the design basis accident which results in the highest dose for the MCR.

Response to Question 12.03-12.04-8:

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