ArevaEPRDCPEm Resource

From: Pederson Ronda M (AREVA NP INC) [Ronda.Pederson@areva.com]
Sent: Thursday, December 03, 2009 5:27 PM
To: Tesfaye, Getachew
Cc: BENNETT Kathy A (OFR) (AREVA NP INC); DELANO Karen V (AREVA NP INC); DUNCAN Leslie E (AREVA NP INC); SALAS Pedro (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 23, FSAR Ch 12, Supplement 2
Attachments: RAI 23 Supplement 2 Response US EPR DC.pdf

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for answering the 1 question of RAI No. 23 on July 24, 2008. AREVA NP submitted Supplement 1 with a partial response to the 1 question on October 29, 2008. The attached file, "RAI 23 Supplement 2 Response US EPR DC," provides the remaining response to the 1 question of RAI No. 23. Together, the partial responses in Supplement 1 and Supplement 2 provide a technically correct and complete response to the subject question, as committed.

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 23 Question 12.03-12.04-1.

The following table indicates the respective pages in the response document, "RAI 23 Supplement 2 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 23—12.03-12.04-1	2	4

This concludes the formal AREVA NP response to RAI No. 23, and there are no questions from this RAI for which AREVA NP has not provided responses.

Sincerely,

Ronda Pederson
ronda.pederson@areva.com
Licensing Manager, U.S. EPR Design Certification
AREVA NP Inc.
An AREVA and Siemens company
3315 Old Forest Road
Lynchburg, VA 24506-0935
Phone: 434-832-3694
Cell: 434-841-8788

From: Pederson Ronda M (AREVA NP INC)
Sent: Wednesday, October 29, 2008 6:50 PM
To: 'Getachew Tesfaye'
Cc: DELANO Karen V (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); DUNCAN Leslie E (AREVA NP INC); SALAS Pedro (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 23, FSAR Ch 12, Supplement 1

Getachew,

On July 24, 2008, AREVA NP Inc. (AREVA NP) indicated that a complete response to RAI 15 question could not be provided. The attached file, "RAI 23 Supplement 1 Response US EPR DC.pdf" provides technically correct and complete responses to Part B of the question, as committed.

The following table indicates the respective pages in the response document, "RAI 23 Supplement 1 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 23—12.03-12.04-1	2	27

The schedule for a technically correct and complete response to Part A of the remaining question is unchanged and provided below:

Question #	Response Date
RAI 23—12.03-12.04-1 A	45 days after NRC approval of the NEI 08-08 generic template

Sincerely,

Ronda Pederson
ronda.pederson@areva.com
Licensing Manager, U.S. EPR Design Certification
New Plants Deployment
AREVA NP Inc.
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3315 Old Forest Road
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From: Pederson Ronda M (AREVA NP INC)
Sent: Thursday, July 24, 2008 3:23 PM
To: 'Getachew Tesfaye'
Cc: DELANO Karen V (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); SALAS Pedro (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 23, FSAR Ch 12

Getachew,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The following table provides the page(s) in the document, "RAI 23 Response US EPR DC.pdf" containing the response to the question.

Question #	Start Page	End Page
RAI 23—12.03-12.04-1	2	3

A complete answer is not provided for the question. The schedule for a technically correct and complete response to the two parts to this question is provided below.

Question #	Response Date
RAI 23—12.03-12.04-1 A	45 days after NRC approval of the

The provided response schedule meets NRC's stated expectation and supports the established review schedule for the U.S. EPR design certification application.

Sincerely,

Ronda Pederson
ronda.pederson@areva.com
Licensing Manager, U.S. EPR Design Certification
New Plants Deployment
AREVA NP, Inc.
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From: Getachew Tesfaye [mailto:Getachew.Tesfaye@nrc.gov]
Sent: Tuesday, June 24, 2008 6:13 PM
To: ZZ-DL-A-USEPR-DL
Cc: Sara Bernal; Timothy Frye; Surinder Arora; Tarun Roy; John Rycyna; Joseph Colaccino
Subject: U.S. EPR Design Certification Application RAI No. 23, FSAR Ch 12

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on June 19, 2008, and discussed with your staff on June 24, 2008. No change was made to the draft RAI as a result of that discussion. 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: 999

Mail Envelope Properties (5CEC4184E98FFE49A383961FAD402D310173D3DD)

Subject: Response to U.S. EPR Design Certification Application RAI No. 23, FSAR Ch 12, Supplement 2
Sent Date: 12/3/2009 5:26:33 PM
Received Date: 12/3/2009 5:27:00 PM
From: Pederson Ronda M (AREVA NP INC)

Created By: Ronda.Pederson@areva.com

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"BENNETT Kathy A (OFR) (AREVA NP INC)" <Kathy.Bennett@areva.com>
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Tracking Status: None

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Files	**Size**	**Date & Time**
MESSAGE	5528	12/3/2009 5:27:00 PM
RAI 23 Supplement 2 Response US EPR DC.pdf	97649	

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

Response to

Request for Additional Information No.23, Supplement 2, Revision 0

06/24/2008
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
CHPB Branch

Question 12.03 – 12.04-1:

Background

The staff developed Regulatory Guide 4.21 (issued in draft as DG-4012) in order to provide guidance to the industry on how to meet the requirements of 10 CFR 20.1406 with respect to minimizing, to the extent practicable, contamination of the facility and the environment, facilitating eventual decommissioning, and minimizing, to the extent practicable, the generation of radioactive waste.

The following 9 design and operational objectives summarize the objectives contained in the Regulatory Position section of RG 4.21. Appendix A of RG 4.21 contains examples of measures that might be taken to address the requirements of 10 CFR 20.1406.

1. Minimize leaks and spills and provide containment in areas where such events may occur,
2. Provide for adequate leak detection capability to provide prompt detection of leakage for any structure, system, or component which has the potential for leakage,
3. Use leak detection methods (e.g., instrumentation, automated samplers) capable of early detection of leaks in areas where it is difficult or impossible to conduct regular inspections (such as for spent fuel pools, tanks that are in contact with the ground, and buried, embedded, or subterranean piping) to avoid release of contamination from undetected leaks and to minimize contamination of the environment,
4. Reduce the need to decontaminate equipment and structures by decreasing the probability of any release, reducing any amounts released, and decreasing the spread of the contaminant from the source,
5. Periodically review operational practices to ensure that, operating procedures are revised to reflect the installation of new or modified equipment, personnel qualification and training are kept current, and facility personnel are following the operating procedures,
6. Facilitate decommissioning by a) maintenance of records relating to facility design and construction, facility design changes, site conditions before and after construction, onsite waste disposal and contamination and results of radiological surveys, b) minimizing embedded and buried piping, and c) designing the facility to facilitate the removal of any equipment and/or components that may require removal and/or replacement during facility operation or decommissioning,
7. Minimize the generation and volume of radioactive waste both during operation and during decommissioning (by minimizing the volume of components and structures that become contaminated during plant operation)
8. Develop a conceptual site model (based on site characterization and facility design and construction) which will aid in the understanding of the interface with environmental systems and the features that will control the movement of contamination in the environment,
9. Evaluate the final site configuration after construction to assist in preventing the migration of radio-nuclides offsite via unmonitored pathways,

The above list contains a mixture of design and operational objectives. Since Chapter 12 deals with radiation protection related issues, some of these objectives are partially addressed in various Sections of Chapter 12 of the DCD. The subject matter of others (e.g., item number 8

on the conceptual site model) dictates that they be addressed in detail in other sections of the DCD.

A. For those objectives which are more operational or procedural in nature, provide COL action items in the appropriate section of the DCD where the system or concept is described and include a reference to these sections in Chapter 12.3 of the DCD.

B. The information presented in Chapter 12 of DCD Tier 2, Rev. 0 identifies EPR general design features that would minimize the contamination of the facility and environment and would minimize the generation of radioactive waste. However, this information does not address design features that are unique to system designs or their locations in the plant warranting more technical details, and does not identify issues that should be addressed as COL action items. For each of the systems listed below (and for any other plant systems which may generate radioactive waste or could result in the contamination of non-radioactive systems), describe specific design features which are incorporated into the EPR design to comply with the requirements of 10 CFR 20.1406.

1) Fuel Storage and Handling, including fuel transfer tube
2) Process Sampling System
3) Coolant Storage and Transfer System
4) Radioactive Waste Management Systems
5) Equipment, Floor, Chemical, and Detergent Drain Systems
6) Building heating, ventilating and air conditioning systems used to process radioactive process and effluent streams

List these specific design features and/or COL action items in the appropriate section of the DCD where the system is described and include a reference to these sections in Chapter 12.3 of the DCD.

Response to Question 12.03 – 12.04-1:

A partial response to this question was provided in RAI 23, Supplement 1, Question 12.03 – 12.04-1 (Accession Number ML083091033). As committed in RAI 23, Supplement 1, “elements of the response that pertain to operational objectives will be provided within 45 days of NRC approval of the generic template NEI 08-08; corresponding FSAR changes will be included.” The information in this response supplements the Response to RAI 23, Supplement 1, Question 12.03 – 12.04-1 and these responses together provide a technically complete and accurate response for this question.

In accordance with the radiation protection program milestones and license conditions, the facility will maintain an operational lifecycle minimization of contamination program based on NEI 08-08A, “Generic FSAR Template Guidance for Life-Cycle Minimization of Contamination.”

NEI 08-08A provides generic guidance for lifecycle minimization of contamination and is an acceptable method for a COL applicant to demonstrate compliance with NRC regulatory requirements, guidance, and acceptable criteria listed in 10 CFR 20.1406, Regulatory Guide (RG) 1.206, RG 4.21 and NUREG-0800, Section 11 and Section 12.

U.S. EPR FSAR Tier 2, Section 12.3 and Section 12.5 will be revised to include a reference to NEI 08-08A.

FSAR Impact:

U.S. EPR FSAR Tier 2, Section 12.3 and Section 12.5 will be revised as described in the response and indicated on the enclosed markup.

U.S. EPR Final Safety Analysis Report Markups

DWDS. Additional barriers are in the DWDS to prevent upstream contamination such as isolating valves and check valves located at the NI Building entrances to further prevent upstream contamination outside of the NI. The overall design configuration of the DWDS and the contaminated interfacing systems contain sufficient barriers to prevent radioactive contamination of the DWDS.

12.3.6.6 Operational Program to Minimize Contamination

The operational program to minimize contamination throughout the lifecycle of the facility is described in Section 12.5.

12.03 - 12.04-1

12.3.7 References

1. NUREG-0800, "U.S. NRC Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants," U.S. Nuclear Regulatory Commission, March 2007.

2. ANSI/ANS-6.4-1997, "Specification for Radiation Shielding Materials," American National Standards Institute, 1997.

3. NUREG-0737, "Clarifications of TMI Action Plan Requirements," U.S. Nuclear Regulatory Commission, November 1980.

4. "MicroShield® User's Manual," Version 7, Grove Software, Inc., Lynchburg, VA, October 2006.

5. "RANKERN Version 15a – A Point Kernel Integration Code for Complicated Geometry Problems," Serco Assurance, October 2005.

6. ANSI/ANS-HPSSC-6.8.1-1981, "Location and Design Criteria for Area Radiation. Monitoring Systems for Light Water Nuclear Reactors," American National Standards Institute/American Nuclear Society, May 1981.

7. IEEE Standard 497-2002, "Standard Criteria for Accident Monitoring Instrumentation for Nuclear Power Generating Stations," Institute of Electrical and Electronics Engineers, Inc, 2002.

8. ANSI/HPS-N13.1-1999, "Sampling and Monitoring Releases of Airborne Radioactive Substances from the Stacks and Ducts of Nuclear Facilities," American National Standards Institute, 1999.

9. NUREG-0713, "Occupational Radiation Exposure at Commercial Nuclear Power Reactors and Other Facilities," U.S. Nuclear Regulatory Commission, December 1997.

10. LA-13709-M, "MCNP–A General Monte Carlo N-Particle Transport Code," Version 4c, J.F. Briesmeister, Ed., Los Alamos National Laboratory, April 2000.

12.5 Operational Radiation Protection Program

A COL applicant that references the U.S. EPR design certification will fully describe, at the functional level, elements of the Radiation Protection Program. The purpose of this Radiation Protection Program is to maintain occupational and public doses ALARA. The program description will identify how the program is developed, documented, and implemented through plant procedures that address quality requirements commensurate with the scope and extent of licensed activities. This program will comply with the provisions of 10 CFR Parts 19, 20, 50, 52, and 71 and be consistent with the guidance in RG 1.206, RG 1.8, RG 8.2, RG 8.4, RG 8.5, RG 8.6, RG 8.7, RG 8.8, RG 8.9, RG 8.10, RG 8.13, RG 8.15, RG 8.27, RG 8.28, RG 8.29, RG 8.34, RG 8.35, RG 8.36, RG 8.38, and the consolidated guidance in NUREG-1736 (Reference 1).

12.03 - 12.04-1

In accordance with the radiation protection program milestones and license conditions, the facility maintains an operational lifecycle minimization of contamination program based on NEI 08-08A, "Generic FSAR Template Guidance for Life-Cycle Minimization of Contamination" (Reference 2). NEI 08-08A is one acceptable method for demonstrating compliance with NRC regulatory requirements, guidance, and acceptance criteria listed in 10 CFR 20.1406, Regulatory Guide 1.206, Regulatory Guide 4.21, and NUREG-0800, Section 11 and Section 12.

12.5.1 References

1. NUREG-1736, "Consolidated Guidance: 10 CFR 20—Standards for Protection Against Radiation," U.S. Nuclear Regulatory Commission, October 2001.

2. NEI 08-08A, Revision 0, "Generic FSAR Template Guidance for Life-Cycle Minimization of Contamination," October 2009.

12.03 - 12.04-1