

ArevaEPRDCPEm Resource

From: Pederson Ronda M (AREVA NP INC) [Ronda.Pederson@areva.com]
Sent: Tuesday, March 03, 2009 3:44 PM
To: Getachew Tesfaye
Cc: BENNETT Kathy A (OFR) (AREVA NP INC); DELANO Karen V (AREVA NP INC); PANNELL George L (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 59, Supplement 2
Attachments: RAI 59 Supplement 2 Response US EPR DC.pdf

Getachew,

AREVA NP Inc. (AREVA NP) provided responses to 4 of the 11 questions of RAI No. 59 on October 13, 2008. AREVA NP submitted Supplement 1 to the response on January 14, 2009 to address 1 of the remaining 7 questions. The attached file, "RAI 59 Supplement 2 Response US EPR DC.pdf" provides technically correct and complete responses to 2 of the remaining 6 questions, as committed.

The following table indicates the respective pages in the response document, "RAI 59 Supplement 2 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 59 — 07.01-7	2	3
RAI 59 — 07.01-10	4	5

The schedule for technically correct and complete responses to the remaining 4 questions is unchanged and provided below:

Question #	Response Date
RAI 59 — 07.01-1	March 31, 2009
RAI 59 — 07.01-8	March 31, 2009
RAI 59 — 07.01-9	March 31, 2009
RAI 59 — 07.01-11	March 31, 2009

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, January 14, 2009 1:50 PM
To: 'Getachew Tesfaye'

Cc: DELANO Karen V (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); PANNELL George L (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 59, Supplement 1

Getachew,

AREVA NP Inc. provided responses to 4 of the 11 questions of RAI No. 59 on October 13, 2008. The attached file, "RAI 57 Supplement 1 Response US EPR DC.pdf," provides technically correct and complete responses to 1 of the remaining 7 questions, as committed.

The following table indicates the respective pages in the response document, "RAI 57 Supplement 1 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 59 — 07.01-6	2	3

The schedule for technically correct and complete responses to the remaining 6 questions is unchanged and provided below:

Question #	Response Date
RAI 59 — 07.01-1	March 3, 2009
RAI 59 — 07.01-7	March 3, 2009
RAI 59 — 07.01-8	March 31, 2009
RAI 59 — 07.01-9	March 31, 2009
RAI 59 — 07.01-10	March 3, 2009
RAI 59 — 07.01-11	March 31, 2009

Sincerely,

Ronda Pederson

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From: Pederson Ronda M (AREVA NP INC)

Sent: Wednesday, November 26, 2008 3:47 PM

To: 'Getachew Tesfaye'

Cc: PANNELL George L (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); DELANO Karen V (AREVA NP INC)

Subject: Response to U.S. EPR Design Certification Application RAI No. 59, FSAR Ch 7, Revised Schedule

Getachew,

On October 13, 2008, AREVA NP provided technically correct and complete responses to 4 of the 11 questions and a schedule for responding to the remaining 7 questions of RAI No. 59. On October 22, 2008, a public meeting was held between AREVA NP Inc. and the NRC to discuss the U.S. EPR FSAR Chapter 7 and RAI No.'s 56 through 61.

A revised schedule for a technically correct and complete response to each of the remaining 7 questions of RAI No. 59 is provided below.

Question #	Response Date
RAI 59 — 07.01-1	March 3, 2009
RAI 59 — 07.01-6	January 15, 2009
RAI 59 — 07.01-7	March 3, 2009
RAI 59 — 07.01-8	March 31, 2009
RAI 59 — 07.01-9	March 31, 2009
RAI 59 — 07.01-10	March 3, 2009
RAI 59 — 07.01-11	March 31, 2009

Sincerely,

Ronda Pederson

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Licensing Manager, U.S. EPR(TM) Design Certification

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From: WELLS Russell D (AREVA NP INC)

Sent: Monday, October 13, 2008 6:02 PM

To: 'Getachew Tesfaye'

Cc: 'John Rycyna'; Pederson Ronda M (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); DELANO Karen V (AREVA NP INC)

Subject: Response to U.S. EPR Design Certification Application RAI No. 59, FSAR Ch 7

Getachew,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 59 Response US EPR DC.pdf" provides technically correct and complete responses to 4 of the 11 questions.

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 59 Questions 07.01-2, and 07.01-4.

The following table indicates the respective pages in the response document, "RAI 59 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 59 — 07.01-1	2	2
RAI 59 — 07.01-2	3	3
RAI 59 — 07.01-3	4	4
RAI 59 — 07.01-4	5	5
RAI 59 — 07.01-5	6	6
RAI 59 — 07.01-6	7	7

RAI 59 — 07.01-7	8	8
RAI 59 — 07.01-8	9	9
RAI 59 — 07.01-9	10	10
RAI 59 — 07.01-10	11	11
RAI 59 — 07.01-11	12	12

A complete answer is not provided for 7 of the 11 questions. The schedule for a technically correct and complete response to this question is provided below.

Question #	Response Date
RAI 59 — 07.01-1	December 4, 2008
RAI 59 — 07.01-6	December 4, 2008
RAI 59 — 07.01-7	December 4, 2008
RAI 59 — 07.01-8	December 4, 2008
RAI 59 — 07.01-9	December 4, 2008
RAI 59 — 07.01-10	December 4 2008
RAI 59 — 07.01-11	December 4, 2008

Sincerely,

(Russ Wells on behalf of)

Ronda Pederson

ronda.pederson@areva.com

Licensing Manager, U.S. EPR Design Certification

New Plants Deployment

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

Sent: Friday, September 12, 2008 5:58 PM

To: ZZ-DL-A-USEPR-DL

Cc: Mario Gareri; Terry Jackson; Michael Canova; Joseph Colaccino; John Rycyna

Subject: U.S. EPR Design Certification Application RAI No. 59 (955), FSAR Ch7

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on August 26, 2008, and on September 5, 2008, 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: 281

Mail Envelope Properties (5CEC4184E98FFE49A383961FAD402D31B88EFE)

Subject: Response to U.S. EPR Design Certification Application RAI No. 59, Supplement 2
Sent Date: 3/3/2009 3:43:40 PM
Received Date: 3/3/2009 3:43:51 PM
From: Pederson Ronda M (AREVA NP INC)
Created By: Ronda.Pederson@areva.com

Recipients:

"BENNETT Kathy A (OFR) (AREVA NP INC)" <Kathy.Bennett@areva.com>
Tracking Status: None
"DELANO Karen V (AREVA NP INC)" <Karen.Delano@areva.com>
Tracking Status: None
"PANNELL George L (AREVA NP INC)" <George.Pannell@areva.com>
Tracking Status: None
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Tracking Status: None

Post Office: AUSLYNCMX02.adom.ad.corp

Files	Size	Date & Time
MESSAGE	7655	3/3/2009 3:43:51 PM
RAI 59 Supplement 2 Response US EPR DC.pdf		66971

Options

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

Response to
Request for Additional Information No. 59, Supplement 2

9/12/2008

U. S. EPR Standard Design Certification
AREVA NP Inc.
Docket No. 52-020
SRP Section: 07.01 - Instrumentation and Controls - Introduction
Application Section: 7.1.2.2.12
ICE1 Branch

Question 07.01-7:

Provide details regarding any modifications to the TELEPERM XS (TXS) platform design processes, hardware, and software since the TXS topical report was approved in May 2000, or since the last documented staff review of TXS platform changes to demonstrate that the system hardware, system software, and engineering tools development processes continue to meet the quality requirements of 10 CFR 50.55a(a)(1) and GDC 1. This includes software verification and validation (V&V) methods.

Staff recognizes that the TXS platform will continue to evolve as a result of process, hardware, and software changes to address problems and enhancements to the platform. Some of these changes may have the potential to impact conclusions made by the staff in the approved May 2000 TXS topical report. The DC-FSAR does not clearly address such modifications to the TXS platform design processes, hardware, and software since the TXS topical report was approved, or since the last documented staff review of TXS platform changes. Address such changes by providing a detailed response to this RAI.

Response to Question 07.01-7:

Treatment of the evolution of approved digital platforms is an industry-wide issue. AREVA NP recognizes and actively supports efforts such as the NRC's Task Working Group 6 focused on improvement of the digital I&C licensing process. This effort includes definition of a more streamlined process to accommodate the evolution of approved digital safety system platforms.

AREVA NP does not dispute the need for NRC staff review of the specific versions of the TXS platform used in an as-built system, as well as the procedures and processes used in platform development. However, the NRC staff review of the specific versions of the TXS platform used in an as-built system should be performed on a project-specific basis, when a specific version of the platform is selected for use, rather than in the context of a design certification application.

An example of the type of information that can be submitted on a project-specific basis to support evolution of the TXS platform is provided in the Duke Response to RAI 52 (Reference 1), which discusses the Duke Energy license amendment request to upgrade to a TXS reactor protection and engineered safeguards system for the Oconee Nuclear Station (Reference 1).

AREVA NP notes that design certification is intended to support combined construction and operating licenses for several decades. The U.S. EPR FSAR design certification application is intended to support current and future versions of the TXS platform, and thus it is not appropriate to submit information for design certification representing a specific and limited time in the evolution of the TXS platform.

The evolution of the TXS platform is accommodated by closure of design acceptance criteria (DAC) and inspection, test, analyses, and acceptance criteria (ITAAC) items on a plant-specific basis. This approach is consistent with the NRC's review process described in the Standard Review Plan (SRP). Specifically, SRP 7.0 states:

"Review of DC applications should normally extend to cover detailed design. However, for digital computer-based I&C systems, it may be premature to complete final design details at the DC stage. Waiting until the COL stage to complete the final design of such systems allows the COL applicant/licensee to use the most recent technology for each plant.

Therefore, the review of DC applications for digital computer-based I&C systems may be limited to (1) a detailed review at the functional block diagram level, (2) a review of the applicant/licensee's commitment to prescribed limits, parameters procedures, and attributes for the detailed design process, and (3) ITAAC adequate to demonstrate that the as-built facility conforms to these commitments."

References for Question 07.01-7:

1. Letter, Dave Baxter, VP (Oconee Nuclear Station) to Document Control Desk (NRC), "Request for Additional Information for License Amendment Request for Reactor Protective System/Engineered Safeguards Protective System Digital Upgrade," (TSC No. 2007-09), Supplement 5, September 30, 2008.

FSAR Impact:

The U.S. EPR FSAR will not be changed as a result of this question.

Question 07.01-10:

Identify all deviations taken from the TELEPERM XS topical report and provide sufficient detail on each deviation to demonstrate that SE from May 2000 is still applicable.

The DC-FSAR does not have an adequate discussion on deviations taken from the TELEPERM XS topical report. Applicant needs to identify each deviation taken from the TELEPERM XS topical report and provide sufficient information for staff to determine that deviations still meet requirements. For example, the protection system architecture and the D3 approach are different from the description in the topical report but it's not clear what information in the topical report still applies. Applicant needs to provide all deviations as well as supporting information so that staff is able to determine acceptability.

Response to Question 07.01-10:

The Response to Question 07.01-07 discusses the evolution of the TXS platform.

AREVA NP has not deviated from the design principles and methods that were reviewed and approved in the Teleperm XS (TXS) topical report, EMF-2110 NP(A) rev. 1. Two cases (protection system (PS) architecture and D3 approach) are provided as illustrative examples in the TXS topical report, and strict conformance to these examples is not required by the Safety Evaluation Report (SER). The SER, page 3, states:

"The TXS design is intended to provide a qualified generic digital I&C platform that meets the regulatory requirements and that can be used for a wide range of plant-specific applications."

System architecture:

The TXS topical report, EMF-2110 NP(A) Rev. 1, Section 2.7.2 states:

"A simple safety function will now be used to illustrate how different architectures can affect the main reliability features and which typical failure effects are decisive in different architectures."

These system architectures illustrate how selection of architecture affects the accommodation of failures and do not limit TXS applications to these example system architectures.

Additionally, the first page of the SER for the TXS topical report EMF-2110 NP(A) Rev. 1 states:

"The TXS system is a distributed, redundant computer system. It consists of three or four independent redundant data-processing automatic paths (channels)..."

However, the example architectures in topical report, EMF-2110 NP(A) Rev. 1, Section 2.7.2 contain only three channels, which indicates that the SER was written with the assumption that these system architectures were illustrative, not limiting.

D3 Approach:

Technical report EMF-2267(P), "Siemens Power Corporation Methodology Report for Diversity and Defense-in-depth" was submitted to support the review of the TXS topical report, EMF-2110 NP(A) Rev. 1. EMF-2267(P), Section 1.0 states, "Plant-specific applications will be submitted separately."

Consistent with the D3 methodology submitted in support of the TXS topical report, EMF-2110 NP(A) Rev. 1 the SER, page 3, states:

"The generic methodology proposed by Siemens follows the guidance in BTP HICB-19. Applications following this methodology for a plant-specific D-in-D&D assessment should be found acceptable in this area."

The SER does not formally approve or disapprove the D3 methodology; instead, it defers to the plant-specific application.

In the Response to RAI 21 against ANP-10284, "U.S. EPR Instrumentation and Control Diversity and Defense-in-Depth Methodology Topical Report," AREVA NP provided a comparison between the generic D3 methodology and the D3 methodology submitted for the U.S. EPR FSAR design. While an applicant is not required by the SER to follow the generic methodology, the results of this comparison demonstrate that both D3 methodologies are fundamentally the same.

FSAR Impact:

The U.S. EPR FSAR will not be changed as a result of this question.