ArevaEPRDCPEm Resource

From: BRYAN Martin (EXTERNAL AREVA) [Martin.Bryan.ext@areva.com]
Sent: Thursday, September 09, 2010 11:50 AM
To: Tesfaye, Getachew
Cc: DELANO Karen (AREVA); ROMINE Judy (AREVA); BENNETT Kathy (AREVA); KOWALSKI David (AREVA)
Subject: Response to U.S. EPR Design Certification Application RAI No. 272, FSAR Ch. 10, Supplement 7
Attachments: RAI 272 Supplement 7 Response US EPR DC.pdf

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the two questions in RAI No. 272 on February 25, 2010. Supplement 1, Supplement 2, Supplement 3, Supplement 4, Supplement 5 and Supplement 6 responses to RAI No. 272 were sent on March 25, 2010, April 15, 2010, May 12, 2010, June 11, 2010, July 8, 2010 and August 11, 2010, respectively, to provide a revised schedule.

DRAFT responses to the two questions in RAI No. 272 were sent to the NRC on June 11, 2010 and August 11, 2010.

The attached file, "RAI 272 Supplement 7 Response US EPR DC.pdf" provides technically correct and complete responses to the two questions.

Appended to this file are affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which supports the response to RAI 272 Question 10.03.06-11.

The following table indicates the respective pages in the response document, "RAI 272 Supplement 7 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 272 — 10.03.06-11	2	2
RAI 272 — 10.03.06-12	3	3

This concludes the formal AREVA NP response to RAI 272, and there are no questions from this RAI for which AREVA NP has not provided responses.

Sincerely,

Martin (Marty) C. Bryan
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
Tel: (434) 832-3016
702 561-3528 cell
Martin.Bryan.ext@areva.com

From: BRYAN Martin (EXT)
Sent: Tuesday, August 10, 2010 1:48 PM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); KOWALSKI David (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 272, FSAR Ch. 10, Supplement 6

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the two questions in RAI No. 272 on February 25, 2010. Supplement 1, Supplement 2, Supplement 3, Supplement 4 and Supplement 5 responses to RAI No. 272 were sent on March 25, 2010, April 15, 2010, May 12, 2010, June 11, 2010 and July 8, 2010, respectively, to provide a revised schedule.

To allow time for additional interaction between AREVA and the NRC staff, a revised schedule is provided in this e-mail.

The schedule for technically correct and complete responses to the questions has been revised as provided below.

Question #	Response Date
RAI 272 — 10.03.06-11	September 9, 2010
RAI 272 — 10.03.06-12	September 9, 2010

Sincerely,

Martin (Marty) C. Bryan
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
Tel: (434) 832-3016
702 561-3528 cell
Martin.Bryan.ext@areva.com

From: BRYAN Martin (EXT)
Sent: Thursday, July 08, 2010 5:20 PM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); KOWALSKI David J (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 272, FSAR Ch. 10, Supplement 5

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the two questions in RAI No. 272 on February 25, 2010. Supplement 1, Supplement 2, Supplement 3, and Supplement 4 responses to RAI No. 272 were sent on March 25, 2010, April 15, 2010, May 12, 2010, and June 11 respectively, to provide a revised schedule.

To allow time for additional interaction between AREVA and the NRC staff, a revised schedule is provided in this e-mail.

The schedule for technically correct and complete responses to the questions has been revised as provided below.

Question #	Response Date
RAI 272 — 10.03.06-11	August 10, 2010
RAI 272 — 10.03.06-12	August 10, 2010

Sincerely,

Martin (Marty) C. Bryan
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
Tel: (434) 832-3016
702 561-3528 cell
Martin.Bryan.ext@areva.com

From: BRYAN Martin (EXT)
Sent: Friday, June 11, 2010 1:04 PM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); KOWALSKI David J (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 272, FSAR Ch. 10, Supplement 4

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the two questions in RAI No. 272 on February 25, 2010. Supplement 1, Supplement 2 and Supplement 3 responses to RAI No. 272 were sent on March, 25, 2010, April 15, 2010 and May 12, 2010, respectively, to provide a revised schedule.

To allow time for interaction between AREVA and the NRC staff, a revised schedule is provided in this e-mail.

The schedule for technically correct and complete responses to the questions has been revised as provided below.

Question #	Response Date
RAI 272 — 10.03.06-11	July 8, 2010
RAI 272 — 10.03.06-12	July 8, 2010

Sincerely,

Martin (Marty) C. Bryan
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
Tel: (434) 832-3016
702 561-3528 cell
Martin.Bryan.ext@areva.com

From: BRYAN Martin (EXT)
Sent: Wednesday, May 12, 2010 5:14 PM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); KOWALSKI David J (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 272, FSAR Ch. 10, Supplement 3

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the 2 questions in RAI No. 272 on February 25, 2010. To allow time for AREVA to discuss the responses to these questions with the NRC, a revised schedule was provided on March 25, 2010 and April 15, 2010. An interaction was originally

requested on March 26, 2010 to review the responses and has been subsequently rescheduled. As agreed with the NRC, additional time is needed for AREVA to discuss the responses to these questions.

The schedule for technically correct and complete responses to these questions has been revised as provided below.

Question #	Response Date
RAI 272 — 10.03.06-11	June 11, 2010
RAI 272 — 10.03.06-12	June 11, 2010

Sincerely

Martin (Marty) C. Bryan
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
Tel: (434) 832-3016
702 561-3528 cell
Martin.Bryan.ext@areva.com

From: BRYAN Martin (EXT)
Sent: Thursday, April 15, 2010 6:17 PM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); KOWALSKI David J (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 272, FSAR Ch. 10, Supplement 2

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the 2 questions in RAI No. 272 on February 25, 2010. To allow time for AREVA to discuss the response to these questions with the NRC, a revised schedule was provided on March 25, 2010. Since additional time is needed for AREVA to discuss the responses to these questions with the NRC, a revised schedule is provided in this e-mail.

The schedule for technically correct and complete responses to these questions has been revised as provided below.

Question #	Response Date
RAI 272 — 10.03.06-11	May 12, 2010
RAI 272 — 10.03.06-12	May 12, 2010

Sincerely

Martin (Marty) C. Bryan
Licensing Advisory Engineer
AREVA NP Inc.
Tel: (434) 832-3016
Martin.Bryan.ext@areva.com

From: BRYAN Martin (EXT)
Sent: Thursday, March 25, 2010 12:19 PM
To: 'Tesfaye, Getachew'

Cc: DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); KOWALSKI David J (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 272, FSAR Ch. 10, Supplement 1

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the two questions in RAI No. 272 on February 25, 2010. To allow time for AREVA to discuss the responses to these questions with the NRC, a revised schedule is provided in this email.

The schedule for technically correct and complete responses to the two questions has been revised as provided below.

Question #	Response Date
RAI 272 — 10.03.06-11	April 15, 2010
RAI 272 — 10.03.06-12	April 15, 2010

Sincerely,

Martin (Marty) C. Bryan
Licensing Advisory Engineer
AREVA NP Inc.
Tel: (434) 832-3016
Martin.Bryan.ext@areva.com

From: DUNCAN Leslie E (AREVA NP INC)
Sent: Thursday, February 25, 2010 1:45 PM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen V (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); ROMINE Judy (AREVA NP INC); KOWALSKI David J (AREVA NP INC); BRYAN Martin (EXT)
Subject: Response to U.S. EPR Design Certification Application RAI No. 272, FSAR Ch. 10

Getachew,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 272 Response US EPR DC.pdf," provides a schedule since a technically correct and complete response to the 2 questions is not provided.

The following table provides the pages in the response document, "RAI 272 Response US EPR DC.pdf," containing the response to each question.

Question #	Start Page	End Page
RAI 272 — 10.03.06-11	2	2
RAI 272 — 10.03.06-12	3	3

The schedule for a technically correct and complete response to these questions is provided below.

Question #	Response Date
RAI 272 — 10.03.06-11	March 25, 2010
RAI 272 — 10.03.06-12	March 25, 2010

Sincerely,

Les Duncan
Licensing Engineer
AREVA NP Inc.
An AREVA and Siemens Company
Tel: (434) 832-2849
Leslie.Duncan@areva.com

From: Tesfaye, Getachew [mailto:Getachew.Tesfaye@nrc.gov]
Sent: Friday, August 21, 2009 3:02 PM
To: ZZ-DL-A-USEPR-DL
Cc: Davis, Robert; Terao, David; Hearn, Peter; Colaccino, Joseph; ArevaEPRDCPEm Resource
Subject: U.S. EPR Design Certification Application RAI No. 272 (3379), FSARCh. 10

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on August 6, 2009, and on August 18, 2009, you informed us that the RAI is clear to issue as final. As a result, no change is made to the draft RAI. The questions in this RAI are considered potential open items for Phases 2 and 3 reviews. As such, the schedule we have established for your application assumes technically correct and complete responses prior to the start of Phase 4 review. For any RAI that cannot be answered prior to the start of Phase 4 review, it is expected that a date for receipt of this information will be provided 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: 1977

Mail Envelope Properties (BC417D9255991046A37DD56CF597DB71077CD460)

Subject: Response to U.S. EPR Design Certification Application RAI No. 272, FSAR Ch. 10, Supplement 7
Sent Date: 9/9/2010 11:49:55 AM
Received Date: 9/9/2010 11:50:51 AM
From: BRYAN Martin (EXTERNAL AREVA)

Created By: Martin.Bryan.ext@areva.com

Recipients:
"DELANO Karen (AREVA)" <Karen.Delano@areva.com>
Tracking Status: None
"ROMINE Judy (AREVA)" <Judy.Romine@areva.com>
Tracking Status: None
"BENNETT Kathy (AREVA)" <Kathy.Bennett@areva.com>
Tracking Status: None
"KOWALSKI David (AREVA)" <David.Kowalski@areva.com>
Tracking Status: None
"Tesfaye, Getachew" <Getachew.Tesfaye@nrc.gov>
Tracking Status: None

Post Office: AUSLYNCMX02.adom.ad.corp

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MESSAGE	11605	9/9/2010 11:50:51 AM
RAI 272 Supplement 7 Response US EPR DC.pdf	97322	

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

Response to

Request for Additional Information No. 272, Supplement 7

8/21/2009

U.S. EPR Standard Design Certification
AREVA NP Inc.
Docket No. 52-020
SRP Section: 10.03.06 - Steam and Feedwater System Materials
Application Section: 10.3.6

QUESTIONS for Component Integrity, Performance, and Testing Branch 1 (AP1000/EPR Projects) (CIB1)

Question 10.03.06-11:

POTENTIAL OPEN ITEM

In RAI 10.03.06-7, the staff requested that the applicant modify Table 10.3-11 to include weld filler material specifications and classifications used in ASME Code Class 2 and 3 steam and feedwater systems. The applicant's response to RAI 10.03.06-7, dated February 27, 2009, lists weld filler material specifications but does not list classifications. The staff requests that the applicant modify the FSAR to include weld filler material classifications as requested by the staff.

Response to Question 10.03.06-11:

U.S. EPR FSAR Tier 2, Table 10.3-11—Main Steam Supply System and Main Feedwater System Material Data will be revised to include weld filler material classifications.

FSAR Impact:

U.S. EPR FSAR Tier 2, Table 10.3-11 will be revised as described in the response and indicated on the enclosed markup.

Question 10.03.06-12:

POTENTIAL OPEN ITEM

In the applicant's February 27, 2009 response to RAI 10.03.06-10, the applicant stated that it would modify the FSAR to state that the minimum design wall thickness will be determined in the design phase in order to allow for a minimum lifetime of the affected piping system of at least 40-years. The 40-year design life of the MSSS and main feedwater system appears to be inconsistent with the design life of the plant which is 60-years. Therefore, FSAR Section 10.3.6 should specify a 60-year design life for the MSSS and main feedwater system piping or clearly state that their design life is only 40 years with an explanation as to why the design life of these systems is not the same as the design life of the plant. The staff requests that the applicant modify the FSAR accordingly.

Response to Question 10.03.06-12:

As stated in U.S. EPR FSAR Tier 2, Section 1.2.1, "the plant design objective is 60 years." The design objective allows a design life of 40 years for components for which a 60 year design life is impractical, provided provisions are made in the plant design to allow replacement of the system or component.

As stated in U.S. EPR FSAR Tier 2, Section 3.9.1.1, "the number of design transients is based on a plant life of 60 years." For the main steam supply system, main feedwater system, and other systems described in U.S. EPR FSAR Tier 2, Section 10.3.6, that are subject to a flow accelerated corrosion (FAC) evaluation, design aspects such as the number of transients and number of stress cycles are based on a plant design life of 60 years. However, for these systems, the current experience with FAC for nuclear power plants supports a design life of 40 years. As stated in the Response to RAI 165, Question 10.03.06-10, the minimum design wall thicknesses will be determined in a design phase evaluation to confirm that the affected piping systems have a minimum lifetime of at least 40 years. Actual service life will be verified by the results of a plant FAC inservice inspection.

Normal wear parts and other consumables that are replaced periodically during preventive maintenance are excluded from the plant design life objective. The excluded parts include, but are not limited to, machinery and access cover studs and bolts, bearings, gaskets, o-rings, packing, seals, wear bushing, filters, paint and coatings, and motor windings.

FSAR Impact:

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

U.S. EPR Final Safety Analysis Report Markups

Table 10.3-11—Main Steam Supply System and Main Feedwater System Material Data
Sheet 1 of 3

Component	Material
Main Steam Lines – Steam Generator Outlet to Fixed Restraint Downstream of MSIV	(see Note 2)
Piping	SA-106 Grade C
Fittings	SA-234 Grade WPC (see Note 4)
Valves	SA-216 Grade WCC
	SA-105
Weld filler material / specification (see Note 10)	SFA-5.1 E7018
	SFA-5.17 FS7PX-EM12K (see Note 6)
10.03.06-11	SFA-5.18 ER70S-2 or ER70S-6
	SFA-5.20 E71T-1/M
Weld filler material/specification for CS pipe with Cr ≥ 0.10% (see Note 10)	SFA-5.5 E8018-B1 (see Note 5)
	SFA-5.18 ER70S-2 or ER70S-6 (see Note 8)
	SFA-5.23 FS7PX-EB1 (see Note 7)
	SFA-5.28 ER80S-B2 (see Note 8)
	SFA-5.29 E81T1-B1/M (see Note 9)
	SFA-5.1 E7018 (see Note 5)
	SFA-5.1 E7018-G (see Note 5)
Main Steam Lines – Fixed Restraint to High Pressure Turbine	(see Notes 1 and 2)
Piping	A-106 Grade B
Fittings	A-234 Grade WPB (see Note 4)
Valves	A-216 Grade WCB (see Note 3)
	A-105
Weld filler material/specification (see Note 10)	SFA-5.1 E7018
	SFA-5.17 FS7PX-EM12K (see Note 6)
10.03.06-11	SFA-5.18 ER70S-2 or ER70S-6
	SFA-5.20 E71T-1/M
Weld filler material/specification for CS pipe with Cr ≥ 0.10% (see Note 10)	SFA-5.5 E8018-B1 (see Note 5)
	SFA-5.18 ER70S-2 or ER70S-6 (see Note 8)
	SFA-5.23 FS7PX-EB1 (see Note 7)
	SFA-5.28 ER80S-B2 (see Note 8)
	SFA-5.29 E81T1-B1/M (see Note 9)

Table 10.3-11—Main Steam Supply System and Main Feedwater System Material Data
Sheet 2 of 3

	SFA-5.1 E7018 (see Note 5)
	SFA-5.1 E7018-G (see Note 5)
Main Feedwater Lines – Feedwater Pump Outlet to Fixed Restraint	(see Notes 1 and 2)
Piping	A-106 Grade B
Fittings	A-234 Grade WPB (see Note 4)
Valves	A-216 Grade WCB
	A-105
Weld filler material/specification (see Note 10)	SFA-5.1 E7018
	SFA-5.17 FS7PX-EM12K (see Note 6)
10.03.06-11	SFA-5.18 ER70S-2 or ER70S-6
	SFA-5.20 E71T-1/M
Weld filler material/specification for CS pipe with Cr ≥ 0.10% (see Note 10)	SFA-5.5 E8018-B1 (see Note 5)
	SFA-5.18 ER70S-2 or ER70S-6 (see Note 8)
	SFA-5.23 FS7PX-EB1 (see Note 7)
	SFA-5.28 ER80S-B2 (see Note 8)
	SFA-5.29 E81T1-B1/M (see Note 9)
	SFA-5.1 E7018 (see Note 5)
	SFA-5.1 E7018-G (see Note 5)
Main Feedwater Lines – Fixed Restraint to Steam Generator	(see Note 2)
Piping	SA-106 Grade B
Fittings	SA-234 Grade WPB (see Note 4)
Valves	SA-216 Grade WCB
	SA-105
Weld filler material/specification (see Note 10)	SFA-5.1 E7018
	SFA-5.17 FS7PX-EM12K (see Note 6)
10.03.06-11	SFA-5.18 ER70S-2 or ER70S-6
	SFA-5.20 E71T-1/M
Weld filler material/specification for CS pipe with Cr ≥ 0.10% (see Note 10)	SFA-5.5 E8018-B1 (see Note 5)
	SFA-5.18 ER70S-2 or ER70S-6 (see Note 8)
	SFA-5.23 FS7PX-EB1 (see Note 7)
	SFA-5.28 ER80S-B2 (see Note 8)

Table 10.3-11—Main Steam Supply System and Main Feedwater System Material Data
Sheet 3 of 3

	SFA-5.29 E81T1-B1/M (see Note 9)
	SFA-5.1 E7018 (see Note 5)
	SFA-5.1 E7018-G (see Note 5)

Notes:

1. Outside of the ASME Section III boundary.

2. The minimum chromium (Cr) content of carbon steel (CS) piping, fittings, valves, and weld filler metals in the main steam supply system and main feedwater system shall be 0.10% for resistance to flow accelerated corrosion, unless exempted by the system design engineer. Portions of the main steam supply system and the main feedwater system that are not susceptible to flow accelerated corrosion degradation may be exempted.

3. Does not include the turbine stop and control valves or the turbine bypass valves.

4. Fittings include the pipe fittings furnished in accordance with ASME B16.9, such as tees, reducers, and laterals.

5. Permitted classifications are E7018, E7018-G, and E8018-B1. For E7018, purchaser must specify minimum 0.1% Cr ~~min~~. If E7018-G is used, then purchaser must specify 0.1% Cr min, chemical, and mechanical property requirements for E7018 from ASME Specification SFA 5.1. If E8018-B1 is used, then purchaser must specify mechanical property requirements for E7018 from ASME specification SFA 5.1 in addition to requirements for this classification in SFA 5.5.

6. FS7PX-EM12K may also be procured under Filler Metal Specification SFA-5.23.

10.03.06-11

7. FS7PX-EG may be specified. If this classification is used, purchaser must specify minimum 0.1%Cr, and weld deposit chemistry and mechanical properties for FS7PX-EM12K from ASME Specification SFA 5.17.

8. ER70S-G may be specified. If this classification is used, purchaser must specify minimum 0.1%Cr and weld deposit chemistry and mechanical properties for the applicable weld filler material, ER70S-2 or ER70S-6 from ASME Specification SFA 5.18.

9. E71T1-G may be specified. If this classification is used, purchaser must specify minimum 0.1%Cr and weld deposit chemistry and mechanical properties for E71T1 in ASME Specification SFA 5.20.

10. Autogeneous welding process such as Friction Welding, Flash-Butt welding, Electron Beam welding, may be used to join all materials listed in this table to themselves and to other materials, provided the welding process is qualified in accordance with the applicable Code.

Next File