

ArevaEPRDCPEm Resource

From: BRYAN Martin (EXT) [Martin.Bryan.ext@areva.com]
Sent: Tuesday, June 08, 2010 2:31 PM
To: Tesfaye, Getachew
Cc: DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); HOLM Jerald S (EXT)
Subject: Response to U.S. EPR Design Certification Application RAI No. 344, FSARCh. 4 OPEN ITEM, Supplement 2
Attachments: RAI 344 Supplement 2 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 344 Supplement 2 Response US EPR DC.pdf" provides technically correct and complete responses to all of the 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 344 Question 04.03-27.

The following table indicates the respective pages in the response document, "RAI 344 Supplement 2 Response US EPR DC.pdf" that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 344 — 04.03-27	2	2
RAI 344 — 04.03-28	3	3

This concludes the formal AREVA NP response to RAI 344, 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: Friday, April 30, 2010 3:02 PM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); HOLM Jerald S (EXT)
Subject: Response to U.S. EPR Design Certification Application RAI No. 344, FSARCh. 4 OPEN ITEM, Supplement 1

Getachew,

AREVA NP provided a schedule for responding to RAI 344 in an email on March 1, 2010. This schedule was intended to allow for a discussion between the NRC and AREVA NP of the final response prior to providing it to the NRC. A discussion was scheduled for April 29, 2010 between

AREVA and NRC to review the final response, but the discussion had to be rescheduled due to personnel availability. As agreed with the NRC, additional time is needed to reschedule the interaction and allow time for any necessary follow-up.

AREVA NP's schedule for providing a technically correct and complete response to the two questions in RAI 344 is provided below.

Question #	Response Date
RAI 344-04.03-27	June 18, 2010
RAI 344-04.03-28	June 18, 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: Monday, March 01, 2010 5:44 PM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); HOLM Jerald S (EXT)
Subject: Response to U.S. EPR Design Certification Application RAI No. 344, FSARCh. 4 OPEN ITEM

Getachew

AREVA NP's schedule for providing a technically correct and complete response to the two questions in RAI 344 is provided below.

Question #	Response Date
RAI 344-04.03-27	April 30, 2010
RAI 344-04.03-28	April 30, 2010

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

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

Sent: Tuesday, February 23, 2010 3:59 PM

To: ZZ-DL-A-USEPR-DL

Cc: Forsaty, Fred; Lu, Shanlai; Donoghue, Joseph; Carneal, Jason; Colaccino, Joseph; ArevaEPRDCPEm Resource

Subject: U.S. EPR Design Certification Application RAI No. 344 (4062), FSARCh. 4 OPEN ITEM

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on December 9, 2009, and discussed with your staff on February 2, 2010, and February 23, 2010. Draft RAI Questions 04.03-27 was modified as a result of those discussions. The questions in this RAI are OPEN ITEMS in the safety evaluation report for Chapter 4 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,

Thanks,

Getachew Tesfaye
Sr. Project Manager
NRO/DNRL/NARP
(301) 415-3361

Hearing Identifier: AREVA_EPR_DC_RAIs
Email Number: 1512

Mail Envelope Properties (BC417D9255991046A37DD56CF597DB71067102D1)

Subject: Response to U.S. EPR Design Certification Application RAI No. 344, FSARCh. 4
OPEN ITEM, Supplement 2
Sent Date: 6/8/2010 2:30:48 PM
Received Date: 6/8/2010 2:30:51 PM
From: BRYAN Martin (EXT)

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

Recipients:

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Tracking Status: None

"Tefaye, Getachew" <Getachew.Tefaye@nrc.gov>

Tracking Status: None

Post Office: AUSLYNCMX02.adom.ad.corp

Files	Size	Date & Time
MESSAGE	4501	6/8/2010 2:30:51 PM
RAI 344 Supplement 2 Response US EPR DC.pdf		98927

Options

Priority: Standard

Return Notification: No

Reply Requested: No

Sensitivity: Normal

Expiration Date:

Recipients Received:

Response to

Request for Additional Information No. 344(4062), Supplement 2

02/23/2010

U.S. EPR Standard Design Certification

AREVA NP Inc.

Docket No. 52-020

SRP Section: 04.03 - Nuclear Design

Application Section: 04.03

QUESTIONS for Reactor System, Nuclear Performance and Code Review (SRSB)

Question 04.03-27:

OPEN ITEM

The staff requests that a combined license (COL) information item to be added to Table 1.8-2 of the FSAR in regard to collection of plant specific surveillance capsule data to be used to benchmark BAW-2241PA's applicability to the specific plant.

The capsule withdrawal and reporting requirements will follow 10 CFR Part 50 Appendix H.

Response to Question 04.03-27:

U.S. EPR FSAR Tier 2, Table 1.8-2 will be revised to include a COL Item for U.S. EPR FSAR Tier 2, Section 5.3.1.6.2, Plant Specific Monitoring. U.S. EPR FSAR Tier 2, Section 5.3.1.6.2 will be revised to state that a COL applicant that references the U.S. EPR design certification will provide plant-specific surveillance capsule data to benchmark BAW-2241P-A and demonstrate applicability to the specific plant.

FSAR Impact:

The U.S. EPR FSAR Tier 2, Table 1.8-2 and Section 5.3.1.6.2 will be revised as described in the response and indicated on the enclosed markup.

Question 04.03-28:

OPEN ITEM

Throughout the U.S. EPR Final Safety Analysis Report (FSAR) Tier 2, Section 4.3, AREVA NP refers to licensing topical report ANP-10286P, "U.S. EPR Rod Ejection Accident Methodology Topical Report." This document is currently under review by the NRC staff. This RAI is created to track an open item associated with this review. It will be closed upon completion of the review by the NRC staff. AREVA is requested to acknowledge receipt of this open item.

Response to Question 04.03-28:

AREVA NP acknowledges receipt of this open item.

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 1.8-2—U.S. EPR Combined License Information Items
Sheet 24 of 49

Item No.	Description	Section	Action-Required by COL Applicant	Action-Required by COL Holder
5.2-2	A COL applicant that references the U.S. EPR design certification will identify additional ASME code cases to be used.	5.2.1.2	¥	
5.2-3	A COL applicant that references the U.S. EPR design certification will identify the implementation milestones for the site-specific ASME Section XI preservice and inservice inspection program for the reactor coolant pressure boundary, consistent with the requirements of 10 CFR 50.55a (g). The program will identify the applicable edition and addenda of the ASME Code Section XI, and will identify additional relief requests and alternatives to Code requirements.	5.2.4	¥	
5.3-1	A COL applicant that references the U.S. EPR design certification will identify the implementation milestones for the material surveillance program.	5.3.1.6	¥	
5.3-2	A COL applicant that references the U.S. EPR design certification will provide a plant-specific pressure and temperature limits report (PTLR), consistent with an approved methodology.	5.3.2.1		¥
5.3-3	A COL applicant that references the U.S. EPR design certification will provide plant-specific RT _{PTS} values in accordance with 10 CFR 50.61 for vessel beltline materials.	5.3.2.3		¥
5.3-4	<u>A COL applicant that references the U.S. EPR design certification will provide plant-specific surveillance data to benchmark BAW-2241P-A and demonstrate applicability to the specific plant.</u>	<u>5.3.1.6.2</u>		
5.4-1	A COL applicant that references the U.S. EPR design certification will identify the edition and addenda of ASME Section XI applicable to the site specific Steam Generator inspection program.	5.4.2.5.2.2	¥	

04.03-27



specimens; i.e. major axis of the specimen is parallel to the surface and normal to the major working direction (the transverse direction). The CT specimens and Charpy V-notch specimens from the weld metal are oriented so that the major axis of the specimen (axis normal to the crack plane for CT specimens) is parallel to the RV inside surface and normal to the weld bead direction. Weld metal tension specimens are oriented in the same direction as the Charpy V-notch specimens with the gage length consisting entirely of weld metal (the transverse direction). The Charpy V-notch specimens from the HAZ are oriented so that the major axis of the specimen is parallel to the RPV inside surface and normal to the weld bead direction. The Charpy V-notch root is in the HAZ about 1/32 inch from the fusion line.

5.3.1.6.1 Fluence Monitoring

The neutron fluence on the vessel material test specimens and the vessel itself is determined based on core-follow calculations of the cycle-by-cycle operation. The fluence and uncertainty methodologies, described in BAW-2241P-A, “Fluence and Uncertainty Methodologies” (Reference 9), explain how the calculations are performed. The calculations conform to RG 1.190 and thus meet the requirements of 10 CFR Part 50, Appendix H.

As noted in RG 1.190, the bases for the bias and random uncertainties in the calculations are:

- Database of dosimetry measurements.
- Benchmark database comparing calculations to measurements.
- Sensitivity evaluation with fabrication and operational tolerances.

5.3.1.6.2 Plant Specific Monitoring

The uncertainty evaluations noted in BAW-2241P-A provide calculations, with well-defined uncertainties, for RPV fluence in operating light water reactors. While it is expected that the calculations for the U.S. EPR will have similar accuracy and random uncertainties, measured data from the material surveillance program will supplement the calculated predictions. A COL applicant that references the U.S. EPR design certification will provide plant-specific surveillance capsule data to benchmark BAW-2241P-A and demonstrate applicability to the specific plant. The capsule withdrawal and reporting requirements will follow 10 CFR Part 50, Appendix H. The recommended withdrawal schedule is outlined in Table 5.3-6—Surveillance Specimen Withdrawal Schedule Per ASTM E185-82.

Calculations are used to estimate the initial fluence to the vessel materials. Once operation has commenced, plant specific dosimetry measurements are evaluated to demonstrate that fluence uncertainties are consistent with historical data. Showing

04.03-27