

ArevaEPRDCPEm Resource

From: WILLIFORD Dennis (AREVA) [Dennis.Williford@areva.com]
Sent: Monday, March 04, 2013 10:07 PM
To: Snyder, Amy
Cc: Hearn, Peter; DELANO Karen (AREVA); LEIGHLITER John (AREVA); ROMINE Judy (AREVA); RYAN Tom (AREVA); WILLS Tiffany (AREVA); KOWALSKI David (AREVA)
Subject: Response to U.S. EPR Design Certification Application RAI No. 556 (6547), FSAR Ch. 9, Supplement 1
Attachments: RAI 556 Supplement 1 Response US EPR DC.pdf

Amy,

AREVA NP Inc. provided a schedule for a technically correct and complete response to Question 09.03.04-27 of RAI No. 556 on October 22, 2012. The attached file, "RAI 556 Supplement 1 Response US EPR DC.pdf," provides a technically correct and complete final response to the subject question.

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 556 Question 09.03.04-27.

The following table indicates the respective pages in the response document, "RAI 556 Supplement 1 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 556 — 09.03.04-27	2	2

This concludes the formal AREVA NP response to RAI 556, and there are no questions from this RAI for which AREVA NP has not provided responses.

Sincerely,

Dennis Williford, P.E.
U.S. EPR Design Certification Licensing Manager

AREVA NP Inc.

7207 IBM Drive, Mail Code CLT 2B

Charlotte, NC 28262

Phone: 704-805-2223

Email: Dennis.Williford@areva.com

From: WILLIFORD Dennis (RS/NB)
Sent: Monday, October 22, 2012 4:10 PM
To: Amy.Snyder@nrc.gov
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); LEIGHLITER John (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); peter.hearn@nrc.gov; KOWALSKI David (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 556 (6547), FSAR Ch. 9

Amy,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 556 Response US EPR DC.pdf," provides a schedule since a technically correct and complete response to Question 09.03.04-27 cannot be provided at this time.

The following table indicates the respective pages in the response document, "RAI 556 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 556 — 09.03.04-27	2	2

The schedule for a technically correct and complete response to Question 09.03.04-27 is provided below.

Question #	Response Date
RAI 556 — 09.03.04-27	March 8, 2013

Sincerely,

Dennis Williford, P.E.
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.

7207 IBM Drive, Mail Code CLT 2B
Charlotte, NC 28262
Phone: 704-805-2223
Email: Dennis.Williford@areva.com

From: Tesfaye, Getachew [<mailto:Getachew.Tesfaye@nrc.gov>]
Sent: Thursday, September 20, 2012 7:18 AM
To: ZZ-DL-A-USEPR-DL
Cc: Sastre, Eduardo; Terao, David; Hearn, Peter; Segala, John; ArevaEPRDCPEm Resource
Subject: U.S. EPR Design Certification Application RAI No. 556 (6547), FSAR Ch. 9

Attached please find the subject request for additional information (RAI). A draft of the RAI was provided to you on August 20, 2012, and on September 19, 2012, you informed us that the RAI is clear and no further clarification is needed. As 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: 4255

Mail Envelope Properties (554210743EFE354B8D5741BEB695E6560EB1CF)

Subject: Response to U.S. EPR Design Certification Application RAI No. 556 (6547),
FSAR Ch. 9, Supplement 1
Sent Date: 3/4/2013 10:06:34 PM
Received Date: 3/4/2013 10:06:46 PM
From: WILLIFORD Dennis (AREVA)

Created By: Dennis.Williford@areva.com

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Tracking Status: None
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MESSAGE	3682	3/4/2013 10:06:46 PM
RAI 556 Supplement 1 Response US EPR DC.pdf		523208

Options

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

Response to

Request for Additional Information 556 (6547), Supplement 1

Issue Date: 9/20/2012

Application Title: U. S. EPR Standard Design Certification - Docket Number 52-020

AREVA NP Inc.

**Review Section: 09.03.04 - Chemical and Volume Control System (PWR)
(Including Boron Recovery System)**

Application Section: 9.3.4

Question 09.03.04-27:

OPEN ITEM

Follow-up to RAI 492, Question 09.03.04-21

In RAI 492 (5815) supplement 7, Question 09.03.04-21 the Staff requested the applicant to provide a more rigorous technical evaluation of the hydrogen control range that demonstrates the acceptability of maintaining the RCS hydrogen below the EPRI Guidelines Action Level 1 limit. In their response to this RAI, the applicant referenced three documents to demonstrate their argument. After reviewing these documents, the staff finds that the documents do not provide any technical justification for operation in the range of 17-28 cc/kg in the RCS.

The applicant's proposed hydrogen range needs to be justified by corrosion data, or significant plant experience at the current power levels and temperatures at which the > 1,000 MWe plants are currently operating.

The Staff requests the applicant to provide specific and relevant information to justify this change in practice.

Response to Question 09.03.04-27:

The U.S. EPR will adopt the range of dissolved hydrogen concentration specified in the EPRI PWR Water Chemistry Guidelines (Reference 1). The current range given in Reference 1 is 25 to 50 cc/kg.

U.S. EPR FSAR Tier 2, Table 5.2-3—Reactor Coolant Water Chemistry - Control Parameters, will be revised to reflect the current range in Reference 1.

References:

1. EPRI Report 1014986, "Pressurized Water Reactor Primary Water Chemistry Guidelines," Volume 1, Revision 6, Electric Power Research Institute, December 2007.

FSAR Impact:

U.S. EPR FSAR Tier 2, Table 5.2-3, will be revised as described in the response and indicated on the enclosed markup.

U.S. EPR Final Safety Analysis Report Markups

Table 5.2-3—Reactor Coolant Water Chemistry - Control Parameters

Control Parameter	Normal Operating Conditions
Lithium (pH control)	0.39 to 4.0 mg/kg
Hydrogen	17 25 to 50 28 cc(STP)/kg (1.5 2.2 to 4.5 2.5 mg/kg)
Dissolved Oxygen	< 0.100 mg/kg
Chloride	< 0.150 mg/kg
Fluoride	< 0.150 mg/kg
Sulfate	< 0.150 mg/kg
Total Boron and Boron 10	As required for reactivity control

RAI 556,
Question 09.03.04-27