ArevaEPRDCPEm Resource

From: WELLS Russell D (AREVA NP INC) [Russell.Wells@areva.com]
Sent: Tuesday, May 12, 2009 6:27 PM
To: Getachew Tesfaye
Cc: 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. 176, FSAR Ch 14, Supplement 1
Attachments: RAI 176 Supplement 1 Response US EPR DC.pdf

Getachew,

AREVA NP Inc. (AREVA NP) provided responses to 1 of the 3 questions of RAI No. 176 on February 20, 2009. The attached file, "RAI 176 Supplement 1 Response US EPR DC.pdf," provides technically correct and complete responses to the remaining 2 questions, as committed.

The following table indicates the respective pages in the response document, "RAI 176 Supplement 1 Response US EPR DC.pdf," that contain AREVA NP's responses to the subject questions.

Question #	Start Page	End Page
RAI 176 — 14.02-92	2	2
RAI 176 — 14.02-93	3	4

This concludes the formal AREVA NP response to RAI 176, and there are no questions from this RAI for which AREVA NP has not provided responses.

Sincerely,

(Russ Wells on behalf of)

Ronda Pederson
ronda.pederson@areva.com
Licensing Manager, U.S. EPR Design Certification
New Plants Deployment
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: Friday, February 20, 2009 11:31 AM
To: 'Getachew Tesfaye'
Cc: DELANO Karen V (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); DUNCAN Leslie E (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 176 (1883), FSARCh. 14

Getachew,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 176 Response US EPR DC.pdf" provides technically correct and complete responses to 1 of the 3 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 176 Question 14.02-94.

The following table indicates the respective pages in the response document, "RAI 176 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 176 — 14.02-92	2	2
RAI 176 — 14.02-93	3	3
RAI 176 — 14.02-94	4	4

A complete answer is not provided for 2 of the 3 questions. The schedule for a technically correct and complete response to these questions is provided below.

Question #	Response Date
RAI 176 — 14.02-92	May 20, 2009
RAI 176 — 14.02-93	May 20, 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: Getachew Tesfaye [mailto:Getachew.Tesfaye@nrc.gov]
Sent: Wednesday, January 21, 2009 8:12 AM
To: ZZ-DL-A-USEPR-DL
Cc: Samantha Crane; Juan Peralta; Michael Miernicki; Joseph Colaccino; Meena Khanna; ArevaEPRDCPEm Resource
Subject: U.S. EPR Design Certification Application RAI No. 176 (1883), FSARCh. 14

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on January 14, 2009, and on January 20, 2009, 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: 476

Mail Envelope Properties (1F1CC1BBDC66B842A46CAC03D6B1CD410176B459)

Subject: Response to U.S. EPR Design Certification Application RAI No. 176, FSAR Ch 14, Supplement 1
Sent Date: 5/12/2009 6:27:06 PM
Received Date: 5/12/2009 6:27:08 PM
From: WELLS Russell D (AREVA NP INC)

Created By: Russell.Wells@areva.com

Recipients:
"Pederson Ronda M (AREVA NP INC)" <Ronda.Pederson@areva.com>
Tracking Status: None
"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
"Getachew Tesfaye" <Getachew.Tesfaye@nrc.gov>
Tracking Status: None

Post Office: AUSLYNCMX02.adom.ad.corp

Files	**Size**	**Date & Time**
MESSAGE	3920	5/12/2009 6:27:08 PM
RAI 176 Supplement 1 Response US EPR DC.pdf	31345	

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

Response to

Request for Additional Information No. 176, Supplement 1

1/21/2009

U. S. EPR Standard Design Certification
AREVA NP Inc.
Docket No. 52-020
SRP Section: 14.02 - Initial Plant Test Program - Design Certification and New License Applicants
Application Section: 14.2

QUESTIONS for Quality and Vendor Branch 1 (AP1000/EPR Projects) (CQVP)

Question 14.02-92:

Applicants for standard plant design approval must provide plans for preoperational testing and initial operations in accordance with 10 CFR 50.34(b)(6)(iii) requirements. Tier 2 FSAR Section 14.2.12.5.5 (Test #046) describes the initial test program for the CCWS. The results of the CCWS test program are considered to be acceptable if the CCWS performs as described in Tier 2 FSAR Section 9.2.2. However, as noted in RAI 9.2.2-01 through -28, the design bases for the CCWS are not adequately described in Tier 2 FSAR Section 9.2.2. Consequently, until the CCWS design basis is adequately described, the acceptance criteria for the CCWS test program can not be established. Therefore, please provide the requisite information in Tier 2 FSAR Section 9.2.2 to adequately describe the CCWS design basis so that the acceptance criteria for the CCWS initial test program can be adequately established.

Response to Question 14.02-92:

U.S. EPR FSAR Tier 2, Section 14.2.12, Test #046 for the component cooling water system (CCWS) was revised in the Response to RAI 77, Supplement 1, Question 14.02-32 to replace the statement “the CCWS performs as described in Section 9.2.2” with specific test acceptance criteria. Numerical values for the test acceptance criteria will be identified later in the design process because, as described in the Response to RAI 174, Question 09.02.02-12 (part 2), Question 09.02.02-13, Question 09.02.02-14, Question 09.02.02-15 (part a), and Question 09.02.02-18 (part a), details for CCWS equipment sizing and performance are under development and will be identified later in the design process.

FSAR Impact:

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

Question 14.02-93:

Final Safety Analysis Report (FSAR) Tier 2 Section 14.2 Test 46 provides the component cooling water system (CCWS) initial test. In this regard, the staff's review of test 46 found the following discrepancies that require resolution by the applicant:

a) FSAR Tier 1 Section 2.7.1 includes the fuel pool cooling system (FPCS) as one of the safety-related functions of the CCWS. Accordingly, the descriptions of FSAR Tier 2 Section 9.2.2.3 and Section 9.2.2.6 for the CCWS response to a safety injection signal do not mention automatic isolation of the FPCS heat exchangers. However, FSAR Tier 2 Section 14.2 CCWS Initial Test 46 Step 3.4a indicates that the FPCS heat exchangers are isolated on a safety injection signal. Please address this discrepancy and update the FSAR accordingly.

b) Initial Test 46 step 3.5 states “Verify the non-safety-related headers and RCP headers are isolated on a surge tank low-low level signal.” However, FSAR Tier 2 Section 9.2.2 uses different surge tank level terminology with automatic control actions that correspond to each (i.e. MIN1, MIN2, MIN3, MIN4). Clarify in the FSAR that low-low surge tank level corresponds to MIN3. Clarify in the FSAR that if the MIN3 set point automatically closes switchover valves that isolates common header supplied by the associated CCWS safety train and that only the non-safety loads will be isolated since the common header includes safety loads and non-safety loads (e.g. reactor coolant pumps (RCP) thermal barrier cooling, fuel pool cooling, safety chilled water etc.). Step 3.5 should be revised to be consistent with CCWS system terminology (for example, “low-low” or “MIN3” and “non-safety headers” or “common headers”).

c) Initial Test 46 step 3.6 states “Verify a low CCW pump differential pressure signal starts the idle pump in each division.” Since each U.S EPR safety related (SR) CCWS train contains only a single pump, please clarify the intent of this step and update the FSAR accordingly.

d) The automatic common header switchover function and the partial switchover function are not being tested in Initial Test 46. Please revise Initial Test 46 to include the testing of the automatic switchover function and the partial switchover function of the common headers in response to the various control signals or justify the exclusion of such testing.

e) FSAR Tier 2 Section 16 Technical Specification 3.7.7 Note A.1 discussed the switching of the RCP thermal barrier coolers normally supplied by one common header to the other common header. Testing of this feature is not included in Initial Test 46. Please revise Initial Test 46 to include the switching of the RCP thermal barrier coolers normally supplied by one common header to the other common header or justify its exclusion.

f) Please revise Initial Test 46 to ensure adequate flow rates from the fire protection water supply to the CCWS surge tanks, or justify the exclusion of such testing.

Response to Question 14.02-93:

a. The U.S. EPR design does not isolate the fuel pool cooling system in response to a safety injection signal. The temperature response of the in-containment refueling water storage tank (IRWST) following a loss of coolant accident (LOCA) does not benefit from a brief isolation of fuel pool cooling. U.S. EPR FSAR Tier 2, Section 14.2.12, Test #046 has been revised in the Response to RAI 144, Question 14.02-72 to address this correction.

b. The U.S. EPR design isolates the non-safety-related headers on MIN2. U.S. EPR FSAR Tier 2, Section 14.2.12, Test #046 has been revised in the Response to RAI 144, Question 14.02-72 to address this correction.

c. The U.S. EPR design generates a start of the corresponding essential service water system (ESWS) train upon the start of the component cooling water system (CCWS) pump. U.S. EPR FSAR Tier 2, Section 14.2, Test #046 has been revised in the Response to RAI 144, Question 14.02-72 to address this correction.

d. The U.S. EPR design generates a non-safety header closure with a CCWS surge tank level less than MIN2 concurrent with a measured difference between the inlet and outlet flow of each branch. U.S. EPR FSAR Tier 2, Section 14.2, Test #046 has been revised in the Response to RAI 144, Question 14.02-72 to address this correction.

e. The U.S. EPR design is capable of supplying the reactor coolant pump (RCP) thermal barrier coolers from either component cooling water (CCW) common header. The Common 1 header is supplied by either CCW Train 1 or Train 2 while the Common 2 header is supplied by either CCW train 3 or train 4. Each common header is further sub-divided into two and designated as Common 1.a and 1.b (2.a and 2.b). The Common 1.a header provides cooling to the first FPCS train (FAK10 AC001) and the Common 2.a header provides cooling to the second FPCS train (FAK20 AC001). These are separated from the other operational loads (Common 1.b and 2.b) that the CCWS supplies to maintain FPCS cooling capacity during CCW Common 1.b (2.b) header maintenance which is performed during plant outage. U.S. EPR FSAR Tier 2, Section 14.2, Test #046 has been revised in the Response to RAI 144, Question 14.02-72 to address this correction.

f. The U.S. EPR design uses an additional makeup source from the fire protection system that is only used in post seismic events. The makeup flow rate to the CCW surge tank will be verified from this source. U.S. EPR FSAR Tier 2, Section 14.2.12, Test #046 has been revised in the Response to RAI 144, Question 14.02-72 to address this correction.

FSAR Impact:

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