ArevaEPRDCPEm Resource

From: BRYAN Martin (EXT) [Martin.Bryan.ext@areva.com]
Sent: Tuesday, March 16, 2010 2:32 PM
To: Tesfaye, Getachew
Cc: DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); GUCWA Len T (EXT)
Subject: Response to U.S. EPR Design Certification Application RAI No. 363, FSARCh. 6
Attachments: RAI 363 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 363 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 indicates the respective pages in the response document, "RAI 363 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 363 — 06.02.02-43	2	3
RAI 363 — 06.02.02-44	4	4

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

Question #	Response Date
RAI 363 — 06.02.02-43	April 22, 2010
RAI 363 — 06.02.02-44	April 22, 2010

Sincerely,

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 16, 2010 4:43 PM
To: ZZ-DL-A-USEPR-DL
Cc: Ashley, Clinton; Jackson, Christopher; Snodderly, Michael; Carneal, Jason; Colaccino, Joseph; ArevaEPRDCPEm Resource
Subject: U.S. EPR Design Certification Application RAI No. 363 (4136), FSARCh. 6

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on January 26, 2010, 2009, and on February 15, 2010, 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: 1238

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Subject: Response to U.S. EPR Design Certification Application RAI No. 363, FSARCh. 6
Sent Date: 3/16/2010 2:31:46 PM
Received Date: 3/16/2010 2:31:48 PM
From: BRYAN Martin (EXT)

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

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Tracking Status: None

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Files	**Size**	**Date & Time**
MESSAGE	2154	3/16/2010 2:31:48 PM
RAI 363 Response US EPR DC.pdf	63441	

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

Response to

Request for Additional Information No. 363(4136), Revision 1

2/16/2010

U.S. EPR Standard Design Certification
AREVA NP Inc.
Docket No. 52-020
SRP Section: 06.02.02 - Containment Heat Removal Systems
Application Section: 6.2 and 6.3

QUESTIONS for Containment and Ventilation Branch 1 (AP1000/EPR Projects)
(SPCV)

Question 06.02.02-43:

This request for additional information is based primarily on an audit conducted on AREVA document 51-9125267-000, Revision 0, "US EPR STRAINER TEST PROTOCOL", dated October 26, 2009.

Describe how testing of the US EPR containment sump debris interceptors (weirs, trash racks, retaining basket (RB), and strainer) is prototypical or conservative (bounding) in comparison to the plant. The following list provides examples where additional information is requested:

Describe the scaling methodology and explain how it ensures prototypical or bounding test data.

a. What similarities between test and plant conditions are preserved?

b. Identify any assumptions in the scaling analysis and evaluate the impact on debris interceptor performance, particularly suction strainer head loss.

Identify important control parameters which must be considered in the design and operation of the test facility and explain the effects of the test facility design and operation on these important parameters.

Discuss how AREVA's approach to the number of tests conducted will provide results that are bounding.

Provide the basis for the water fall height in the test and how this height is prototypical or conservative in comparison to the plant.

Describe the potential for the cross brace support located at the entrance to the plants RB and extending above the basket wall to cause debris laden water to splash outside the basket (bypassing basket filtering) and how this bypass potential is accounted for in the test protocol.

Describe how delivering water flow to the RB during the test (pipe nozzles) is prototypical or conservative with respect to the plant arrangement (trapezoidal opening). Explain how the manner in which flow is delivered to the RB impacts the ability of the debris bed to form prototypically or conservatively inside the RB.

What is the basis for placing the RB bottom at the same elevation as the strainer bottom and how is this prototypical or conservative?

Describe the RB scaling approach. Explain how the tested RB surface area and tested RB volume are prototypical or conservative when compared to the plant.

c. What is the basis for selecting the RB screened area on one side only (facing strainer) and having the other normally screened surfaces tested as solid surfaces? How is this arrangement prototypical or conservative?

How do the hydraulic conditions internal to the tested RB compare with the plant design RB hydraulic conditions?

What measurements are planned specific to the RB?

How is the RB small compartment (only receives flow from the annular floor wall opening) and its postulated debris source term bounded by the testing for the large compartment?

Describe how the flow rate to the retaining basket is determined.

How are drains that introduce debris between RB and strainer (example: refueling pool) accounted for in the test protocol?

The strainer flow rate listed in the test protocol and selected for scaling analysis is a certain value per strainer. ANP-10293 lists strainer flow at a different value. What is the correct flow rate through the plant strainer and what is the basis for this flow rate? In addition describe how all scaled flow values selected for testing are prototypical or conservative.

Describe how the flow conditions (velocities and turbulence levels) in the test flume region between the RB and strainer are prototypical or conservative in comparison to the plant.

What is the basis for the visual observation criteria that may be used to decide if a thin bed test will be conducted?

Justify chemical introduction location and why it is representative or conservative.

How is the tested strainers slope/angle for the nearly vertical face representative or conservative with respect to the plant design?

Describe how the selected test termination criteria are realistic or conservative.

Provide a simplified drawing (single line) depicting the debris interceptors test set-up.

Provide the following test and plant parameters, and scaling justification for each, as applicable.

a) Screen mesh size for RB and strainer
b) Distance between strainer and RB
c) Debris source term amounts for testing
d) Test termination – number of flume turnovers

Response to Question 06.02.02-43:

A response to this question will be provided by April 22, 2010.

Question 06.02.02-44:

1. The retaining basket and strainer have screen area adjacent to the outer walls of the in-containment refueling water storage tank (IRWST). RG 1.82 provides guidance on how far screens should be from obstructions. Describe the proximity of screen surfaces to nearby obstructions (walls). Explain how the proximity to these obstructions impacts the basket and strainer performance. How is the closeness to these obstructions (walls) and associated hydraulic impact accounted for during testing?
2. Explain how the surrogate debris characteristics (debris used for testing), are representative or conservative when compared to the debris characteristics for the plant?

Response to Question 06.02.02-44:

A response to this question will be provided by April 22, 2010.