ArevaEPRDCPEm Resource

From: Tesfaye, Getachew
Sent: Friday, June 11, 2010 10:22 AM
To: 'usepr@areva.com'
Cc: Ng, Ching; Dixon-Herrity, Jennifer; Grady, Anne-Marie; Jackson, Christopher; McKirgan, John; Miernicki, Michael; Carneal, Jason; Colaccino, Joseph; ArevaEPRDCPEm Resource
Subject: U.S. EPR Design Certification Application RAI No. 411(4734,4721), FSAR Ch. 14
Attachments: RAI_411_EMB2_4734_SPCV_4721.doc

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on May 25, 2010, and discussed with your staff on June 9, 2010. Drat RAI Question 14.03.03-49 was modified as a result of that discussion. 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
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Hearing Identifier: AREVA_EPR_DC_RAIs
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Request for Additional Information No. 411(4734, 4721), Revision 0

6/11/2010

U. S. EPR Standard Design Certification
AREVA NP Inc.
Docket No. 52-020
SRP Section: 14.03.03 - Piping Systems and Components - Inspections, Tests, Analyses, and Acceptance Criteria
SRP Section: 14.03.11 - Containment Systems and Severe Accidents - Inspections, Tests, Analyses, and Acceptance Criteria
Application Section: FSAR Section 14.3

QUESTIONS for Engineering Mechanics Branch 2 (ESBWR/ABWR Projects) (EMB2)
QUESTIONS for Containment and Ventilation Branch 1 (AP1000/EPR Projects) (SPCV)

14.03.03-48

Follow-up to RAI 255, Question 14.03.03-38

In AREVA's response to Part (b) of RAI 14.03.03-38, the applicant revised the piping as-built reconciliation ITAAC identifying the ITA and AC. The staff also recognized that in AREVA's response to Part E of RAI 14.03-10 Supplement 4, the applicant modified the definition of "as-built" and decided to delete or replace "as-installed" with "as-built" throughout US EPR FSAR Tier 1.

In the response to Part (b) of RAI 14.03.03-38, the staff found the proposed AC acceptable. However, in the ITA, AREVA included a statement "Piping analyzed using time-history methods will be reconciled to the as-built information." The statement can be interpreted as restricting the reconciliation to only to those piping analyzed using time-history methods. The staff requested that AREVA remove the statement in the ITA.

14.03.03-49

Follow-up to RAI 210, Question 14.03.03-33

The staff recognized that in AREVA's response to Part E of RAI 14.03-10 Supplement 4, the applicant modified the definition of "as-built" and decided to delete or replace "as-installed" with "as-built" throughout US EPR FSAR Tier 1.

In AREVA's response to RAI 14.03.03-33, the staff found the ITAAC proposed by the applicant regarding ASME Code Section III components are not acceptable.

Part a) Design ITAAC

The staff identified two concerns in the response. First, in the ITA, the staff found that inspections for the existence of the Design Reports are not the objectives of the ITAAC. Rather, the ITA should be reworded as "Inspections of the ASME Code Section III

Design Reports (NCA-3550) and supporting documents will be performed." Similarly, the staff found that the Acceptance Criteria is not acceptable because simply verifying the existence of the report is insufficient. The staff requests the applicant to modify the acceptance criteria to "ASME Code Section III Design Reports (NCA-3550) exist and conclude that for components listed as ASME Code Section III in Table x.x.x-x comply with the ASME Code Section III requirements."

Part b) As-built Reconciliation ITAAC

In its response to RAI 14.03.03-33 Part (b), the applicant refused to add an ITAAC to perform the "as-built analyses" because the nth plant will be built like the (n-1)th plant. Furthermore, the applicant indicated that there is no ASME Code requirement for a separate "as-built analysis" and the components are ASME Code Section III when they leave the factory before their installation at their final location onsite. The applicant proposed to add an ITAAC to verify that the components are fabricated in accordance with ASME Code Section III requirements. An inspection will be performed to verify that the design report has been revised to reflect as-built deviation from the design if applicable.

The staff found that the justifications and proposed ITAAC to be unacceptable. First, the staff requested the applicant, in all RAI questions, to perform "as-built reconciliation". These are analyses to reconcile deviation for ASME Code requirements. It is believed that the applicant misunderstood that with the term "as-built analysis".

Regarding the proposed ITAAC, the appropriate ITA to reconcile the deviation should not be an inspection. The staff requests that AREVA modify the ITA to "An analysis will be performed to reconcile the as-built condition of the components with the ASME Code Section III Design Reports." The staff also requests the AC be modified to "ASME Code Design Report(s) exits and concludes that design reconciliation has been completed in accordance with the ASME Code for as-built reconciliation of the components identified in Table x.x.x-x as ASME Code Section III. The report documents the results of the reconciliation analysis."

c) Fabrication and Installation ITAAC
In its response to RAI 14.03.03-33 Part (c), AREVA again indicated that there exist ITAAC for welding inspections and hydrostatic test. The staff found this response to be inadequate because the scope of assuring the components are fabricated, installed, and inspected is broader than that of the welding and hydrostatic testing. During the review of previous Design Certifications, in addition to the welding and Hydrostatic testing ITAAC, the staff determined that three distinct ITAAC covering i) design, ii) as-built reconciliation, and iii) fabrication & installation activities would encompass the complete scope to ensure that the components to be properly designed and constructed in accordance with ASME Code Section III requirements. It should also be noted that the fabrication & installation ITAAC for piping was properly addressed in RAI 14.03.03-38 by AREVA.

The staff requests that AREVA include an ITAAC to address fabrication & installation of ASME Code Section III components.

14.03.11-4

Follow-up to RAI 104, Question 14.3.11-1(b)

Hydrogen Monitoring System.

Per 10 CFR 50.44(c)(4)(ii), equipment must be provided for monitoring hydrogen in the containment. Equipment for monitoring hydrogen must be functional, reliable, and capable of continuously measuring the concentration of hydrogen in the containment atmosphere following a significant beyond design-basis accident for accident management, including emergency planning.

Per US EPR FSAR, section 6.2.5.1, the HMS measures the hydrogen concentration in containment during and after the accident, and remains functional during and after exposure to accident environmental conditions (10 CFR 50.44(c)(4)(ii)

While the high range monitors are not safety related, they are safety significant, similar to the PARs and the SAHRS.

Since both the low and the high range HMS equipment are part of the CGCS design basis, add the high range hydrogen monitoring system (HMS) equipment to Table 2.4.14-1, so that the HMS ITAAC will verify that both the low range and the high range monitors display and alarm in the main control room

14.03.11-5

Follow-up to RAI 124, Question 14.3.11-3

Per 10 CFR 50.44(c)(4)(ii), equipment must be provided for monitoring hydrogen in the containment. Equipment for monitoring hydrogen must be functional, reliable, and capable of continuously measuring the concentration of hydrogen in the containment atmosphere following a significant beyond design-basis accident for accident management, including emergency planning.

Per US EPR FSAR, section 6.2.5.2.2, the (HMS) provides indication of hydrogen concentrations in the containment atmosphere during design basis accidents, and monitors both hydrogen concentrations and steam content in the containment atmosphere during beyond design basis accidents. They assist the operators during both design basis accidents, and during beyond design basis accidents.

Add the low range and the high range HMS monitors in the MCR to FSAR Tier 2, Table 18.7-1, Minimum Inventory of Main Control Room Fixed Alarms, Displays, and Controls, and indicate that they both display and alarm.