ArevaEPRDCPEm Resource

From: Getachew Tesfaye
Sent: Tuesday, January 27, 2009 6:24 PM
To: 'usepr@areva.com'
Cc: Arnold Lee; Jennifer Dixon-Herrity; Michael Miernicki; Joseph Colaccino; Meena Khanna; ArevaEPRDCPEm Resource
Subject: U.S. EPR Design Certification Application RAI No. 178 (1937), FSAR Ch. 3
Attachments: RAI_178_EMB2_1937.doc

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on January 14, 2009, and discussed with your staff on January 26, 2009. Draft RAI Question 03.09.03-18 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,
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Hearing Identifier: AREVA_EPR_DC_RAIs
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Request for Additional Information No. 178 (1937), Revision 0

01/27/2009

U. S. EPR Standard Design Certification
AREVA NP Inc.
Docket No. 52-020
SRP Section: 03.09.03 - ASME Code Class 1, 2, and 3 Components
Application Section: 3.9.3

QUESTIONS for Engineering Mechanics Branch 2 (ESBWR/ABWR Projects) (EMB2)

03.09.03-17

In FSAR Section 3.9.3, AREVA states that the EPR design is based on the 2004 edition of ASME Code, Section III, Division 1, with no addenda. In RAI 3.9.3-01, the staff requests AREVA to confirm that for the design of components, component supports and core support structures, the requirements of 10 CFR 50.55a(b) will be met without exception. By email letter dated December 1, 2008, in referring to its response to RAI 5.2.1.1-4, AREVA stated that the code of record for the design of the U.S. EPR is the 2004 Edition of the ASME Code. AREVA, however, did not confirm that for the design of components, component supports and core support structures, the requirements of 10 CFR 50.55a(b) will be met without exception. It should be noted that at the time of the staff's review of the Topical Report, ANP-10264NP, AREVA responded (dated November 20, 2007) to staff's RAI EPR-3 by stating that piping analysis and pipe support design for the U.S. EPR uses the 2001 ASME Code, Section III, Division 1, 2003 Addenda as the base code with limitations identified in the Code of Federal Regulations, 10 CFR 50.55a(b)(1). The staff had found the response to be acceptable and, based on that, closed RAI EPR-3, as stated in the safety evaluation of the Topical Report (Section 3.1.1), dated May 19, 2008. With the 2004 Edition of the ASME Code now being designated as the code of record for the U.S. EPR, the staff requests AREVA to: (1) discuss the rationale behind the use of this 2004 Edition for the design of components, component supports and core support structures, instead of the 2001 Edition and 2003 Addenda of the Code; (2) confirm that all limitations identified in the Code of Federal Regulations, 10 CFR 50.55a(b)(1) are met without exception; (3) discuss reconciliations, if any, performed between the use of the two code editions.

03.09.03-18

In RAI 3.9.3-4, the staff requests that AREVA commit to provide the design specifications of risk-significant mechanical components, as a minimum, for NRC audit. This is to ensure that the components are ready for procurement, and that the DCD design methodologies and criteria are adequately reflected in the associated component design specifications. For the design reports, the staff requests that AREVA discuss in the DCD its plan and schedule of making the design reports of EPR major mechanical components available for NRC audit, e.g., through an ITTAC, to ensure that AREVA has established a procedure to verify the completion of the EPR component design. By email letter dated December 1, 2008, AREVA states that a representative sample of the design specifications will be available for NRC inspection beginning April 1, 2009. The

staff found this response to be inadequate, and requires that the design specifications of all safety-related mechanical components, not just a representative sample, be available for staff on-site review prior to the approval of the U.S. EPR design certification application. If the design will not be completed, staff has accepted a COL Item to make the component design specifications and design reports available for NRC review during the COL application review in the past. If this option is taken, it is expected that the design specifications would be made available for review by the COL applicant. Staff has asked a question in Chapter 14.3.3 with regards to component Design Reports. If the ITAAC addresses component design reports, the COL Item would only have to address Design Specifications.

03.09.03-19

In FSAR Section 3.9.3.1.7, AREVA states that Table 3.9.3-4 provides the loading combinations and corresponding stress design criteria per ASME Service Level for ASME Class 1, 2, and 3 component supports. Table NF-3131(a)-1 is referenced for providing a cross-reference to various sections of NF for stress allowables for specific types of component supports. The staff reviewed through the NF sections listed in Table NF-3131(a)-1 and was not able to identify design stress criteria which are specifically applicable to snubbers. In RAI 3.9.3-13, the staff requests AREVA to provide the design stress criteria that are specifically applicable to snubbers, and discuss where the criteria are referenced from. By email letter dated December 1, 2008, AREVA stated that snubber components are purchased from a qualified vendor to meet the design stress criteria of the ASME Code requirements, as required by snubber design specifications. AREVA also stated that snubber vendors provide a certified load data sheet that states the design of its snubber meets the requirements of ASME Code Section III, Subsections NCA and NF. In addition, ASME Code Section III, Subsection NF, Paragraph NF-1214, “Standard Supports” provides guidance on the design of snubbers. The staff found the AREVA’s response on the snubber design to be unacceptable. Since Paragraph NF-1214 does not provide relevant guidance for snubber design, and since Table NF-3131(a)-1 does not contain references that pertain to snubber design, the staff requests that FSAR Section 3.9.3.1.7 be revised to include pertinent snubber design criteria, regardless of which party will be responsible for the final snubber design.

03.09.03-20

In FSAR Section 3.9.3.4.5, AREVA discusses the snubber supports for piping systems and provides a description of functional design and IST programs for snubbers. However, sufficient information is not provided for snubber production and qualification test programs. In RAI 3.9.3-14, the staff requests AREVA to address the following: (1) provide a description of the AREVA snubber production test program and qualification test program, for both mechanical and hydraulic snubbers; (2) provide justification if the production tests do not consider all snubbers in the population; (3) explain the basis of selecting samples for qualification tests, if sampling method is used; (4) discuss the procedures taken to demonstrate the required snubber load ratings; (5) discuss the acceptance criteria used to ensure that the snubber design comply with the specific requirements of ASME Code Section III, Subsection NF; (6) discuss the specific functional parameters (activation level, release rate, drag, dead band, etc.) considered for snubber production and qualification testing; (7) provide the acceptable codes and

standards (including editions) used for the snubber production and qualification testing; (8) verify that the production operability testing for large-bore hydraulic snubbers (greater than 50 kips load rating) includes (i) a full Service Level D load test to verify sufficient load capacity, (ii) testing at the full load capacity to verify proper bleed with the control valve closed, (iii) testing to verify that the control valve closes within the specified velocity range, and (iv) testing to demonstrate that breakaway and drag forces are within the acceptable design limits. By email letter dated December 1, 2008, AREVA stated that the snubber vendor is responsible for the snubber production and qualification test programs in accordance with the applicable ASME Code standards and the AREVA NP design specifications. AREVA also stated that information on the inservice testing of snubbers is provided in U.S. EPR FSAR Tier2, Section 3.9.6. The staff found this response unacceptable, noting that the RAI is addressing the design aspects of the snubbers, not snubber IST programs. The staff determined that while item (5) of this RAI regarding the required acceptance criteria for snubber design may be referred to RAI 3.9.3-13 for additional AREVA response, AREVA is requested to provide acceptable responses to the remaining issues on snubber qualification testing and production testing.