ArevaEPRDCPEm Resource

From: Tesfaye, Getachew
Sent: Wednesday, March 31, 2010 3:10 PM
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Cc: Wu, Cheng-lh; Hawkins, Kimberly; Li, Chang; Segala, John; Lee, Samuel; Jenkins, Joel; Terao, David; Roy, Tarun
Subject: U.S. EPR Design Certification Application RAI No. 365 (4317,4318,4319), FSAR Ch. 5 OPEN ITEM
Attachments: RAI_365_EMB1_4317_SBPB_4318_CIB1_4319 (2).doc

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on February 3, 2010, and discussed with your staff on March 2, 2010. Draft RAI Questions 05.02.01.01-5a was modified as a result of that discussion, and the staff has added 05.02.01.01-5b and 05.02.01.01-5c to address similar concerns that was not part of that discussion. The questions in this RAI are OPEN ITEMS in the safety evaluation report for Chapter 5 for Phases 2 and 3 reviews. As such, the schedule we have established for your application assumes technically correct and complete responses prior to the start of Phase 4 review. For any RAI that cannot be answered prior to the start of Phase 4 review, it is expected that a date for receipt of this information will be provided 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. 365(4317, 4318, 4319), Revision 0

3/31/2010

U. S. EPR Standard Design Certification
AREVA NP Inc.
Docket No. 52-020
SRP Section: 05.02.01.01 - Compliance With the Codes and Standards Rule, 10 CFR 50.55a
SRP Section: 05.02.05 - Reactor Coolant Pressure Boundary Leakage Detection
SRP Section: 05.03.01 - Reactor Vessel Materials
Application Section: Chapter 5

QUESTIONS for Engineering Mechanics Branch 1 (AP1000/EPR Projects) (EMB1)
QUESTIONS for Balance of Plant Branch 2 (ESBWR/ABWR) (SBPB)
QUESTIONS for Component Integrity, Performance, and Testing Branch 1 (AP1000/EPR Projects) (CIB1)

05.02.01.01-5

OPEN ITEM

Follow-up to RAI 51, Question 05.02.01.01-3

a. The applicant did not address how 10 CFR 50.55a(b)(1)(ii) is satisfied for the U.S. EPR design. The staff noted that the code of record for U.S. EPR design is the 2004 Edition of ASME code, and the piping stress analysis and seismic design are performed in accordance with the 1993 Addenda to the 1992 Edition to meet the requirement of 10 CFR 50.55a(b)(1)(iii). However, the use of either the 2004 Edition or the 1993 Addenda is disallowed by 10 CFR 50.55a(b)(1)(ii). AREVA is requested to provide the technical basis of how 10 CFR 50.55a(b)(1)(ii), "weld leg dimensions" is addressed while using the 2004 Edition and 1993 Addenda.

b. 10 CFR 50.55a requires that the Code edition and addenda to be applied to ASME Class 1, 2 and 3 piping and components must be determined by the rules of the ASME Section III paragraph NCA-1140(2), which disallows use of Code Edition and Addenda in the Design Specifications that is (a) earlier than three years prior to the date the construction permit application is docketed or (b) earlier than the latest Edition and Addenda endorsed by the regulatory authority at the time the construction permit application is docketed. This requirement is not satisfied by the code of record for U.S. EPR. For instance, the code used for U.S. EPR DC is the 2004 Edition with no Addenda while COL application date for Calvert Cliffs 3 and 4 is March 13, 2008. This implies a violation of NCA-1140(2)(a). To resolve the issue, ASME approved a Code Case N-782 in January 2009 which allows that the Code Edition and Addenda endorsed in a design certified or licensed by the regulatory authority may be used for systems and components as an alternative rule to NCA-1140(2)(a) and (2)(b). However, 10 CFR 50.55a requires that the optional ASME Code cases must be those listed in the NRC Regulatory Guide (RG) 1.84 that is incorporated by reference in paragraph 50.55a (b)(4). Code Case N-782 is not listed for acceptance in Revision 34 of RG 1.84. In order to apply the alternative rule to requirements of NCA-1140, the applicant is requested to provide justification

for inclusion of Code Case N-782 in U.S. EPR DCD in accordance with 10 CFR 50.55a(3)(i) and (ii).

c. In its response to RAI 51, AREVA confirmed that the base code for USEPR design of piping systems, components and their supports is the 2004 Edition with no Addenda of the ASME Section III Code. As a result, AREVA is requested to revise its topical reports to base on the 2004 Edition for consistency with the EPR design as it relates to Code Edition and Addenda of U.S. EPR design certification. It is noted that if other Code Editions and Addenda than the 20004 Edition must be used for design of EPR safety related components, AREVA is requested to provide justification to reconcile the use of the other Code Edition and Addenda to the requirements of the 2004 Edition in accordance with NCA-1140 and 10 CFR 50.55a (a)(3). The staff notes that Section 3.12 of USEPR DCD identifies the Code Edition and Addenda by referring to the topical report ANP-10264NP where the 2001 Edition with the 2003 Addenda is used for design and analysis of piping and its supports. This implies that there are two Code Editions used by a USEPR Design. AREVA is also requested to discuss how the use of multiple code editions and addenda for a DCD design to satisfy the Section III Subsection NCA-1140(a)(1) which states that all items of a nuclear power plant may be constructed to a single Code Edition and Addenda, or each item may be constructed to individually specified Code Editions and Add

05.02.05-9

OPEN ITEM

Follow-up to RAI 244, Question 05.02.05-6

Even though the responsibility for the operating and emergency operating procedures is with the COL applicant, the design certification application is incomplete without identifying a COL information item specifically for the procedures relating to the conversion of instrument indicators and alarm setpoint. AREVA is requested to identify a COL information item.

05.02.05-10

OPEN ITEM

Follow-up to RAI 244, Question 05.02.05-7

Even though the responsibility for the operating and emergency-operating procedures is with the COL applicant, the design certification application is incomplete without identifying a COL information item specifically for the procedures relating to operator actions to manage the long-term low-level RCS leakage. AREVA is requested to identify a COL information item.

05.02.05-11

OPEN ITEM

Follow-up to RAI 244, Question 05.02.05-8

The applicant agreed to include the RCPB leakage detection system in the ITAAC. The staff reviewed the marked-up pages for the revised ITAAC and found that the verification of the RCPB leakage detection sensitivity, response time, and alarm limits for the RCPB leakage detection instrument is not included in the proposed ITAAC. AREVA is requested to include the RCPB leakage detection sensitivity, response time, and alarm limits for the RCPB leakage detection instrument in the ITAAC.

05.03.01-14

OPEN ITEM

Follow-up to RAI 232, Question 05.03.01-10c

The applicant's response did not address the minimum qualified thickness of cladding qualified as buttering, and because cladding thickness has implications for heat input to the RPV during subsequent welding operations, AREVA is requested to specify the minimum thickness of the cladding when qualified as weld buttering.

05.03.01-15

OPEN ITEM

Follow-up to RAI 232, Question 05.03.01-11b

The transition ring with the radial-key attachment welds is post-weld heat-treated in the RPV construction sequence. Therefore, the radial-key attachment welds receive an indirect, post-weld heat-treatment as a result of the heat treatment of the RPV. Because the option exists for the applicant to fabricate the radial-key attachment welds without a subsequent post-weld heat treatment, and because the applicant did not confirm that a low-heat-input weld process will be used, AREVA is requested to confirm that a low-heat-input weld process will be used for sequences where the radial-key attachment welds are made without subsequent post-weld heat treatment.