

ArevaEPRDCPEm Resource

From: Getachew Tesfaye
Sent: Tuesday, May 05, 2009 12:33 PM
To: 'usepr@areva.com'
Cc: Robert Davis; David Terao; Jason Carneal; Joseph Colaccino; ArevaEPRDCPEm Resource
Subject: U.S. EPR Design Certification Application RAI No. 220 (2611), FSAR Ch. 6
Attachments: RAI_220_CIB1_2611.doc

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on April 27, 2009, and on May 5, 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,
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Request for Additional Information No. 220 (2611), Revision 0

05/05/2009

U. S. EPR Standard Design Certification

AREVA NP Inc.

Docket No. 52-020

SRP Section: 06.01.01 - Engineered Safety Features Materials

Application Section: 6.1.1

QUESTIONS for Component Integrity, Performance, and Testing Branch 1 (AP1000/EPR Projects)
(CIB1)

06.01.01-13

In response to RAI 06.01.01-1, the applicant stated that information on EFWS components is located in U.S. EPR FSAR Tier 2, Section 10.4.9. The applicant also stated that EFWS piping and component pressure retaining parts are constructed of stainless steel. In addition, the applicant suggests that the carbon content of these components will be limited to reduce the potential for stress corrosion cracking. The staff notes that per SRP 10.4.9, the compatibility of EFWS materials is reviewed by the staff under SRP 6.1.1. In order for the staff to find that the EFWS materials meet the acceptance criteria for stainless steels listed in SRP Section 6.1.1, the staff requests that the applicant modify FSAR Section 10.4.9 to specify the maximum carbon content of EFWS stainless steel materials. In addition, the staff requests that the applicant modify FSAR Section 10.4.9 to state the extent to which it complies with the NRC staff guidance in RGs 1.44, 1.31 and 1.37 for the EFWS. Where the applicant deviates from staff guidance in these RGs, the staff requests that the applicant provide justification for the deviation and describe any alternatives and the basis for its alternative approach.

06.01.01-14

In response to RAI 06.01.01-2, the applicant provided a proposed revision to Table 6.1-1 by letter dated December 19, 2009. In order for the staff to complete its review, the staff requests that the applicant address the following:

1. The applicant's revised Table 6.1-1 indicates that some valves used in ESF systems will be cast austenitic stainless steel (CASS). Given that some of these valves interface with the RCPB, explain how you have addressed the potential for thermal aging embrittlement of all ESF CASS components with service conditions above 482°F (250°C) and modify the FSAR accordingly. The staff notes that the applicant's screening process for the determination of CASS susceptibility to thermal aging embrittlement, for components with service conditions above 482°F (250°C), should be consistent with the NRC staff position documented in a letter from C. Grimes (USNRC) to D. Walters (Nuclear Energy Institute) dated May 19, 2000 (Agencywide Documents Access and Management System (ADAMS) Accession No.: ML003717179).

2. Ferritic welding filler metals listed in revised Table 6.1-1 list material specifications but do not include classifications for weld materials in the Safety Injection System/Residual Heat Removal System as requested by the staff. If this information is not available, the staff would find the information provided acceptable if the applicant provides a note to Table 6.1-1 that states that "G" classification filler materials are not permitted.

3. The staff requests that the applicant provide a note to Table 6.1-1 that limits the carbon content of austenitic weld filler metal to 0.03% maximum to be consistent with the carbon content limit on austenitic stainless steel materials listed in Table 6.1-1.

06.01.01-15

In RAI 06.01.01-3, the staff requested that the applicant modify FSAR Section 6.1.1 to indicate if any ASME Code cases identified in RG 1.84 will be used for ESF systems. In addition, the staff requested that the applicant list the applicable Code cases in FSAR Section 6.1.1 and Table 6.1-1. The applicant responded on November 3, 2008 and indicated that this information is not currently available because many of the vendors for engineered safety features (ESF) have not been selected. In order for the staff to review the materials, fabrication and examination of ESF systems, the staff requests that the applicant provide a list of ASME Code Cases that will be used for ESF systems. If this information is not available, the staff requests that the applicant modify the FSAR to include a COL Information Item that requires COL Applicants to submit this information to the staff as part of COL applications that reference the U.S. EPR design.

06.01.01-16

In RAI 06.01.01-6, the staff requested information related to containment liner and liner penetrations materials. The applicant provided proposed revisions, by letter dated December 19, 2008, to FSAR Section 6.1.1, Table 6.1-1 and Section 3.8. The staff identified the following concerns with the applicant's proposed revisions and requests that the applicant modify the FSAR accordingly.

1. Sheet 1 of revised Table 6.1-1 refers to Sections 3.8.1.6.4 and 3.8.2 for materials used for the reactor building liner and penetrations. However, sheet 7 of proposed Table 6.1-1 lists the materials used for the reactor building liner and penetrations.

2. FSAR Section 3.8.1.6.4 states that welding materials conform to the requirements of ANSI/AWS D1.1 and D1.6 except as modified by ANSI/AISC N690. This statement appears to be inconsistent with other statements in Section 3.8.1.6.4 which reference ASME Code, Section III, Divisions 1 and 2.

3. Proposed revised Table 6.1-1 appropriately lists ASME specifications for liner plate materials. However, the applicant's proposed revision to FSAR Section 3.8.1.6.4 lists ASTM specifications.

4. The applicant listed partial classifications for weld filler material used for the containment liner. The applicant also referenced AWS D1.1 and AWS D1.6. The staff's review of the containment liner system under SRP 6.1.1 includes portions of the

containment liner system that are designed and fabricated in accordance with ASME Code Section III. Therefore, the staff requests that the applicant modify the FSAR to clarify where ASME Code jurisdiction ends and where AWS jurisdiction starts. In addition, although the staff notes that the weld filler metal classifications listed by the applicant are not complete, the staff finds that the classifications provided in the proposed table are acceptable as long as the applicant provides a note that prohibits the use of "G" classification electrodes.

06.01.01-17

In RAI 06.01.01-10, the staff requested that the applicant provide the minimum preheat temperatures used for ferritic materials other than alloy steels, which the applicant already addresses in FSAR Section 6.1.1.1. In its response to RAI 06.01.01-10, the applicant stated that many of the fabricators for ESF components have not been selected and the specifics of weld procedures and associated PQRs are not available. The applicant further stated that for materials not listed in Appendix D, the preheat temperatures used will be considered acceptable if the weld procedure is suitable qualified in accordance with ASME Section IX. To the staff's knowledge, all ferritic materials listed in Table 6.1-1 fabricated to ASME Section III requirements are covered by Appendix D. Therefore, the staff requests that the applicant modify FSAR Section 6.1.1.1 to include a statement that the minimum preheat requirements for the welding of carbon steels will follow the recommendations in ASME Code, Section III, Appendix D, Article D-1000.

06.01.01-18

In response to RAI 06.01.01-11, the applicant provided a proposed revision to Table 2.1.1-7 (ITAAC) by letter dated December 19, 2008. The staff reviewed the applicant's proposed revision and noted that the applicant did not provide specific line items to address fabrication, welding and NDE. The staff requests that the applicant modify Table 2.1.1-7 accordingly.