ArevaEPRDCPEm Resource

From: Tesfaye, Getachew
Sent: Friday, October 09, 2009 2:10 PM
To: 'usepr@areva.com'
Cc: Jenkins, Joel; Terao, David; Roy, Tarun; Colaccino, Joseph; ArevaEPRDCPEm Resource
Subject: U.S. EPR Design Certification Application RAI No. 304 (3812), FSAR Ch. 5
Attachments: RAI_304_CIB1_3812.doc

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on October 2, 2009, and on October 9, 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 question in this RAI is considered a potential open item 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. If the RAI 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,
Getachew Tesfaye
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Hearing Identifier: AREVA_EPR_DC_RAIs
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Request for Additional Information No. 304 (3812), Revision 1

10/9/2009

U. S. EPR Standard Design Certification
AREVA NP Inc.
Docket No. 52-020
SRP Section: 05.03.01 - Reactor Vessel Materials
Application Section: 5.3.1

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

05.03.01-12

POTENTIAL OPEN ITEM

In response to RAI 2761 Questions 05.03.01-10, the applicant stated that 309L/308L stainless steel and Alloy 52/52M/152 cladding is deposited for the full clad thickness, and that the nominal cladding thickness of 0.295 inches applies to the total cladding thickness regardless of cladding material. The applicant also stated that this thickness applies only to cladding. As an option, the cladding may be qualified as weld buttering and additional thickness requirements may apply, as addressed in the response to Question 05.03.01-11b. However, the NRC staff notes that AREVA's response to Question 05.03.01-11b did not state the additional thickness requirement for the U.S. EPR design, but only used a specific fabrication sequence for a particular reactor vessel with a weld buttering thickness of 0.39 inches minimum, and, as such, might not reflect the fabrication sequence to be used for the U. S. EPR design. In addition, AREVA stated that in accordance with QW-283 of the ASME Code, Section IX, the minimum qualified buttering thickness is specified in the qualified weld procedure, and that qualification of the welding procedures and processes in accordance with ASME Sections III and IX provides acceptable controls to ensure integrity of the RPV low alloy steel base metal is not adversely affected by welding of the radial keys.

The NRC staff notes that the minimum weld buttering thickness specified in a welding procedure is based on the thickness used during the procedure qualification test. But, the <u>design</u> buttering thickness is also based on the design of the reactor vessel and the core support structures in accordance with ASME Code, Section III to account for stresses, including thermal stresses, bearing loads, etc., and should not be solely dependent on the fabrication methods (welding procedures or processes). Therefore, AREVA is requested to provide additional <u>design</u> thickness requirements for the weld buttering option, and include these requirements in the EPR FSAR. This is to ensure that the design of the reactor vessel accounts for the weld buttering, and that the low alloy steel reactor vessel is not adversely affected by heat input after welding of the radial key structural attachment weld is completed without post weld heat treatment of the low alloy steel reactor vessel.