

ArevaEPRDCPEm Resource

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Sent: Thursday, May 31, 2012 10:57 AM
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Subject: Draft - U.S. EPR Design Certification Application RAI No. 552 (6512, 6526), FSAR Ch. 6
Attachments: Draft RAI_552_SCVB_6512_CIB_6526.doc

Attached please find draft RAI No. 552 regarding your application for standard design certification of the U.S. EPR. If you have any question or need clarifications regarding this RAI, please let me know as soon as possible, I will have our technical Staff available to discuss them with you.

Please also review the RAI to ensure that we have not inadvertently included proprietary information. If there are any proprietary information, please let me know within the next ten days. If I do not hear from you within the next ten days, I will assume there are none and will make the draft RAI publicly available.

Thanks,
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Request for Additional Information No. 552(6512, 6526), Revision 0

5/31/2012

U. S. EPR Standard Design Certification

AREVA NP Inc.

Docket No. 52-020

SRP Section: 06.02.02 - Containment Heat Removal Systems

Application Section: 6.2

QUESTIONS for Containment & Ventilation Branch (SCVB)

QUESTIONS for Component Integrity Branch (CIB)

06.02.02-134

RG 1.206 (June 2007) Regulatory Position, Part IV: Miscellaneous Topics, describes the following:

The creation of, and restrictions on, changing Tier 2* information resulted from the development of Tier 1 information for the advanced BWR design certification (Appendix A to 10 CFR Part 52) and the Asea Brown Boveri-Combustion Engineering System 80+ reactor design certification (Appendix B, "Design Certification Rule for the System 80+ Design," to 10 CFR Part 52). During this development process, these applicants requested that the agency minimize the amount of information in Tier 1 to allow additional flexibility for an applicant or licensee who references these appendices. Tier 2 also specified many codes, standards, and design processes that Tier 1 does not specify but that are acceptable for meeting ITAAC. As a result, certain significant information only exists in Tier 2, and the Commission does not want this significant information to be changed without prior NRC approval. The generic DCD identifies this Tier 2* information with italicized text and brackets.

NUREG-1792 "Final Safety Evaluation Report Related to Certification of the AP1000 Standard Plant Design", describes the following:

The ACRS review for the AP1000 highlighted the significance of certain assumptions about debris in containment to the adequacy of long-term core cooling, and a concern that the values not be revised without substantial additional testing and analysis. As a means of emphasizing this, the applicant proposed to designate the key information as Tier 2*, to require prior NRC approval, in a letter dated February 23, 2011. This change is included in Revision 19. The NRC agrees that this is a prudent change and will modify the final rule language to reflect this addition, as a Tier 2* item without expiration at fuel load.

In the most recent amendment (December 2011) to Appendix D to Part 52 "Design Certification Rule for the AP1000 Design" this change was put into effect.

Given ANP-10293 Appendix F "Downstream Effects Evaluation for the U.S. EPR," containment debris limits discussed in response to RAI 491 Question 06.02.02-124 and RAI 488 Question 06.02.02-91 and associated DCD Section 6.3 markup, it appears that

the US EPR is similar to the AP1000 regarding assumptions about debris in containment to the adequacy of long term core cooling, specifically the debris limits for core inlet blockage evaluations. Therefore, the NRC staff request that AREVA evaluate the appropriateness of applying Tier 2* designation to items associated with long term core cooling or the appropriateness of establishing a technical specification. If information related to long term core cooling is designated as Tier 2*, the staff request AREVA identify this information in the DCD to ensure that the appropriate change process and limits are followed.

06.02.02-135

Follow-up to RAI 498, Question 06.02.02-110

In response to RAI 498, Question 6.2.2-110 dated December 18, 2011, AREVA stated that no RMI will enter the ECCS during a LBLOCA. Section G.2.4 of ANP-10293 was revised to state:

Results of the NRC debris generation test documented in NUREG/CR-6808 show that RMI debris size distribution ranges from 0.25 inches to 6 inches. Transport testing performed by AREVA demonstrated that RMI debris pieces will sink in the retaining basket (See Appendix E, Section E.7.1). In the unlikely event that RMI debris bypasses the retaining baskets, RMI debris will not bypass the sump screens and enter the ECCS because the size of the RMI debris is greater than the mesh size of the sump screen. As a result, this evaluation assumes no RMI bypasses through the sump screen.

NRC staff does not agree with AREVA's evaluation that the RMI debris size distribution ranges from 0.25 inches to 6 inches. Section 3.2.2.4 of NUREG-6808, "Knowledge Base for the Effect of Debris on Pressurized Water Reactor Emergency Core Cooling Sump Performance," provides results of jet impact testing on RMI performed by the NRC on May 31, 1995. These tests concluded that 4.3% of the RMI generated by a large pipe break was less than 1/4". The jet impact test results do not specifically identify the amount of RMI generated that was less than the ECCS strainer and retaining basket screen size of 0.08" x 0.08". However, based on the fact that 4.3% of the RMI was less than 1/4", it should be assumed that some pieces less than 0.08" were generated. Therefore, staff does not consider AREVA's evaluation that no RMI bypasses the sump screen to be acceptable. Based on the jet blast testing that produced RMI sizes less than 1/4", staff requests the applicant to re-evaluate their position that no RMI will enter the ECCS during a LBLOCA.