

## ArevaEPRDCPEm Resource

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**From:** Tesfaye, Getachew  
**Sent:** Tuesday, April 06, 2010 4:34 PM  
**To:** 'usepr@areva.com'  
**Cc:** Le, Tuan; Hsu, Kaihwa; Dixon-Herrity, Jennifer; Miernicki, Michael; Colaccino, Joseph; ArevaEPRDCPEm Resource  
**Subject:** Draft - U.S. EPR Design Certification Application RAI No. 388 (4601, 4586), FSAR Ch. 3  
**Attachments:** Draft RAI\_388\_EMB1\_4601\_EMB2\_4586.doc

Attached please find draft RAI No. 388 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,  
Getachew Tesfaye  
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**Hearing Identifier:** AREVA\_EPR\_DC\_RAIs  
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Draft

Request for Additional Information No. 388(4601, 4586), Revision 0

4/6/2010

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

SRP Section: 03.12 - ASME Code Class 1, 2, and 3 Piping Systems and Piping Components and Their Associated Supports

Application Section: FSAR Chapter 3

QUESTIONS for Engineering Mechanics Branch 1 (AP1000/EPR Projects) (EMB1)

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

03.09.03-22

In EPR FSAR Tier 2, Section 3.9.3.1.1, AREVA indicated that the COL applicant referencing the US EPR design certification will examine the feedwater line welds after hot functional testing prior to fuel load in accordance with NRC Bulletin 79-13. Specifically, in Tier 2, Table 1.8-2, Item No. 3.9-3, AREVA stated that a COL Holder referencing the EPR design certificate will report the results of inspections to NRC, in accordance with NRC Bulletin 79-13. According to 10 CFR 52.47(b)(1), a DC application must contain the proposed inspections, tests, analyses, and acceptance criteria (ITAAC) that are necessary and sufficient to provide reasonable assurance that, if the inspections, tests, and analyses are performed and the acceptance criteria met, a plant that incorporates the design certification is built and will operate in accordance with the design certification, the provisions of the Atomic Energy Act, and the NRC's regulations.

The staff understands that AREVA is proposing to have COL applicants (or Holders in this case) address the final resolution of the issue. However, the staff concern is that COL applicants must address all COL Items whether final action is taken before or after the license is issued. If the information is not provided, COL applicants need to meet RG 1.206 and let the staff know when and how the information will be provided. Given that it is acknowledged that the action will occur during construction, to allow the staff to perform necessary inspection of the report results ensuring the feedwater line welds has been examined, the staff finds that an ITAAC in the FSAR is necessary. The staff requests the applicant to add an appropriate ITAAC in EPR FSAR Tier 1 to address the issue.

03.09.03-23

In EPR FSAR Tier 2, Section 3.9.3.1.1, AREVA indicated that the COL applicant referencing the US EPR design certification will confirm that the thermal deflections do not create adverse conditions during hot functional testing. Specifically, in Tier 2, Table 1.8-2, Item No. 3.9-4, the applicant states that a COL Holder referencing the US EPR

design certificate will confirm this issue. According to 10 CFR 52.47(b)(1), a DC application must contain the proposed inspections, tests, analyses, and acceptance criteria (ITAAC) that are necessary and sufficient to provide reasonable assurance that, if the inspections, tests, and analyses are performed and the acceptance criteria met, a plant that incorporates the design certification is built and will operate in accordance with the design certification, the provisions of the Atomic Energy Act, and the NRC's regulations.

The staff understands that AREVA is proposing to have COL applicants (or Holders in this case) address the final resolution of the issue. However, the staff concern is that COL applicants must address all COL Items whether final action will be taken before or after the license is issued. If the information is not provided, COL applicants need to meet RG 1.206 and let the staff know when and how the information will be provided. Given that the action will occur during the construction period, to allow the staff to perform necessary review or inspection confirming that the thermal deflections do not create adverse conditions during hot functional testing, the staff finds that an ITAAC in the FSAR is necessary. The staff requests the applicant to add an appropriate ITAAC in EPR FSAR Tier 1 to address the issue.

03.12-24

Follow-up to RAI 306, Question 03.12-18

FSAR Section 3.12.5.19 states that *"If there are locations in the Class 1 systems where the cumulative usage factor (CUF) cannot be shown to be less than 1.0, based on the methodology described in RG 1.207, alternative methods for addressing environmental fatigue will be applied."*

AREVA proposed alternative method with redefinition of transient to reduce the severity of the transients or to reduce the number of cycles. The above mentioned alternative method will be applied to reduce the CUF to be less than 1.0. On this basis, AREVA has to decrease the existing design transient temperature rates upper bound limits to reduce the severity of transients or the number of cycles.

In the response to Question 03.12-18, AREVA states *"It is AREVA's understanding that modification of the transient temperature rates should not require regulatory approval if the modified values do not exceed the limits specified in U.S. EPR FSAR Tier 2, Section 3.9.1.1.1."*

The staff noted that if design evaluation uses the upper bound limit, the applicant can operate below this limit without regulatory approval. At the design stage, if AREVA cannot qualify CUF with its current upper bound limit, modification by reducing the upper bound limit does require additional regulatory approval. The staff requests AREVA to justify its response.

AREVA also proposed alternative method with redefinition of the in-air design fatigue curves and/or Fen environmental penalty factors using data obtained from testing of samples representative of U.S. EPR materials, configurations, and environment.

The staff requests AREVA to provide the design fatigue curve and Fen using data obtained from testing of samples representative of U.S EPR material configurations, and environment to review.

In the response to Question 03.12-18, AREVA states "Other alternate analyses methods, such as those endorsed by ASME (in the form of code cases), may also be proposed to the NRC consistent with the guidance in RG 1.207 Section D."

The staff requests AREVA to provide ASME endorsed Code Cases to review, if AREVA is planning to use those ASME endorsed Code Cases.

In the response to Question 03.12-18, AREVA states "The regulatory basis is unclear for the position stated in the question that fatigue monitoring and augmented inspections are for operating plants exclusively." The staff requests AREVA to explain how to apply fatigue monitoring and augment inspection during design stage. The staff also requests AREVA to explain the basis of using fatigue monitoring and augment inspections to qualify fatigue requirements.