September 6, 2016

Mr. Gary Peters, Director
Licensing and Regulatory Affairs
AREVA Inc.
3315 Old Forest Road
Lynchburg, VA 24501

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION REGARDING AREVA INC. TOPICAL REPORT ANP-10334P, "Q12™ STRUCTURAL MATERIAL" (TAC NO. MF7128)

Dear Mr. Peters:

By letter dated October 29, 2015 (Agencywide Documents Access and Management System Accession No. ML15306A034), AREVA INC. (AREVA) submitted for U.S. Nuclear Regulatory Commission (NRC) staff review and approval Topical Report ANP-10334P, "Q12™ Structural Material." Upon review of the information provided, the NRC staff has determined that additional information is needed to complete the review. On August 10, 2016, Jerald Holm, AREVA Product Licensing Manager, and I agreed that the NRC staff will receive the response to the enclosed request for additional information (RAI) questions within 60 days from the date of this letter.

If you have any questions regarding the enclosed RAI questions, please contact me at 301-415-4053.

Sincerely,

/RA/

Jonathan G. Rowley, Project Manager
Licensing Processes Branch
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

Project No. 728

Enclosure:
RAI Questions

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DATE	0815/2016	08/16/2016	0831/2016	09/2/2016	09/6/2016

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REQUEST FOR ADDITIONAL INFORMATION

RELATED TO TOPICAL REPORT ANP-10334P

"Q12™ STRUCTURAL MATERIAL"

AREVA INC.

RAI-1

In Section 12.0 of the topical report (TR), AREVA INC (AREVA) describes an update process which will be used to update the models discussed in Sections 6.0 to 9.0 based on additional PIE data. For those models which AREVA intends to update, provide the following:

a. The specific model which will be updated.

b. A detailed description of how the model will be updated (e.g., will the model form change? Will the coefficients change? Will only a subset of the coefficients change?). This should include a description of how each model was initially developed. For example, if a model was initially developed as polynomial fit to a set of data, and if more data will be obtained and a similar fit will be used, the initial model development needs to be described.

c. The limitation on the model change should be described. This should include details on which changes would necessitate further review by the U.S. Nuclear Regulatory Commission (NRC).

RAI-2

In Sections 12.1 and 12.2 of the TR, AREVA describes an update process which will be used to update the Fuel Assembly and Spacer Grid Growth Models. AREVA should provide the following details about the methods:

a. What criteria is used to determine when the generic upper design limit (UDL) and lower design limits (LDL) will be applied to a new assembly design?

b. What criteria is used to determine if a design specific UDL and LDL may be initially applied and/or updated?

c. How does the number of data points in the various regions of burn-up impact the design specific UDL and LDL?

d. How is design specific UDL and LDL mathematically defined?

e. Under what conditions would the design specific UDL and LDL not be used? (e.g., if design specific was not bounded by the generic, which one would be used?)

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f. What criteria is used to update the design specific UDL and LDL?

g. What conditions would necessitate a submittal to the NRC? (e.g., what if the generic model were determined to be non-conservative for a fuel design?)

RAI-3

The TR requests permission for AREVA to deliver batch quantities of assemblies using Q12 structural materials without the prior delivery and post-irradiation examination of lead test assemblies for that particular fuel design. Given the lack of in-reactor experience, a surveillance program is prudent on the lead batch for each application. Please describe the surveillance program (e.g., data collection, model validation, reporting) by which AREVA will ensure that these assemblies continue to behave as described in the topical report.

RAI-4

At the June 14–15, 2016 audit, AREVA indicated that additional post-irradiation examinations had been completed since the submission of the topical report. Please provide additional data collected to date on irradiated fuel assemblies.

RAI-5

In Section 8.2 of the TR, AREVA describes the guide tube oxidation model. NRC staff request that AREVA provide further details regarding guide tube oxidation:

a. What plans does AREVA have for increasing the number of data points that can be used to correlate the guide tube oxidation rate to the fuel rod model?

b. What design calculations does oxide thickness affect directly and indirectly?