June 21, 2013

Mr. Pedro Salas, Manager
U.S. EPR New Plants Regulatory Affairs
AREVA NP, Inc.
3315 Old Forest Road
P.O. Box 10935
Lynchburg, VA 24506-0935

SUBJECT: FOURTH REQUEST FOR ADDITIONAL INFORMATION REGARDING ANP-10287P, "INCORE TRIP SETPOINT AND TRANSIENT METHODOLOGY FOR U.S. EPR TOPICAL REPORT" (TAC NO. Q00013)

Dear Mr. Salas:

By letter dated November 27, 2007, which can be accessed through the U.S. Nuclear Regulatory Commission's (NRC) Agencywide Documents Access and Management System Accession Number (ML073410584), AREVA NP (AREVA) submitted for NRC staff review, Topical Report (TR) ANP-10287P, "Incore Trip Setpoint and Transient Methodology for U.S. EPR Topical Report."

The NRC staff determined that some areas of this report require additional information in order for the staff to complete its safety review. The specific information requested was sent to AREVA as draft Requests for Additional Information (RAIs 31-36) on April 15, 2013. On April 18, 2013, AREVA requested a clarifying teleconference and suggested rewording of RAI 36 to remove proprietary information. The clarifying teleconference was held on April 22, 2013. The NRC staff modified RAI 36 to remove proprietary information.

On May 3, 2013, AREVA has agreed to provide an advanced response to the RAIs by June 28, 2013 and a final response to the RAIs by August 30, 2013. The final RAIs can be found in the enclosure. On June 19, 2013, AREVA informed us that the final RAIs did not contain proprietary information.

If you have any questions regarding this matter, I may be reached at 301-415-6822.

Sincerely,

/RA/

Amy M. Snyder, Senior Project Manager
Licensing Branch 1 (LB1)
Division of New Reactor Licensing
Office of New Reactors

Docket No. 52-020

Enclosure:
Request for Additional Information

cc: See next page

If you have any questions regarding this matter, I may be reached at 301-415-6822.

Sincerely,

/RA/

Amy M. Snyder, Senior Project Manager
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Docket No. 52-020

Enclosure:
Request for Additional Information

cc: See next page

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DATE	06/21/2013	06/20/2013	06/21/2013	06/21/2013

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FOURTH ROUND REQUEST FOR ADDITIONAL INFORMATION (RAI)
ANP-10287P, "INCORE TRIP SETPOINT AND TRANSIENT METHODOLOGY FOR U.S. EPR TOPICAL REPORT"
(TAC NO. Q00013)
DOCKET NUMBER 52-020

RAI 31

Appendix F, "U.S. EPR Anti-Dilution Mitigation"

The staff performed a confirmatory analysis on the method for calculating and addressing uncertainty presented in the Appendix. For lower nominal values of Critical Boron Concentrations (CBC), the staff's "uncertainty affected" values didn't contradict the values calculated from the equation presented in Figure F-1. However as the nominal CBC values grew, the staff's calculated values began to overestimate the equation-predicted values by increasing amounts and percentages. In order to clarify the reason for this observation, present the calculation which generates the rightmost data point in Figure F-1. This data point is approximately (x=380, y=491).

RAI 32

Appendix F, "U.S. EPR Anti-Dilution Mitigation"

Explain the methodology for finding the values of uncertainty during boron injection and how they are used in the overall uncertainty calculation. Justify the statement that the dominant effect of uncertainty is due to boronometer uncertainty.

RAI 33

Appendix F, "U.S. EPR Anti-Dilution Mitigation"

On page F-17, the appendix states that the enrichment of the IRWST is 30 atom %. However the calculation on page F-18 uses 37%. Moreover, the value (1327.1) given for the minimum IRWST enriched Boron concentrations is not 2400*(19.7/37) = 1280 ppm. Correct the appendix or justify these differences.

RAI 34

Appendix F, "U.S. EPR Anti-Dilution Mitigation"

Figure F-1's abscissa end at 400 ppm, while Figures F-2 and F-3 reach 700 ppm. The AREVA database gives 1026 ppm for the CBC at BOC, HFP conditions (parameter crit_boron_conc_boc_hfp_nom). When this value is corrected for boron enrichment by multiplying by 19.7/37, the result is 547 ppm. Clarify why this point is not considered or included in the Figure F-1.

RAI 35

Appendix G, “Incore Complex Functions-Reactor Trip on High Core Power Level and Low Margin to Saturation”

Figure G-2 doesn’t show any treatment of uncertainty due to calorimetric measurement. Please correct the figure to show that treatment if it is part of the methodology.

RAI 36

Appendix G, “Incore Complex Functions-Reactor Trip on High Core Power Level and Low Margin to Saturation”,

On page G-14 the bias in Figure G-6 is stated as one value, but the figure shows a different bias. Correct the text or the figure so they are consistent.

cc:

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