July 19, 2007

Mr. Ronnie Gardner
Site Operations and Regulatory Affairs Manager
AREVA NP Inc.
3315 Old Forest Road
Lynchburg, VA 24501

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION RE: AREVA NP, INC. TOPICAL REPORT (TR) BAW-10255(P), REVISION 2, "CYCLE-SPECIFIC DIVOM METHODOLOGY USING RAMONA5-FA CODE" (TAC NO. MC9767)

Dear Mr. Gardner:

By letter dated January 30, 2006 (Agencywide Documents Access and Management System Accession No. ML060330513), the Framatome ANP, Inc. (now AREVA NP, Inc.), submitted for U.S. Nuclear Regulatory Commission (NRC) staff review TR BAW-10255(P), Revision 2, "Cycle-Specific DIVOM Methodology Using RAMONA5-FA Code." Upon review of the information provided, the NRC staff has determined that additional information is needed to complete the review. On July 5, 2007, Mr. Jerald S. Holm, Product Licensing Manager, and I agreed that the NRC staff will receive your response to the enclosed Request for Additional Information (RAI) questions by August 11, 2007. If you have any questions regarding the enclosed RAI questions, please contact me at 301-415-1053.

Sincerely,

/RA/

Holly D. Cruz, Project Manager
Special Projects Branch
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

Project No. 728

Enclosure: Request for Additional Information

cc w/encl: See next page

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ADAMS ACCESSION NO.: ML071790166 **NRR-106**

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DATE	7/3/07	7/19/07	7/19/07

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REQUEST FOR ADDITIONAL INFORMATION

BY THE OFFICE OF NUCLEAR REACTOR REGULATION

TOPICAL REPORT (TR) BAW-10255(P), REVISION 2,

"CYCLE-SPECIFIC DIVOM METHODOLOGY

USING THE RAMONA5-FA CODE"

AREVA NP, INC. (AREVA)

PROJECT NO. 728

1. TR BAW-10255(P) states that "…to generate the DIVOM data consistent with their intended application as part of the long term stability solution Option III …." Is the AREVA DIVOM methodology restricted exclusively to Option III, or is it applicable to any generic detect and suppress application?

2. TR BAW-10255(P) includes references to older DIVOM methodology models, including RAMONA3 and XCT-MODES. While the results from analyses using these codes provide useful insight, no detailed information is provided. We assume that AREVA is not intending to license these codes for DIVOM calculation.

3. In Section 2.2.2, TR BAW-10255(P) mentions a "A new modal neutron kinetics module has been installed in RAMONA5-FA, similar to the module used for the XCT-MODES study, which allows better user control over the oscillation mode and improved DIVOM curve calculation quality and efficiency." Provide a short (about 1 page) description of the model implementation.

4. TR BAW-10255(P) mentions that RAMONA5-FA can use two critical heat flux correlations (ANFB-10 or SPCB). Specify the rationale for not choosing a single correlation.

5. Figure 3.4 appears to imply that different oscillation frequencies (+/-20 percent) were used for the simulation; however, the three lines in the plot appear to have the same period. Please explain.

6. Please explain Figure 3-3. How were the correlations "adjusted?"

7. In Section 4.6, "Closing Relations and Correlations," TR BAW-10255(P) states that RAMONA5-FA correlations are a consistent combination of the original RAMONA5-2.4 and MICROBURN-B2 correlations that were successfully tested against pressure drop and void fraction data available at AREVA. Does the correlation database cover the proposed operations at Extended Power Uprate and Maximum Extended Load Line Limit Analysis Plus power/flow ratios? Provide the void fraction levels covered by the correlation set, referred to as the THRP set included in standard AREVA methodology for core design, qualification database.

8. TR BAW-10255(P) states that RAMONA5-FA is a very flexible code that offers a number of possibilities and user settings for DIVOM calculations. When these options are discussed in the licensing TR, a preferred setting for DIVOM calculations is mentioned. Provide a single table where all the RAMONA5-FA optional settings for DIVOM calculations are summarized. Verify that the DIVOM qualification database is consistent with the recommended settings.

9. In Section 4.6.3, TR BAW-10255(P) states that a consistent set of non-equilibrium phase change parameter settings is used. These parameters were based on comparisons with loop results for ATRIUM-10 fuel, taken from AREVA's Karlstein Thermal Hydraulic (KATHY) test facility located in Karlstein, Germany. Provide one example of void fraction benchmark.

10. Section 7.0, “DIVOM Methodology Application Procedure,” is very sketchy. Please define the procedure options with more detail, including:

    a. Define the procedure that is used if the hot channel is found unstable in the STAIF calculation (step 3),

    b. Define the procedure that is used to correct the DIVOM point (step 7),

    c. Define the input biases in case the regional oscillation is not excited.

11. Provide detailed analysis to determine the DIVOM slope in the mixed core conditions with respect to any uncertainties in the void reactivity feedback for the legacy bundles which may impact the DIVOM curve for the mixed core applications.