AREVA

March 31, 2006
NRC:06:017

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Request for Review and Approval of BAW-10164(P), Revision 6, "RELAP5/MOD2 - B&W – An Advanced Computer Program for Light Water Reactor LOCA and Non-LOCA Transient Analysis"

AREVA NP requests the NRC's review and approval of BAW-10164(P), Revision 6, "RELAP5/MOD2 - B&W – An Advanced Computer Program for Light Water Reactor LOCA and Non-LOCA Transient Analysis." Attachment A contains the purpose of Revision 6 of the topical report. Attachment B contains a summary of the changes implemented in the revision of the report. Proprietary and non-proprietary versions of the report are provided on the enclosed CDs.

It is our understanding that Duke intends to reference this topical report for Oconee Nuclear Stations 1, 2, and 3 for their transition to the Mark-B-HTP fuel design starting in 2007. AREVA NP therefore requests that the NRC complete its review by April 2007.

AREVA NP considers some of the material contained in the enclosed documents to be proprietary. As required by 10 CFR 2.390(b), an affidavit is enclosed to support the withholding of the information from public disclosure.

Sincerely,

Ronnie L. Gardner, Manager
Site Operations and Regulatory Affairs
Framatome ANP, Inc.

Enclosures

cc: G.S. Shukla
        Project 728

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AFFIDAVIT

COMMONWEALTH OF VIRGINIA   )
) ss.
CITY OF LYNCHBURG   )

1.   My name is Gayle F. Elliott. I am Manager, Product Licensing in Regulatory Affairs, for AREVA NP, and as such I am authorized to execute this Affidavit.

2.   I am familiar with the criteria applied by AREVA NP to determine whether certain AREVA NP information is proprietary. I am familiar with the policies established by AREVA NP to ensure the proper application of these criteria.

3.   I am familiar with Topical Report BAW-10164(P), Revision 6, "RELAP5/MOD2 – B&W – An Advanced Computer Program for Light Water Reactor LOCA and Non-LOCA Transient Analysis," dated January 2006 and referred to herein as "Document." Information contained in this Document has been classified by AREVA NP as proprietary in accordance with the policies established by AREVA NP for the control and protection of proprietary and confidential information.

4.   This Document contains information of a proprietary and confidential nature and is of the type customarily held in confidence by AREVA NP and not made available to the public. Based on my experience, I am aware that other companies regard information of the kind contained in this Document as proprietary and confidential.

5.   This Document has been made available to the U.S. Nuclear Regulatory Commission in confidence with the request that the information contained in this Document be withheld from public disclosure.

6. The following criteria are customarily applied by AREVA NP to determine whether information should be classified as proprietary:

(a) The information reveals details of AREVA NP's research and development plans and programs or their results.

(b) Use of the information by a competitor would permit the competitor to significantly reduce its expenditures, in time or resources, to design, produce, or market a similar product or service.

(c) The information includes test data or analytical techniques concerning a process, methodology, or component, the application of which results in a competitive advantage for AREVA NP.

(d) The information reveals certain distinguishing aspects of a process, methodology, or component, the exclusive use of which provides a competitive advantage for AREVA NP in product optimization or marketability.

(e) The information is vital to a competitive advantage held by AREVA NP, would be helpful to competitors to AREVA NP, and would likely cause substantial harm to the competitive position of AREVA NP.

7. In accordance with AREVA NP's policies governing the protection and control of information, proprietary information contained in this Document has been made available, on a limited basis, to others outside AREVA NP only as required and under suitable agreement providing for nondisclosure and limited use of the information.

8. AREVA NP policy requires that proprietary information be kept in a secured file or area and distributed on a need-to-know basis.

9.   The foregoing statements are true and correct to the best of my knowledge, information, and belief.

SUBSCRIBED before me this _____5 4h_____
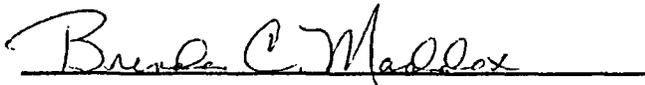
day of ___April___, 2006.

Brenda C. Maddox
NOTARY PUBLIC, COMMONWEALTH OF VIRGINIA
MY COMMISSION EXPIRES: 7/31/07

Attachment A

Purpose of Revision 6 of RELAP5/MOD2-B&W (BAW-10164)

The RELAP5/MOD2-B&W code topical (BAW-10164PA-04) is the blowdown system and hot pin thermal transient code used in the BWNT LOCA EM (BAW-10192PA-00) for B&W-designed plants and the RSG LOCA EM (BAW-10168PA-03) for Westinghouse- and Combustion Engineering-designed plants. Revision 6 of BAW-10164 includes text changes to incorporate the NRC-approved HTP and BHTP CHF forms of the DNB correlation into the code topical report supporting LOCA applications with AREVA NP HTP or Mark-BHTP fuel designs.

The revision is based on the text in the NRC-approved BWNT LOCA EM that states that the CHF correlation used for the fuel DNB analyses will be used for the LOCA applications. Applications with the NRC-approved RSG LOCA EM use a DNB correlation that is applicable to the specific fuel design, although it is not explicitly required by the EM text. Given the BWNT LOCA EM text and general methods used for the RSG LOCA EM, the new NRC-approved BHTP CHF correlation was added into RELAP5/MOD2-B&W. It has already been generically added to the BWNT LOCA EM via the 50.46 reporting process in 2003 and applied to the Mark-BHTP LOCA applications for Crystal River-3, Arkansas Nuclear One-1, and Davis-Besse-1 units. This code topical revision has been prepared to formally document this new CHF option and the application methods.

There are other minor changes described in Revision 6 of the RELAP5 code topical that include several typographical error corrections and also user-input options for the coefficients and ranges of applications used in the general forms of the HTP, BHTP, or BWU CHF correlations. The general CHF options were added to the RELAP5 code to potentially facilitate future changes in the coefficients applied to these universal correlation forms without requiring a revision to the code topical report. These could possibly be used to accommodate minor fuel design modifications or coefficient changes related to refitting or tuning the correlations with additional DNB data that may span larger data ranges. Note that any future LOCA applications using the user-input coefficients for any of the CHF options would be based on DNB methods that were supported by other documentation submitted to the NRC for approval.

The changes incorporated into BAW-10164 Revision 6, which are summarized in the following table, are based on the NRC-approved Revision 4 of the topical. Revision 5 of BAW-10164 was submitted to the NRC to support a BWNT or RSG LOCA EM change that would have used RELAP5/MOD2-B&W to perform the system reflood analyses. It was subsequently withdrawn by AREVA NP.

Attachment B

Listing of Changes Implemented in Revision 6 of RELAP5/MOD2-B&W Topical Report

Page	Type/Change	Item	Reason
—	Revision	Cover Page	Revision & Date
i-ii	Revision	Abstract	Revision & Date
vi	Revision	Topical Revision Record	Update topical revision. It should be noted that Rev. 5 was not approved and the associated Rev. 5 change pages are not included in Rev. 6.
2.3-30	Revision	Equation for K_{gas}	Corrected indices on second summation consistent with Subroutine GASTHC.
2.3-36	Revision	Description of ε_{TC}	Corrected the text to refer to the clad thermal expansion.
2.3-64	Revision	Figure 2.3.3-1 c)	Additional CHF options listed.
2.3-67 to 2.3-68	Revision	CHF Correlation Selection	Additional CHF options listed.
2.3-78	Revision	Cl_{SE} Factor	Corrected units.
2.3-80	Revision	CHF Correlations	Additional CHF options listed.
2.3-83.1 to 2.3-83.9	Addition	CHF Correlations	Additional BWU CHF option as a code convenience for use of future approved coefficients. Incorporation of approved BHTP CHF model. Additional BHTP CHF option as a code convenience for use of future approved coefficients.
4-15	Revision	References	Addition of References
F-4	Revision	CHF Correlation Flags	Additional CHF options listed.