



444 South 16th Street Mall
Omaha NE 68102-2247

LIC-05-0106
September 30, 2005

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

Reference: 1. Docket No. 50-285
2. EMF-2087(P)(A), Revision 0, "SEM/PWR-98: ECCS Evaluation Model for PWR LBLOCA Applications," Siemens Power Corporation, June 1999
3. EMF-2103(P)(A), Revision 0, "Realistic Large Break LOCA Methodology," Framatome ANP, Inc., April 2003.
4. Letter from Ross Ridenoure (OPPD) to Document Control Desk (NRC), "Fort Calhoun Station Unit No. 1 - License Amendment Request to Support Use of M5 Fuel Cladding, and 10 CFR 50.46 and 10 CFR Appendix K Exemption Request," (LIC-05-0089) (ML05224083).

SUBJECT: Fort Calhoun Station Unit No. 1 - License Amendment Request to Support Use of AREVA Realistic Large Break Loss of Coolant Accident Methodology

Pursuant to 10 CFR 50.90, Omaha Public Power District (OPPD) hereby requests the following change to the Fort Calhoun Station Unit No. 1 (FCS) licensing basis. OPPD proposes to replace EMF-2087(P)(A), Revision 0, "SEM/PWR-98: ECCS Evaluation Model for PWR LBLOCA Applications," Siemens Power Corporation, June 1999 (Reference 2), with the AREVA Topical Report EMF-2103(P)(A), "Realistic Large Break LOCA Methodology," Framatome ANP, Inc. (Reference 3) in the FCS Core Operating Limit Report (COLR). Currently, fuel for the FCS is supplied by AREVA. AREVA has performed an FCS-specific large break loss of coolant accident analysis using their Realistic LBLOCA methodology for Cycle 24 and beyond. The proposed license amendment request would add this RLBLOCA methodology to the list of analytical methods provided in the FCS COLR and OPPD topical report OPPD-NA-8303. OPPD concludes that the proposed amendment presents no significant hazards considerations under the standards set forth in 10 CFR 50.92(c).

In Reference 4, OPPD specified that AREVA is performing a plant-specific RLBLOCA for FCS using approved RLBLOCA methodology (Reference 3) and that OPPD planned to submit a separate, but related license amendment request based on the AREVA RLBLOCA analysis. This submittal constitutes that license amendment request.

Attachment 1 provides the No Significant Hazards Evaluation and the technical bases for this requested change to the FCS COLR. Attachments 2 and 3 contain the marked-up (changes shown in italics) and clean-typed FCS COLR page reflecting the requested changes, respectively. This FCS COLR page is provided for information only.

APD

Attachment 4 provides the AREVA proprietary authorization affidavit supporting the FCS specific RLBLOCA analysis. This affidavit will form the basis on which the NRC may withhold the information from public disclosure based on considerations listed in 10 CFR 2.390.

Attachment 5 to this submittal is the proprietary version of the AREVA RLBLOCA analysis summary report for the FCS Unit No. 1. The proprietary information in the report is enclosed in brackets. OPPD requests that Attachment 5 which is proprietary to AREVA be withheld from public disclosure in accordance with 10 CFR 2.390. For information on the proprietary aspects of the items listed above, please reference the affidavit and address any correspondence to Ms. Gayle F. Elliot, Manager, Product Licensing, Framatome ANP Inc., 3315 Old Forest Road, Lynchburg, VA 24501.

The non-proprietary version of the AREVA RLBLOCA analysis report for FCS is enclosed as Attachment 6.

The proposed change has been evaluated in accordance with 10 CFR 50.91(a)(1) using criteria in 10 CFR 50.92(c) and it has been determined that this change involves no significant hazards considerations. The bases for these determinations are included in Attachment 1.

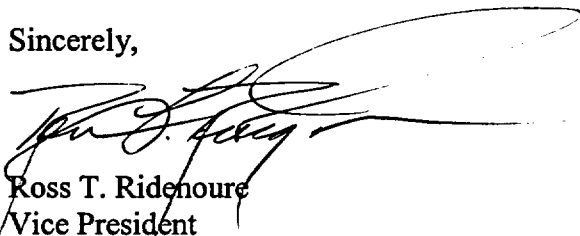
The NRC has approved similar changes for North Anna Units 1 and 2, which are Westinghouse plants.

OPPD requests approval of the proposed amendment by July 15, 2006 to support fuel procurement and core design for the fall 2006 refueling outage, as well as support Cycle 24 core loading and operation. OPPD requests 180 days to implement this amendment. No commitments are made to the NRC in this letter.

I declare under penalty of perjury that the foregoing is true and correct. (Executed on September 30, 2005)

If you have any questions or require additional information, please contact Mr. Thomas R. Byrne at (402) 533-7368.

Sincerely,



Ross T. Ridenoure
Vice President

Attachments:

1. Evaluation of the proposed change(s)
2. Markup of Core Operating Limit Report Page
3. Clean Typed Core Operating Limit Report Page
4. AREVA Affidavit
5. AREVA Proprietary Report
6. AREVA Non-Proprietary Report

c: Division Administrator – Public Health Assurance, State of Nebraska

ATTACHMENT 1

Fort Calhoun Station Unit No. 1 – License Amendment Request to Support Use of AREVA Realistic Large Break Loss of Coolant Accident Methodology

Evaluation of the proposed change(s)

Attachment 1

Fort Calhoun Station Unit No. 1 – License Amendment Request to Support Use of AREVA Realistic Large Break Loss of Coolant Accident Methodology

Evaluation of the proposed change(s)

- 1.0 DESCRIPTION**
- 2.0 PROPOSED CHANGE**
- 3.0 BACKGROUND**
- 4.0 TECHNICAL ANALYSIS**
- 5.0 REGULATORY ANALYSIS**
 - 5.1 No Significant Hazards Consideration**
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- 6.0 ENVIRONMENTAL CONSIDERATION**
- 7.0 PRECEDENCE**
- 8.0 REFERENCES**

Fort Calhoun Station Unit No. 1 – License Amendment Request to Support Use of AREVA Realistic Large Break Loss of Coolant Accident Methodology

1.0 DESCRIPTION

This letter is a request to amend Operating License DPR-40 for Fort Calhoun Station Unit No. 1 (FCS). OPPD proposes to replace EMF-2087(P)(A), Revision 0, "SEM/PWR-98: ECCS Evaluation Model for PWR LBLOCA Applications," Siemens Power Corporation, June 1999 (Reference 8.6), with the AREVA Topical Report EMF-2103(P)(A), "Realistic Large Break LOCA Methodology," Framatome ANP, Inc. (Reference 8.1) in the FCS COLR. AREVA Topical Report EMF-2103(P)(A) will also replace EMF-2087(P)(A) in OPPD topical report OPPD-NA-8303 (Reference 8.5). The COLR will also reflect the revision number change for OPPD topical report OPPD-NA-8303 (Reference 8.5). This amendment will enable FCS to use AREVA RLBLOCA methodology for its LBLOCA analysis starting with Cycle 24 operation. This amendment is being requested since the currently approved 10 CFR 50 Appendix K LOCA analysis methodology for FCS is not approved for M5TM clad fuel assemblies.

Technical Specification (TS) 5.9.5.b contains a list of documents that describe the analytical methods that may be used to determine the core operating limits. TS 5.9.5.b also states that these methods shall be those previously reviewed and approved by the NRC and that the approved version shall be identified in the COLR. Reference 8.7 approved the movement of many core reload methodology references to OPPD core reload analysis methodology documents OPPD-NA-8301, 8302, and 8303 (References 8.3, 8.4, and 8.5). Therefore, OPPD proposes to change the FCS COLR and OPPD topical report OPPD-NA-8303 (Reference 8.5) to include the AREVA Topical Report on RLBLOCA methodology (Reference 8.1), consistent with the allowances of Reference 8.7.

2.0 PROPOSED CHANGE

OPPD proposes to replace EMF-2087(P)(A), Revision 0, "SEM/PWR-98: ECCS Evaluation Model for PWR LBLOCA Applications," Siemens Power Corporation, June 1999 (Reference 8.6), with the AREVA Topical Report EMF-2103(P)(A), "Realistic Large Break LOCA Methodology," Framatome ANP, Inc. (Reference 8.1) in the FCS COLR. AREVA Topical Report EMF-2103(P)(A) will also replace EMF-2087(P)(A) in OPPD topical report OPPD-NA-8303 (Reference 8.5). The COLR will also reflect the revision number change for OPPD topical report OPPD-NA-8303 (Reference 8.5).

An OPPD License Amendment Request (Reference 8.2) already proposed to add the AREVA topical report on M5TM clad fuel (BAW-10240(P)(A), "*Incorporation of M5TM Properties in Framatome ANP Approved Methods*," as Item 10 in TS 5.9.5.b.

In summary, OPPD proposes to modify the FCS COLR and OPPD topical report OPPD-NA-8303 (Reference 8.5) to permit the use of the AREVA RLBLOCA analysis methodology for FCS. This is being done since the currently approved 10 CFR 50 Appendix K LOCA analysis methodology for FCS is not approved for M5TM clad fuel assemblies.

3.0 BACKGROUND

OPPD has previously proposed to amend the FCS TS to permit the use of the AREVA M5TM advanced alloy as fuel rod cladding and fuel assembly structural components (Reference 8.2). AREVA performed a plant-specific RLBLOCA for FCS using approved RLBLOCA methodology (Reference 8.1).

The NRC Safety Evaluation Report (SER) for the RLBLOCA methodology, EMF-2103(P)(A) (Reference 8.1) concludes, "a generic topical report describing a code such as S-RELAP5 cannot provide full justification for each specific individual plant application." The SER further concludes, "When a license amendment is necessary in order to use the S-RELAP5-based RLBLOCA methodology, the individual licensee or applicant must provide justification for the specific application of the code which is expected to include nodalization, chosen parameters and conservative nature of input parameters and calculated results." The justification must include plant-specific analyses, including the calculated worst break size, peak cladding temperature (PCT), and local and total oxidation.

4.0 TECHNICAL ANALYSIS

AREVA has performed the RLBLOCA analysis for FCS using the NRC approved RLBLOCA methodology (Reference 8.1). An explanation of the analysis and the results are presented in Attachment 5 (proprietary version) and in Attachment 6 (non-proprietary version).

The analysis represents a large break LOCA methodology change from deterministic to realistic and a fuel design change (from the current CE-HTP 14x14 design using Zr-4 cladding to the Advanced CE14 High Thermal Performance (HTP) design using M5TM cladding). The non-parametric statistical methods inherent in the AREVA RLBLOCA methodology provide for consideration of a full spectrum of break sizes, break configuration (guillotine or split break), axial power shapes, and plant operational parameters. A conservative single-failure assumption is applied in which the negative effects of the loss of a train of Emergency Core Cooling System (ECCS) pumped injection is simulated. Regardless of the single-failure assumption, all containment

pressure-reducing systems are assumed fully functional. The effects of gadolinia-bearing fuel rods and peak fuel rod exposures are considered.

Analysis results show that the limiting AREVA fuel case has a PCT of 1,675°F, and a maximum oxidation thickness and hydrogen generation that fall well within regulatory requirements.

The analysis has thus concluded that for a large break LOCA, the 10 CFR 50.46(b) criteria that are specified in Section 3.0 of AREVA report (Attachment 5) are met and operation of FCS with AREVA-supplied Advanced CE14 HTP M5™ clad fuel is justified.

This proposed amendment does not involve application or use of risk-informed decisions.

5.0 REGULATORY SAFETY ANALYSIS

5.1 NO SIGNIFICANT HAZARDS CONSIDERATION

OPPD has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

1. **Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?**

Response: No.

The proposed amendment replaces EMF-2087(P)(A), Revision 0, "SEM/PWR-98: ECCS Evaluation Model for PWR LBLOCA Applications," Siemens Power Corporation, June 1999 (Reference 8.6), with the AREVA Topical Report EMF-2103(P)(A), "Realistic Large Break LOCA Methodology," Framatome ANP, Inc. (Reference 8.1) in the FCS COLR. AREVA Topical Report EMF-2103(P)(A) will also replace EMF-2087(P)(A) in OPPD topical report OPPD-NA-8303 (Reference 8.5). This amendment will allow the use of the RLBLOCA methodology to perform the FCS LBLOCA analysis. The proposed amendment will not affect any previously evaluated accidents because they are analyzed using applicable NRC approved methodologies to ensure all required safety limits are met. The proposed amendment does not affect any acceptance criteria for any postulated accidents or anticipated operational occurrences (AOOs) analyzed and listed in the FCS Updated Safety Analysis Report (USAR). The proposed change will not increase the likelihood of a malfunction of a structure, system or components (SSC) since the change does not involve operation of SSCs in a manner or configuration different from those previously evaluated.

The results from the FCS RLBLOCA analysis have demonstrated the adequacy of the ECCS, and these results satisfy the regulatory criteria set forth in 10 CFR 50.46(b).

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. **Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?**

Response: No.

The proposed change does not result in changes in the operation or overall configuration of the facility. The proposed amendment does not involve a change in the design function or the operation of SSCs involved. The proposed amendment does not involve the operation or configuration of the SSCs different from those previously analyzed. The proposed amendment to add the RLBLOCA methodology to the FCS COLR and OPPD topical report OPPD-NA-8303 (Reference 8.5) does not create any new or different kind of accident.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. **Does the proposed change involve a significant reduction in a margin of safety?**

Response: No.

AREVA has performed the RLBLOCA analysis for FCS and demonstrated that the Emergency Core Cooling System (ECCS) is adequate to mitigate the consequences of a LBLOCA. The analysis has concluded that the acceptance criteria for the ECCS are met with significantly *increased* margins.

All required safety limits will continue to be analyzed using methodologies approved by the Nuclear Regulatory Commission.

Therefore, the proposed amendment does not involve a significant reduction in a margin of safety.

Based on the above, OPPD concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

5.2 APPLICABLE REGULATORY REQUIREMENTS/CRITERIA

The proposed changes have been evaluated to determine whether applicable regulations and requirements continue to be met.

5.2.1 Regulations

The proposed amendment to enable use of the AREVA RLBLOCA methodology for the FCS LBLOCA analysis must comply with 10 CFR 50.46 *Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors*, 10 CFR 50, Appendix K, *ECCS Evaluation Models*, and 10 CFR 50, Appendix A, *General Design Criteria for Nuclear Power Plants*.

5.2.2 Design Basis

The proposed change to use the AREVA RLBLOCA methodology will not affect the design bases of the plant except for the specific use of the LBLOCA methodology and is therefore acceptable. The AOOs and postulated accidents listed in Chapter 14 of the FCS USAR are either analyzed or dispositioned for each cycle of operation. All incidents listed in Chapter 14 of the USAR including LBLOCA are analyzed using NRC approved methodologies to show that no specified acceptable fuel design limits (SAFDL) are exceeded. To assure that adequate protection is provided for the public, conservative assumptions are incorporated into the analyses.

5.2.3 Approved Methodologies

NRC-approved AREVA topical report EMF-2103(P)(A) (Reference 8.1) is proposed to be used for LBLOCA analysis for FCS.

An overview of NRC-approved OPPD methodology for FCS reload core analysis is included in OPPD-NA-8301, Revision 8, *Omaha Public Power District Reload Core Analysis Methodology Overview* (Reference 8.3). Neutronics design methods implemented for FCS core reload analysis are described in the NRC-approved document, OPPD-NA-8302, Revision 7, *Omaha Public Power District Reload Core Analysis Methodology, Neutronics Design Methods and Verification* (Reference 8.4). Use of these documents was approved by the NRC in Reference 8.7. FCS core thermal hydraulics, transient and accident analysis methods and computer codes for core reload analysis are described in OPPD-NA-8303, Revision 7, *Omaha Public Power District Reload Core Analysis Methodology Transient and Accident Methods and Verification* (Reference 8.5), use of which is contingent on NRC approval of this amendment request.

5.2.4 Analysis

AREVA has performed the LBLOCA analysis for FCS using the AREVA RLBLOCA methodology (Reference 8.1). This analysis is for application to Cycle 24 and beyond, using AREVA advanced CE14 High Thermal Performance (HTP) fuel using M5TM cladding material (Reference 8.2). The results are described in Attachments 5 and 6.

5.2.5 Conclusion

In conclusion, based on the considerations discussed above: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security.

6.0 ENVIRONMENTAL CONSIDERATION

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20 or which changes an inspection or a surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

7.0 PRECEDENCE

- 7.1 Letter from Stephen Monarque (NRC) to David A. Christian (Virginia Electric and Power Company) dated April 1, 2004, North Anna Power Station, Unit 2 - Issuance of Amendment Re: Use of Framatome ANP Advanced Mark-BW Fuel (TAC NO. MB4715) (ML040960040)

8.0 REFERENCES

- 8.1 EMF-2103(P)(A), Revision 0, "Realistic Large Break LOCA Methodology for Pressurized Water Reactors," Framatome ANP, Inc., April 2003.
- 8.2 Letter from Ross Ridenoure (OPPD) to Document Control Desk (NRC), "Fort Calhoun Station Unit No. 1 - License Amendment Request to Support Use of M5 Fuel Cladding, and 10 CFR 50.46 and 10 CFR Appendix K Exemption Request," (LIC-05-0089) (ML05224083).
- 8.3 OPPD-NA-8301, Revision 8, "Omaha Public Power District Reload Core Analysis Methodology Overview."
- 8.4 OPPD-NA-8302, Revision 6, "Omaha Public Power District Reload Core Analysis Methodology, Neutronics Design Methods and Verification."
- 8.5 OPPD-NA-8303, Revision 7, "Omaha Public Power District Reload Core Analysis Methodology, Transient and Accident Methods and Verification" (contingent on approval of this amendment request).
- 8.6 EMF-2087(P)(A), Revision 0, "SEM/PWR: ECCS Evaluation Model for PWR LBLOCA Applications," Siemens Power Corporation, June 1999.
- 8.7 Letter from Alan B. Wang (NRC) to R. T. Ridenoure (OPPD) dated March 11, 2005, Fort Calhoun Station , Unit No. 1 – Issuance of Amendment 233, (NRC-05-0031) (ML050750534).

ATTACHMENT 2

Fort Calhoun Station Unit No. 1 – License Amendment Request to Support Use of AREVA Realistic Large Break Loss of Coolant Accident Methodology

Markup of Core Operating Limit Report Page

The values and limits presented within this TDB section have been derived using the NRC approved methodologies listed below:

- OPPD-NA-8301, "Reload Core Analysis Methodology Overview," Rev. 8, dated August 2004. (TAC No. MC4304)
- OPPD-NA-8302, "Reload Core Analysis Methodology, Neutronics Design Methods and Verification," Rev. 6, dated August 2004. (TAC No. MC4304)
- OPPD-NA-8303, "Reload Core Analysis Methodology, Transient and Accident Methods and Verification," Rev. 6, dated August 2005.
- XN-75-32(P)(A) Supplements 1, 2, 3, & 4, "Computational Procedure for Evaluating Fuel Rod Bowing," October 1983.
- XN-NF-82-06(P)(A) and Supplements 2, 4, and 5, "Qualification of Exxon Nuclear Fuel for Extended Burnup," Revision 1, October 1986.
- XN-NF-85-92(P)(A), "Exxon Nuclear Uranium Dioxide/Gadolinia Irradiation Examination and Thermal Conductivity Results," August 1985.
- ANF-88-133(P)(A) and Supplement 1, "Qualification of Advanced Nuclear Fuels PWR Design Methodology for Rod Burnups of 62 GWd/MTU," December 1991.
- EMF-92-116(P)(A), "Generic Mechanical Design Criteria for PWR Fuel Designs," Revision 0, February 1999.
- XN-NF-78-44(P)(A), "A Generic Analysis of the Control Rod Ejection Transient for Pressurized Water Reactors," October 1983.
- XN-NF-82-21(P)(A), "Application of Exxon Nuclear Company PWR Thermal Margin Methodology to Mixed Core Configurations," Revision 1, September 1983.
- EMF-1961(P)(A), "Statistical Setpoint/Transient Methodology for Combustion Engineering Type Reactors," Revision 0, July 2000.
- ANF-89-151(P)(A), "ANF-RELAP Methodology for Pressurized Water Reactors: Analysis of Non-LOCA Chapter 15 Events," Revision 0, May 1992.
- EMF-92-153(P)(A) and Supplement 1, "HTP: Departure from Nucleate Boiling Correlation for High Thermal Performance Fuel," March 1994.
- XN-NF-82-49(P)(A), Supplement 1, "Exxon Nuclear Company Evaluation Model Revised EXEM PWR Small Break Model," Revision 1, December 1994.
- ~~EMF-2087(P)(A), Revision 0, "SEM/PWR-98: ECCS Evaluation Model for PWR LBLOCA Applications," Siemens Power Corporation, June 1999~~
- *EMF-2103(P)(A), "Realistic Large Break LOCA Methodology for Pressurized Water Reactors," Revision 0, April 2003.*
- EMF-2328(P)(A), "PWR Small Break LOCA Evaluation Model, S-RELAP5 Based," Framatome ANP, Inc., Revision 0, March 2001.
- EMF-96-029(P)(A) Volume 1, EMF-96-029(P)(A) Volume 2, EMF-96-029(P)(A) Attachment, "Reactor Analysis System for PWRs, Volume 1 – Methodology Description, Volume 2 – Benchmarking Results," Framatome ANP, Inc., January 1997.
- EMF-2310(P)(A), "SRP Chapter 15 Non-LOCA Methodology for Pressurized Water Reactors," Framatome ANP, Inc., Revision 1, May 2004

ATTACHMENT 3

Fort Calhoun Station Unit No. 1 – License Amendment Request to Support Use of AREVA Realistic Large Break Loss of Coolant Accident Methodology

Clean Typed Core Operating Limit Report Page

The values and limits presented within this TDB section have been derived using the NRC approved methodologies listed below:

- OPPD-NA-8301, "Reload Core Analysis Methodology Overview," Rev. 8, dated August 2004. (TAC No. MC4304)
- OPPD-NA-8302, "Reload Core Analysis Methodology, Neutronics Design Methods and Verification," Rev. 6, dated August 2004. (TAC No. MC4304)
- OPPD-NA-8303, "Reload Core Analysis Methodology, Transient and Accident Methods and Verification," Rev. 7, dated August 2005.
- XN-75-32(P)(A) Supplements 1, 2, 3, & 4, "Computational Procedure for Evaluating Fuel Rod Bowing," October 1983.
- XN-NF-82-06(P)(A) and Supplements 2, 4, and 5, "Qualification of Exxon Nuclear Fuel for Extended Burnup," Revision 1, October 1986.
- XN-NF-85-92(P)(A), "Exxon Nuclear Uranium Dioxide/Gadolinia Irradiation Examination and Thermal Conductivity Results," August 1985.
- ANF-88-133(P)(A) and Supplement 1, "Qualification of Advanced Nuclear Fuels PWR Design Methodology for Rod Burnups of 62 GWd/MTU," December 1991.
- EMF-92-116(P)(A), "Generic Mechanical Design Criteria for PWR Fuel Designs," Revision 0, February 1999.
- XN-NF-78-44(P)(A), "A Generic Analysis of the Control Rod Ejection Transient for Pressurized Water Reactors," October 1983.
- XN-NF-82-21(P)(A), "Application of Exxon Nuclear Company PWR Thermal Margin Methodology to Mixed Core Configurations," Revision 1, September 1983.
- EMF-1961(P)(A), "Statistical Setpoint/Transient Methodology for Combustion Engineering Type Reactors," Revision 0, July 2000.
- ANF-89-151(P)(A), "ANF-RELAP Methodology for Pressurized Water Reactors: Analysis of Non-LOCA Chapter 15 Events," Revision 0, May 1992.
- EMF-92-153(P)(A) and Supplement 1, "HTP: Departure from Nucleate Boiling Correlation for High Thermal Performance Fuel," March 1994.
- XN-NF-82-49(P)(A), Supplement 1, "Exxon Nuclear Company Evaluation Model Revised EXEM PWR Small Break Model," Revision 1, December 1994.
- EMF-2103(P)(A), "Realistic Large Break LOCA Methodology for Pressurized Water Reactors," Revision 0, April 2003.
- EMF-2328(P)(A), "PWR Small Break LOCA Evaluation Model, S-RELAP5 Based," Framatome ANP, Inc., Revision 0, March 2001.
- EMF-96-029(P)(A) Volume 1, EMF-96-029(P)(A) Volume 2, EMF-96-029(P)(A) Attachment, "Reactor Analysis System for PWRs, Volume 1 – Methodology Description, Volume 2 – Benchmarking Results," Framatome ANP, Inc., January 1997.
- EMF-2310(P)(A), "SRP Chapter 15 Non-LOCA Methodology for Pressurized Water Reactors," Framatome ANP, Inc., Revision 1, May 2004

ATTACHMENT 4

Fort Calhoun Station Unit No. 1 – License Amendment Request to Support Use of AREVA Realistic Large Break Loss of Coolant Accident Methodology

AREVA Affidavit

AFFIDAVIT

COMMONWEALTH OF VIRGINIA)
) ss.
CITY OF LYNCHBURG)

1. My name is Gayle F. Elliott. I am Manager, Product Licensing in Regulatory Affairs, for Framatome ANP ("FANP"), and as such I am authorized to execute this Affidavit.

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

3. I am familiar with document BAW-2502(P), Revision 0, "Realistic Large Break LOCA Summary Report," dated September 2005 and referred to herein as "Document." Information contained in this Document has been classified by FANP as proprietary in accordance with the policies established by FANP 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 FANP 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.

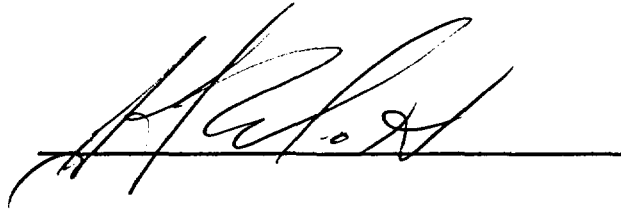
6. The following criteria are customarily applied by FANP to determine whether information should be classified as proprietary:

- (a) The information reveals details of FANP'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 FANP.
- (d) The information reveals certain distinguishing aspects of a process, methodology, or component, the exclusive use of which provides a competitive advantage for FANP in product optimization or marketability.
- (e) The information is vital to a competitive advantage held by FANP, would be helpful to competitors to FANP, and would likely cause substantial harm to the competitive position of FANP.

7. In accordance with FANP'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 FANP only as required and under suitable agreement providing for nondisclosure and limited use of the information.

8. FANP 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.

A handwritten signature in black ink, appearing to be "H. R. H.", written over a horizontal line.

SUBSCRIBED before me this 1st
day of September, 2005.

Wanda L. Wade

Wanda L. Wade
NOTARY PUBLIC, COMMONWEALTH OF VIRGINIA
MY COMMISSION EXPIRES: August 31, 2009

