Tennessee Valley Authority, Post Office Box 2000, Decatur, Alabama 35609-2000

November 21, 2000

TVA-BFN-TS-396

10 CFR 50.90
10 CFR 2.790

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Gentlemen:

In the Matter of)
Tennessee Valley Authority)

Docket No. 50-260

BROWNS FERRY NUCLEAR PLANT (BFN) - UNIT 2 - TECHNICAL SPECIFICATIONS (TS) CHANGE 396 - REVISED SAFETY LIMIT MINIMUM CRITICAL POWER RATIO (SLMCPR) (TAC NO. MB0436)

In accordance with the provisions of 50.90, TVA is submitting a request for an amendment (TS-396) to facility operating license DPR-52 to change the TS for BFN Unit 2. The proposed change revises the Reactor Core Safety Limit MCPR in TS Section 2.1.1.2 from 1.10 to 1.07 for two reactor recirculation loop operation and from 1.12 to 1.10 for single loop operation. The change is requested to support the Unit 2, Cycle 12 reload fuel cycle analysis which utilizes the Global Nuclear Fuels (GNF) licensing document, *General Electric Standard Application for Reactor Fuel*, GESTAR-II, Amendment 25, dated June 2000. GESTAR-II, Amendment 25 which has been approved by NRC, describes an improved methodology which results in a reduction in the SLMCPR while continuing to meet the fuel cycle design requirements of General Design Criterion 10 of Appendix A to 10 CFR 50. Use of the improved methodology allows the design of a more efficient and economic fuel cycle which TVA estimates the methodology will ultimately result in a cost savings of approximately $300,000 per reload fuel cycle.

AP01

***** This letter contains proprietary information *****

TVA has determined that there are no significant hazards considerations associated with the proposed change and that the change is exempt from environmental review pursuant to the provisions of 10 CFR 51.22(c)(9). The BFN Plant Operations Review Committee and the BFN Nuclear Safety Review Board have reviewed this proposed change and determined that operation of BFN Unit 2 in accordance with the proposed change will not endanger the health and safety of the public. Additionally, in accordance with 10 CFR 50.91(b)(1), TVA is sending a copy of this letter and enclosures to the Alabama State Department of Public Health.

Enclosure 1 to this letter provides the description and evaluation of the proposed change. This includes TVA's determination that the proposed change does not involve a significant hazards consideration, and is exempt from environmental review. Enclosure 2 contains a marked up copy of the applicable TS section reflecting the proposed change. A non-proprietary version of a letter report prepared by GNF in support of the proposed change is provided in Enclosure 3. Enclosure 4 provides a proprietary version of the same report. GNF has requested that the proprietary report be withheld from public disclosure pursuant to 10 CFR 2.790. Accordingly, an application and affidavit as required by 10 CFR 2.790(b)(1) is also contained in Enclosure 4.

TVA requests that the proposed TS change be issued by March 10, 2001, and that the revised TS be made effective within 30 days of NRC approval. If you have any questions about this change, please telephone me at (256) 729-2636.

Sincerely,

T. E. Abney
Manager of Licensing
and Industry Affairs

Subscribed and sworn to before me
on this 21st day of November 2000.

Barbara A. Stanton
Notary Public

My Commission Expires 9/22/2002

Enclosures
cc: See page 3

Enclosures
cc (Enclosures):

Chairman (w/o Enclosures)
Limestone County Commission
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ENCLOSURE 1

TENNESSEE VALLEY AUTHORITY
BROWNS FERRY NUCLEAR PLANT (BFN)
UNIT 2

PROPOSED TECHNICAL SPECIFICATIONS (TS) CHANGE TS-396
DESCRIPTION AND EVALUATION OF THE PROPOSED CHANGE

I. DESCRIPTION OF THE PROPOSED CHANGE

The proposed change to Unit 2 TS section 2.1.1.2 revises the Reactor Core Safety Limit Minimum Critical Power Ratio (SLMCPR) to 1.07 and 1.10 for dual and single recirculation loop operation, respectively. The specific changes are described below. (Deleted and added text are indicated by ~~strikeouts~~ and ***bold italics***, respectively.)

The current Reactor Core Safety Limit, 2.1.1.2 on page 2.0-1 for Units 2 is revised to read as follows:

2.1.1.2 With the reactor steam dome pressure ≥ 785 psig and core flow ≥ 10% rated core flow:

MCPR shall be ≥ ~~1.10~~ ***1.07*** for two recirculation loop operation or ≥ ~~1.12~~ ***1.10*** for single loop operation.

II. REASON FOR THE PROPOSED CHANGE

The SLMCPR values for the current BFN Unit 2 fuel cycle are based upon the cycle-specific procedures and analytical methodologies referenced in Global Nuclear Fuels (GNF) licensing document, *General Electric Standard Application for Reactor Fuel (GESTAR-II)*, NEDE-24011-P-A, Revision 13 dated August 1996 and the US Supplement, NEDE-24011-P-A-US, dated August 1996. The reload analysis for the upcoming fuel cycle is based upon updated methodology and procedures which incorporate reduced power distribution uncertainties described in GESTAR-II, Revision 14 (Amendment 25) dated June 2000 and Licensing Topical Reports NEDC-32601P-A, "*Methodology and Uncertainties for Safety Limit MCPR Evaluations*" and NEDC-32694P-A, "*Power Distribution Uncertainties for Safety Limit MCPR Evaluation.*" (References 1-3) Application of the updated methodology to the design of Unit 2, Cycle 12 results in a revised TS SLMCPR.

III. SAFETY ANALYSIS

Background

General Design Criterion 10 requires, and SLs ensure, that specified acceptable fuel design limits are not exceeded during steady state operation, normal operational transients, and abnormal operational transients.

The fuel cladding integrity SL is established such that no fuel damage is calculated to

occur if the limit is not violated. Because fuel damage is not directly observable, a stepback approach is used to establish an SL, such that the MCPR is not less than the limit specified in TS 2.1.1.2. MCPR greater than the specified limit represents a conservative margin relative to the conditions required to maintain fuel cladding integrity. The fuel cladding SL is defined with a margin to the conditions that would produce onset of transition boiling (i.e., MCPR = 1.00). These conditions represent a significant departure from the condition intended by design for planned operation. The MCPR fuel cladding integrity SL ensures that during normal operation and during abnormal operational transients, at least 99.9% of the fuel rods in the core would not experience transition boiling.

Methodology

The SLMCPR is being revised for BFN Unit 2 because of the core design for the upcoming Cycle 12 operations. The reactor core for Cycle 12 will utilize a single GNF fuel bundle design, containing fresh and previously irradiated GE13 type fuel. The current BFN Unit 2 cycle-specific SLMCPR evaluation methodology employs uncertainties associated with the GETAB (Reference 4) thermal analysis basis. In an effort to improve both the economic performance and operational flexibility (i.e., enhanced CPR margin), GNF has developed a revised methodology for applying fuel bundle power uncertainties. GESTAR-II provides the revised methodology for determining the cycle-specific MCPR safety limits. The latest version of GESTAR-II was used for determining the Unit 2, Cycle 12 SLMCPRs. Specifically, Amendment 25 of NEDE-24011-P-A-14, which describes the methodology for determining the SLMCPR, was incorporated in GESTAR-II as of June 2000. The NRC safety evaluation approving Amendment 25 is contained in a letter from the NRC to General Electric dated March 11, 1999 (Reference 5).

The SLMCPRs for Unit 2, Cycle 12 are 1.07 (two-loop operation) and 1.10 (single-loop operation) as shown on the marked up pages in Enclosure 2. Enclosures 3 and 4 contain non-proprietary and proprietary versions of a GNF letter report, Additional Information Regarding the Cycle Specific SLMCPR for Browns Ferry-2 Cycle 12, which provides a results comparison of the cycle 12 analysis utilizing the updated methodology, cycle 12 utilizing the GETAB methodology, and the previous fuel cycle 11 GETAB results. These comparisons demonstrate that the differences between the revised methodology and previous GETAB methodology are expected and statistically consistent. This information is provided to address issues which have been raised by NRC during the review of similar amendments at other facilities.

Precedent exists for the requested change. Similar TS changes referencing the NRC approved GNF methodology have been approved by NRC for Fermi 2 (Reference 6) and Plant Hatch, Units 1 and 2 (Reference 7).

Conclusion

The revised SLMCPR values in the proposed change to TS 2.1.1.2 have been determined using NRC approved methodologies. The SLMCPR analysis establishes revised SLMCPR values that will continue to satisfy the SLMCPR design basis; that during normal operation and during abnormal operational transients, at least 99.9% of the fuel rods in the core do not experience transition boiling. It is therefore concluded that the proposed changes are acceptable.

ENCLOSURE 1

IV. NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

The proposed amendment would change the Browns Ferry Unit 2 Technical Specification (TS) 2.1.1.2 to revise the Safety Limit Minimum Critical Power Ratio (SLMCPR) for the upcoming fuel cycle. The proposed change is supported by the cycle-specific reload analysis performed for Unit 2, Cycle 12 . The analysis utilizes the methodology described in Amendment Number 25 to NEDE-24011-P-A (GESTAR II) and Licensing Topical Reports NEDC-32601P-A, "*Methodology and Uncertainties for Safety Limit MCPR Evaluations*" and NEDC-32694P-A, "*Power Distribution Uncertainties for Safety Limit MCPR Evaluation.*" This improved methodology, which has been approved by NRC, results in reduced power distribution uncertainties, allowing a reduction in the SLMCPR while continuing to meet the fuel cycle design requirements of General Design Criterion 10 of Appendix A to 10 CFR 50.

Basis for proposed no significant hazards consideration determination: As required by 10 CFR 50.91(a), TVA has provided its analysis of the issue of no significant hazards consideration, which is presented below:

A. **The proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.**

The proposed amendment establishes revised SLMCPR values for two recirculation loop operation and for single recirculation loop operation. The probability of an evaluated accident is derived from the probabilities of the individual precursors to that accident. The proposed SLMCPRs preserve the existing margin to transition boiling and the probability of fuel damage is not increased. Since the change does not require any physical plant modifications or physically affect any plant components, no individual precursors of an accident are affected and the probability of an evaluated accident is not increased by revising the SLMCPR values.

The consequences of an evaluated accident are determined by the operability of plant systems designed to mitigate those consequences. The revised SLMCPRs have been performed using NRC-approved methods and procedures. The basis of the MCPR Safety Limit is to ensure no mechanistic fuel damage is calculated to occur if the limit is not violated. These calculations do not change the method of operating the plant and have no effect on the consequences of an evaluated accident. Therefore, the proposed TS change does not involve an increase in the probability or consequences of an accident previously evaluated.

B. **The proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.**

The proposed license amendment involves a revision of the SLMCPR for two recirculation loop operation and for single loop operation based on the results of an analysis of the Cycle 12 core. Creation of the possibility of a new or different kind of accident would require the creation of one or more new precursors of that accident. New accident precursors may be created by modifications of the plant configuration, including changes in the allowable methods of operating the facility. This proposed

license amendment does not involve any modifications of the plant configuration or changes in the allowable methods of operation. Therefore, the proposed TS change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

C. **The proposed amendment does not involve a significant reduction in a margin of safety.**

The margin of safety as defined in the TS bases will remain the same. The new SLMCPRs are calculated using NRC-approved methods and procedures which are in accordance with the current fuel design and licensing criteria. The SLMCPRs remain high enough to ensure that greater than 99.9% of all fuel rods in the core are expected to avoid transition boiling if the limit is not violated, thereby preserving the fuel cladding integrity. Therefore, the proposed TS changes do not involve a reduction in the margin of safety.

IV. ENVIRONMENTAL IMPACT CONSIDERATION

The proposed amendment does not involve a significant hazards consideration, a significant change in the types of or significant increase in the amounts of any effluents that may be released offsite, or a significant increase in individual or cumulative occupational radiation exposure. Therefore, the proposed amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9), and pursuant to 10 CFR 51.22(b), an environmental assessment of the proposed amendment is not required.

ENCLOSURE 1

REFERENCES

1. General Electric Standard Application for Reactor Fuel (GESTAR-II), NEDE-24011-P-A-14, Revision 13 dated June 2000 and the US Supplement, NEDE-24011-P-A-14-US, dated June 2000.
2. Methodology and Uncertainties for Safety Limit MCPR Evaluations, NEDC-32601P-A, August 1999.
3. Power Distribution Uncertainties for Safety Limit MCPR Evaluation, NEDC-32694P-A, August 1999.
4. General Electric BWR Thermal Analysis Basis (GETAB): Data, Correlation and Design Application, NEDO-10958-A, January 1977.
5. Letter from F. Akstulewicz (NRC) to G. A. Watford (GE) dated March 11, 1999, Acceptance for Referencing of Licensing Topical Reports, NEDC-32601P, Methodology and Uncertainties for Safety Limit MCPR Evaluations; NEDC-32694P, Power Distribution Uncertainties for Safety Limit MCPR Evaluation; and Amendment 25 to NEDE-24011-P-A on Cycle-Specific Safety Limit MCPR (TAC Nos. M97490, M99069, and M97491)
6. Letter from A. J. Kugler (NRC) to D. R. Gipson (Detroit Edison Co.) dated March 30, 2000, Fermi 2 - Issuance of Amendment Re: Safety Limit Minimum Critical Power Ratio Limits for Cycle 8 (TAC No. MA7372)
7. Letter from L. N. Olshan (NRC) to H. L. Sumner (Southern Nuclear Operating Co.) dated March 22, 2000, Edwin I. Hatch Nuclear Plant, Units 1 and 2 Re: Issuance of Amendments (TAC Nos. MA6921 and MA6922)

ENCLOSURE 2

TENNESSEE VALLEY AUTHORITY
BROWNS FERRY NUCLEAR PLANT (BFN)
UNIT 2

PROPOSED TECHNICAL SPECIFICATIONS (TS) CHANGE TS-396
MARKED-UP PAGE

I. AFFECTED PAGE LIST

Unit 2 - page 2.0-1

II. MARKED-UP PAGE

See attached.

2.0 SAFETY LIMITS (SLs)

2.1 SLs

2.1.1 Reactor Core SLs

2.1.1.1 With the reactor steam dome pressure < 785 psig or core flow < 10% rated core flow:

THERMAL POWER shall be ≤ 25% RTP.

2.1.1.2 With the reactor steam dome pressure ≥ 785 psig and core flow ≥ 10% rated core flow:

1.07 1.10

MCPR shall be ≥ ~~1.10~~ for two recirculation loop operation or ≥ ~~1.12~~ for single loop operation.

2.1.1.3 Reactor vessel water level shall be greater than the top of active irradiated fuel.

2.1.2 Reactor Coolant System Pressure SL

Reactor steam dome pressure shall be ≤ 1325 psig.

2.2 SL Violations

With any SL violation, the following actions shall be completed within 2 hours:

2.2.1 Restore compliance with all SLs; and

2.2.2 Insert all insertable control rods.

ENCLOSURE 3

TENNESSEE VALLEY AUTHORITY
BROWNS FERRY NUCLEAR PLANT (BFN)
UNIT 2

Global Nuclear Fuels Report Letter Report

Additional Information Regarding the Cycle Specific SLMCPR for Browns Ferry-2 Cycle 12

[Non-Proprietary Version]

Additional Information Regarding the Cycle Specific SLMCPR for Browns Ferry-2 Cycle 12 **October 27, 2000**

References

[1] Letter, Frank Akstulewicz (NRC) to Glen A. Watford (GE), "Acceptance for Referencing of Licensing Topical Reports NEDC-32601P, *Methodology and Uncertainties for Safety Limit MCPR Evaluations*; NEDC-32694P, *Power Distribution Uncertainties for Safety Limit MCPR Evaluation*; and Amendment 25 to NEDE-24011-P-A on Cycle Specific Safety Limit MCPR," (TAC Nos. M97490, M99069 and M97491), March 11, 1999.

[2] Letter, Thomas H. Essig (NRC) to Glen A. Watford (GE), "Acceptance for Referencing of Licensing Topical Report NEDC-32505P, Revision 1, *R-Factor Calculation Method for GE11, GE12 and GE13 Fuel*," (TAC No. M99070 and M95081), January 11, 1999.

[3] *General Electric BWR Thermal Analysis Basis (GETAB): Data, Correlation and Design Application*, NEDO-10958-A, January 1977.

Comparison of Browns Ferry-2 SLMCPR Value

Table 1 summarizes the relevant input parameters and results of the SLMCPR determination for the Browns Ferry-2 Cycle 12 and 11 cores. Table 2 provides a more detailed presentation of the bases and results for the Cycle 12 and Cycle 11 analyses. Figures 1 and 2 provide a core loading map by bundle type for the Cycle 12 and Cycle 11 core loadings. The SLMCPR evaluations were performed using NRC approved methods and uncertainties[2]. These evaluations yield different calculated SLMCPR values because different inputs were used. The quantities that have been shown to have some impact on the determination of the safety limit MCPR (SLMCPR) are provided.

In comparing the Browns Ferry-2 Cycle 12 and 11 SLMCPR values it is important to note the impact of the differences in the core and bundle designs. These differences are summarized in Table 1. The Cycle 11 column and the GETAB power distribution uncertainty column for Cycle 12 are both provided for comparison to the Cycle 12 revised power distribution uncertainty column.

[[ ]]

[[ ]]

The uncontrolled bundle pin-by-pin power distributions were compared between the Browns Ferry-2 Cycle 12 bundles and the Cycle 11 bundles. Pin-by-pin power distributions are characterized in terms of R-factors using the NRC approved methodology[2]. [[ ]]

With a very similar core MCPR distribution between Cycles 11 and 12, and a slightly flatter bundle R-factor distribution in Cycle12 relative to the Cycle 11 bundles, it would be expected that Cycle 12 SLMCPR result would be equal to or slightly greater than the Cycle 11 result. Table 1 shows that when using the same uncertainties, both SLMCPR values are the same. Table 2, which shows these same values to greater precision, confirms that the Cycle 12 results are slightly greater than the Cycle 11 values.

Comparison of the GETAB and Revised Uncertainties

The power distribution and other uncertainties that form the bases for the current TS safety limit for Browns Ferry-2 Cycle 12 are identified in Table 2. Column 2 of Table 2 shows the power distribution and other uncertainties that are the bases for the current TS safety limit for Cycle 11. The revised bases to support the proposed TS change in safety limit for Cycle 12 are identified in column 3b of Table 2. The GETAB bases and values for Cycle 12 are provided for comparison purposes in column 3a. By comparing the values from columns 2 for Cycle 11 and column 3a for Cycle 12, one may see that the calculated SLMCPR for Cycle 12 is slightly higher [[ ]] than the value for Cycle 11 when using the same GETAB model and uncertainties for both calculations.

Next let us shift the focus of our discussion of Table 2 on how the revised model and reduced power distribution uncertainties affect the calculated SLMCPR for Browns Ferry-2 Cycle 12. Bases that have not changed are not reported in either table except where it is important to indicate that the bases have not changed. For these exceptions, the impact on the SLMPCR is indicated as "none" in the rightmost column of Table 2. For the other items where a change in basis is indicated, the calculated impact that each item has on the calculated SLMCPR is indicated.

The impacts from the changes in bases have been grouped into three categories. In each category the shaded cells contain values that sum to produce the total impact for that category indicated in the cell immediately below the shaded cells.

In Section 1 of Table 2 the impact of using the "revised uncertainties not related to power distribution" is indicated as "None" since the same revised uncertainties were used for both the GETAB calculation (Column 3a) and the revised calculation (Column 3b).

[[ ]]

Reduction in the Tech Spec SLMCPRs by these calculated amounts is warranted since the old GETAB value is overly conservative. The excessive conservatism in the GETAB model and inputs is primarily due to the higher TIPSYS uncertainty that is needed to account for monitoring limitations of the P1 process computer. These limitations are not applicable to the 3D MONICORE (3DM) monitoring system. The revised power distribution model and reduced uncertainties associated with 3DM have been justified, reviewed and approved by the NRC (ref. NEDC-32601P-A and NEDC-32694P-A). The conservatism that remains even when applying the revised model and reduced uncertainties to calculate a lower SLMCPR was documented as part of the NRC review and approval. [[ ]]

Summary

The calculated 1.07 Monte Carlo SLMCPR for Browns Ferry-2 Cycle 12 is consistent with what one would expect [[ ]] The 1.07 SLMCPR value is appropriate when the approved methodology and the reduced uncertainties given in NEDC-32601P-A and NEDC-32694P-A are used.

Based on all of the facts, observations and arguments presented above, it is concluded that the calculated SLMCPR value of 1.07 for the Browns Ferry-2 Cycle 12 core is appropriate. For single loop operations (SLO) the calculated safety limit MCPR for the limiting case is 1.10 as determined by specific calculations for Browns Ferry-2 Cycle 12.

Prepared by:

G.D. Galloway
Technical Project Manager
Browns Ferry-2 Project

Verified by:

G.N. Marrotte

Table 1
Comparison of the Browns Ferry-2 Cycle 12 and Cycle 11 SLMCPR

[[ ]]

Table 2 Browns Ferry-2 Cycles 11 and 12 SLMCPR Results Assessment

[[ ]]

Figure 1 Browns Ferry-2 Cycle 12 Core Loading

[[ ]]

Figure 2 Browns Ferry-2 Cycle 11 Core Loading

[[ ]]

ENCLOSURE 4

TENNESSEE VALLEY AUTHORITY
BROWNS FERRY NUCLEAR PLANT (BFN)
UNIT 2

Global Nuclear Fuels Letter Report
and Affidavit

**Additional Information Regarding the
Cycle Specific SLMCPR for Browns Ferry-2 Cycle 12**

[Proprietary Version]

Affidavit

I, Glen A. Watford, being duly sworn, depose and state as follows:

(1) I am Manager, Nuclear Fuel Engineering, Global Nuclear Fuel – Americas, L.L.C. ("GNF-A") and have been delegated the function of reviewing the information described in paragraph (2) which is sought to be withheld, and have been authorized to apply for its withholding.

(2) The information sought to be withheld is contained in the attachment, "Additional Information Regarding the Cycle Specific SLMCPR for Browns Ferry 2 Cycle 12," October 27, 2000.

(3) In making this application for withholding of proprietary information of which it is the owner or licensee, GNF-A relies upon the exemption from disclosure set forth in the Freedom of Information Act ("FOIA"), 5 USC Sec. 552(b)(4), and the Trade Secrets Act, 18 USC Sec. 1905, and NRC regulations 10 CFR 9.17(a)(4) and 2.790(a)(4) for "trade secrets and commercial or financial information obtained from a person and privileged or confidential" (Exemption 4). The material for which exemption from disclosure is here sought is all "confidential commercial information," and some portions also qualify under the narrower definition of "trade secret," within the meanings assigned to those terms for purposes of FOIA Exemption 4 in, respectively, Critical Mass Energy Project v. Nuclear Regulatory Commission, 975F2d871 (DC Cir. 1992), and Public Citizen Health Research Group v. FDA, 704F2d1280 (DC Cir. 1983).

(4) Some examples of categories of information which fit into the definition of proprietary information are:

a. Information that discloses a process, method, or apparatus, including supporting data and analyses, where prevention of its use by GNF-A's competitors without license from GNF-A constitutes a competitive economic advantage over other companies;

b. Information which, if used by a competitor, would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing of a similar product;

c. Information which reveals cost or price information, production capacities, budget levels, or commercial strategies of GNF-A, its customers, or its suppliers;

d. Information which reveals aspects of past, present, or future GNF-A customer–funded development plans and programs, of potential commercial value to GNF-A;

e. Information which discloses patentable subject matter for which it may be desirable to obtain patent protection.

The information sought to be withheld is considered to be proprietary for the reasons set forth in paragraphs (4)a. and (4)b., above.

(5) The information sought to be withheld is being submitted to NRC in confidence. The information is of a sort customarily held in confidence by GNF-A, and is in fact so held. Its initial designation as proprietary information, and the subsequent steps taken to prevent its unauthorized disclosure, are as set forth in (6) and (7) following. The information sought to be withheld has, to the best of my knowledge and belief, consistently been held in confidence by GNF-A, no public disclosure has been

made, and it is not available in public sources. All disclosures to third parties including any required transmittals to NRC, have been made, or must be made, pursuant to regulatory provisions or proprietary agreements which provide for maintenance of the information in confidence.

(6) Initial approval of proprietary treatment of a document is made by the manager of the originating component, the person most likely to be acquainted with the value and sensitivity of the information in relation to industry knowledge, or subject to the terms under which it was licensed to GNF-A. Access to such documents within GNF-A is limited on a "need to know" basis.

(7) The procedure for approval of external release of such a document typically requires review by the staff manager, project manager, principal scientist or other equivalent authority, by the manager of the cognizant marketing function (or his delegate), and by the Legal Operation, for technical content, competitive effect, and determination of the accuracy of the proprietary designation. Disclosures outside GNF-A are limited to regulatory bodies, customers, and potential customers, and their agents, suppliers, and licensees, and others with a legitimate need for the information, and then only in accordance with appropriate regulatory provisions or proprietary agreements.

(8) The information identified in paragraph (2) is classified as proprietary because it contains details of GNF-A's fuel design and licensing methodology.

The development of the methods used in these analyses, along with the testing, development and approval of the supporting methodology was achieved at a significant cost, on the order of several million dollars, to GNF-A or its licensor.

(9) Public disclosure of the information sought to be withheld is likely to cause substantial harm to GNF-A's competitive position and foreclose or reduce the availability of profit–making opportunities. The fuel design and licensing methodology is part of GNF-A's comprehensive BWR safety and technology base, and its commercial value extends beyond the original development cost. The value of the technology base goes beyond the extensive physical database and analytical methodology and includes development of the expertise to determine and apply the appropriate evaluation process. In addition, the technology base includes the value derived from providing analyses done with NRC–approved methods.

The research, development, engineering, analytical, and NRC review costs comprise a substantial investment of time and money by GNF-A or its licensor.

The precise value of the expertise to devise an evaluation process and apply the correct analytical methodology is difficult to quantify, but it clearly is substantial.

GNF-A's competitive advantage will be lost if its competitors are able to use the results of the GNF-A experience to normalize or verify their own process or if they are able to claim an equivalent understanding by demonstrating that they can arrive at the same or similar conclusions.

The value of this information to GNF-A would be lost if the information were disclosed to the public. Making such information available to competitors without their having been required to undertake a similar expenditure of resources would unfairly provide competitors with a windfall, and deprive GNF-A of the opportunity to exercise its competitive advantage to seek an adequate return on its large investment in developing and obtaining these very valuable analytical tools.

Affidavit

State of North Carolina)
County of New Hanover) SS:

Glen A. Watford, being duly sworn, deposes and says:

That he has read the foregoing affidavit and the matters stated therein are true and correct to the best of his knowledge, information, and belief.

Executed at Wilmington, North Carolina, this 27th day of October, 2000

Glen A. Watford
Global Nuclear Fuel – Americas, LLC

Subscribed and sworn before me this 27th day of October, 2000

Jeane D. Dennis
Notary Public, State of North Carolina

My Commission Expires 7-24-04

JEANE D. DENNIS NOTARY PUBLIC NEW HANOVER COUNTY, N.C.