ENCLOSURE 2

"GNF Additional Information Regarding the Requested Changes to the Technical Specification SLMCPR – Cooper Cycle 24" (GNF-A Report No. eDRF-0000-0046-6413)

Non-Proprietary Version

Cooper Nuclear Station
NRC Docket 50-298, License DPR-46

5/4/2006

eDRF - 0000-0046-6413

GNF Additional Information Regarding the Requested Changes to the Technical Specification SLMCPR

Cooper Cycle 24

Notice

Proprietary information of GNF has been removed from this non-proprietary version. The information removed was contained between opening double brackets ([[ ) and closing double brackets ( ]]).

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1.0 Methodology

GNF performed the Cooper Cycle 24 SLMCPR limit calculation in accordance to NEDE-24011-P-A "General Electric Standard Application for Reactor Fuel" (Revision 15) using the following NRC approved methodologies and uncertainties:

- NEDC-32601P-A "Methodology and Uncertainties for Safety Limit MCPR Evaluations" (August 1999).
- NEDC-32694P-A "Power Distribution Uncertainties for Safety Limit MCPR Evaluations" (August 1999).
- NEDC-32505P-A "R-Factor Calculation Method for GE11, GE12 and GE13 Fuel" (Revision 1 July 1999).
- NEDO-10958-A "General Electric BWR Thermal Analysis Basis (GETAB): Data, Correlation and Design Application" (January 1977).

2.0 Discussion

2.1. Major Contributors to SLMCPR Change

In general, the calculated safety limit is dominated by two key parameters: (1) flatness of the core bundle-by-bundle MCPR distribution, and (2) flatness of the bundle pin-by-pin power/R-factor distribution. Greater flatness in either parameter yields more rods susceptible to boiling transition and thus a higher calculated SLMCPR. MIP (MCPR Importance Parameter) measures the core bundle-by-bundle MCPR distribution and RIP (R-factor Importance Parameter) measures the bundle pin-by-pin power/R-factor distribution. The impact of the fuel loading pattern on the calculated Two Loop Operation (TLO) SLMCPR using rated core power and rated core flow conditions has been correlated to the parameter MIPRIP, which combines the MIP and RIP values.

Table 3 presents the MIP and RIP parameters for the previous cycle and the current cycle along with the TLO SLMCPR estimate using the MIPRIP correlation. If the minimum core flow case is applicable, the TLO SLMCPR estimate is also provided for that case although the MIPRIP correlation is only applicable to the rated core flow case. This is done only to provide some reasonable assessment basis of the minimum core flow case trend. Table 3 in addition presents estimated impacts on the TLO SLMCPR due to methodology deviations, penalities, and/or uncertainties deviations from approved values. Based on the MIPRIP correlation and any impacts due to deviations from approved values, a final estimated TLO SLMCPR is determined. Table 3 also provides the actual calculated Monte Carlo SLMCPRs. Given the bias and uncertainty in the MIPRIP correlation [[ ]] and the inherent variation in the Monte Carlo results [[ ]], the change in the Cooper Cycle 24 calculated Monte Carlo TLO SLMCPR using rated core power and rated core flow conditions is consistent with the corresponding estimated TLO SLMCPR value.

2.2. Deviations in NRC Approved Uncertainties

Tables 4 and 5 provide a list of NRC approved uncertainties along with values actually used. A discussion of deviations from these NRC approved values follows; all of which are conservative relative to NRC approved values. Also estimated impact on the SLMCPR is provided in Table 3 for each deviation.

2.2.1. R-Factor

At this time, GNF has generically increased the GEXL R-Factor uncertainty from [[ ]] to account for an increase in channel bow due to the emerging unforeseen phenomena called control blade shadow corrosion-induced channel bow, which is not accounted for in the approved R-Factor uncertainty. The step "σ RPEAK" in Figure 4.1 from NEDC-32601P-A (which has been provided for convenience in the "Figure References" section of this attachment) is affected by this deviation. Reference 4 technically justifies that a GEXL R-Factor uncertainty of [[ ]] accounts for a channel bow uncertainty of up to [[ ]].

Currently, Cooper has not experienced any control blade shadow corrosion induced channel bow and is not expected to experience any in Cycle 24 . [[

]].

2.2.2. Core Flow Rate and Random Effective TIP Reading

At this time, GNF has not been able to show that the NRC approved process to calculate the SLMCPR only at the rated core power and rated core flow condition is adequately bounding relative to the SLMCPR calculated at rated core power and minimum core flow, see Reference 5. The minimum core flow condition can be more limiting due to the control rod pattern used. GNF has modified the NRC approved process for determining the SLMCPR to include analysis at the rated core power and minimum licensed core flow point in addition to analysis at the rated core power and rated core flow point. GNF believes this modification is conservative and may in the future provide justification that the original NRC approved process is adequately bounding.

For the TLO calculations performed at 75% core flow, the approved uncertainty values for the core flow rate (2.5%) and the random effective TIP reading (1.2%) are conservatively adjusted by dividing them by 75/100. The steps "σ CORE FLOW" and "σ TIP (INSTRUMENT)" in Figure 4.1 from NEDC-32601P-A (which has been provided for convenience in the "Figure References" section of this attachment) are affected by this deviation, respectively.

Historically, these values have been construed to be somewhat dependent on the core flow conditions as demonstrated by the fact that higher values have always been used when performing Single Loop Operation (SLO) calculations. It is for this reason that GNF determined that it is appropriate to consider an increase in these two uncertainties when the core flow is reduced. The amount of increase is determined in a conservative way. For both parameters it is

assumed that the absolute uncertainty remains the same as the flow is decreased so that the percentage uncertainty increases inversely proportional to the change in core flow. This is conservative relative to the core flow uncertainty since the variability in the absolute flow is expected to decrease somewhat as the flow decreases. For the random effective TIP uncertainty, there is no reason to believe that the percentage uncertainty should increase as the core flow decreases for TLO. Nevertheless, this uncertainty is also increased as is done in the more extreme case for SLO primarily to preserve the historical precedent established by the SLO evaluation. Note that the TLO condition is different than the SLO condition because for TLO there is no expected tilting of the core radial power shape.

The treatment of the core flow and random effective TIP reading uncertainties is based on the assumption that the signal to noise ratio deteriorates as core flow is reduced. GNF believes this is conservative and may in the future provide justification that the original uncertainties (non-flow dependent) are adequately bounding.

The core flow and random TIP reading uncertainties used in the SLO low core flow SLMCPR analysis remain the same as in the rated core flow SLO SLMCPR analysis because these uncertainties (which are substantially larger than used in the TLO analysis) already account for the effects of operating at reduced core flow.

2.3. Departure from NRC Approved Methodology

No departures from NRC approved methodologies were used in the Cooper Cycle 24 SLMCPR calculations.

2.4. Fuel Axial Power Shape Penalty

At this time, GNF has determined that higher uncertainties and non-conservative biases in the GEXL correlations for the various types of axial power shapes (i.e., inlet, cosine, outlet and double hump) could potentially exist relative to the NRC approved methodology values, see References 3, 6 and 7. The following table identifies, by marking with an "X", this potential for each GNF product line currently being offered:

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If the limiting bundles in the SLMCPR calculation exhibit an axial power shape identified by this table, GNF penalizes the GEXL critical power uncertainties to conservatively account for the impact of the axial power shape. Table 6 provides a list of the GEXL critical power uncertainties determined in accordance to the NRC approved methodology contained in NEDE-24011-P-A along with values actually used.

For the limiting bundles, the fuel axial power shapes in the SLMCPR analysis were examined to determine the presence of axial power shapes identified in the above table. These power shapes were not found; therefore, no power shape penalties were applied to the calculated Cooper Cycle 24 SLMCPR values.

2.5. Methodology Restrictions

The four restrictions identified on Page 3 of NRC's Safety Evaluation relating to the General Electric Licensing Topical Reports NEDC-32601P, NEDC-32694P, and Amendment 25 to NEDE-24011-P-A (March 11, 1999) are addressed in References 1, 2, and 3.

No new GNF fuel designs are being introduced in Cooper Cycle 24; therefore the NEDC-32505-P-A statement "...if new fuel is introducted, GENE must confirm that the revised R-Factor method is still valid based on new test data..." is not applicable.

2.6. Minimum Core Flow Condition

For Cooper Cycle 24 the minimum core flow SLMCPR calculation performed at 75% core flow at rated core power was limiting as compared to the rated core flow at rated core power condition. For convenience, Figures III.5-1 and III.5-2 from NEDC 32601P-A have been provided in the "Figure References" section in order to show this case's relative relationship to the data on these figures. For this case the MIP [[

]]; therefore, this demonstrates that the MIP criterion for determining what constitutes a reasonably bounding limiting rod pattern is still valid for this condition.

2.7. Limiting Control Rod Patterns

The limiting control rod patterns used to calculate the SLMCPR reasonably assures that at least 99.9% of the fuel rods in the core would not be expected to experience boiling transition during

normal operation or anticipated operational occurrences during the operation of Cooper Cycle 24.

2.8. Core Monitoring System

For Cooper Cycle 24, the GARDEL system will be used as the core monitoring system.

The utility has requested GNF to perform the SLMCPR calculation applying the GETAB power distribution methodology and uncertainties. Due to the third party proprietary information, the utility has provided in a separate attachment the basis that the GETAB power distribution methodology and uncertainties are applicable for the GARDEL core monitoring system.

2.9. Power/Flow Map

The utility had provided the current and previous cycle power/flow map in a separate attachment.

2.10. Core Loading Diagram

Figures 1 and 2 provide the core loading diagram for the current and previous cycle respectively, which are the Reference Loading Pattern as defined by NEDE-24011-P-A.

2.11. Figure References

Figure 3 is Figure 4.1 from NEDC-32601-P-A. Figure 4 is Figure III.5-1 from NEDC-32601P-A. Figure 5 is Figure III.5-2 from NEDC-32601P-A.

2.12. Additional SLMCPR Licensing Conditions

For Cooper Cycle 24, no additional SLMCPR licensing conditions are included in the analysis.

2.13. Summary

Although the calculated Monte Carlo SLO SLMCPR value was 1.10, the utility desires to maintain the current Technical Specification SLMCPR delta between TLO and SLO of 0.02. Therefore, the requested changes to the Technical Specification SLMCPR values are 1.09 for Two Loop Operation and 1.11 for Single Loop Operation for Cooper Cycle 24.

3.0 References

1. Letter, Glen A. Watford (GNF-A) to U.S. Nuclear Regulatory Commission Document Control Desk with attention to R. Pulsifer (NRC), "Confirmation of 10x10 Fuel Design Applicability to Improved SLMCPR, Power Distribution and R-Factor Methodologies", FLN-2001-016, September 24, 2001.

2. Letter, Glen A. Watford (GNF-A) to U.S. Nuclear Regulatory Commission Document Control Desk with attention to J. Donoghue (NRC), "Confirmation of the Applicability of the GEXL14 Correlation and Associated R-Factor Methodology for Calculating SLMCPR Values in Cores Containing GE14 Fuel", FLN-2001-017, October 1, 2001.

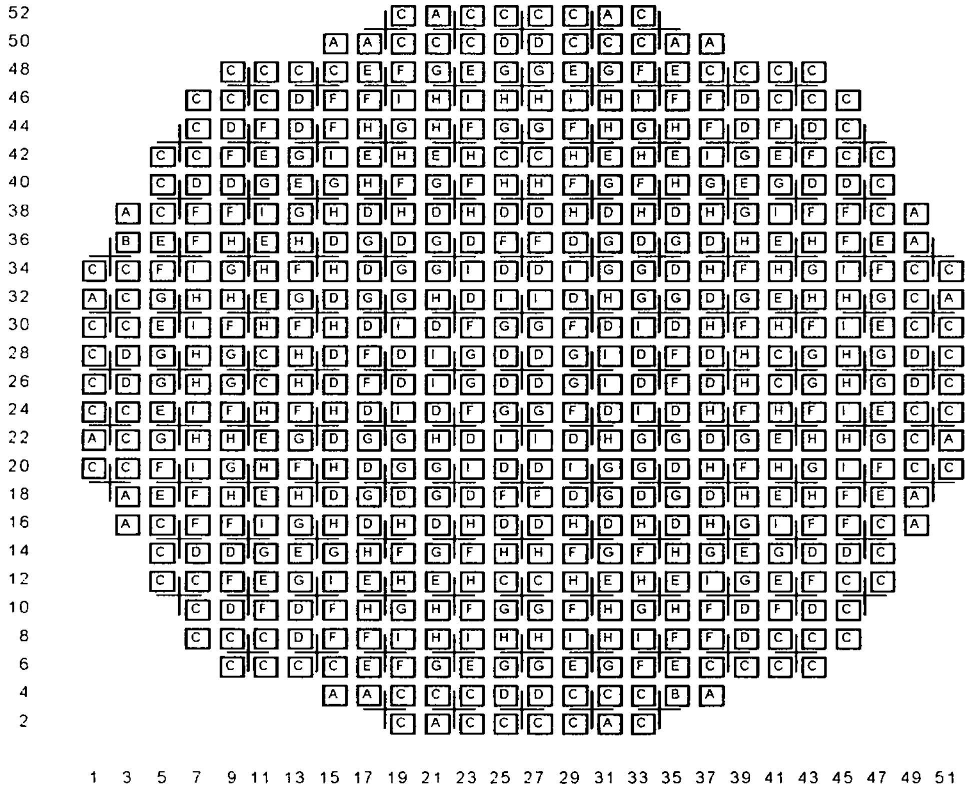
3. Letter, Glen A. Watford (GNF-A) to U.S. Nuclear Regulatory Commission Document Control Desk with attention to J. Donoghue (NRC), "Final Presentation Material for GEXL Presentation – February 11, 2002", FLN-2002-004, February 12, 2002.

4. Letter, John F. Schardt (GNF-A) to U.S. Nuclear Regulatory Commission Document Control Desk with attention to Mel B. Fields (NRC), "Shadow Corrosion Effects on SLMCPR Channel Bow Uncertainty", FLN-2004-030, November 10, 2004.

5. Letter, Jason S. Post (GENE) to U.S. Nuclear Regulatory Commission Document Control Desk with attention to Chief, Information Management Branch, et al., (NRC), "Part 21 Final Report: Non-Conservative SLMCPR", MFN 04-108, September 29, 2004.

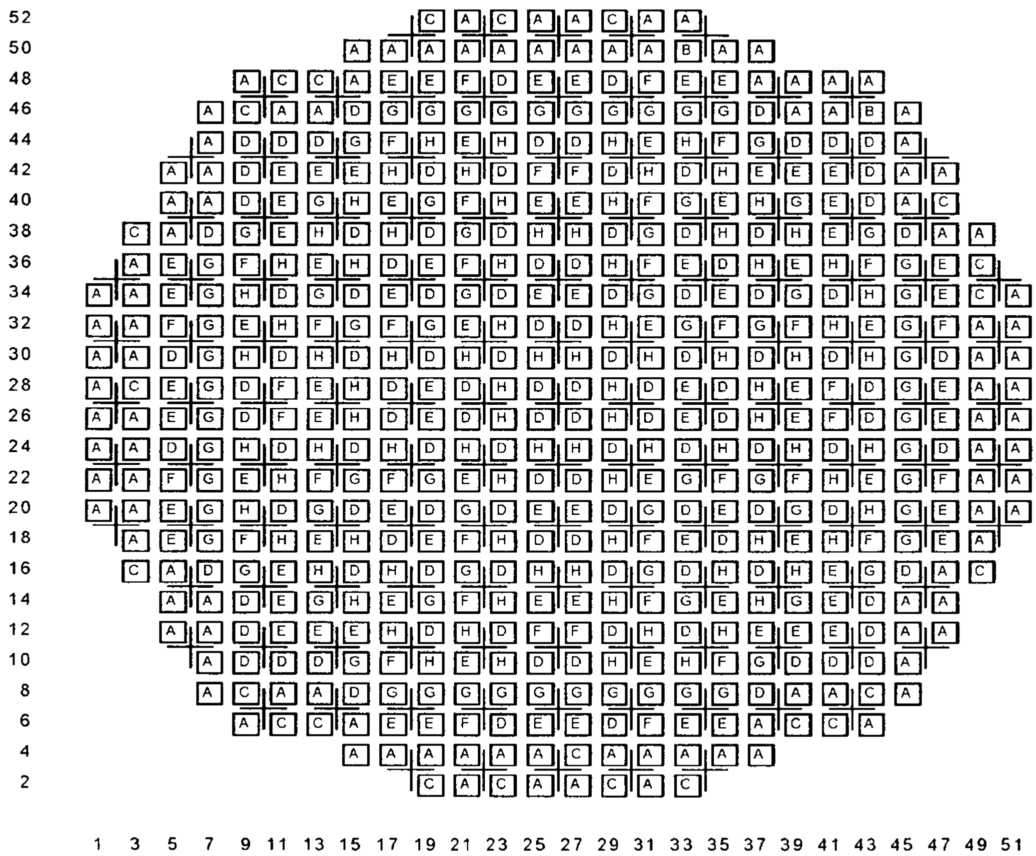
6. Letter, Glen A. Watford (GNF-A) to U.S. Nuclear Regulatory Commission Document Control Desk with attention to Alan Wang (NRC), "NRC Technology Update – Proprietray Slides – July 31 – August 1, 2002", FLN-2002-015, October 31, 2002.

7. Letter, Jens G. Munthe Andersen (GNF-A) to U.S. Nuclear Regulatory Commission Document Control Desk with attention to Alan Wang (NRC), "GEXL Correlation for 10X10 Fuel", FLN-2003-005, May 31, 2003.



Fuel Type			
A=GE14-P10HNAB385-14GZ-100T-148-T6-3881	(Cycle 20)	E=GE14-P10DNAB398-16GZ-100T-150-T6-2569	(Cycle 22)
B=GE14-P10HNAB385-14GZ-100T-148-T6-3881	(Cycle 20)	F=GE14-P10DNAB395-14GZ-100T-150-T6-2800	(Cycle 23)
C=GE14-P10HNAB379-17GZ-100T-150-T6-2476	(Cycle 21)	G=GE14-P10DNAB393-17GZ-100T-150-T6-2801	(Cycle 23)
D=GE14-P10DNAB393-17GZ-100T-150-T6-2611	(Cycle 22)	H=GE14-P10DNAB385-13GZ-100T-150-T6-2901	(Cycle 24)
		I=GE14-P10DNAB386-14GZ-100T-150-T6-2902	(Cycle 24)

Figure 1. Current Cycle Core Loading Diagram



Fuel Type			
A=GE14-P10HNAB385-14GZ-100T-148-T6-3881	(Cycle 20)	E=GE14-P10DNAB393-17GZ-100T-150-T6-2611	(Cycle 22)
B=GE14-P10HNAB385-14GZ-100T-148-T6-3881	(Cycle 20)	F=GE14-P10DNAB398-16GZ-100T-150-T6-2569	(Cycle 22)
C=GE14-P10HNAB385-14GZ-100T-148-T6-3881	(Cycle 20)	G=GE14-P10DNAB395-14GZ-100T-150-T6-2800	(Cycle 23)
D=GE14-P10HNAB379-17GZ-100T-150-T6-2476	(Cycle 21)	H=GE14-P10DNAB393-17GZ-100T-150-T6-2801	(Cycle 23)

Figure 2. Previous Cycle Core Loading Diagram

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Figure 3. Figure 4.1 from NEDC-32601-P-A

[[

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Figure 4. Figure III.5-1 from NEDC-32601P-A

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Figure 5. Figure III.5-2 from NEDC-32601P-A

Description	Previous Cycle Minimum Core Flow Limiting Case	Previous Cycle Rated Core Flow Limiting Case	Current Cycle Minimum Core Flow Limiting Case	Current Cycle Rated Core Flow Limiting Case
Number of Bundles in the Core	548	548	548	548
Limiting Cycle Exposure Point (i.e. BOC/MOC/EOC)	EOC	EOC	EOC	EOC
Cycle Exposure at Limiting Point (MWd/STU)	11000	11400	8500	8500
% Rated Core Flow	75	100	75	100
Reload Fuel Type	GE14	GE14	GE14	GE14
Latest Reload Batch Fraction, %	30	30	23	23
Latest Reload Average Batch Weight % Enrichment	3.94	3.94	3.85	3.85
Core Fuel Fraction: GE14 %	100	100	100	100
Core Average Weight % Enrichment	3.89	3.89	3.89	3.89

Table 1. Description of Core

Description	Previous Cycle Minimum Core Flow Limiting Case	Previous Cycle Rated Core Flow Limiting Case	Current Cycle Minimum Core Flow Limiting Case	Current Cycle Rated Core Flow Limiting Case
Non-power Distribution Uncertainty	NEDC-32601-P-A	NEDC-32601-P-A	NEDC-32601-P-A	NEDC-32601-P-A
Power Distribution Methodology	GETAB	GETAB	GETAB	GETAB
Power Distribution Uncertainty	GETAB	GETAB	GETAB	GETAB
Core Monitoring System	GARDEL	GARDEL	GARDEL	GARDEL

Table 2. SLMCPR Calculation Methodologies

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	Nominal (NRC Approved) Value ± σ (%)	Previous Cycle Minimum Core Flow Limiting Case	Previous Cycle Rated Core Flow Limiting Case	Current Cycle Minimum Core Flow Limiting Case	Current Cycle Rated Core Flow Limiting Case
GETAB					
Feedwater Flow Measurement	1.76	N/A	N/A	N/A	N/A
Feedwater Temperature Measurement	0.76	N/A	N/A	N/A	N/A
Reactor Pressure Measurement	0.50	N/A	N/A	N/A	N/A
Core Inlet Temperature Measurement	0.20	N/A	N/A	N/A	N/A
Total Core Flow Measurement	6.0 SLO/2.5 TLO	N/A	N/A	N/A	N/A
Channel Flow Area Variation	3.0	N/A	N/A	N/A	N/A
Friction Factor Multiplier	10.0	N/A	N/A	N/A	N/A
Channel Friction Factor Multiplier	5.0	N/A	N/A	N/A	N/A
NEDC-32601-P-A					
Feedwater Flow Measurement	[[ ]]	[[ ]]	[[ ]]	[[ ]]	[[ ]]
Feedwater Temperature Measurement	[[ ]]	[[ ]]	[[ ]]	[[ ]]	[[ ]]

Table 4. Non-Power Distribution Uncertainties

	Nominal (NRC Approved) Value ± σ (%)	**Previous Cycle Minimum Core Flow Limiting Case**	**Previous Cycle Rated Core Flow Limiting Case**	**Current Cycle Minimum Core Flow Limiting Case**	**Current Cycle Rated Core Flow Limiting Case**
Reactor Pressure Measurement	[[ ]]	[[ ]]	[[ ]]	[[ ]]	[[ ]]
Core Inlet Temperature Measurement	0.2	0.2	0.2	0.2	0.2
Total Core Flow Measurement	6.0 SLO/2.5 TLO	6.0 SLO/3.33 TLO	6.0 SLO/2.5 TLO	6.0 SLO/3.33 TLO	6.0 SLO/2.5 TLO
Channel Flow Area Variation	[[ ]]	[[ ]]	[[ ]]	[[ ]]	[[ ]]
Friction Factor Multiplier	[[ ]]	[[ ]]	[[ ]]	[[ ]]	[[ ]]
Channel Friction Factor Multiplier	5.0	5.0	5.0	5.0	5.0

Table 4. Non-Power Distribution Uncertainties

Description	Nominal (NRC Approved) Value ± σ (%)	Previous Cycle Minimum Core Flow Limiting Case	Previous Cycle Rated Core Flow Limiting Case	Current Cycle Minimum Core Flow Limiting Case	Current Cycle Rated Core Flow Limiting Case
GETAB					
GEXL R-Factor	1.5	[[ ]]	[[ ]]	[[ ]]	[[ ]]
Random Effective TIP Reading	2.85 SLO/1.2 TLO	2.85 SLO/1.6 TLO	2.85 SLO/1.2 TLO	2.85 SLO/1.6 TLO	2.85 SLO/1.2 TLO
Systematic Effective TIP Reading	8.6	8.6	8.6	8.6	8.6
NEDC-32694-P-A, 3DMONICORE					
GEXL R-Factor	[[ ]]	N/A	N/A	N/A	N/A
Random Effective TIP Reading	2.85 SLO/1.2 TLO	N/A	N/A	N/A	N/A
TIP Integral	[[ ]]	N/A	N/A	N/A	N/A
Four Bundle Power Distribution Surrounding TIP Location	[[ ]]	N/A	N/A	N/A	N/A
Contribution to Bundle Power Uncertainty Due to LPRM Update	[[ ]]	N/A	N/A	N/A	N/A
Contribution to Bundle Power Due to Failed TIP	[[ ]]	N/A	N/A	N/A	N/A

Table 5. Power Distribution Uncertainties

Description	Nominal (NRC Approved) Value ± σ (%)	Previous Cycle Minimum Core Flow Limiting Case	Previous Cycle Rated Core Flow Limiting Case	Current Cycle Minimum Core Flow Limiting Case	Current Cycle Rated Core Flow Limiting Case
Contribution to Bundle Power Due to Failed LPRM	[[ ]]	N/A	N/A	N/A	N/A
Total Uncertainty in Calculated Bundle Power	[[ ]]	N/A	N/A	N/A	N/A
Uncertainty of TIP Signal Nodal Uncertainty	[[ ]]	N/A	N/A	N/A	N/A

Table 5. Power Distribution Uncertainties

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Table 6. Critical Power Uncertainties

ENCLOSURE 3

10 CFR 2.390 Affidavit from Global Nuclear Fuels - Americas

Cooper Nuclear Station
NRC Docket 50-298, License DPR-46

Affidavit

I, Jens G. M. Andersen, state as follows:

(1) I am Consulting Engineer, Thermal Hydraulic Methods, 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, "GNF Additional Information Regarding the Requested Changes to Technical Specifications SLMCPR Cooper Cycle 24," May 4, 2006. GNF proprietary information is indicated by enclosing it in double brackets. In each case, the superscript notation {3} refers to Paragraph (3) of this affidavit, which provides the basis for the proprietary determination.

(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 2.390(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) To address the 10 CFR 2.390 (b) (4), 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.

I declare under penalty of perjury that the foregoing affidavit and the matters stated therein are true and correct to the best of my knowledge, information, and belief.

Executed at Wilmington, North Carolina, this 4th day of May 2006.

Jens G M Andersen

Jens G. M. Andersen
Global Nuclear Fuel – Americas, LLC