

10 CFR 2.790(a)(4)
10 CFR 50.90

RS-03-112

July 1, 2003

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555**Subject: LaSalle County Station, Units 1 and 2
Facility Operating License Nos. NPF-11 and NPF-18
NRC Docket Nos. 50-373 and 50-374****Request for Amendment to Technical Specifications
Section 5.6.5 "Core Operating Limits Report (COLR)"**

- References:**
- (1) G. A. Watford (Global Nuclear Fuel) letter to the NRC, Transmittal of GNFA Proprietary Report, NEDC-32981P, "GEXL96 Correlation for Atrium-9B Fuel," dated September 26, 2000
 - (2) S. A. Richards (USNRC) to G. A. Watford (Global Nuclear Fuel), "Safety Evaluation for Topical Report NEDC-32981P, 'GEXL96 Correlation for Atrium-9B Fuel,' – Global Nuclear Fuel (TAC No. MB0183)," dated September 27, 2001

In accordance with 10 CFR 50.90, Exelon Generation Company (EGC), LLC, hereby requests the following amendment to Appendix A, Technical Specifications (TS), of Facility Operating License Nos. NPF-11 and NPF-18. Specifically, the proposed changes will delete one and add two references to the list of analytical methods in TS 5.6.5, "Core Operating Limits Report (COLR)," that can be used to determine core operating limits. The deleted reference is to an analytical method that is no longer applicable to LaSalle County Station (LSCS). The new references will allow LSCS to use General Electric Company (GE) methods for the determination of fuel assembly critical power of Framatome Advanced Nuclear Fuel, Inc. (Framatome) Atrium-9B and Atrium-10 fuel. The proposed changes are the result of a LSCS decision to insert GE14 fuel during the upcoming refueling outage at LSCS Unit 1 in January 2004. GE's safety analysis methodologies have been previously used at LSCS and GE14 fuel is currently in use at other EGC stations.

The first added reference, "GEXL96 Correlation for Atrium-9B Fuel," will list a method that was previously approved by the NRC for use by licensees in Reference 2. The second added reference, "GEXL97 Correlation for Atrium-10 Fuel," will list a GE method for determining the critical power for Atrium-10 fuel. This correlation has not been previously reviewed and approved by the NRC for use by licensees. Attachment 4 to this submittal contains the technical justification for this correlation and LSCS requests that this GE correlation be reviewed and approved for use at LSCS.

Additionally, editorial changes are made to existing references.

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Attachment 4 of this amendment request includes a GE report containing proprietary information about this submittal. Request for withholding this information from disclosure, in accordance with 10 CFR 2.790(a)(4) is provided in Attachment 4.

The information supporting the proposed TS changes is subdivided as follows.

Attachment 1 provides our evaluation supporting the proposed changes.
Attachment 2 contains the copies of the marked up TS pages.
Attachment 3 provides the retyped TS pages.
Attachment 4 contains the proprietary copy of the report for GEXL97 Correlation for Atrium-10 Fuel.

The proposed TS changes have been reviewed by the LSCS Plant Operations Review Committee (PORC) and approved by the Nuclear Safety Review Board (NSRB) in accordance with the Quality Assurance Program.

EGC is notifying the State of Illinois of this application for amendment by transmitting a copy of this letter and its attachments to the designated State Official.

We request approval of the proposed change by January 2, 2004 with an implementation period of 60 days.

Should you have any questions concerning this submittal, please contact Mr. T. W. Simpkin at (630) 657-2821.

I declare under penalty of perjury that the foregoing is true and correct.

Respectfully,

Executed on 7/1/03


T. W. Simpkin
Manager – Licensing
Mid-West Regional Operating Group

cc:

Regional Administrator – NRC Region III
NRC Senior Resident Inspector – LaSalle County Station
Office of Nuclear Facility Safety – Illinois Department of Nuclear Safety

Attachments:

Attachment 1. Evaluation of Proposed Changes
Attachment 2. Markup of Proposed Technical Specification Page Changes
Attachment 3. Retyped Pages for Technical Specification Changes
Attachment 4. Proprietary Copy, "GEXL97 Correlation for Atrium-10 Fuel"

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Evaluation of Proposed Changes
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- 1.0 INTRODUCTION**
- 2.0 DESCRIPTION OF PROPOSED AMENDMENT**
- 3.0 BACKGROUND**
- 4.0 REGULATORY REQUIREMENTS & GUIDANCE**
- 5.0 TECHNICAL ANALYSIS**
- 6.0 REGULATORY ANALYSIS**
- 7.0 NO SIGNIFICANT HAZARDS CONSIDERATION (NSHC)**
- 8.0 ENVIRONMENTAL CONSIDERATION**
- 9.0 PRECEDENT**

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1.0 INTRODUCTION

In accordance with 10 CFR 50.90, Exelon Generation Company (EGC), LLC, hereby requests the following amendment to Appendix A, Technical Specifications (TS), of Facility Operating License Nos. NPF-11 and NPF-18. Specifically, the proposed changes will delete one and add two references to the list of analytical methods in TS 5.6.5, "Core Operating Limits Report (COLR)," that can be used to determine core operating limits. The deleted reference is to an analytical method that is no longer applicable to LaSalle County Station (LSCS). The new references will allow LSCS to use General Electric Company (GE) methods for the determination of fuel assembly critical power of Framatome Advanced Nuclear Fuel, Inc. (Framatome) Atrium-9B and Atrium-10 fuel. The proposed changes are the result of a LSCS decision to insert GE14 fuel during the upcoming refueling outage at LSCS Unit 1 in January 2004. GE's safety analysis methodologies have been previously used at LSCS and GE14 fuel is currently in use at other EGC stations.

The first added reference, "GEXL96 Correlation for Atrium-9B Fuel," will list a method that was previously approved by the NRC for use by licensees in Reference 2. The second added reference, "GEXL97 Correlation for Atrium-10 Fuel," will list a GE method for determining the critical power for Atrium-10 fuel. This correlation has not been previously reviewed and approved by the NRC for use by licensees. Attachment 4 to this submittal contains the technical justification for this correlation and LSCS requests that this GE correlation be reviewed and approved for use at LSCS.

Additionally, editorial changes are made to existing references.

Attachment 4 of this amendment request includes a GE report containing proprietary information about this submittal. Request for withholding this information from disclosure, in accordance with 10 CFR 2.790(a)(4) is provided in Attachment 4.

2.0 DESCRIPTION OF PROPOSED AMENDMENT

The proposed changes will modify TS 5.6.5 as follows.

- Current reference number 16 is deleted.
- Two new references identified below are added.
 - 21. NEDC-32981P(A), "GEXL96 Correlation for Atrium-9B Fuel."
 - 22. NEDC-33106P, "GEXL97 Correlation for Atrium-10 Fuel."
- Editorial changes are made including the correction of the descriptions of existing references and reference renumbering.

The marked up and retyped TS pages are contained in Attachments 2 and 3.

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3.0 BACKGROUND

LSCS Units 1 and 2 currently use a mixture of Atrium-9B, Atrium-10 and GE9 fuel in their cores. The analytical methods currently listed in TS 5.6.5 support the determination of core operating limits for both cores by using both GE and Framatome methodology. The GE methodology provides the analysis of the GE9 fuel and inputs to the Framatome correlation for GE9 fuel to determine overall core operating limits using Framatome methodology.

LSCS has recently decided to load GE14 fuel into Unit 1 during its upcoming refueling outage in January 2004. LSCS intends to use GE methodologies to determine overall core operating limits. This change will require the listing of additional analytical correlations for analyzing the Framatome Atrium-9B and Atrium-10 fuel with the GE methodology. Thus, the proposed changes will allow LSCS to use GE critical power correlations to analyze the Atrium-9B and Atrium-10 fuel.

4.0 REGULATORY REQUIREMENTS & GUIDANCE

10 CFR 50.36(c)(5), "Administrative controls.", requires that provisions relating to organization and management, procedures, recording keeping, review and audit, and reporting necessary to assure operation of the facility in a safe manner must be included in a licensee's TS.

5.0 TECHNICAL ANALYSIS

5.1 Design Bases

GEXL96 Correlation

The NRC in Reference 2 approved the generic use of the GEXL96 correlation by licensees for the determination of critical power for Atrium-9B fuel. LSCS has determined that the use of the GEXL96 correlation as described in Reference 2 is appropriate for LSCS Units 1 and 2, and provides an equivalent level of protection as that currently provided.

GEXL97 Correlation

The use of the GEXL97 correlation will allow the analysis of Framatome Atrium-10 fuel with the GE methodology. This correlation was developed by GE and is described and its use justified in the report contained in Attachment 4. The GEXL97 report is formatted similar to the GEXL96 report. The major technical approaches include the following.

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1. The total uncertainty in the GEXL97 correlation's critical power predictions takes into account the fact that the uncertainty in the correlation's fit to the hypothetical database and the uncertainty in the hypothetical database with respect to the underlying experimental data are not independent.
2. Generating the hypothetical databases using the SPCB correlation in the XCOBRA code is a reasonable engineering approach to evaluate mixed fuel core, where the experimental database and critical power correlation for the Framatome fuel is not available to GE.
3. The report demonstrated that small extrapolations of the GEXL97 correlation's range of application do not involve any significant increase in the risk of boiling transition occurring for conditions in the extrapolated regions.
4. The total uncertainty in the GEXL97 correlation predictions of critical power in Atruim-10 fuel is similar to the NRC approved total uncertainty for GEXL96 correlation predictions of critical power in Atrium-9B fuel.

LSCS has determined that the use of the GEXL97 correlation as described in the attached report is appropriate for LSCS Units 1 and 2, and provides an equivalent level of protection as that currently provided.

Existing TS 5.6.5 Analytical Methods

LSCS has reviewed the currently listed analytical methods in TS 5.6.5 and has determined that one reference needs to be deleted and that the remaining references continue to be required to insure Unit 1 and 2 operation. A summary of our review is contained in Table 1.

Additionally, recent reviews of the listed analytical methods in TS 5.6.5 have revealed minor editorial errors. The proposed changes correct these errors.

5.2 Risk Information

This submittal is not based on risk informed decision making.

6.0 REGULATORY ANALYSIS

TS 5.6.5 lists NRC approved analytical methods used at LSCS to determine core operating limits. The list of NRC approved analytical methods to be used to determine core operating limits provides the necessary administrative controls to assure operation of the facility in a safe manner and thus in accordance with 10 CFR 50.36(c)(5) must be included in the TS.

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7.0 NO SIGNIFICANT HAZARDS CONSIDERATION

EGC has evaluated the proposed changes to the TS for LSCS, Unit 1 and Unit 2, and has determined that the proposed changes do not involve a significant hazards consideration and is providing the following information to support a finding of no significant hazards consideration.

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

Response: No

The proposed changes will delete one and add two additional references to the list of administratively controlled analytical methods in TS 5.6.5, "Core Operating Limits Report (COLR)," that can be used to determine core operating limits and make minor editorial changes to the existing references. TS 5.6.5 lists NRC approved analytical methods used at LaSalle County Station (LSCS) to determine core operating limits.

LSCS Unit 1 is scheduled to load General Electric Company (GE) fuel during its upcoming outage in January 2004. The proposed changes to TS Section 5.6.5 will add the fuel analytical methods that support the initial insertion of GE14 fuel to the list of methods used to determine the core operating limits. The deletion or addition of approved methods to TS Section 5.6.5 and minor editorial changes to the existing references has no effect on any accident initiator or precursor previously evaluated and does not change the manner in which the core is operated. The methods have been reviewed to ensure that the output accurately models predicted core behavior, have no effect on the type or amount of radiation released, and have no effect on predicted offsite doses in the event of an accident. Thus, the proposed changes do not have any effect on the probability of an accident previously evaluated.

The proposed changes in the administratively controlled analytical methods does not affect the ability of LSCS to successfully respond to previously evaluated accidents and does not affect radiological assumptions used in the evaluations. Thus, the radiological consequences of any accident previously evaluated are not increased.

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

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

Response: No

The proposed changes to TS Section 5.6.5 do not affect the performance of any LSCS structure, system, or component credited with mitigating any accident previously evaluated. The insertion of a new generation of fuel which has been analyzed with NRC approved methodologies will not affect the control parameters governing unit operation or the response of plant equipment to transient conditions. The proposed changes do not introduce any new modes of system operation or failure mechanisms.

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

Does the change involve a significant reduction in a margin of safety?

Response: No

The proposed changes will delete one and add two additional references to the list of administratively controlled analytical methods in TS 5.6.5 that can be used to determine core operating limits and make minor editorial changes to the titles of existing references. The proposed changes do not modify the safety limits or setpoints at which protective actions are initiated, and do not change the requirements governing operation or availability of safety equipment assumed to operate to preserve the margin of safety. Therefore, LSCS has determined that the proposed changes provide an equivalent level of protection as that currently provided.

Therefore, the proposed changes do not involve a significant reduction in a margin of safety.

Based upon the above, EGC concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

8.0 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 would change an inspection or 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

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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.

9.0 PRECEDENT

"GEXL96 Correlation for Atrium-9B Fuel," was previously approved by the NRC for use by licensees in Reference 2, GE methodologies have been previously used at LSCS and GE14 fuel is currently in use at other EGC stations.

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TABLE 1
LISTED ANALYTICAL METHODS IN TS 5.6.5

<u>TS 5.6.5b</u>	<u>Applicable TS</u> <u>LCO</u>	<u>Justification</u>
1. ANF-1125 (P)(A), "ANFB Critical Power Correlation"	3.2.2	Presents an approved critical power correlation for ATRIUM-9 fuel.
2. Letter, Ashok C. Thadani (NRC) to R. A. Copeland (SPC), "Acceptance for Referencing of ULTRAFLOW spacer on 9X9-IX/X BWR Design", July 28, 1993	3.2.2	Input data for critical power correlation for 9X9-IX/X fuel design.
3. XN-NF-524 (P)(A), "ANF Critical Power Methodology for Boiling Water Reactors"	3.2.2	Provides a methodology for the determination of thermal margins, specifically, the MCPR safety limit.
4. ANF-913(P)(A), "COTRANSA 2: A Computer Program for Boiling Water Reactor Transient Analyses"	3.2.2	Provides a computer program for analyzing BWR system transients.
5. ANF-CC-33(P)(A), "HUXY: A Generalized Multirod Heatup Code with 10CFR50, Appendix K Heatup Option"	3.2.1	Develops a planar heat transfer model that is used to calculate peak cladding temperatures as part of the evaluation model methodology.
6. XN-NF-80-19(P)(A), "Advanced Nuclear Fuel Methodology for Boiling Water Reactors"	3.2.1, 3.2.2, 3.2.3, 3.3.2.1	Provides an evaluation model methodology for licensing analysis of postulated LOCAs in jet pump BWRs. The methodology was developed to comply with 10CFR50.46 and Appendix K, also describes the BWR core analysis methodology and produces input for nuclear plant transients and provides an overall methodology for determining MCPR operating limit.

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TABLE 1
LISTED ANALYTICAL METHODS IN TS 5.6.5

7. XN-NF-85-67(P)(A), "Generic Mechanical Design for Exxon Nuclear Jet Pump BWR Reload Fuel"	3.2.3	Describes the process used to develop linear heat generation rates for fuel designs.
8. ANF-89-014(P)(A), "ANF Corporation Generic Mechanical Design for ANF Corporation 9x9-IX and 9x9-9X BWR Reload Fuel"	3.2.3	Provides input data for ANF 9x9-IX and 9x9-9X BWR reload fuel.
9. EMF-CC-074(P)(A), "Volume 4 – BWR Stability Analysis: Assessment of STAIF with input from MICROBURN-B2"	Indirectly impacts the MCPR and LHGR for core instability events	Describes methodology for stability analysis with input from the MICROBURN-B2 reactor core simulator.
10. XN-NF-81-58(P)(A), "RODEX2 Fuel Rod Thermal-Mechanical Response Evaluation Model"	3.2.1, 3.2.2, 3.2.3	Provides an analytical capability to predict BWR fuel thermal and mechanical conditions for normal core operations and to establish initial conditions for power ramping, non-LOCA and LOCA analysis.
11. XN-NF-84-105(P)(A), "XCOBRA-T: A Computer Code for BWR Transient Thermal-Hydraulic Core Analysis"	3.2.2	Provides a capability to perform analysis of transient heat transfer behavior in BWR assemblies.
12. ANF-91-048(P)(A), "ANF Corporation Methodology for Boiling Water Reactors EXEM BWR ECCS Evaluation Model"	3.2.1	Describes modifications to the jet pump model in the RELAX blowdown code that better predict jet pump performance.
13. EMF-2209(P)(A), "SPCB Critical Power Correlation"	3.2.2	Presents an improved critical power correlation for use with the ATRIUM-10 fuel designs.

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TABLE 1
LISTED ANALYTICAL METHODS IN TS 5.6.5

14. ANF-89-98(P)(A), "Generic Mechanical Design Criteria for BWR Fuel Designs"	3.2.3	Establishes a set of design criteria that assures BWR fuel will perform satisfactorily throughout its lifetime.
15. NEDE-24011-P-A, " General Electric Standard Application for Reactor Fuel"	3.2.1, 3.2.2, 3.2.3, , 3.3.2.1	GE neutronic, thermal-hydraulic, transient analysis and LOCA analysis methodology.
16. NFSR-0091, "Benchmark of CASMO/MICROBURN BWR Nuclear Design Methods"	3.2.1, 3.2.2, 3.2.3, 3.3.2.1	Exelon Corporation neutronic design methodology benchmark (FANP methods).
17. EMF 1125(P)(A), "ANFB Critical Power Correlation Application for Co-resident Fuel"	3.2.2	Provide a critical power correlation for application with co-resident fuel.
18. ANF-1125(P)(A), "ANFB Critical Power Correlation Determination of ATRIUM-9B Additive Constant Uncertainties"	3.2.2	Provides the methodology to determine critical power correlation additive constant uncertainties.
19. EMF-85-74(P)(A), "RODEX2A (BWR) Fuel Rod Thermal-Mechanical Evaluation Model"	3.2.3	Extends the exposure limit of the RODEX2A code which is a version of RODEX2 that includes a fission gas release model specific to BWR fuel designs.
20. EMF-2158(P)(A), "Siemens Power Corporation Methodology for Boiling Water Reactors: Evaluation and Validation of CASMO-4/MICROBURN-B2"	3.2.1, 3.2.2, 3.2.3	Provides an advanced neutronics code package for performing neutronics, thermal hydraulics and transient analyses.
21. NEDC-32981P(A), "GEXL96 for ATRIUM-9B Fuel"	3.2.1, 3.2.2, 3.2.3	Provide a critical power correlation for application with co-resident fuel.
22. NEDC 33106P, "GEXL97 Correlation for ATRIUM-10 Fuel"	3.2.1, 3.2.2, 3.2.3	Provide a critical power correlation for application with co-resident fuel.

ATTACHMENT 2

MARKUP OF PROPOSED TECHNICAL SPECIFICATION PAGE CHANGES

5.6 Reporting Requirements

5.6.5 CORE OPERATING LIMITS REPORT (COLR) (continued)

4. The Rod Block Monitor Upscale Instrumentation Setpoint for the Rod Block Monitor - Upscale Function Allowable Value for Specification 3.3.2.1.

b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:

1. ~~ANFB Critical Power Correlation, ANF-1125(P)(A).~~

INSERT 1

2. Letter, Ashok C. Thadani (NRC) to R.A. Copeland (SPC), "Acceptance for Referencing of ULTRAFLOW™ Spacer on 9x9-IX/X BWR(Fuel) Design," July 28, 1993.

3. ~~Advanced Nuclear Fuels Corporation Critical Power Methodology for Boiling Water Reactors/Advanced Nuclear Fuels Corporation Critical Power Methodology for Boiling Water Reactors: Methodology for Analysis of Assembly Channel Bowing Effects/NRC Correspondence, XN-NF-524(P)(A).~~

INSERT 2

4. "COTRANSA 2: A Computer Program for Boiling Water Reactor Transient Analysis," ANF-913(P)(A).

5. "HUXY: A Generalized Multirod Heatup Code with 10 CFR 50; Appendix K Heatup Option," ANF-CC-33(P)(A).

6. "Advanced Nuclear Fuel Methodology for Boiling Water Reactors," XN-NF-80-19(P)(A).

7. "Generic Mechanical Design for Exxon Nuclear Jet Pump BWR Reload Fuel," XN-NF-85-67(P)(A).

8. ~~Advanced Nuclear Fuels Corporation Generic Mechanical Design for Advanced Nuclear Fuels Corporation 9x9-IX and 9x9-9X BWR Reload Fuel,~~ ANF-89-014(P)(A).

9. Volume 4 - "BWR Stability Analysis: Assessment of STAIF with input from MICROBURN-B2," EMF-CC-074(P)(A).

(continued)

5.6 Reporting Requirements

5.6.5 CORE OPERATING LIMITS REPORT (COLR) (continued)

10. RODEX2 Fuel Rod Thermal-Mechanical Response Evaluation Model, XN-NF-81-58(P)(A).
11. XCOBRA-T: A Computer Code for BWR Transient Thermal-Hydraulic Core Analysis, XN-NF-84-105(P)(A).
12. ~~Advanced Nuclear Fuels~~ ^{ANF} Corporation Methodology for Boiling Water Reactors EXEM BWR Evaluation Model, ANF-91-048(P)(A). ECCS
13. SPCB Critical Power Correlation, EMF-2209(P)(A).
14. Generic Mechanical Design Criteria for BWR Fuel Designs, ANF-89-98(P)(A).
15. NEDE-24011-P-A, "General Electric Standard Application for Reactor Fuel."
- ~~16. Commonwealth Edison Topical Report NFSR-0085, "Benchmark of BWR Nuclear Design Methods."~~
16. ~~Commonwealth Edison Topical Report~~ NFSR-0091, "Benchmark of CASMO/MICROBURN BWR Nuclear Design Methods."
17. ~~ANFB~~ Critical Power Correlation Application for Cosident Fuel, EMF-1125(P)(A).
18. ~~ANFB~~ Critical Power Correlation Determination of ATRIUM-9B Additive Constant Uncertainties, ANF-1125(P)(A).
19. ~~RODEX2A~~ (BWR) Fuel Rod Thermal-Mechanical Evaluation Model, EMF-85-74(P)(A).
20. ~~Siemens~~ Power Corporation Methodology for Boiling Water Reactors: Evaluation and Validation of CASMO-4/MICROBURN-B2, EMF-2158(P)(A).

DELETE

INSERT
3

The COLR will contain the complete identification for each of the TS referenced topical reports used to prepare the COLR (i.e., report number, title, revision, date, and any supplements).

(continued)

Insert 1

ANF-1125 (P)(A), "ANFB Critical Power Correlation"

Insert 2

XN-NF-524 (P)(A), "ANF Critical Power Methodology for Boiling Water Reactors"

Insert 3

21. NEDC-32981P(A), "GEXL96 Correlation for Atrium-9B Fuel."

22. NEDC-33106P, "GEXL97 Correlation for Atrium-10 Fuel."

ATTACHMENT 3

**RETYPE PAGES
FOR
TECHNICAL SPECIFICATION CHANGES**

5.6 Reporting Requirements

5.6.5 CORE OPERATING LIMITS REPORT (COLR) (continued)

4. The Rod Block Monitor Upscale Instrumentation Setpoint for the Rod Block Monitor-Upscale Function Allowable Value for Specification 3.3.2.1.
- b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:
 1. ANF-1125(P)(A), "ANFB Critical Power Correlation."
 2. Letter, Ashok C. Thadani (NRC) to R.A. Copeland (SPC), "Acceptance for Referencing of ULTRAFLOW™ Spacer on 9x9-IX/X BWR Design," July 28, 1993.
 3. XN-NF-524(P)(A), "ANF Critical Power Methodology for Boiling Water Reactors."
 4. ANF-913(P)(A), "COTRANSA 2: A Computer Program for Boiling Water Reactor Transient Analysis."
 5. ANF-CC-33(P)(A), "HUXY: A Generalized Multirod Heatup Code with 10 CFR 50, Appendix K Heatup Option."
 6. XN-NF-80-19(P)(A), "Advanced Nuclear Fuel Methodology for Boiling Water Reactors."
 7. XN-NF-85-67(P)(A), "Generic Mechanical Design for Exxon Nuclear Jet Pump BWR Reload Fuel."
 8. ANF-89-014(P)(A), "ANF Corporation Generic Mechanical Design for ANF Corporation 9x9-IX and 9x9-9X BWR Reload Fuel."
 9. EMF-CC-074(P)(A), Volume 4 - "BWR Stability Analysis: Assessment of STAIF with input from MICROBURN-B2."
 10. XN-NF-81-58(P)(A), "RODEX2 Fuel Rod Thermal-Mechanical Response Evaluation Model."
 11. XN-NF-84-105(P)(A), "XCOBRA-T: A Computer Code for BWR Transient Thermal-Hydraulic Core Analysis."

(continued)

5.6 Reporting Requirements

5.6.5 CORE OPERATING LIMITS REPORT (COLR) (continued)

12. ANF-91-048(P)(A), "ANF Corporation Methodology for Boiling Water Reactors EXEM BWR Evaluation Model."
13. EMF-2209(P)(A), "SPCB Critical Power Correlation."
14. ANF-89-98(P)(A), "Generic Mechanical Design Criteria for BWR Fuel Designs."
15. NEDE-24011-P-A, "General Electric Standard Application for Reactor Fuel."
16. NFSR-0091, "Benchmark of CASMO/MICROBURN BWR Nuclear Design Methods."
17. EMF-1125(P)(A), "ANFB Critical Power Correlation Application for Co-Resident Fuel."
18. ANF-1125(P)(A), "ANFB Critical Power Correlation Determination of ATRIUM-9B Additive Constant Uncertainties."
19. EMF-85-74(P)(A), "RODEX2A (BWR) Fuel Rod Thermal-Mechanical Evaluation Model."
20. EMF-2158(P)(A), "Siemens Power Corporation Methodology for Boiling Water Reactors: Evaluation and Validation of CASMO-4/MICROBURN-B2."
21. NEDC-32981P(A), "GEXL96 Correlation for Atrium 9B Fuel."
22. NEDC-33106P, "GEXL97 Correlation for Atrium 10 Fuel."

The COLR will contain the complete identification for each of the TS referenced topical reports used to prepare the COLR (i.e., report number, title, revision, date, and any supplements).

(continued)

ATTACHMENT 4

Proprietary Copy

"GEXL97 Correlation for Atrium-10 Fuel"

Affidavit

I, Margaret E. Harding, state as follows:

- (1) I am Manager, Fuel Engineering Services, 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, NEDC-33106P, “GEXL97 Correlation for ATRIUM-10 Fuel”, Rev. 1, June 2003. GNF proprietary information is indicated by a vertical line in the margin to the right side of the information. The specific proprietary information is further 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 2.790(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;

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- 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 2.790 (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.

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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 25 day of June, 2003.



Margaret E. Harding
Global Nuclear Fuel – Americas, LLC