Global Nuclear Fuel

A Joint Venture of GE, Toshiba, & Hitachi

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May 11, 2006

Docket No. 52-010

FLN-2006-019

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

Subject: ESBWR Fuel Meeting, March 2, 2006.

The attached file (Enclosure 1) contains the final presentation (GNF proprietary information) for the ESBWR Fuel Design and Critical Heat Flux (CHF) Correlation meeting held on March 2, 2006 at Global Nuclear Fuel, Wilmington, North Carolina.

GNF considers the information proprietary in accordance with 10 CFR 2.390. GNF customarily maintains this information in confidence and withholds it from public disclosure. The proprietary pages are indicated by the words "contains GNF Proprietary Information" on the bottom right-hand corner.

The affidavit contained in Enclosure 3 identifies that the information contained in Enclosure 1 has been handled and classified as proprietary to GNF. GNF hereby requests that the information of Enclosure 1 be withheld from public disclosure in accordance with the provisions of 10 CFR 2.390 and 9.17. The non-proprietary version of the information in Enclosure 1 is provided in Enclosure 2.

If you have further questions, please contact me at (910) 675-5954.

Sincerely,

Andrew A. Lingenfelter
Manager, Engineering
Global Nuclear Fuel – Americas, LLC

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Enclosures:

1. Final Presentation for the ESBWR Fuel Design and Critical Heat Flux (CHF) Correlation held on March 2, 2006 (Proprietary)
2. Final Presentation for the ESBWR Fuel Design and Critical Heat Flux (CHF) Correlation held on March 2, 2006 (Non-proprietary)
3. Affidavit, Andrew A. Lingenfelter, dated May 11, 2006

cc: A. E. Cubbage, USNRC (with enclosures)
L. M. Quintana, GE/Wilmington (with enclosures)
D. H. Hinds, GE/Wilmington (with enclosures)

Affidavit

I, Andrew A. Lingenfelter, state as follows:

(1) I am Manager, 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 Enclosure 1 of FLN-2006-019, A. Lingenfelter to Document Control Desk (USNRC), *The ESBWR Fuel Design and Critical Heat Flux (CHF) Correlation, March 2, 2006*, Dated May 11, 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.

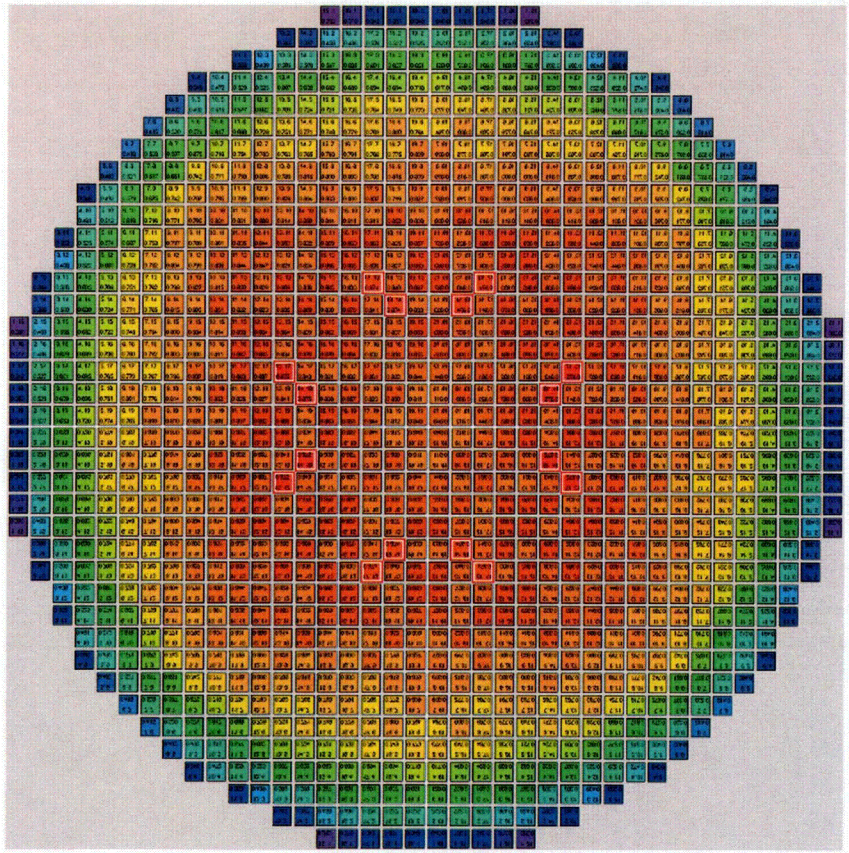
The value of this information to GNF-A would be lost if the information were disclosed to the public. Making such information available to competitors without their having been required to undertake a similar expenditure of resources would unfairly provide competitors with a windfall, and deprive GNF-A 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 Eleventh day of May, 2006.

Andrew A. Lingenfelter
Global Nuclear Fuel – Americas, LLC

ESBWR Core & Fuel



ESBWR Fuel Design and Critical Heat Flux (CHF) Correlation

Russ Fawcett
Manager, Core, Fuel & Advanced Design
2006-03-02

C01

Agenda

Topic	Time	Presenter
DCD & Supplemental LTR Status	08:00-10:00	Fawcett
(Nuclear & T-H) Breakout (Thermal-Mechanical & RDA) Breakout	10:30-12:00	
Lunch	12:00-1:00	
(Nuclear & T-H) Breakout (Thermal-Mechanical & RDA) Breakout	1:00-4:30	

Status of ESBWR DCD & Supplemental LTRs

List of Supplemental LTRs

DCD Section 4.2, 4.3, and 4.4 New References Description	Delivery Date
GE14 for ESBWR Critical Power Correlation, Uncertainty, and OLMCPR Development This report contains the evaluation of the critical power data from the GE14C data that is representative of the GE14E geometry and covers the range of ESBWR operating conditions. It contains the justification of the uncertainties assumed in the development of OLMCPR (similar to the SLMCPR uncertainties). It also provides the statistical OLMCPR calculation results.	Mar 6, 2006
GE14 Pressure Drop Characteristics This report contains the pressure drop characteristics of the spacers, lower tie plate, upper tie plate, and water rod for GE14 fuel.	Dec 12, 2005
GE14 for ESBWR Nuclear Design Report This will contain reactivity coefficient analysis, control requirement (SLCS and Shutdown Margin), Xenon stability, Control of Power Distribution, and Nuclear Methods	Feb 20, 2006
GE14 Fuel Assembly Mechanical Design Report This report contains design loads for fuel assembly components, design criteria for components, structural (stress/strain/fatigue) analyses and results, and evaluation of dimensional compatibility (differential growth)	Nov 21, 2005
GE14 for ESBWR Fuel Assembly Mechanical Design Report Based on comparison with GE14, evaluation of design loads for fuel assembly components, design criteria for components, structural (stress/strain/fatigue) analyses and results, and evaluation of dimensional compatibility (differential growth).	Feb 6, 2006
GE14 Fuel Rod Thermal-Mechanical Design Report Design Criteria and Analyses for Fuel Rod Internal Pressure, Cladding Strain, Hydriding, Fuel Temperature, Cladding Corrosion, Cladding Creep Collapse, Fuel Rod Stresses, and Cladding Fatigue.	Nov 21, 2005
GE14 for ESBWR Fuel Rod Thermal-Mechanical Design Report Based on comparison with GE14, evaluate Fuel Rod Internal Pressure, Cladding Strain, Hydriding, Fuel Temperature, Cladding Corrosion, Cladding Creep Collapse, Fuel Rod Stresses, and Cladding Fatigue.	Jan 23, 2006
ESBWR Marathon Control Rod Nuclear Design Report This report will contain the control rod nuclear lifetime.	Apr 24, 2006
ESBWR Marathon Control Rod Mechanical Design Report This report will contain the evaluation for SCRAM loads, seismic deflections, stuck rod, absorber burn-up loads and swelling, handling loads, hydraulic loads, material performance and applicable mechanical compatibility.	Apr 24, 2006

C02

Reference DRFs for LTRs

neDRFSection	Title	Supports
0000-0046-9229	GE14 Fuel Assembly Mechanical Design Report	NEDE-33236P, GE14 Fuel Assembly Mechanical Design Report
0000-0047-8945	GE14 Fuel Rod Thermal-Mechanical Design Report	NEDE-33241P, GE14 Fuel Rod Thermal-Mechanical Design Report
0000-0048-8535	Licencing Topical Report: GE14 Pressure Drop Characteristics	NEDE-33238P, GE14 Pressure Drop Characteristics
0000-0049-8127	GE14E Fuel Rod Thermal-Mechanical Design Report	NEDE-33242P, GE14 for ESBWR Fuel Rod Thermal-Mechanical Design Report
0000-0049-7283	NEDC33240P GE14E Fuel Assembly Mechanical Design Report	NEDE-33240P, GE14 for ESBWR Fuel Assembly Mechanical Design Report
0000-0050-3216	NRC LTR, GE14 for ESBWR Nuclear Design Report	NEDE-33239P, GE14 for ESBWR Nuclear Design Report
0000-0050-5543	Nuclear Methods Section for NEDC-33239	NEDE-33239P, GE14 for ESBWR Nuclear Design Report

GE14E Thermal and Mechanical

Fuel Rod Thermal-Mechanical Design Report for GE14E

GE14C thermal-mechanical licensing analyses and limits conservatively apply to GE14E fuel design

GE14E design meets all SAFDLs

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Statistical Analyses (Coolant Pressure and Corrosion) bound ESBWR conditions

GE14E FUEL ASSEMBLY DESIGN REPORT

Based on the GE14C design

Key Difference is reduced active fuel length

Components are same as in GE14C design except for the shorter lengths of channel, fuel rods and water rods.

Fewer spacers needed to accommodate shorter bundle

GE14 For ESBWR

Critical Power Correlation

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imagination at work

C03

The GE14 Fuel Bundle

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The GE14 Fuel Lattice

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Comparison of GE14C and GE14E Dimensions

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C04

GEXL14 Correlation Database

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Change In Active Fuel Length

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Change in Spacer Locations

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Change in PLR Lengths

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Change in Critical Power Due to Differences between GE14C and GE14E

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imagination at work

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Exclude Data

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Histogram Plot of ECPRs w/ Normal Curve for the Application of GEXL14 to GE14E

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"Predicted" GEXL14 CP vs. "Reconstructed" ATLAS GE14E CP

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Summary of Correlation Statistics for Application of GEXL14 to GE14E

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The recommended values for ESBWR Safety Limit Calculations are:

[redacted]

[redacted]

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Breakouts