



**HITACHI**

**Proprietary Notice**

This letter transmits proprietary information in accordance with 10CFR2.390. Upon removal of Enclosure 1, the balance of the letter may be considered non-proprietary.

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August 28, 2008  
MFN 07-040 Supplement 2

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

**Subject: Part 21 Notification: Adequacy of GE Thermal-Mechanical Methodology, GESTR-M – Supplement 2**

The NRC staff requested that GE-Hitachi Nuclear Energy (GEH) evaluate the potential non-conservatism in the GE Thermal-Mechanical Methodology, GESTR-M, identified in the ESBWR design certification review in accordance with the provisions of 10CFR Part 21. The staff was concerned that qualification of GESTR-M against high exposure fuel data could indicate that GESTR-M under-predicts fuel centerline temperature.

GEH completed an extensive evaluation and concluded that GESTR-M and its associated statistical methodology, in conjunction with the exposure dependent Linear Heat Generate Rate (LHGR) limit, was adequate for fuel licensing and design calculations within its qualification domain and therefore did not constitute a reportable condition under 10CFR21. A summary of that evaluation was provided on January 21, 2007 in letter number MFN 07-040. Supplement 1 to MFN 07-040 was provided on January 8, 2008, which included additional information supporting the conclusion stated in the initial transmittal, namely that GESTR-M and its associated statistical methodology, in conjunction with the exposure dependent Linear Heat Generation Rate (LHGR) limit, is adequate for fuel licensing and design calculations within its qualified domain, and that application of GESTR-M and its associated methodology does not constitute a reportable condition under 10CFR21.

The Supplement 2 evaluation extends the assessments to the GNF2 fuel design. This Supplement supports the conclusion that GESTR-M and its associated statistical methodology, in conjunction with the exposure dependent LHGR limit is adequate for the GNF2 fuel licensing and design calculations within the domain justified in Enclosure 1, and that application of GESTR-M and its associated methodology does not constitute a reportable condition under 10CFR21.

Please note that Enclosure 1 contains proprietary information of the type that GEH maintains in confidence and withholds from public disclosure. The information has been handled and classified as proprietary to GEH as indicated in its affidavit. The affidavit contained in Enclosure 3 identifies that the information contained in Enclosure 1 has been handled and classified as proprietary to GEH. GEH hereby requests that the information in Enclosure 1 be withheld from public disclosure in accordance with the provisions of 10CFR2.390 and 9.17.

Enclosure 1 is the proprietary version of the supplement and Enclosure 2 is the non-proprietary version. Enclosure 3 contains the affidavit.

If you have any questions on this information, please call me at (910) 602-4491.

Sincerely,

A handwritten signature in black ink, appearing to read "Dale E. Porter", with a stylized flourish at the end.

Dale E. Porter  
Safety Evaluation Program Manager

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PRC File  
DRF Section No. 0000-0090-1880

Enclosures:

1. Assessment of the Applicability of the GESTR-M Model and Associated Application Methodology to the GNF2 Fuel Design - Proprietary Information
2. Assessment of the Applicability of the GESTR-M Model and Associated Application Methodology to the GNF2 Fuel Design - Non-Proprietary Information)
3. Affidavit

## ENCLOSURE 1

### MFN 07-040 Supplement 2

#### Assessment of the Applicability of the GESTR-M Model and Associated Application Methodology to the GNF2 Fuel Design

#### GEH Proprietary Information

#### **PROPRIETARY INFORMATION NOTICE**

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The header of each page in this enclosure carries the notation “GNF Proprietary Information.” The GNF proprietary information is identified by a dotted underline inside double square brackets. [[This sentence is an example.<sup>{3}</sup>]] Figures and large equation objects containing proprietary information are identified with double square brackets before and after the object. In each case, the superscript notation <sup>{3}</sup> refers to Paragraph (3) of this affidavit, which provides the basis for the proprietary determination.

## ENCLOSURE 2

### MFN 07-040 Supplement 2

#### Assessment of the Applicability of the GESTR-M Model and Associated Application Methodology to the GNF2 Fuel Design

#### Non-Proprietary Version

#### **IMPORTANT NOTICE**

This is a non-proprietary version of Enclosure 1 to MFN 07-040 Supplement 2, which has the proprietary information removed. Portions of Enclosure 1 that have been removed are indicated by an open and closed bracket as shown here [[ ]].

ENCLOSURE 3

MFN 07-040 Supplement 2

Affidavit