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**Proprietary Notice**

This letter forwards proprietary information in accordance with 10CFR2.390. Upon the removal of Enclosures 2 and 3, the balance of this letter may be considered non-proprietary.

MFN 08-681

Docket No. 52-010

September 10, 2008

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

Subject: **Response to Portion of NRC Request for Additional Information Letter Nos. 187 and 216 Related to ESBWR Design Certification Application – Subcompartment Analysis and Containment Pressure – RAI Numbers 6.2-20 S02 and 6.2-23 S03**

The purpose of this letter is to submit the GE Hitachi Nuclear Energy (GEH) response to the U.S. Nuclear Regulatory Commission (NRC) Request for Additional Information (RAI) sent by NRC letters dated April 22, 2008 and July 3, 2008, respectively. GEH response to RAI Numbers 6.2-20 S02 and 6.2-23 S03 are addressed in Enclosure 1.

Enclosures 2 and 3 contain GEH proprietary information as defined by 10 CFR 2.390. GEH customarily maintains this information in confidence and withholds it from public disclosure. These subcompartment input spreadsheets and resulting pressure-time response curves are entirely proprietary. As a result, no public version is provided.

The affidavit contained in Enclosure 4 identifies that the information contained in Enclosures 2 and 3 have been handled and classified as proprietary to GEH. GEH hereby requests that the information of Enclosures 2 and 3 be withheld from public disclosure in accordance with the provisions of 10 CFR 2.390 and 9.17.

*DOB8*  
*NRO*



**Enclosure 1**

**MFN 08-681**

**Response to Portion of NRC Request for  
Additional Information Letter Nos. 187 and 216  
Related to ESBWR Design Certification Application**

**Subcompartment Analysis and  
Containment Pressure**

**RAI Numbers 6.2-20 S02 and 6.2-23 S03**

**NRC RAI 6.2-20 S02:**

*GEH's response to RAI 6.2-20 S01 is acceptable. Please update the DCD to justify (1) assuming air instead of nitrogen in the annulus and (2) not using 2 percent uncertainty for reactor power.*

**GEH Response:**

The information provided in the response to RAI 6.2-20 S01, justification on (1) assuming air instead of nitrogen in the annulus; and (2) not using 2 percent uncertainty for reactor power, will be provided in a new Licensing Topical Report (LTR), NEDE-33440P entitled "ESBWR Safety Analysis – Additional Information". LTR NEDE-33440P is a collection of proprietary data that was provided in several RAIs related to annulus pressurization.

**DCD Impact**

No DCD changes will be made in response to this RAI.

LTR NEDE-33440P will be provided by November 15, 2008.

**NRC RAI 6.2-23 S03:**

*(A) In response to RAI 6.2-23 Supplement 2, GEH changed the critical flow inventory multiplier in the blowdown break flow on the pipe side of the break from the previously used value of 1.0 to 0.5. Please provide the basis for selecting this value.*

*(B) In response to RAI 6.2-23 Supplement 2, GEH states the following:*

*"Results show the RWCU line break to be limiting, with a peak annulus pressure of 1.2124 MPa reached at 1.5 msec after the break, compared to 1.521 MPa at 3 msec from the previous analysis. For FW line break, the peak pressure is 0.8852 MPa and occurs at 13 msec into the transient, compared to 0.877 MPa at 3 msec from the previous analysis."*

*GEH provided previous results in graphical form in letter MFN 06-159, dated June 5, 2006. Please provide the updated results in graphical form.*

*(C) GEH should include responses to RAI 6.2-23 and associated supplements in a licensing document (such as the proprietary licensing topical report as described in GEH's response to RAI 6.2-23 in MFN-06-159 dated June 5, 2006).*

**GEH Response:**

(A) The selection of the multiplier in the blowdown break flow on the pipe side of the break is based on the modeling assumption provided on Page B-12 of the following reference:

NEDO-20533-1, "The General Electric Mark III Pressure Suppression Containment System Analytical Model Supplement 1," Appendix B, September 1975.

The pipe inventory blowdown study documented in NEDO-20533-1 is for the Mark III containment and also applicable to the ESBWR design since the phenomena of the inventory effect is independent of the containment type. The modeling change on the inventory multiplier assumption in the annulus pressurization reanalysis is consistent with the recommendation provided in NEDO-20533-1 and relaxed the overly conservative assumption adopted in the previous analysis.

(B) The updated results in graphical form are presented in the following attachments:

Enclosure 2: RWCU Line Break Results

Enclosure 3: FW Line Break Results

(C) The response to RAI 6.2-23 and associated supplements will be provided in a new Licensing Topical Report (LTR) entitled: "NEDE-33440P, "ESBWR Safety Analysis – Additional Information," October 2008.

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Enclosure 1

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**DCD Impact:**

No DCD changes will be made in response to this RAI.

LTR NEDE-33440P will be provided by November 15, 2008.

**Enclosure 4**

**MFN 08-681**

**Affidavit – Larry J. Tucker**

**Executed September 10, 2008**

# GE-Hitachi Nuclear Energy Americas LLC

## AFFIDAVIT

I, Larry J. Tucker, state as follows:

- (1) I am Manager, ESBWR Engineering, GE-Hitachi Nuclear Energy Americas LLC ("GEH"), 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 to be discussed and sought to be withheld is delineated in the letter from Mr. Richard E. Kingston to U.S. Nuclear Regulatory Commission, entitled "Response to Portion of NRC Request for Additional Information Letter Nos. 187 and 216 Related to ESBWR Design Certification Application – Subcompartment Analysis and Containment Pressure – RAI Numbers 6.2-20 S02 and 6.2-23 S03," dated September 10, 2008. The information in Enclosures 2 and 3, which are entitled *MFN 08-681 RWCU Line Break Results – GEH Proprietary Information*, and *MFN 08-681 FW Line Break – GEH Proprietary Information*, respectively are entirely proprietary. Paragraph (3) of this affidavit 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, GEH 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" (Exemption 4). The material for which exemption from disclosure is here sought 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 GEH's competitors without license from GEH 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 aspects of past, present, or future GEH customer-funded development plans and programs, resulting in potential products to GEH;
- d. 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 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 GEH, and is in fact so held. The information sought to be withheld has, to the best of my knowledge and belief, consistently been held in confidence by GEH, 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. Its initial designation as proprietary information, and the subsequent steps taken to prevent its unauthorized disclosure, are as set forth in paragraphs (6) and (7) following.
- (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 GEH. Access to such documents within GEH 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 for technical content, competitive effect, and determination of the accuracy of the proprietary designation. Disclosures outside GEH 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) above is classified as proprietary because it contains computer code inputs and results developed by GEH for analyzed accident scenarios. Development of this analysis and associated code was achieved at a significant cost to GEH, and is considered a major GEH asset.
- (9) Public disclosure of the information sought to be withheld is likely to cause substantial harm to GEH's competitive position and foreclose or reduce the availability of profit-making opportunities. The information is part of GEH'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 GEH.

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.

GEH's competitive advantage will be lost if its competitors are able to use the results of the GEH 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 GEH 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 GEH 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 on this 10<sup>th</sup> day of September 2008.

  
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Larry J. Tucker  
GE-Hitachi Nuclear Energy Americas LLC