



**HITACHI**

**GE Hitachi Nuclear Energy**

**Richard E. Kingston**  
Vice President, ESBWR Licensing

P.O. Box 780  
3901 Castle Hayne Road, M/C A-65  
Wilmington, NC 28402 USA

T 910.819.6192  
F 910.362.6192  
rick.kingston@ge.com

**Proprietary Notice**

This letter forwards proprietary information in accordance with 10CFR2.390. Upon the removal of Enclosure 1 and 3, the balance of this letter may be considered non-proprietary.

MFN 09-467

Docket No. 52-010

July 13, 2009

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

**Subject: Response to Portion of NRC RAI Letter No. 339 Related to ESBWR Design Certification Application – DCD Tier 2 Section 3.9 – Mechanical Systems and Components; RAI Number 3.9-225 S01**

The purpose of this letter is to submit the GE Hitachi Nuclear Energy (GEH) response to a portion of the U.S. Nuclear Regulatory Commission (NRC) Request for Additional Information (RAI) letter number 339 sent by NRC letter dated May 26, 2009 (Reference 1). RAI Number 3.9-225 S01 is addressed in Enclosure 1. Enclosure 3 contains the changes to NEDE-33408P as a result of GEH's response to this RAI. Verified LTR changes associated with this RAI responses are identified in the attached markups by enclosing the text within a black box.

Enclosures 1 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. Enclosures 2 and 4 are the non-proprietary versions, which do not contain proprietary information and are suitable for public disclosure.

The affidavit contained in Enclosure 5 identifies that the information contained in Enclosures 1 and 3 has been handled and classified as proprietary to GEH. GEH hereby requests that the information in Enclosures 1 and 3 be withheld from public disclosure in accordance with the provisions of 10 CFR 2.390 and 9.17.

If you have any questions or require additional information, please contact me.

Sincerely,

  
Richard E. Kingston  
Vice President, ESBWR Licensing



Reference:

1. MFN 09-365 Letter from U.S. Nuclear Regulatory Commission to J. G. Head, GEH, *Request For Additional Information Letter No. 339 Related to ESBWR Design Control Document* dated May 26, 2009

Enclosures:

1. Response to Portion of NRC RAI Letter No. 339 Related to ESBWR Design Certification Application - DCD Tier 2 Section 3.9 – Mechanical Systems and Components; RAI Number 3.9-225 S01 - Proprietary Version
2. Response to Portion of NRC RAI Letter No. 339 Related to ESBWR Design Certification Application - DCD Tier 2 Section 3.9 – Mechanical Systems and Components; RAI Number 3.9-225 S01 - Public Version
3. Response to Portion of NRC RAI Letter No. 339 Related to ESBWR Design Certification Application - LTR Markups RAI Number 3.9-225 S01 - Proprietary Version
4. Response to Portion of NRC RAI Letter No. 339 Related to ESBWR Design Certification Application - LTR Markups RAI Number 3.9-225 S01 - Public Version
5. Affidavit

cc: AE Cabbage  
JG Head  
DH Hinds  
eDRF Section

USNRC (with enclosures)  
GEH/Wilmington (with enclosures)  
GEH/Wilmington (with enclosures)  
0000-0092-7244 R1 (RAI 3.9-225 S01)

**Enclosure 2**

**MFN 09-467**

**Response to Portion of NRC Request for**

**Additional Information Letter No. 339**

**Related to ESBWR Design Certification Application**

**DCD Tier 2 Section 3.9 – Mechanical Systems and  
Components**

**RAI Number 3.9-225 S01**

**Public Version**

**NRC RAI 3.9-225 S01**

*RAI Summary*

*Additional information regarding elements per wavelength.*

*RAI Text*

*In the response to RAI 3.9-225, GEH states that the [[*

*]]. However, Report NEDC-33408 and its Supplement 1 imply that all the [[  
]]. GEH is requested to revise Report NEDC-33408P and its Supplement 1 to indicate the regions where this requirement can be relaxed. The applicant is also requested to provide the minimum acceptable number of elements per wavelength in these regions and to substantiate the adequacy of the recommended minimum number of elements.*

**GEH Response**

GEH's original intent in NEDC-33408P[[

]].

GEH agrees with the NRC in that there is an appearance of an inconsistency between the two LTRs. [[

]]

NEDC-33408P will be revised [[

]]

**DCD Impact**

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

LTR NEDC-33408P, Rev 0 will be revised as noted in the attached markup.

**Enclosure 4**

**MFN 09-467**

**Response to Portion of NRC Request for  
Additional Information Letter No. 339  
Related to ESBWR Design Certification Application  
LTR Markup for  
RAI Number 3.9-225 S01  
Public Version**

Where  $F_A$  is the vector of nodal acoustic forces, proportional to the normal velocity boundary conditions imposed on the faces of the mesh. The stiffness  $[K]$ , damping  $[C]$  and mass  $[M]$  matrices are computed at each frequency. The system of equations is thus set up and solved to obtain the pressure distribution  $\{p\}$ . The velocity field is obtained by differentiation of the pressure field at the Gauss points of the elements and then extrapolation and averaging at the nodes.

### 2.2.2 Geometry Modeling

The dome FE mesh (Figure 2) comprises all RPV steam volumes [[  
]]

In all GEH BWRs, there are two steam zones with different steam qualities, upstream and downstream of the dryer. [[



#### 4.4 PLANT-SPECIFIC APPLICATION METHODOLOGY

##### 4.4.1 [[ ]] Model Inputs

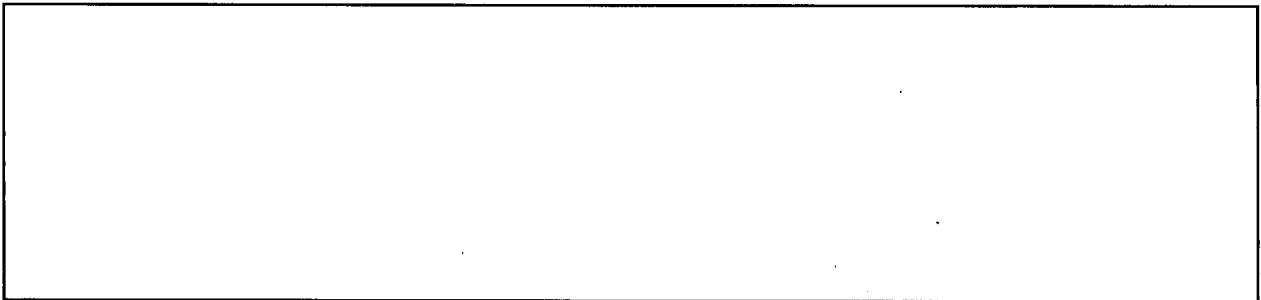
The vessel [[

•

]]

##### *Acoustic Finite Element Model Mesh*

A FE model of the [[



**MFN 09-467**

**Enclosure 5**

**Affidavit**



# GE-Hitachi Nuclear Energy Americas LLC

## AFFIDAVIT

I, David A Piepmeyer, state as follows:

- (1) I am the Senior Project Manager ESBWR Certification, GE Hitachi Nuclear Energy ("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 sought to be withheld is contained in Enclosures 1 and 3 of GEH letter MFN 09-467, Mr. Richard E. Kingston to U.S. Nuclear Regulatory Commission, entitled *Response to Portion of NRC RAI Letter No. 339 Related to ESBWR Design Certification Application - DCD Tier 2 Section 3.9 - Mechanical Systems and Components; RAI Number 3.9-225 S01* dated July 13, 2009. The GEH proprietary information in Enclosure 1, which is entitled *Response to Portion of NRC RAI Letter No. 339 Related to ESBWR Design Certification Application - DCD Tier 2 Section 3.9 - Mechanical Systems and Components; RAI Number 3.9-225 S01 - Proprietary Version* and in Enclosure 3, which is entitled *Response to Portion of NRC RAI Letter No. 339 Related to ESBWR Design Certification Application - LTR Markups RAI Number 3.9-225 S01 - Proprietary Version* is delineated by a [[dotted underline inside double square brackets.<sup>{3}</sup>]]. Figures and large equation objects 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. Non-proprietary versions of this information is provided in Enclosure 2 *Response to Portion of NRC RAI Letter No. 339 Related to ESBWR Design Certification Application - DCD Tier 2 Section 3.9 - Mechanical Systems and Components; RAI Number 3.9-225 S01 - Public Version* and in Enclosure 4 *Response to Portion of NRC RAI Letter No. 339 Related to ESBWR Design Certification Application - LTR Markups RAI Number 3.9-225 S01 - Public Version*.
- (3) In making this application for withholding of proprietary information of which it is the owner, 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 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, 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 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 identifies detailed GEH ESBWR design information. GEH utilized prior design information and experience from its fleet with significant resource allocation in developing the system over several years at a substantial cost.

The development of the evaluation process along with the interpretation and application of the analytical results is derived from the extensive experience database that constitutes 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.

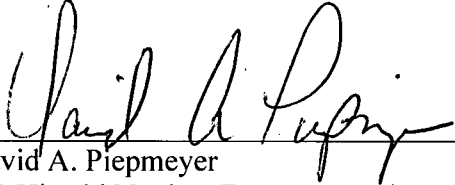
The precise value of the expertise to devise an evaluation process and apply the correct analytical methodology is difficult to quantify, but it clearly is substantial.

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 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 13<sup>th</sup> day of July, 2009.

  
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David A. Piepmeyer  
GE-Hitachi Nuclear Energy Americas LLC