



**HITACHI**

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**Proprietary Notice**

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

MFN 06-464 Supplement 9, Revision 3

Docket No. 52-010

March 17, 2010

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

**Subject: Response Revision 3 to RAI Number 3.9-75 S01 related to DCD Tier 2 Section 3.9 – Mechanical Systems and Components**

The purpose of this letter is to submit the GE Hitachi Nuclear Energy (GEH) supplemental response to the U.S. Nuclear Regulatory Commission (NRC) Request for Additional Information (RAI) received from the NRC via Reference 2 (RAI 3.9-75 S01). The GEH original revised response was submitted via Reference 1. A second response revision as a result of interactions with the staff to close RAI 3.9-75 S01 was issued via Reference 3. Following review of Reference 3 the staff had additional comments sent by Reference 4 that were addressed in Reference 5. Reference 4 also contained staff comments on LTR NEDE-33259P, Revision 3. These comments are addressed in Enclosure 1 and Enclosure 2 of this letter.

GEH revised response number 3 to RAI 3.9-75 S01 is contained in Enclosure 1. Enclosure 2 contains changes to NEDE-33259P, Revision 3 as a result of GEH's revised response to RAI 3.9-75 S01. Verified LTR changes associated with this revised RAI responses are identified in the enclosed LTR markups by enclosing the text within a black box.

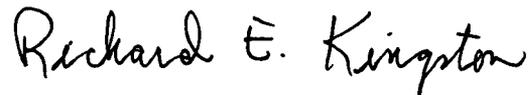
Enclosure 2 contains GEH proprietary information as defined by 10 CFR 2.390. GEH customarily maintains this information in confidence and withholds it from public disclosure. Enclosure 3 is the non-proprietary version, which does not contain proprietary information and is suitable for public disclosure.

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The affidavit contained in Enclosure 4 identifies that the information contained in Enclosure 2 has been handled and classified as proprietary to GEH. GEH hereby requests that the information in Enclosure 2 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,

A handwritten signature in cursive script that reads "Richard E. Kingston".

Richard E. Kingston  
Vice President, ESBWR Licensing



**Enclosure 1**

**MFN 06-464, Supplement 9, Revision 3**

**Response Revision 3 to**

**RAI Number 3.9-75 S01 Related to DCD Tier 2**

**Section 3.9 – Mechanical Systems and Components**

**NRC RAI 3.9-75 S01**

*RAI 3.9-75 S01 Comment on response to RAI 3.9-75:*

*The response of the applicant is acceptable because the use of terms has been made clear and a schedule for providing startup information at the time of COL application has been identified. RAI 3.9-75 is a COL action item. However, classification of the ESBWR, as a whole as Non-Prototype Category II, will not be considered until responses to all the open items are received*

**GEH Original Response**

The applicant agrees with the Staff position. GE is completing work to support the Non-Prototype Category II classification.

**DCD Original Impact**

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

**GEH Response (Revision 1)**

NRC Regulatory Guide 1.20, Rev. 2 requires detailed information on a comprehensive vibration assessment program for reactor internals during startup testing. The information requested includes descriptions of an analytical program, and an extensive measurement and inspection program. The required information for the ESBWR was provided in Licensing Topical Report (LTR) Reactor Internals Flow Induced Vibration Program, NEDE-33259P revision 1 dated December 2007. With the submittal of the revised LTR and changes to DCD Tier 2 subsections, as noted below, GEH is providing information to support closure of open items associated with classifying ESBWR as a Non-Prototype Category II plant.

**DCD Impact (Revision 1)**

DCD Tier 2, Subsections 3.9.2.3, 3.9.2.6, 3L.1, 3L.5.3, 3L.5.5.1.3 and 3L.5.5.1.4 were revised in DCD rev 5 in response to this RAI.

**LTR Impact (Revision 1)**

LTR General Electric Company, "ESBWR Reactor Internals Flow Induced Vibration Program", NEDE-33259P, Class III (Proprietary), and NEDO-33259, Class I (Non-proprietary), were revised to revision 1, December 2007.

**GEH Response (Revision 2)**

Based on further discussions with the NRC, GEH has agreed to reclassify the ESBWR as a prototype, in accordance with Revision 2 of Regulatory Guide 1.20, for the reactor internals vibration program. Applicable sections of the DCD, NEDE-33259P and NEDO-33259 will be revised to reflect this change in classification.

**DCD and LTR Impact (Revision 2)**

DCD, Tier 2, Section 3L.1 will be revised as shown in the attached markup.

In NEDE-33259P and NEDO-33259, Sections 2.0, 5.1, 5.2, 5.3 and 5.4 will be revised and Table 7 will be added, as shown in the attached markups.

**GEH Response (Revision 3)**

This revised response is based on additional discussions between GEH and the NRC and supplements the prior responses. Section 3.0 of NEDE-33259P and NEDO-33259 will be revised to clarify that the ABWR is classified as a prototype by the Japanese Ministry of International Trade and Industry (MITI).

**DCD and LTR Impact (Revision 3)**

Section 3.0 of NEDE-33259P and NEDO-33259 will be revised as shown in the attached markup.

**Enclosure 3**

**MFN 06-464, Supplement 9, Revision 3**

**Response Revision 3 to**

**RAI Number 3.9-75 S01 related to DCD Tier 2**

**Section 3.9 – Mechanical Systems and Components**

**LTR Markups for RAI Number 3.9-75 S01**

**Public Version**

### 3.0 DISCUSSION ON ABWR ~~PROTOTYPE~~ FIV TEST AND INSPECTION PROGRAM

The ~~prototype~~-ABWR reactor internals preoperational test program was performed in Japan. Although the program was carried out under the jurisdiction of the Japanese Ministry of International Trade and Industry (MITI), it also complied with the requirements of the U.S. Regulatory Commission (NRC) Regulatory Guide 1.20, Rev. 2 for a prototype design. MITI has classified these ABWR reactor internals as prototype. Subsequent favorable operational experience has demonstrated structural adequacy of the ABWR reactor internals with respect to FIV. The program included analyses, measurements and inspections of reactor internals components deemed critical. Strain gages, accelerometers and linear variable differential transformer (LVDT) type relative displacement sensors were used for monitoring vibration levels. A total of [ ] sensors of different types were used to obtain vibration data on 11 different reactor internals component structures. The sensor locations were determined based upon the analytically predicted mode shapes for each structure, or in some cases, based upon the locations of past adverse inservice vibration phenomena. A variety of steady state and transient conditions that could be expected to occur during the life of the plant were included in the program. Test data were evaluated for five different testing conditions. The maximum zero to peak stress intensities calculated on the basis measurements during the ABWR startup FIV test program are shown in Tables 3 and 4.

The type of sensors, their locations and the basis for their locations are shown in Table 1.

**MFN 06-464 Supplement 9, Revision 3**

**Enclosure 4**

**Affidavit**

# GE-Hitachi Nuclear Energy Americas LLC

## AFFIDAVIT

I, **Larry Tucker**, state as follows:

- (1) I am Manager, ESBWR Engineering, GE Hitachi Nuclear Energy ("GEH") 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 2 of GEH letter MFN 06-464 Supplement 9, Revision 3, Mr. Richard E. Kingston to U.S. Nuclear Regulatory Commission, entitled *Response Revision 3 to RAI Number 3.9-75 S01 related to DCD Tier 2 Section 3.9 – Mechanical Systems and Components*, dated March 17, 2010. The GEH proprietary information in Enclosure 2, which is entitled *Response Revision 3 to RAI Number 3.9-75 S01 related to DCD Tier 2 Section 3.9 – Mechanical Systems and Components - LTR Markups for RAI Number 3.9-75 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. A non-proprietary version of this information is provided in Enclosure 3, *Response Revision 3 to RAI Number 3.9-75 S01 related to DCD Tier 2 Section 3.9 – Mechanical Systems and Components - LTR Markups for RAI Number 3.9-75 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 17<sup>th</sup> day of March, 2010.

  
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Larry Tucker  
GE-Hitachi Nuclear Energy Americas LLC