



**HITACHI**

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**Proprietary Notice**

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

MFN 08-527

Docket No. 52-010

June 27, 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 No. 204 – Related To NEDE-33244P, Revision 1 “ESBWR Control Rod Mechanical Design Report”, RAI Number 4.2-20**

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 the Reference 1 NRC letter. GEH response to RAI Numbers 4.2-20 is addressed in Enclosures 1, 2, and 3.

Enclosure 1 contains GEH proprietary information as defined by 10 CFR 2.390. GEH customarily maintains this information in confidence and withholds it from public disclosure. A non-proprietary version is provided in Enclosure 2.

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 of Enclosure 1 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,

James C. Kinsey  
Vice President, ESBWR Licensing

DOB  
NRD

## Reference:

1. MFN 08-494, Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, GEH, *Request For Additional Information Letter No. 204 Related To ESBWR Design Certification Application – Request for Additional Information (RAI) Clarification*, dated May 22, 2008.

## Enclosures:

1. MFN 08-527 – Response to Portion of NRC Request for Additional Information Letter No. 204 – Related To NEDE-33244P, Revision 1 “ESBWR Control Rod Mechanical Design Report”, RAI Number 4.2-20 – GEH Proprietary Information
2. MFN 08-527 – Response to Portion of NRC Request for Additional Information Letter No. 204 – Related To NEDE-33244P, Revision 1 “ESBWR Control Rod Mechanical Design Report”, RAI Number 4.2-20 – Non-Proprietary Version
3. MFN 08-527 – Response to Portion of NRC Request for Additional Information Letter No. 204 – Related To NEDE-33244P, Revision 1 “ESBWR Control Rod Mechanical Design Report”, RAI Number 4.2-20 – Affidavit

cc: AE Cabbage USNRC (with enclosures)  
GB Stramback GEH/San Jose (with enclosures)  
RE Brown GEH/Wilmington (with enclosures)  
DH Hinds GEH/Wilmington (with enclosures)  
eDRF 0000-0084-2503 R1

**Enclosure 2**

**MFN 08-527**

**Response to NRC Request for**

**Additional Information Letter No. 204**

**Related To NEDE-33244P, Revision 1  
“ESBWR Control Rod Mechanical Design Report”**

**RAI Number 4.2-20**

**Non-Proprietary Version**

**NRC RAI 4.2-20 Revised**

*Material degradation mechanism issues*

*Results from the ongoing surveillance program for the BWR/2-6 Marathon design, which was approved in Reference 1 (NEDE-31258P-A), indicate the presence of more than one material degradation mechanism. Since the ESBWR Marathon design employs many of the same design features, please address the following:*

- a) Please provide findings of cracked control blades in the current operating fleet.*
- b) Please provide the Part 21 notification evaluation related to the Marathon control blade issues.*
- c) Please provide the root cause analysis determination related to the Marathon control blade issues.*
- d) Based on the observed failures, please demonstrate that the mechanical lifetime calculations, inputs, and assumptions **[fatigue]** remain valid for the ESBWR.*

**GEH Response**

An update of the Marathon surveillance program was submitted to NRC via MFN 08-355. This update includes:

- a) An updated listing of visual inspection results, including recently completed inspections and planned inspections,
- b) A summary of 10CFR Part 21 evaluations,
- c) A summary of root cause analyses.
- d) As discussed in Section 3.6 of NEDE-33244P Rev. 1, the ESBWR Marathon capsule is designed [[

]]. As discussed in Section 3.6.5 of NEDE-33244P Rev. 1, this significantly reduces the stress/strain present in the outer absorber tube at end of life, and significantly reduces the likelihood of stress-corrosion cracking.

Fatigue is evaluated in Section 3.8 of NEDE-33244P Rev. 1. As discussed, the fatigue usage is very low such that fatigue is not expected to be a failure mechanism for Marathon control rods. As discussed in MFN 08-355, the appearance of the limited number of crack indications observed in BWR/2-6 Marathon control rods suggests the cause to be strain in the outer absorber tube caused by boron carbide capsule swelling, and not fatigue.

**DCD Impact**

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

No changes to the subject LTR will be made in response to this RAI.

**Enclosure 3**

**MFN 08-527**

**Response to Portion of NRC Request for  
Additional Information Letter No. 204  
Related To NEDE-33244P, Revision 1  
“ESBWR Control Rod Mechanical Design Report”**

**RAI Number 4.2-20**

**Affidavit**

# GE Hitachi Nuclear Energy

## AFFIDAVIT

I, **James C. Kinsey**, state as follows:

- (1) I am the Vice President of ESBWR Regulatory Affairs, 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 1 of GEH letter MFN 08-527, Mr. James C. Kinsey to U.S. Nuclear Regulatory Commission, "Response to Portion of NRC Request for Additional Information Letter No. 204 – Related To NEDE-33244P, Revision 1 "ESBWR Control Rod Mechanical Design Report", – RAI Number 4.2-20" dated June 27, 2008. GEH Proprietary Information is identified in Enclosure 1, "MFN 08-527 – Response to Portion of NRC Request for Additional Information Letter No. 204 – Related To NEDE-33244P, Revision 1 "ESBWR Control Rod Mechanical Design Report" – RAI Number 4.2-20 – GEH Proprietary Information" in dark red font and a dashed underline inside double square brackets. [[This sentence is an example.<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 of the proprietary determination. Specific information that is not so marked is not GEH proprietary. A non-proprietary version of this information is provided in Enclosure 2, "MFN 08-527 – Response to Portion of NRC Request for Additional Information Letter No. 204 – Related To NEDE-33244P, Revision 1 "ESBWR Control Rod Mechanical Design Report" – RAI Number 4.2-20 – Non-Proprietary 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'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, 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 discloses a process, method, or apparatus, including supporting data and analyses. This information, 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.

- (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.

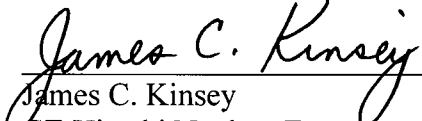
The precise value of the expertise to devise an evaluation process and apply the correct analytical methodology is difficult to quantify, but it clearly is substantial.

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 27<sup>th</sup> day of June 2008.

  
James C. Kinsey  
GE Hitachi Nuclear Energy