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Proprietary Notice

This letter forwards proprietary information in accordance with 10 CFR 2.390. Upon the removal of Enclosure 1, the balance of this letter may be considered non-proprietary.

MFN 08-595

Docket No. 52-010

July 29, 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. 205 Related to ESBWR Design Certification Application
– Electrical Power - RAI Number 8.2-14**

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 Letter No. 205, dated May 21, 2008 (Reference 1).

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,

Richard E. Kingston
Vice President, ESBWR Licensing

DOCS
NRO

Reference:

1. MFN 08-495 - Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, GEH, *Request For Additional Information Letter No. 205 Related To ESBWR Design Certification Application*, dated May 21, 2008

Enclosures:

1. MFN 08-595 -Response to Portion of NRC Request for Additional Information Letter No. 205 Related to ESBWR Design Certification Application – Electrical Power - RAI Number 8.2-14– Proprietary Version
2. MFN 08-595 -Response to Portion of NRC Request for Additional Information Letter No. 205 Related to ESBWR Design Certification Application – Electrical Power - RAI Number 8.2-14 – Non-Proprietary Version
3. Affidavit – MFN 08-595

cc: AE Cabbage USNRC (with enclosure)
RE Brown GEH/Wilmington (with enclosure)
DH Hinds GEH/Wilmington (with enclosure)
GB Stramback GEH/San Jose (with enclosure)
eDRF 0000-0088-1813

MFN 08-595

Enclosure 3

Affidavit

GE-Hitachi Nuclear Energy LLC

AFFIDAVIT

I, **David H. Hinds**, state as follows:

- (1) I am the General Manager, New Units Engineering, 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 Enclosure 1 of GEH letter MFN 08-595, Mr. Richard E. Kingston to U.S. Nuclear Regulatory Commission, entitled *Response to Portion of NRC Request for Additional Information Letter No. 205 Related to ESBWR Design Certification Application – Electrical Power - RAI Number 8.2-14*– GEH Proprietary Information, dated July 29, 2008 is delineated by a [[dashed underline inside double square brackets.^{3}]]. Figures and large equation objects are identified with double square brackets before and after the object. In each case, the superscript notation ^{3} refers to Paragraph (3) of this affidavit, which provides the basis for the proprietary determination.
- (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 qualifies 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. 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 details of GEH ESBWR methods, techniques, information, procedures, and assumptions related to the application of the electric power schemes to the GEH ESBWR.

The development of the evaluation process along with the interpretation and application of the regulatory guidance 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 29th day of July 2008.



David H. Hinds
GE-Hitachi Nuclear Energy LLC

Enclosure 2

MFN 08-595

**Response to Portion of NRC Request for Additional
Information Letter No. 205 Related to ESBWR**

Design Certification Application

Electrical Power

RAI Numbers

8.2-14

Non-Proprietary Version

Do Not Electronically Transmit

NRC RAI 8.2-14

From DCD, Revision.4, Section 8.2.1.2, it appears that the ESBWR design has the capability to sustain a full load rejection from 100 percent power with the turbine generator continuing stable operation while supplying the plant house loads. However, the staff notes that in such instances, the voltage spike from the main generator during islanding could go as high as 130 percent. In this regard provide the following: (a) Describe the provisions provided in the ESBWR design that will ensure that the onsite auxiliary power equipment including safety-related battery chargers and uninterruptible power supplies can withstand such a voltage spike from the generator for the duration of its susceptibility without tripping or causing any damage to the equipment. (b) Describe the circumstances when this design feature will be used in the plant design.

GEH Response

Due to the passive nature of the ESBWR design, all safety-related loads are powered from the four independent divisions of safety-related Uninterruptible Power Supplies (UPS). For this arrangement, the primary objective is to protect the safety-related batteries and UPS inverters from transients induced on the AC supply.

The ESBWR is designed to accommodate a rejection of the electrical grid at 100 percent power and continue to supply power to the plant house loads in Island Mode. Industry experience has shown that the voltage transient during islanding after loss of the electrical grid, or generator voltage regulator malfunction, can propagate through the plant electrical distribution system, resulting in the tripping or loss of safety-related equipment. The plant safety-related and non-safety-related equipment is designed to accommodate operational voltage and frequency transients such as the islanding transient and faulted conditions such as generator voltage regulator malfunctions.

The Forsmark incident, subject of NRC Information Notice 2006-18, highlights the importance of coordinating protective trips between the UPS input rectifiers, battery chargers and inverters. [[

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The ESBWR exciter is a terminal fed potential source static type with dual auto voltage regulators and no current boost capability. [[

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The isolation power centers that supply power to the safety-related battery chargers and inverters are equipped with protective relaying that opens the incoming line breakers to protect the safety-related battery chargers and UPS input rectifiers from sustained under voltage or over voltage conditions. The protective relaying scheme for the ESBWR will be finalized during detailed design to ensure protection is afforded to safety-related and non-safety-related equipment as required.

DCD Impact

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