HITACHI

GE Hitachi Nuclear Energy

Richard E. Kingston
Vice President, ESBWR Licensing

PO Box 780 M/C A-65
Wilmington, NC 28402-0780
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, the balance of this letter may be considered non-proprietary.

MFN 09-105

Docket No. 52-010

February 09, 2009

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. 276 – Related To ESBWR Design Certification Application – RAI Number 4.4-89 Supplement 1**

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 Number 4.4-89 Supplement 1 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. Enclosure 2 is the non-proprietary version, which does not contain proprietary information and is suitable for public disclosure.

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 in Enclosure 1 be withheld from public disclosure in accordance with the provisions of 10 CFR 2.390 and 10 CFR 9.17.

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

Sincerely,

Lee F. Dougherty for

Richard E. Kingston
Vice President, ESBWR Licensing

D068
NRO

References:

1. MFN 08-957 Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, GEH, *Request For Additional Information Letter No. 276 Related To ESBWR Design Certification Application,* dated December 4, 2008

Enclosures:

1. MFN 09-105 – Response to Portion of NRC Request for Additional Information Letter No. 276 – Related To ESBWR Design Certification Application – RAI Number 4.4-89 S01 – GEH Proprietary Information
2. MFN 09-105 – Response to Portion of NRC Request for Additional Information Letter No. 276 – Related To ESBWR Design Certification Application – RAI Number 4.4-89 S01 – Non-Proprietary Version
3. MFN 09-105 – Response to Portion of NRC Request for Additional Information Letter No. 276 – Related To ESBWR Design Certification Application – RAI Number 4.4-89 S01 – Affidavit

cc: AE Cubbage USNRC (with enclosures)
RE Brown GEH/Wilmington (with enclosures)
DH Hinds GEH/Wilmington (with enclosures)
eDRF 0000-0096-2636

Enclosure 2

MFN 09-105

Response to Portion of NRC Request for

Additional Information Letter No. 276

Related to ESBWR Design Certification Application

RAI Number 4.4-89 S01

Non-Proprietary Version

NRC RAI 4.4-89 S01

Procedure used for determining the fuel inlet orifice size, the revised loss factors, and the verification process used to ensure proper loading

Per a teleconference with GEH on October 29, 2008, GEH stated that the change in flow loss coefficient resulting from the lengthening of the fuel support to accommodate the increased thickness of the core support plate is offset by resizing of the bundle inlet orifice. Please provide:

1) The procedure used for making this adjustment.

2) A table of the revised component loss factors similar to that previously provided in Table 4 in the response to RAI 4.4-66, Supplement 1 (MFN 08-581).

3) A discussion of the verification process used to ensure that the proper bundle orifice size is installed at the analyzed location in the core.

GEH Response

Response to Item 1 of RAI 4.4-89 S01

The procedure for modifying the inlet orifice to achieve a specified hydraulic resistance entails:

a) selecting the design parameters to be varied (e.g. inlet orifice diameter);

b) making analytical projections of the hydraulic characteristics; and

c) confirming by full scale testing.

This is the same procedure that has been successfully used to design hydraulic components of the operating BWRs to achieve a specified hydraulic loss. The development of the pressure drop correlations for orifices, lower tie plates, spacers, and upper tie plates is also addressed in Section 4.2.5.1 of Reference 4.4-89-S01-1.

Response to Item 2 of RAI 4.4-89 S01

Table 4.4-89-S01-1 shows the revised loss coefficients.

Table 4.4-89-S01-1. Irreversible loss coefficients

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Response to Item 3 of RAI 4.4-89 S01

The process used to ensure that the proper bundle orifice size is installed at the analyzed location in the core is as follows. The Orifice Fuel Support (OFS) is installed in accordance with plant specific procedures referencing the specific RPV assembly drawing. The RPV assembly drawing shows the location for each OFS. Each OFS is marked on the top surface with the orifice size. The OFS size identification allows for location verification. The whole process is controlled using plant specific procedures. These ESBWR plant procedures will be developed in accordance with the DCD Chapter 13 Section 13.5.

References

4.4-89-S01-1 NEDE-24011-P-A-16, "General Electric Standard Application for Reactor Fuel," October 2007.

DCD Impact

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

Enclosure 3

MFN 09-105

Response to Portion of NRC Request for

Additional Information Letter No. 276

Related to ESBWR Design Certification Application

RAI Number 4.4-89 S01

Affidavit

GE-Hitachi Nuclear Energy Americas LLC

AFFIDAVIT

I, David H. Hinds, state as follows:

(1) I am General Manager, New Units 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 1 of GEH's letter, MFN 09-105, Mr. Richard E. Kingston to U.S. Nuclear Energy Commission, entitled "*Response to Portion of NRC Request for Additional Information Letter No. 276 – Related to ESBWR Design Certification Application – RAI Number 4.4-89 Supplement 1,*" dated February 09, 2009. The proprietary information in enclosure 1, which is entitled "*MFN 09-105 – Response to Portion of NRC Request for Additional Information Letter No. 276 – Related to ESBWR Design Certification Application – RAI Number 4.4-89 S01 – GEH Proprietary Information,*" is delineated by a [[dotted 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 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) is classified as proprietary because it contains details of GEH's fuel core component design and licensing methodology. The development of the methods used in these analyses, along with the testing, development and approval of the supporting methodology was achieved at a significant cost to GEH.

(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 9th day of February 2009.

David H. Hinds
GE-Hitachi Nuclear Energy Americas LLC