HITACHI

GE Hitachi Nuclear Energy

Richard E. Kingston
Vice President, ESBWR Licensing

P.O. Box 780 M/C A-65
Wilmington, NC 28402-0780
USA

T 910.675.6192
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 09-553

Docket No. 52-010

August 18, 2009

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

Subject: **Transmittal of ESBWR Response to CRHA Open Topic Item #1 Arising from Meeting on June 23, 2009**

The purpose of this letter is to submit the GE Hitachi Nuclear Energy (GEH) response to ESBWR Control Room Habitability Area (CRHA) open topic item #1. This letter is a follow-up to close GEH open items arising from an NRC review of the ESBWR CRHA systems conducted on June 23, 2009 (Reference 1).

Enclosures 1 and 2 contain the GEH response to open topic item 1. The response to open topic item #5 was previously submitted to the NRC via Reference 2. The responses to open topic items #3 and #6 were previously submitted to the NRC via Reference 3. Responses to open topic items #2 and #4 will be submitted under separate cover letter(s).

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 a non-proprietary version, suitable for public disclosure, of Enclosure 1.

The affidavit contained in Enclosure 3 identifies that 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 9.17.

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

Sincerely,

Richard E. Kingston

Richard E. Kingston
Vice President, ESBWR Licensing

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NRO

Reference:

1. MFN 09-473, Summary of the June 23, 2009, Partially Closed Meeting with GEH regarding Control Room Habitability Area, July 1, 2009
2. MFN 09-525, Transmittal of ESBWR CRHA Heatup Calculation, including Applicable Input and Output Data Files, August 4, 2009
3. MFN 09-551, Transmittal of ESBWR Responses to CRHA Open Topic Items #3 and #6 Arising from Meeting on June 23, 2009, August 17, 2009

Enclosures:

1. Transmittal of ESBWR Response to CRHA Open Topic Item #1 Arising from Meeting on June 23, 2009 - Response to Open Topic Item #1 - GEH Proprietary Information
2. Transmittal of ESBWR Response to CRHA Open Topic Item #1 Arising from Meeting on June 23, 2009 - Response to Open Topic Item #1 – Public Version
3. Transmittal of ESBWR Response to CRHA Open Topic Item #1 Arising from Meeting on June 23, 2009 - Response to Open Topic Item #1 - Affidavit

cc: AE Cubbage USNRC (with enclosures)
JG Head GEH/Wilmington (with enclosures)
DH Hinds GEH/Wilmington (with enclosures)
eDRF Section 0000-0105-8888

Enclosure 2

MFN 09-553

Transmittal of ESBWR Response to CRHA Open Topic Item #1 Arising from Meeting on June 23, 2009

Public Version

Response to Open Topic Item #1

TOPIC ITEM

Explain the reason that the temperature at 72 hours is not sensitive to changes in CRHA volume. Volume changes from 96000 cu ft to 78000 cu ft and from 96000 cu ft to 48000 cu ft showed essentially no increase in temperature although a temperature increase was expected.

RESPONSE / RESOLUTION

The temperature at 72 hours is not sensitive to changes in the CRHA air volume because the volume of air modeled in the CRHA has a smaller mass and heat capacity compared to the thermal mass of concrete, which absorbs most of the heat from the system.

When the surface area, thickness, and mass of concrete remain unchanged, the temperature will remain relatively unchanged.

The following equation has been considered for the transfer of energy as it relates to heat capacity:

$Q = m \cdot c \cdot \Delta T$

Where
Q = heat energy (J)
m = mass (kg)
c = specific heat capacity (J/kg•K)
ΔT = temperature difference (K)

The initial mass of air (nitrogen + oxygen + water vapor) in the CRHA used in the analysis is [[ ]] and the specific heat capacity is [[ ]].

The mass of concrete inside and surrounding the CRHA used in the analysis is [[ ]] and the specific heat capacity is [[ ]].

A comparison of the heat removal capacity equations for the air and concrete shows that the concrete has a heat removal capacity that is 3 orders of magnitude higher than that of the air.

Air: Q = [[ ]]
Concrete: Q = [[ ]]

In conclusion, considering that the thermal mass/thermal properties of the CRHA heat sink (concrete) are not changed, changes in air volume have a small impact on the overall heat removal capacity of the system and therefore changes in the air volume have a minimal effect on the temperature at 72 hours.

Enclosure 3

MFN 09-553

Transmittal of ESBWR Response to CRHA Open Topic Item #1 Arising from Meeting on June 23, 2009

Response to Open Topic Item #1

Affidavit

GE-Hitachi Nuclear Energy Americas LLC

AFFIDAVIT

I, **Larry J. 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 1 of GEH's letter, MFN 09-553, Mr. Richard E. Kingston to U.S. Nuclear Energy Commission, entitled "Transmittal of ESBWR Response to CRHA Open Topic Item #1 Arising from Meeting on June 23, 2009" dated August 18, 2009. The proprietary information in enclosure 1, entitled "Transmittal of ESBWR Response to CRHA Open Topic Item #1 Arising from Meeting on June 23, 2009 - Response to Open Topic Item #1 – 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 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 18th day of August 2009.

Larry J. Tucker
GE-Hitachi Nuclear Energy Americas LLC