HITACHI

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.

GE Hitachi Nuclear Energy

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MFN 09-026

Docket No. 52-010

January 29, 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. 267 Related to ESBWR Design Certification Application - Instrumentation & Control Systems - RAI Number 7.2-72**

The purpose of this letter is to submit the GE Hitachi Nuclear Energy (GEH) response to RAI 7.2-72 (Reference 1).

Enclosure 1 contains GEH proprietary information. 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

Richard E. Kingston
Vice President, ESBWR Licensing

D068
NRO

Reference:

1. MFN 08-860, Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, *Request For Additional Information Letter No. 267 Related To Design Control Document (DCD) Revision 5*, dated October 28, 2008

Enclosures:

1. Response to Portion of NRC Request for Additional Information Letter No. 267 Related to ESBWR Design Certification Application - Instrumentation & Control Systems - RAI Number 7.2-72 -- GEH Proprietary Information

2. Response to Portion of NRC Request for Additional Information Letter No. 267 Related to ESBWR Design Certification Application - Instrumentation & Control Systems - RAI Number 7.2-72 -- Non-Proprietary Information

3. Affidavit – David H. Hinds – January 29, 2009

cc:

AE Cubbage	USNRC (with enclosure)
RE Brown	GEH/Wilmington (with enclosure)
DH Hinds	GEH/Wilmington (with enclosures)
eDRF Section:	0000-0093-4939 (RAI 7.2-72)

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Enclosure 2

Response to Portion of NRC Request for Additional Information Letter No. 267 Related to ESBWR Design Certification Application

Instrumentation & Control Systems

RAI Number 7.2-72

Non-Proprietary Version

NON-PROPRIETARY INFORMATION NOTICE

This is the non-proprietary version of the response to RAI 7.2-72 from which the proprietary information has been removed. Portions of the document that have been removed are identified by white space within double square brackets, as shown here [[ ]].

NRC RAI 7.2-72

The staff notes that PANACEA tracks the precise bundle geometry and lattice geometry prior to performing the hybridization and nodal diffusion calculations, and therefore, retains sufficient information in the code to correct for the hybridization effect on the nodal GT J-factors. The use of the GT CMS for dominant and plenum lattices that are hybridized must include a correction to the GT instrument response calculation to account for the specific axial geometry to ensure that biases are not introduced in the adaption and calibration process as a result of nodal hybridization.

PANAC11 retains the lattice specific J-factors prior to hybridization, the GT sensor location, and the stack size of the lattices within the hybrid node. Therefore, refinement of the J-factor methodology is possible within PANAC11. The J-factors may be generated using a preprocessing step around the smaller region of interest about the GT sensor itself. [[

]] In either case the accuracy of the GT prediction may be easily maintained within hybridized nodes by implementing a preprocessing step utilizing the information already within the PANAC11 representation of the core in the GT CMS. Therefore, the staff requires that such a refinement be used within the GT CMS.

Please describe how this refinement will be implemented in 3D MONICORE. Prior to issuing the –A version of NEDE-33197P please include a section that includes this description.

GEH Response

The refinement in the calculated power (CALGT) of the GT sensor that incorporates the correction to the spacer effect and to the presence of fuel type change will be implemented as a processing step prior to the power adaption. Therefore, the ESBWR GT-based monitoring system will use this enhancement.

The refinement consists of an exponential function that approximates the results of the three-dimensional nuclear analysis that precedes the CALGT calculation. The maximum power depression, the distance where the spatial perturbation is relevant to the GT sensor and a fitting parameter will be defined for specific spacer design and/or for type of fuel lattice change in a hybrid node. That is, [[

.]] The corrected CALGT value will then incorporate the slight change in axial power and be used for the power adaption.

The enhancement description will be part of a new subsection in NEDE-33197P.

No DCD Impact

LTR Impact

The following paragraph will be deleted from the subsection 8.5 of the NEDE-33197P rev. 2:

[[

]]

The following text will be incorporated as a new subsection 8.6 of the NEDE-33197P-A.

"8.6 Form functions for Spacer effect and Fuel Lattice Change

The generic expression for [[

]] are calculated by PANAC11 using TGBLA information.

Linear Model of CALGT calculation

[[

]]

Spacer Effect on CALGT calculation

In the TIP-based monitoring system, [[

]]

[[

]]

The calculated power at the GT sensor location will be [[

]]

[[

]]

Fuel Lattice Change Effect on CALGT calculation

For cases when [[

]]

Finally, Figure 3 represents [[

]]

MFN 09-026

Enclosure 3

Affidavit

GE-Hitachi Nuclear Energy Americas LLC

AFFIDAVIT

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

(1) I am the 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 2 of GEH letter MFN 09-026, Mr. Richard E. Kingston to U.S. Nuclear Regulatory Commission, "Response to Portion of NRC Request for Additional Information Letter No. 267 Related to ESBWR Design Certification Application - Instrumentation & Control Systems - RAI Number 7.2-72," dated January 29, 2009. GEH Proprietary Information is identified in Enclosure 1, "Response to Portion of NRC Request for Additional Information Letter No. 267 Related to ESBWR Design Certification Application - Instrumentation & Control Systems - RAI Number 7.2-72 - GEH Proprietary Information," in dark red font and a dashed underline inside double square brackets. [[This sentence is an example.{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 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, "Response to Portion of NRC Request for Additional Information Letter No. 267 Related to ESBWR Design Certification Application - RAI Number 7.2-72 - 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 identifies detailed GEH ESBWR methods, techniques, information, procedures, and assumptions related toits gamma thermometer system.

The development of the models and methodologies along with their application 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 January 2009.

David H. Hinds
GE-Hitachi Nuclear Energy Americas LLC