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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 07-029, Supplement 1

Docket No. 52-010

December 21, 2007

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. 53 – Related to ESBWR Design Certification Application – RAI Number 4.4-1, 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 4.4-1 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 9.17.

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

Sincerely,

James C. Kinsey
Vice President, ESBWR Licensing

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NED

Reference:

1. MFN 06-288, Letter from U.S. Nuclear Regulatory Commission to David H. Hinds, Request for Additional Information Letter No. 53 Related to the ESBWR Design Certification Application, August 16, 2006 and supplemented by email from NRC on May 31, 2007.

Enclosures:

1. MFN 07-029 Supplement 1 – Response to Portion of NRC Request for Additional Information Letter No. 53 – Related to ESBWR Design Certification Application – RAI Number 4.4-1 Supplement 1 – GEH Proprietary Information
2. MFN 07-029 Supplement 1 – Response to Portion of NRC Request for Additional Information Letter No. 53 – Related to ESBWR Design Certification Application – RAI Number 4.4-1 Supplement 1 – Non-Proprietary Version
3. MFN 07-029 Supplement 1 – Response to Portion of NRC Request for Additional Information Letter No. 53 – Related to ESBWR Design Certification Application – RAI Number 4.4-1 Supplement 1 – Affidavit

cc: AE Cabbage USNRC (with enclosure)
GB Stramback GEH/San Jose (with enclosure)
RE Brown GEH/Wilmington (with enclosure)
eDRF 0000-0074-0788/R1

Enclosure 2

MFN 07-029 Supplement 1

Response to Portion of NRC Request for

Additional Information Letter No. 53

Related to ESBWR Design Certification Application

RAI Number 4.4-1 Supplement 1

Non-Proprietary Version

NRC RAI 4.4-1 Supplement 1

The staff finds the response to RAI 4.4-1 in MFN 07-029 acceptable with the exception of the applicant's position on the need for new testing of the GE14E ESBWR fuel. The staff agrees that the use of similar components to those used in the operating fleet, GE14 fuel, will provide reasonable assurance that the critical power performance of the GE14E fuel will be similar to that of the GE14 fuel already in operation. However, the staff feels that the thermal hydraulic response characteristics of the shorter overall length of the GE14E assemblies, and, in particular, the shorter part-length rod height, may contribute to variation in the critical power correlation uncertainties which cannot be accurately determined by computer code (COBRAG) assessment alone.

Therefore, GE should submit a proposed Critical Heat Flux (critical power performance) test matrix for the GE14E fuel, and submit proposed ITAACs to ensure that CHF testing is conducted to validate the use of the GEXL14 correlation prior to initial core loading.

GEH Response

This supplemental testing requirement only applies to licensees loading GE14E fuel. This supplemental testing requirement does not apply to licensees loading an alternate fuel design that has been approved by the US Nuclear Regulatory Commission.

The GEXL14 critical power correlation has been used to predict critical power for GE14E in safety analyses to establish the Operating Limit MCPR (OLMCPR) for the ESBWR Certified Design. GEXL14 is based on full-scale critical power testing of GE14 retrofit fuel applicable to forced circulation reactors. GE14E is a variant of GE14 with a [[
]]. The effect of these differences has been estimated analytically using subchannel methods and conservative correlation statistics have been developed such that the resulting OLMCPR is expected to be conservative.

Prior to an initial core fuel load with GE14E, it is required that the adequacy of the analysis basis correlation statistics be confirmed by full-scale testing. Since the GEXL correlation has been proven to accurately describe the effect of axial power shape independent of geometry, and GEXL14 has been confirmed by full scale testing of GE14 with 3 axial power shapes (inlet peaked, outlet peaked and chopped cosine), a test matrix based on a single axial power shape is sufficient. While the geometric differences between GE14E and GE14 are not expected to influence trends with fluid conditions, a wide range of fluid conditions is targeted for testing. The geometric differences may affect the [[
]]. The test matrix sufficient to confirm the GEXL14 correlation statistics is defined in Table 1 and covers [[
]].

The acceptance criteria is that the experimental mean ECPR, in combination with the standard deviation, for the test data be confirmed lower than the analysis basis values such that the licensing basis OLMCPR is confirmed.

Full scale testing of GE14E has been conducted and the test results are being evaluated. The results of these tests, and the adequacy of GEXL14, will be documented and provided to

USNRC. As testing has been performed sufficient to confirm the adequacy of GEXL14, it is not necessary to construct an ITAAC as suggested in the RAI.

Table 1. Target Test Matrix

[[

DCD Impact

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

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Enclosure 3

MFN 07-029 Supplement 1

Response to Portion of NRC Request for

Additional Information Letter No. 53

Related to ESBWR Design Certification Application

RAI Number 4.4-1 Supplement 1

Affidavit

GE Hitachi Nuclear Energy

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 07-029 Supplement 1, Mr. James C. Kinsey to U.S. Nuclear Energy Commission, entitled “*Response to Portion of NRC Request for Additional Information Letter No. 53 Related to ESBWR Design Certification Application – RAI Number 4.4-1,*” dated December 21, 2007. The proprietary information in enclosure 1, which is entitled “*Response to Portion of NRC Request for Additional Information Letter No. 53 Related to ESBWR Design Certification Application – RAI Number 4.4-1 Supplement 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) above is classified as proprietary because it contains details of GEH's evaluation methodology.

The development of the evaluation process along with the interpretation and application of the analytical results 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 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 21st day of December 2007.



David H. Hinds
GE Hitachi Nuclear Energy