

GE-Hitachi Nuclear Energy Americas LLC

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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 07-008 Supplement 1

Docket No. 52-010

August 11, 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. 66 Related to ESBWR Design Certification Application –
RAI Number 21.6-57 Supplement 1**

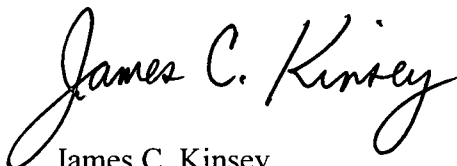
Enclosure 1 contains GEH's response to the subject NRC RAI transmitted via the Reference 1 letter.

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 regarding the information provided here, please contact me.

Sincerely,



James C. Kinsey
Project Manager, ESBWR Licensing

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Reference:

1. MFN 06-377, Letter from U.S. Nuclear Regulatory Commission to David Hinds, *Request for Additional Information Letter No. 66 Related to the ESBWR Design Certification Application*, October 10, 2006

Enclosures:

1. MFN 07-008 Supplement 1 – Response to Portion of NRC Request for Additional Information Letter No. 66 – Related to ESBWR Design Certification Application –RAI Number 21.6-57 Supplement 1 – GEH Proprietary Information
2. MFN 07-008 Supplement 1 – Response to Portion of NRC Request for Additional Information Letter No. 66 – Related to ESBWR Design Certification Application –RAI Number 21.6-57 Supplement 1 – Non-Proprietary Version
3. Affidavit – James C. Kinsey – dated August 11, 2007

cc: AE Cubbage USNRC (with enclosures)
DH Hinds GEH Wilmington (with enclosures)
BE Brown GEH Wilmington (with enclosures)
eDRF 0000-0071-4208

Enclosure 2

MFN 07-008 Supplement 1

Response to Portion of NRC Request for

Additional Information Letter No. 66

Related to ESBWR Design Certification Application

RAI Number 21.6-57 S01

Non-Proprietary Version

NRC RAI 21.6-57 S01

In response to Part B of this question, GE states that: "the analysis delay time envelopes the control rod scram time requirements criteria that this duration (the maximum delay time between deenergizing of scram solenoids to start control rod motion) be less than or equal to"

Justify the amount of time established for the control rod scram time requirements criteria.

GEH Response

The ESBWR control rod scram time requirement for start of motion (SOM) is specified to be ≤ 0.200 sec. SOM is defined as the time delay between loss of signal (power) to the scram solenoid pilot valve and drop out of the 0% (full out) scram timing reed switch. During normal plant operation with the control rod fully withdrawn the 0% reed switch contacts are in a closed condition and open when the control rod begins to move.

The SOM specification for ESBWR is adopted from the ABWR fine motion control rod drive (FMCRD) design. It was established during the FMCRD development testing as a bounding value to satisfy the need for fast initiation of control rod insertion and to account with margin for variation of the scram solenoid pilot valve and scram valve performance. This value was subsequently confirmed during ABWR design acceptance testing, production testing and plant startup testing. For example, the following SOM times were measured during full core scrams from rated power during startup testing at one operating ABWR:

Test Condition	SOM (sec)	
	Average Time of All Drives	Slowest Time
Generator Trip	[[]]	[[]]
MSIV Closure	[[]]	[[]]

The most significant factor affecting the SOM time is the response time of the scram solenoid pilot valve. It determines how fast hydraulic pressure stored in the hydraulic control unit (HCU) accumulator will be applied to the control rod drive. Because ESBWR uses the same HCU design as the ABWR, the scram solenoid pilot valve and its associated response time are expected to be the same. Also, the basic upper structure of the ESBWR FMCRD is identical to that of the ABWR FMCRD except that it is shorter in length due to the comparatively shorter core of the ESBWR. This results in a shorter control rod stroke length for ESBWR. As a result, the translating assembly (hollow piston plus control rod) to be inserted during scram on the ESBWR will be shorter and lighter in weight than ABWR. For these reasons, it is expected that the SOM time for the production ESBWR FMCRD will be at least equal to or less than that of ABWR.

Based on the above information, both the specified SOM delay time of 0.200 sec applied to the CRD System design and the analysis delay time of [[]] are considered appropriate to ESBWR.

DCD Impact

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

Enclosure 3

MFN 07-008 Supplement 1

**Response to Portion of NRC Request for
Additional Information Letter No. 66
Related to ESBWR Design Certification Application
RAI Number 21.6-57 S01**

Affidavit

GE-Hitachi Nuclear Energy Americas LLC

AFFIDAVIT

I, **James C. Kinsey**, state as follows:

- (1) I am Project Manager, ESBWR Licensing, GE-Hitachi Nuclear Energy Americas LLC (“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 07-008 Supplement 1, Mr. James C. Kinsey to U.S. Nuclear Energy Commission, entitled “*Response to Portion of NRC Request for Additional Information Letter No. 66 Related to ESBWR Design Certification Application – RAI Number 21.6-57 Supplement 1*”, dated August 11, 2007. The proprietary information in enclosure 1, which is entitled “*Response to Portion of NRC Request for Additional Information Letter No. 66 Related to ESBWR Design Certification Application – RAI Number 21.6-57 S01 – GEH Proprietary Information*”, is delineated by a [[dotted underline inside double square brackets.¹³¹]] Figures and large equation objects are identified with double square brackets before and after the object. In each case, the superscript notation ¹³¹ 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 11th day of August 2007.


James C. Kinsey
GE-Hitachi Nuclear Energy Americas LLC