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Proprietary Notice
This letter forwards proprietary information in accordance with 10 CFR 2.390. Upon the removal of Enclosure 1, the balance of this letter may be considered non-proprietary.

MFN 08-662

Docket No. 52-010

October 9, 2008

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

Subject: **Submittal of Response to Portion of NRC Request for Additional Information Letter No. 211 Related to ESBWR Design Certification Application Chapter 18 - Human Factors Engineering - RAI Numbers 18.5-5 S03 and 18.5-26 S02**

The purpose of this letter is to submit a portion of the GE Hitachi Nuclear Energy (GEH) response to the U.S. Nuclear Regulatory Commission (NRC) Request for Additional Information (RAI) 18.5-5 S03 and 18.5-26 S02 as requested by the NRC Letter No. 211 (Reference 1).

Response to RAI 18.5-5 S02, was previously provided via Reference 2 in response to Reference 3. Reference 4 provided the supplement 1 response as requested by the NRC in Reference 5. The original RAI response was submitted to the NRC, via Reference 6, in response to NRC Letter No. 64, Reference 7.

Response to RAI 18.5-26 S01 was provided in Reference 2 as requested by the NRC in Reference 3. The original response was provided, via Reference 6, in response to NRC Letter No. 64, Reference 7.

Enclosure 1 contains GE Hitachi Nuclear Energy (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.

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The affidavit, 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

References:

1. MFN 08-502, Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, GEH, *Request for Additional Information Letter No. 211 Related to ESBWR Design Certification Application*, dated June 3, 2008
2. MFN 07-624 - Response to Portion of NRC Request for Additional Information Letter No. 113 Related to ESBWR Design Certification Application – Human Factors Engineering - RAI Numbers 18.5-5 S02, 18.5-19 S01, 18.5-26 S01, 18.5-27 S02, and 18.5-30 S02, Dated January 18, 2008
3. MFN 07-557 - Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, GEH, *Request For Additional Information Letter No. 113 Related To ESBWR Design Certification Application*, dated October 16, 2007
4. MFN 07-334 - Submittal of *"ESBWR DCD Chapter 18, Human Factors Engineering - RAI to DCD Roadmap Document"* dated June 27, 2007
5. Email from AE Cubbage to DL Lewis, *List of Chapter 18 RAIs for Roadmap Request*, dated 5/18/07
6. MFN 06-401, *Response to Portion of NRC Request for Additional Information Letter No. 64 – Human Factors Engineering – RAI Numbers 18.5-1 through 18.5-32*, dated October 28, 2006
7. MFN 06-352, Letter from U.S. Nuclear Regulatory Commission to David Hinds, *Request for Additional Information Letter No. 64 Related to ESBWR Design Certification Application*, dated September 25, 2006

Enclosures:

1. MFN 08-662 - Response to Portion of NRC Request for Additional Information Letter No. 211 Related to ESBWR Design Certification Application - RAI Numbers 18.5-5 S03 and 18.5-26 S02 – GE Proprietary Information
2. MFN 08-662 - Response to Portion of NRC Request for Additional Information Letter No. 211 Related to ESBWR Design Certification Application - RAI Numbers 18.5-5 S03 and 18.5-26 S02 – Non-Proprietary Version
3. Affidavit – MFN 08-662

cc:	AE Cubbage	USNRC (with enclosure)
	RE Brown	GEH/Wilmington (with enclosure)
	DH Hinds	GEH/Wilmington (with enclosure)
	eDRF	0000-0089-9948 18.5-5 S03
		0000-0089-0431 18.5-26 S02

Enclosure 2

MFN 08-662

Response to Portion of NRC Request for

Additional Information Letter No. 211

Related to ESBWR Design Certification Application

RAI Numbers 18.5-5 S03 and 18.5-26 S02

Non-Proprietary Version

For historical purposes, the original text of RAIs 18.5-5 and 18.5-26 and any previous supplemental text and GE/GEH responses are included preceding each supplemental response. Any original attachments or DCD mark-ups are not included to prevent confusion.

NRC RAI Number 18.5-5

The methodology generally conforms to the basic elements of the review criterion:

- *· operational sequence diagrams are used as a linking technique*
- *· the methodology provides for the development of high-level task descriptions and more detailed task decompositions*
- *· the detailed task description should address the input, process, and output needed by and of personnel and the topics identified in the criterion.*

While these basic elements are generally described, some clarification of the details is needed as is identified in the questions below.

a. *Section 1.3. Methodology Background, states that "[t]his Task Analysis Implementation Plan recommends (emphasis added) methodology for performing task analysis during the design stage for human actions associated with the [main control room] MCR, [remote shutdown display] RSD, and other applicable [man machine interface systems] MMISs." Section 3.3 states that "[t]he actual human factor techniques and forms for data collection will be selected by the analysts." (p. 19).*

   Many other such statements exist in the document that qualify the methodology as a recommended practice rather than a commitment. The purpose of an Implementation Plan review is to certify the methodology that will be used, rather than what might be used. Please clarify why the methodology described is a recommendation only and not the actual plan that will be used to conduct that analyses.

b. *Figure 2, Task Analysis Implementation Process (p 86) needs clarification. Specific questions are:*

   - *Section 3.4.1, Task Analysis Methods, list the use of four approaches to task analysis. However, Figure 2 (p 86) providing an integrated overview of the methods does not include all of the methods listed, specifically Narrative Task Descriptions and operating sequence diagrams (OSDs) are included, but Mission Scenarios and functional flow diagrams (FFDs) are not.*

   - *Why is task analysis (TA) evaluation not shown?*
   - *Why do the reports listed not match those described in Section 3.9, Task Analysis Report?*

- *What is the meaning of dashed vs. solid lines?*
- *What is the meaning of the lines connecting the evaluation techniques at the bottom of the figure and the last three steps of the High-level task analysis?*
- *Explain why these particular steps (boxes) are connected?*

c. *An implementation plan should provide step-by-step, specific guidance on how to perform task analysis. The current document contains much background and tutorial information, and little in the way of step-by-step procedures. Absence of these type of specific procedural steps will make this document difficult for users and the intended methodology may be incorrectly and inconsistently applied.*

d. *The document contains a detailed methodology with many steps and considerations. Provide a worked out example to illustrate the application of the methodology as it will be performed for ESBWR reflecting a slice of the methodology from top to bottom. Such an example does not need to reflect a complete analysis at any step.*

GEH Response

(A) The scope section defines the commitments and the methodology section defines a group of methods and approaches that can be applied to meet the objectives. Section 3 gives examples to explain the factors and elements considered in the task analysis process.

Section 3.4.1 shows a variety of Task Analysis methods and ways of displaying the information that have been used in the past. These methods are redundant and only one needs to be picked as shown in Figure 2, which is a sketch of the task implementation process.

(B) A revised Figure 2 will be provided in the next revision to NEDO-33221. It will reflect an iterative top down approach and will address items such as TA evaluation and the TA documentation reports with more clarity and detail. In the current Figure 2 the dashed and solid lines represent feed forward and feedback paths. The solid lines represent the first functional TA feed forward path. The dashed lines represent first, second, and third level feedback paths that lead to changes in the TA evaluation. The dotted lines from boxes 2) is the first feedback and from 3) is the second feedback. The 1), 2), and 3) boxes are combined because they represent evaluation of the TA using different methods that are applied as the design progresses. The revised Figure 2 will further clarify the lines for each pathway. For example, a single solid line going from Workload Assessment to Outputs to Allocation of Functions to HSID to In-Plant Installation will represent the feed forward path, long dashed lines represent the first evaluation feedback going to the paper step evaluation and then to the Convert Functions to Tasks medium dashed lines represent the second evaluation feedback

going to the mock-up or part task simulator evaluation step and then to the Convert Functions to Tasks, and short dashed lines represent the third evaluation feedback going to the full scope simulator evaluation step and then to the Convert Functions to Tasks box. Each result at a level of analysis (e.g., a paper evaluation, a mock-up or part task simulator evaluation, and a full scope simulator evaluation) provides input to any of the boxes in the High Level Task Analysis Desk.

(C) This document needs to be simplified and focused on a clear step by step process. This will be done in the next revision to NEDO-33221 by linking the TA to the top level requirements in the SFRA Implementation Plan. See NEDO-33219 Rev. 0, page 63, figure 4, for an example the top-level step by step process that is applied to safety related goals.

(D) We will provide an example of the application of the Detailed Task Analysis for the ESBWR RWCU system in the report identified in section 3.9 of NEDO-33221.

DCD/LTR Impact

LTR NEDO-33221, Rev 0 will be revised as described above.

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

NRC RAI Number 18.5-5 Supplement 1

(Refer to Subquestion A)
The response does not provide the clarification requested and it does not appear that any modifications to the NEDO are planned. Why is the document written as a recommended practice. The response indicates that there are many methods to choose from. If so, how is the selection to be made?

(Refer to Subquestion B)
While some clarification of the figure is provided relative to figure elements (e.g., meaning of solid and dashed lines) the response is primarily an indication that a revised Figure will be included in the next revision of the NEDO. There is not sufficient information in the response to indicate whether the revision will address the original questions (specifically the first three bullets of the subquestion).

(Refer to Subquestion C)
While some clarification is provided, the response is primarily an indication that a revised the next revision of the NEDO will provide a simplified and focused step-by-step process. There is not sufficient information in the response to indicate whether the revision will accomplish this objective.

GEH Response

Chapter 18 Roadmap Document								
RAI NO	**SEC**	**#**	**NRC Supplemental**	**DocName/Question**	**Resolved**	**Plan**	**Section**	**Resolution Description**
18.5-5	5	5	Y	Clarification of Methodology Selection (Subquestion A)	From GE response	33221	3.1.4 4.1.3	Operational sequence diagrams are not a chief product of the revised analysis. The primary use of these diagrams was to analyze the sequential elements of the tasks. This will be accomplished by providing time and workload estimates to the tasks and examining the serial tasks assigned to a particular operator for a specific event. In this way the task database can be used to analyze any event by serially linking the tasks associated with the mitigation response and the staffing assignments from the S&Q and AOF activities. To complete the event analysis, the informational tasks (decisions which will link the combinations of functions), and their time and workload assessment will be defined in the task analysis. The results are then analyzed to ensure that there is sufficient time and capacity (physical and cognitive workload) for the operator to complete assignments.
18.5-5	5	5	Y	Clarification of Figure 2 of NEDO 33221 (Subquestion B)	From GE response	33221	Figure 2, 3	Figure was removed and replaced with figures describing the step-by-step analysis.
18.5-5	5	5	Y	Provision of a step-by-step process (Subquestion C)	From GE response	33221	3.1.4, 3.2.4 4.1, 4.2	Revised approach provides the step-by-step process that was presented and discussed in the NRC audit.

NRC RAI 18.5-5 S02

NEDO-33221, Rev 1, is an extensive revision of Rev 0. However, the methodology is presented in outline form with little explanation of how the task analysis is actually performed. Most of the implementation sections are limited to bullet lists (see Section 4). This does not provide sufficient information to evaluate the methodology to be used. Also NEDO-33221, Rev 1 does not appear to describe the actual methodology being used that was demonstrated during the July 2007 Design Process Audit. The methodology discussed by GEH in the July 2007 Audit included many considerations that cannot be found in the implementation plan, such as the evaluation of critical steps. Many of the terms used to describe the methodology and the example shown cannot be found in the plan. While this apparent difference may in part be due to differences in level of detail, it does provide an example of the staff's concern that an engineer using the plan would not clearly produce the type of results shown during the audit. Clarification is needed of (1) the relationship between the plan and the actual task analysis, and (2) how an engineer makes the transition from the plan to the actual conduct of the analysis.

GEH Response

NEDO-33221 ESBWR HFE TASK ANALYSIS IMPLEMENTATION PLAN presents an overview of the process to be used, inputs, outputs, and scope. NEDO-33221 commits to compliance with the applicable regulations and provides insight into the process flow but does not describe discrete process steps, tools, or methodologies. The Task Analysis detailed work document or work instruction and associated software tools define and govern execution of the task analysis process and document the resulting data. The draft work instruction, pilot software tool, and the results of one completed analyzed task were presented during the July 2007 Design Process Audit. This process and the governing draft detailed work instruction have continued the pilot process and GEH started production task analysis in November 2007. The draft Task Analysis detailed work instruction will be entered in GEH's controlled document repository (E-Matrix) and issued for use after lessons learned from pilot implementation are incorporated.
Once issued for use, the Task Analysis detailed work instruction provides a detailed, step-by-step description of the methodology and process steps required to consistently perform task analysis as demonstrated in the July 2007 Design Process Audit. GEH policies and procedures require that work be performed in accordance with an approved work document. The work instructions are available for audit by the NRC. Engineers seeking to implement NEDO-33221 ESBWR HFE TASK ANALYSIS IMPLEMENTATION PLAN do so through compliance with the Task Analysis detailed work instruction.

DCD/LTR Impact

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

No changes to the subject LTR will be made in response to this RAI.

NRC RAI 18.5-5 S03

In RAI 18.5-5, the staff requested that GEH identify how the task analysis methodology is actually performed rather than just present it in outline form. The RAI response indicates that the detailed step-by-step methodology is contained in a Task Analysis Work Instruction document that has been developed and refined as their pilot analyses have taken place. GEH further indicated that the cognizant engineer will use the work instruction document for guidance in conducting the analysis. GEH indicated that no changes to the NEDO are planned. The staff position is that the Task Analysis implementation plan needs to specifically describe how the task analysis methodology is actually performed. The implementation plan that should contain sufficient detail that the methodology can be reliably used by a design engineer. Please include this information in the Task Analysis implementation plan or submit the Task Analysis Work Instructions for staff review.

GEH Response

As a result of the clarifications received in the 8/6/08 conference call between GEH and NRC human factors engineering representatives, the following excerpts from the Task Analysis work instruction are submitted for the staff's review. The information provided below is the current internal work guidance written to support the analysis presented in NEDO-33221, ESBWR HFE Task Analysis Implementation Plan and referred to in this RAI. The following material was excerpted from the task analysis work instruction intended to support the use of the GEH Operations Analysis software tool. Analysts use this process to methodically analyze the allocated configuration changes generated by Plant Functional Requirements Analysis (PFRA), System Functional Requirements Analysis (SFRA), and Allocation of Function (AOF).

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DCD/LTR Impact

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

No changes to the subject LTR will be made in response to this RAI.

NRC RAI Number 18.5-26

If the ESBWR task analysis focuses only on a selected subset of tasks (as discussed above in Criterion 1), e.g., those that are new or significantly changed, then how is the integration of all tasks into a specific job assessed?

GEH Response

The approach for addressing task interactions during the task analysis will use a top down approach as shown in Enclosure 2, Addendum to RAIs 18-5. NEDO-33221 will be revised to include the top down approach which naturally defines task interactions.

DCD/LTR Impact

LTR NEDO-33221, Rev 0 will be revised as described above.

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

NRC RAI 18.5-26 S01

NEDO-33221, Rev 1 Sections 4.1.3.6 and 4.2.3.6 provide information regarding workload assessments that list workload, crewmember skills, and work allocation; however no information about how such considerations are made is provided. Please clarify how these considerations are addressed.

GEH Response

The ESBWR project human factors engineering (HFE) team realizes the significance of evaluating workload and cognitive demands in order to mitigate or eliminate human errors. In a design that features plants that are passive and automated, it is recognized that the complexion of workload has changed. It is also well known that cognitive activities cannot be measured directly.

In keeping with this knowledge, the ESBWR project had adopted a graded approach to assess workload including cognitive demands. The strategy is phased to coordinate with the HFE project schedule and tailored to the tasks associated with an ESBWR plant. The stages proposed to assess workload begin with an initial screening. This high-level screening, administered by an analyst, uses a questionnaire type of instrument to identify tasks that may have high workload levels, questionable cognitive demands, or may in some way stress the operator – either physically or psychologically. At this level, tasks are identified that require further in-depth analysis.

Stage two of the workload analysis, invokes several additional tools that screen the remaining tasks to allow analyst and subject matter experts to differentiate between workload and stress inducing elements and identify those tasks that require further analysis. The tasks analyzed in stage two will use known ranking systems such as the NASA –TLX that have both validity and reliability.

In stage two, workload and stress are analyzed independently, and the analysis drills down to an elemental level. Tasks with elements that approach or exceed predetermined boundaries of demand are subject to further analysis.

Later stages of analysis identify those tasks with elements that due to the high task demands or stress loading require human factors intervention. An intervention may include but is not limited to engineering controls (such as element redesign), alteration of function (machine versus human, administrative controls (for example, training and procedures), or the possibility of job performance aids or personnel assignment. These tasks will be tracked, monitored, and subsequently re-entered into the analysis process to confirm a reduction of workload or stress to an acceptable level.

Routine tasks, task scheduling, assignment, and other variables pertinent to operations then are reviewed against typical daily demands and the impact of a task or multiple tasks that are superimposed as a result of an anomaly in processes (for example, equipment

malfunction, component failure, catastrophic natural events). In other words, tasks are analyzed, brought in line with acceptable workload, and then, viewed in concert with other tasks that are both routine and unpredicted.

The detailed methods for assessing workload and stress are described in a workload assessment detailed work document or work instruction currently under development. The HFE work instructions are available for audit by the NRC. The workload assessment work instruction fulfills guidance as set forth by NUREG-0711, best practices, and accepted human factors guidelines, methods, and principles and is available for NRC audit and inspection. A formalized method of tracking and disposition is used to ensure all tasks are within accepted workload parameters and do not have a negative impact during the course of multiple tasking scenarios. The utility of this approach fortifies the operational analysis, particularly task analysis, and paves the way for enhanced procedures, training, staffing, and resource allocation.

DCD/LTR Impact

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

No changes to the subject LTR will be made in response to this RAI.

NRC RAI 18.5-26 S02

In RAI 18.5-26, the staff requested that GEH describe how workload assessments as part of task analysis (as per Sections 4.1.3.6 and 4.2.3.6 of NEDO 33221, Revision 1) are accomplished. The RAI response addresses workload assessment in general. For Stage 1 workload analysis, GEH indicates that a questionnaire type instrument is used by analysts to evaluate workload. Such an instrument is not referenced in or included in the NEDO. GEH indicated that for Stage 2 workload analyses, known ranking systems such as the NASA-TLX are used. However, the TLX is typically used to collect ratings from participants performing tasks on a simulator or in an actual plant. GEH states that the detailed methods for assessing workload and stress are described in a workload assessment detailed work document or work instruction currently under development and that the workload assessment work instruction fulfills guidance as set forth by NUREG-0711. GEH further indicated that no changes are planned for the NEDO. The staff position is that the Task Analysis implementation plan needs to specifically describe how the task analyst will perform the aspects of the workload analysis described in Sections 4.1.3.6 and 4.2.3.6 of NEDO 33221, Revision 1. Please include this information in the Task Analysis implementation plan or submit the appropriate Work Instructions (Task Analysis or Workload Assessment) for staff review.

GEH Response

This response provides excerpts from the GEH proprietary Workload Analysis work instruction, IPDSI 7.2-03, for the purpose of providing specific details on how workload assessments are performed as part of task analysis during Stage 1, and the tools used to measure workload during Stages 2 and 3.

To clarify the process used to perform workload analysis, and how this process integrates with task analysis and the HFE design process, a flowchart from the Workload Analysis Work Instruction has been provided (Attachment 1). This flowchart delineates the three stages of workload analysis.

The questionnaire (Attachment 2) administered during stage 1 is included as a form with the Workload Analysis work instruction.

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DCD Impact

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

No changes to the subject LTR will be made in response to this RAI.

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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 Americas LLC ("GEH"). I 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 08-662, Richard E Kingston to Nuclear Regulatory Commission, entitled *Submittal of Response to Portion of NRC Request for Additional Information Letter No. 211 Related to ESBWR Design Certification Application Chapter 18 - Human Factors Engineering - RAI Numbers 18.5-5 S03 and 18.5-26 S02* October 9, 2008. GEH text proprietary information in Enclosure 1, which is entitled "Response to Portion of NRC Request for Additional Information Letter No. 211 - Related to ESBWR Design Certification Application - Chapter 18.8 Human Factors Verification & Validation - RAI Numbers 18.5-5 S03 and 18.5-26 S02", is identified by a dark red dotted underline inside double square brackets [[This sentence is an example.{3}]]. Figures and large equation objects containing GEH proprietary information 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 identifies details of GEH ESBWR methods, techniques, information, procedures, and assumptions related to the application of human factors engineering to the GEH ESBWR.

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 9th day of October, 2008.

David H. Hinds
GE-Hitachi Nuclear Energy Americas LLC