

January 31, 2008

Mr. Robert E. Brown  
Senior Vice President, Regulatory Affairs  
GE-Hitachi Nuclear Energy Americas, LLC  
3901 Castle Hayne Road MC A-45  
Wilmington, NC 28401

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 143 RELATED TO  
ESBWR DESIGN CERTIFICATION APPLICATION

Dear Mr. Brown:

By letter dated August 24, 2005, GE-Hitachi Nuclear Energy Americas, LLC (GEH) submitted an application for final design approval and standard design certification of the economic simplified boiling water reactor (ESBWR) standard plant design pursuant to 10 CFR Part 52. The Nuclear Regulatory Commission (NRC) staff is performing a detailed review of this application to enable the staff to reach a conclusion on the safety of the proposed design.

The NRC staff has identified that additional information is needed to continue portions of the review. The staff's request for additional information (RAI) is contained in the enclosure to this letter.

If you have any questions or comments concerning this matter, you may contact me at 301-415-6256 or [djq3@nrc.gov](mailto:djq3@nrc.gov) or you may contact Amy Cubbage at 301-415-2875 or [aec@nrc.gov](mailto:aec@nrc.gov).

Sincerely,

*/RA/*

Dennis Galvin, Project Manager  
ESBWR/ABWR Projects Branch 1  
Division of New Reactor Licensing  
Office of New Reactors

Docket No. 52-010

Enclosure:  
Request for Additional Information

cc: See next page

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GE-Hitachi Nuclear Energy Americas LLC  
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Sincerely,

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Office of New Reactors

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Distribution: See next page

ACCESSION NO.: ML080160304

NRO-002

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SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 143 RELATED TO  
ESBWR DESIGN CERTIFICATION APPLICATION

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**Requests for Additional Information (RAIs): ESBWR Design Control Document (DCD)  
Revision 4; NEDE-33295P, "Cyber Security Program Plan"; and  
NEDO-33304, "GEH ABWR/ESBWR Setpoint Methodology"**

<b>RAI Number</b>	<b>Reviewer</b>	<b>Question Summary</b>	<b>Full Text</b>
7.1-80	Hardin R	Elimination of remote access capability.	<p>This RAI refers to GEH submitted Licensing Topical Report (LTR) NEDE-33295P, "Cyber Security Program Plan."</p> <p>NEDE-33295P, Appendix B, "Cyber Security Plan Conformance Review," Item 1 states that "this document conforms to the NRC ISG on communications, DI&amp;C-ISG-04, 9/28/2007" instead of RG 1.152, Section 2.1. RG 1.152, Section 2.1 addresses the following: "Remote access to the safety system should not be implemented. Computer-based systems may transfer data to other systems through one-way communication pathways." DI&amp;C-ISG-04 issued on September 28, 2007 does not specify any guidance on remote access. Please verify that GEH intends to comply with RG 1.152 with respect to the remote access requirements. Specifically, verify that there will be no remote access to any safety systems and discuss how this is achieved.</p>
7.1-81	Hardin R	Addressing security vulnerabilities of pre-developed software.	<p>This RAI refers to GEH submitted Licensing Topical Report (LTR) NEDE-33295P, "Cyber Security Program Plan."</p> <p>Regulatory Guide 1.152 states that the design configuration items incorporating pre-developed software into the safety system should address security vulnerabilities of the safety system. Please verify that Section 6, "Design Phase" addresses this criterion and discuss how this is achieved.</p>

RAI Number	Reviewer	Question Summary	Full Text
7.1-82	Hardin R	Verification of no undocumented/unwanted code or capabilities in system.	<p>This RAI refers to GEH submitted Licensing Topical Report (LTR) NEDE-33295P, "Cyber Security Program Plan."</p> <p>Regulatory Guide 1.152 specifies that the development process should ensure the system does not contain undocumented code (e.g., back door coding), malicious code (e.g., intrusions, viruses, worms, Trojan horses, or bomb codes), and other unwanted and undocumented functions or applications. Please indicate how Section 5, "Requirements Phase" of this GEH Cyber Security Program Plan intends to meet this criterion. In addition, provide specific information on the process that will be applied to pre-developed software to confirm it meets this criterion.</p>
7.1-83	Hardin R	Documentation plan for results of activities required by Implementation Phase.	<p>This RAI refers to GEH submitted Licensing Topical Report (LTR) NEDE-33295P, "Cyber Security Program Plan."</p> <p>Please indicate how the outputs from activities conducted based on requirements from Section 7, "Implementation Phase" of the GEH Cyber Security Program Plan will be documented. For example, indicate which report(s) will address the requirement, "the developer shall follow the GEH Policy and Procedures addressing security controls on development processes, including scanning, where appropriate, during and after code development, to address undocumented codes or malicious functions that might (1) allow unauthorized access or use of the system or (2) cause systems to behave beyond the system requirements. This development process will account for hidden functions and vulnerable features embedded in the code, and their purpose and impact on the safety system. As a design goal, these functions should be disabled, removed, or addressed to prevent any unauthorized access." In addition, describe which GEH documented Policies and Procedures (SQAP, SMP, EOPs, etc.) will be followed to meet this requirement.</p>

RAI Number	Reviewer	Question Summary	Full Text
7.1-84	Hardin R	Guidance for Installation, Checkout and Acceptance Testing Phase actions.	<p>This RAI refers to GEH submitted Licensing Topical Report (LTR) NEDE-33295P, "Cyber Security Program Plan."</p> <p>Please describe the specific GEH Policies and Procedures that will provide additional guidance on specific actions applicable to GEH during the Installation, Checkout, and Acceptance Testing phase as indicated in Section 9 of GEH Cyber Security Program Plan.</p>
7.1-85	Hardin R	Relationship between SMP, SQAP and Cyber Security Program Plan documents.	<p>This RAI refers to GEH submitted Licensing Topical Report (LTR) NEDE-33295P, "Cyber Security Program Plan."</p> <p>Please provide additional details on how the Cyber Security Program Plan is related to the SMP and SQAP documents with regards to software development. Will there be one master Cyber Security Program Plan for the whole system, or will there be separate application specific components referenced back to the overall plan? Alternately will any application specific information be included in the specific detailed software development plans (i.e. SMP, SQAP, etc.)</p>
7.1-86	Rhow S	Application of the graded approach in setpoint methodology and setpoint calculation	<p>This RAI refers to GEH submitted Licensing Topical Report (LTR) NEDO-33304, "GEH ABWR/ESBWR Setpoint Methodology."</p> <p>The graded approach allows for various levels of rigor (i.e., probability and confidence) to be applied in setpoint methodology based on importance to safety. Provide specific information how the graded approach is applied in setpoint methodology and setpoint calculation based on the categories (A, B, C, D). Regulatory Guide 1.105 states that for normally distributed uncertainties, 95 percent of the population will have uncertainties between plus 1.96 and minus 1.96. Based on a normal error distribution, this corresponds to a 2 sigma value (1.96). Justify that the setpoint methodology can establish setpoints with the 95/95 tolerance limit for uncertainties for each of the categories.</p>

RAI Number	Reviewer	Question Summary	Full Text
7.2-2, Supplement No. 2 (MFN 07-285 Supplement No. 1, December 18, 2007)	Beacom R	Detailed interface information for each of these systems which interface with the reactor protection system.	<p>The response to RAI 7.2-2 S01, MFN 07-285 S01 states; “For the systems not listed in Table 2.2.15-1 but identified as interfacing with the RPS in Section 1 of this response, the RPS Table 2.2.7-4, ITAAC 4 addresses the RPS interface with these systems.”</p> <p>ITAAC 4 does not add information but refers right back to 2.2.15 by merely saying; “Conformance with IEEE Std. 603 requirements by the safety-related control system structures, systems, and components is addressed in Subsection 2.2.15”; ITA “See Subsection 2.2.15”; and Acceptance Criteria “See Subsection 2.2.15”</p> <p>Neither the RAI response nor the RPS ITAAC identify the systems that interface with the RPS but are not listed in Tier 1, Table 2.2.15-1. Please identify these additional systems and revise ITAAC 4 of Tier 1 RPS Table 2.2.7-4.</p>

DC GE - ESBWR Mailing List

(Revised 1/3/08)

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