December 29, 2008

Mr. Robert E. Brown
Senior Vice President, Regulatory Affairs
GE Hitachi Nuclear Energy
3901 Castle Hayne Road MC A-50
Wilmington, NC 28401

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 289 RELATED TO ESBWR DESIGN CERTIFICATION APPLICATION

Dear Mr. Brown:

By letter dated August 24, 2005, GE-Hitachi Nuclear Energy (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 Dennis.Galvin@nrc.gov or you may contact Amy Cubbage at 301-415-2875 or Amy.Cubbage@nrc.gov.

Sincerely,

/RA D. Misenhimer for:/

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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Enclosure:
Request for Additional Information

cc: See next page
Distribution: See next page
ACCESSION NO.: ML083530141 NRO-002

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DATE	12/18/2008	12/29/2008

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SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 289 RELATED TO ESBWR DESIGN CERTIFICATION APPLICATION DATED DECEMBER 29, 2008

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Requests for Additional Information (RAIs):
ESBWR Design Control Document (DCD) Revision 5

RAI Number	Reviewer	Question Summary	Full Text
7.1-137	Hardin L	Clarify GEH's comprehensive cyber security concept	The staff has questions on the overall alignment and functional arrangement of GEH's cyber security activities. The overall organization of the various activities that fall under the term "cyber security" for the entire ESBWR process is unclear. It is also unclear how the activities described in the Cyber Security Program Plan fit into the overall cyber security activities. A. Expand and clarify the concept of how GEH intends to develop an overall and comprehensive set of cyber security material that will be used by GEH as well as the applicant. How will the responsibilities/commitments be divided between GEH and the applicants? B. Identify which parts of the cyber security material (including the material provided in the Cyber Security Program Plan and the material that will be provided in the future) is to be part of the design certification, which is to be considered part of an operational program, which is COL applicant's responsibility, and which falls into a different category per GEH's concept. Also identify what information will be considered Tier 2*. C. Additionally, the Cyber Security Program Plan uses related terms Cyber Security Plan, Cyber Security Program, as well as Cyber Security Program Plan in an unclear manner. Confirm that the proper terms are used appropriately and that the material referred to by a specific term is correct.
7.1-138	Hardin L	Clarify the data communications approach for cyber security	The DCD states at a high level that data communications are separated and independent. However, this discussion does not adequately describe the data communications approach for cyber security. Include in the DCD or Topical Report the following (or equivalent descriptions):

RAI Number	Reviewer	Question Summary	Full Text
			Schematics and functional diagrams of data flows, protocols, access controls, and functional descriptions of required communications: - within safety division - safety to non-safety systems - critical control systems/networks • Simplified logic diagrams and associated explanations While much of this material is provided in various parts of the submitted documents, a consolidated representation of this material as it relates to cyber security is needed. The staff recognizes that as the development effort progresses through the I&C lifecycle, more detailed information will become available. Therefore, if it would be more appropriate to provide some of the above information (particularly that containing enhanced details) in an incremental manner such as during a later phase of the lifecycle, identify which lifecycle phase it will be developed in and how it will be verified either by DAC or ITAAC.
RAI 9.1-15 S02 (MFN 08-424, April 29, 2008)	Chakrabarti S	Provide details on liner plate analysis	The staff reviewed GEH response to RAI 9.1-15, SO2, received via GEH letter MFN 08-424 dated April 29, 2008. The staff generally agrees with the methodology used by GEH for evaluation of the liner plate against impact of a dropped fuel assembly. However, to determine adequacy of the alternative analysis, and to complete its review, the staff requests GEH to provide the following additional information: 1. The original analysis calculated required thickness of the liner plate considering local effect on the liner plate due to impact of a dropped fuel assembly using the empirical formula (BRL formula) in Bechtel Topical Report BC-TOP-9A (local damage prediction). Provide a description of the

RAI Number	Reviewer	Question Summary	Full Text
			alternative analysis including assumptions used, analysis results, and acceptance criteria used, and explain how results of the alternative analysis compare with those of the original analysis. 2. Describe evaluation of structural response of the liner plate due to impact of a dropped fuel assembly (overall damage prediction) including assumptions used, analysis results, and acceptance criteria used. Otherwise, provide justification why overall damage prediction for the liner plate due to impact of a fuel assembly need not be performed.
9.5-71 S01 (MFN 08-634, August 13, 2008)	Vettori R	Effects of fire and smoke on digital I&C components	In consideration of the response to RAI 9.5-71, the staff requests that due to the potential hazards associated with spurious actuations; the lack of definitive test data on the potential for smoke to cause spurious actuations in digital systems; and the limited application of digital instrumentation and control systems in existing US nuclear plants, the arguments put forth by GEH in the response to this RAI should be incorporated in the text of the DCD. For example, the RAI response identifies multiple design features to prevent spurious actuations, however, these design features are not described in the DCD.

cc:

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