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. 147 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 301-415-3207 or saw8@nrc.gov or you may contact Amy Cubbage at 301-415-2875 or aec@nrc.gov.

Sincerely,

/RA/

Shawn Williams, 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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Distribution: See next page

ADAMS ACCESSION NO. ML080240031

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DATE	1/24/08	1/24/08	1/31/08

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January 31, 2008

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 147 RELATED TO ESBWR DESIGN CERTIFICATION APPLICATION

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Requests for Additional Information (RAIs)
ESBWR Design Control Document (DCD), Revision 4

RAI Number	Reviewer	Question Summary	Full Text
RAI 6.2-53 Supplement No. 3 (MFN 06-215 Supplement 3, 12/10/07)	Haider S	Incorporate the response in the DCD or a topical report	GEH response to RAI 6.2-53, Supplement No. 2, provided additional TRACG outputs (transient air mass profiles in gravity drain cooling system, drywell (DW) head, and wetwell airspaces); and parametric results (impact of various model/plant parameters on the long-term DW pressures), for the limiting main steam line break design basis accident. The staff found the response to be acceptable except that the information was not incorporated into the DCD or a topical report. To support staff's safety evaluation, include the information in either the DCD Tier 2, or in one of the related topical reports, e.g., NEDC-33083P (TRACG Application for ESBWR Transient Analysis) or NEDE-32176P (TRACG Model Description).
21.6-111	Gilmer J	Describe the process for accounting for the void history bias in the TRACG04 nodal void reactivity coefficient	TRACG internally models the response surface for the void coefficient biases and uncertainties for known dependencies due to the relative moderator density and exposure on a nodal basis. Section 2.8.7 of the Vermont Yankee extended power uprate (EPU) safety evaluation report (Reference 1) reviewed the impact of the void history bias on the safety analyses. RAI SRXB-A-68 response (Reference 2) quantified the void history bias and discussed its impact. Section 2.2.2.2, Treatment of Fuel Parameter Uncertainties, of Reference 3 also addressed the void history bias. Based on the quantified void history bias typical for the fuel designs typical of the EPU and the maximum extended load line limit analysis plus (MELLLA+) operating domain, modify the TRACG methodology to account for void history bias. The void history bias can be incorporated into the response surface known bias or through changes in lattice physics/core simulator methods for establishing the instantaneous cross-sections. Including the void history bias in the methodology negates the need for ensuring that each plant-specific application has sufficient margin available to account for the impact of the void history bias. Revise the nodal void reactivity coefficient biases and uncertainties and incorporate the void history biases. Provide sufficient technical details for the NRC staff to assess that the void history bias applied on a nodal level will conservatively bound the non-conservatisms in the current assumptions for nodes depleting at high void conditions.

RAI Number	Reviewer	Question Summary	Full Text
			References 1. Vermont Yankee Nuclear Power Station - Draft Safety Evaluation for the Proposed Extended Power Uprate (TAC No. MC0761), October 21, 2005. (ML052910200) 2. BVY 05-088 Letter, J. Thayer (Vermont Yankee) to NRC, Vermont Yankee Nuclear Power Station, Technical Specification Proposed Change No. 263, Supplement No. 35, Extended Power Uprate - Response to Request for Additional Information, September 28, 2005. (ML052770039) 3. NEDC-33173P, Applicability of GE Methods to Expanded Operating Domains, February 2006. (ML060720281)

DC GE - ESBWR Mailing List (Revised 01/16/08)

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