January 7, 2009

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. 287 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 U.S. 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 301-415-6715 or Bruce.Bavol@nrc.gov or you may contact Amy Cubbage at 301-415-2875 or Amy.Cubbage@nrc.gov.

Sincerely,

/RA/

Bruce M. Bavol, 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. ML083640085

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SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 287 RELATED TO ESBWR DESIGN CERTIFICATION APPLICATION DATED JANUARY 7, 2009

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

RAI Number	Reviewer	Question Summary	Full Text
4.6-39, Supplement No. 1 (MFN 08-847 Dated October 31, 2008)	Thomas G Wang W Gilmer J	Template for Core Operating Limits Report (COLR)	In DCD Rev 5 and from the response to RAI 4.6-39, staff suggests that GEH develop a template for Core Operating Limits Report (COLR) to address cycle-specific confirmatory evaluations to include all the analyses items presented below and update the DCD accordingly. • T/H Stability – DSS-CD based Detect and Suppress solution, OPRM set points • LOCA - Limiting breaks (GDCS injection line and IC drain line) analyses • AOOs – Section 15.2.6, Limiting events for determination of MCPR (a) Loss of FW heating; (b) Closure of one Turbine Control Valve; (c) Generator Load Rejection with Turbine Bypass; (d) Generator Load Rejection with Single failure in the Turbine Bypass System; (e) Inadvertent IC initiation • Infrequent Event – Section 15.3.5.3.2, Generator Load Rejection with Total Turbine Bypass System failure • Accidents - Section 15.4.6, Control Rod Drop Accident • ATWS - Limiting Events • Station Blackout (SBO) – Section 15.5.5.3

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			The following items should be included in the DCD as a result of the Feedwater temperature Operating Domain LTR NEDO-33338 review: • Establishing an operating limit for the minimum critical power ratio (OLMCPR) that is a function of FW temperature; thus higher operating margin is provided at off-nominal FW temperatures. The OLMCPR is cycle-dependent and will be documented in the core operating limits report (COLR). • Limiting the minimum FW temperature of operating point SP1M to ensure that stability criteria are satisfied. The FW temperature of point SP1M will be cycle-dependent based on the result of stability analyses and will be documented in the COLR.
15.3-37	Lois. L Thomas.G	Stuck Open SRV DCD 15.3.15	In DCD Rev 5, Section 15.3.15, "Stuck Open Safety Relief Valve" the CRDs are credited to recover vessel water level. The ICs are also activated but their contribution does not appear until about 100 seconds into the transient. Because the CRDs are not safety related, credit cannot be taken in the analyses. A stuck open safety relief valve releases significant amounts of steam to the suppression pool lowering the water level fast and scramming the reactor automatically at L2. Because of the stuck open valve, the plant continues to lose water and the scenario in the DCD activates the CRDs that provide water quickly to recover level. Table 15.3-12 does not indicate when, but around 100 seconds into the transient the ICs are activated. Figure 15.3-9b indicates a surge of IC condensate at about 100 seconds. Table 15.3-12 indicates that about 320 seconds the CRDs are deactivated because water level has been recovered. This recovery comes from the

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			contribution of both the CRDs and the ICs. Figure 15.3-9c indicates a very fast rise in water level almost immediately after the scram. There is a long time between the L2 level (scram signal) and the IC contribution to level increase. The level is reversed almost immediately with the CRDs. Please provide an analysis of this event without crediting CRDs to demonstrate that the core remains covered.

cc:

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