

January 22, 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. 297 RELATED TO
ESBWR DESIGN CERTIFICATION APPLICATION

Dear Mr. Brown:

By letter dated August 24, 2005, GE Hitachi Nuclear Energy 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 301-415-3808 or zahira.cruz@nrc.gov, or you may contact Chandu Patel at 301-415-3025 or chandu.patel@nrc.gov.

Sincerely,

/RA/

Zahira Cruz Perez, 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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ESBWR/ABWR Projects Branch 1
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Distribution: See next page

ADAMS ACCESSION NO. ML090150630

NRO-002

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DATE	01/16/09	01/16/09	01/22/09

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SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO.297 RELATED TO
ESBWR DESIGN CERTIFICATION APPLICATION DATED JANUARY 22, 2009

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SSamaddar, NRO

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

RAI Number	Reviewer	RAI Summary	RAI Text
RAI 3.8-41 S07	Chakrabarti S	Address additional items related to the evaluation of the infill concrete, revised containment DBA loading, and widening of the pool buffer gate.	<p>As a result of the staff's review of the GEH response transmitted in GEH letter MFN 06-191, Supplement 10, dated December 4, 2008, some of the questions raised in the RAI have not been adequately addressed. Therefore, GEH is requested to respond to the following items:</p> <p>Part (a), GEH Items (1) and (2):</p> <p><u>Infill Concrete for the Diaphragm Floor and Vent Wall</u></p> <p>The RAI response indicates that the DCD changes resulting from the 100 percent infill concrete evaluations are included in GEH's response to RAI 3.8-41, Supplement 5. To clarify the numerous RAI responses on this subject, confirm that all three cases of no infill, 50 percent infill, and 100 percent infill concrete in the diaphragm floor and the vent wall structures have been evaluated for seismic and hydrodynamic loads in the overall building analyses, and that the envelope of these results were used in the design of all affected structural members and in the development of floor response spectra. In addition, specifically identify where in the current DCD Rev. 5 and proposed markup of the DCD for Rev. 6, all of the above information is presented.</p> <p><u>Revised Containment DBA Time History</u></p> <p>The RAI response indicates that the quantitative evaluation for the revised containment thermal DBA time history will be included in GEH's response to NRC RAI 6.2-180. GEH is requested to ensure that the RAI response will provide a complete description of the structural evaluation for the revised pressure and temperature loading, and if there is any significant effect then explain how the design was modified. Also, the proposed changes to the DCD should include a summary description of this information.</p>

			<p><u>Widening of the Buffer Pool Gate</u></p> <p>Figures 3.8-41(60) through 3.8-41(91) were intended to show member force distributions for the pressure loading and thermal loading cases so a comparison can be made between the new revised DBA analysis and the existing DCD Rev. 5 model analysis. Unfortunately, all of these figures were not legible and thus were of limited value. GEH is requested to provide more legible figures for the force distributions. Since it is difficult to judge from computer generated color force distributions the extent of the change in member forces, GEH is requested to identify whether they made a numerical comparison of the member forces from the computer output to determine (1) what regions need to be redesigned for the higher loads and (2) used those numerical values to redesign the members.</p> <p>One of the regions which required a design change is shown on DCD Figure 3G.1-44, where additional bars are added. Explain, why these additional bars are only added on the North side of the RCCV top slab adjacent to the drywell head opening and not also on the South side. Figure 3.8-41(64) appears to show that there was a significant change in moment on both sides of the slab.</p>
RAI 3.8-125	S. Chakrabarti	Provide the evaluation of the pool structure resulting from all loads generated by the new analyses for the free-standing spent fuel racks.	<p>GEH letter MFN 08-932, dated December 2, 2008, submitted Licensing Topical Report NEDC-33373P, Revision 1, "Dynamic, Load-Drop and Thermal-Hydraulic Analysis for ESBWR Fuel Racks." This report presents the structural analysis of the Spent Fuel High Density Fuel Storage Racks (FSR) for the spent fuel storage pool located in the fuel building. The report indicates that the design of the FSR has been revised such that they are no longer anchored to the pool floor. The FSR are evaluated as free-standing racks on the pool floor. While the report evaluates the adequacy of the FSR and provides some information about the loads on the spent fuel pool structure, it does not appear to contain information regarding how these loads are used for the design of the spent fuel pool structure. Therefore, GEH is requested to provide a description of the evaluation of the pool structure (reinforced concrete floor and walls, and steel liner) resulting from all loads generated by the new analyses for the FSR.</p>

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(Revised 01/06/2009)

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