

March 21, 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. 154 RELATED TO  
ESBWR DESIGN CERTIFICATION APPLICATION

Dear Mr. Brown:

By letter dated August 24, 2005, GE-Hitachi Nuclear Energy Americas, LLC submitted an application for final design approval and standard design certification of the economic simplified boiling water reactor 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 is contained in the enclosure to this letter.

If you have any questions or comments concerning this matter, you may contact me at 301-415-5787 or [rdf@nrc.gov](mailto:rdf@nrc.gov), or you may contact Thomas Kevern at 301-415-0224 or [tak@nrc.gov](mailto:tak@nrc.gov).

Sincerely,

*/RA/*

Rocky D. Foster, Project Manager  
ESBWR/ABWR Projects Branch 2  
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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cc: See next page  
Distribution: See next page

ACCESSION NO: ML080380578

NRO-002

<b>OFFICE</b>	PM:NGE2	LPM:NGE1	LA:NGE1	OGC	BC:NSIR	BC:NGE1
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<b>DATE</b>	2/8/2008	2/8/2008	2/11/2008	3/18/2008	3/20/2008	3/21/2008

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ESBWR DESIGN CERTIFICATION APPLICATION MARCH 21, 2008

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

RAI Number	Reviewer	Question Summary	Full Text
13.3-5 S02	Musico B	Technical Support Center (TSC) location and communication functions in the proposed ESBWR design	<p>(Regulatory Basis: 10 CFR 52.47, 10 CFR 52.48, 10 CFR 50.47(b)(8) and (b)(11), and Subsection IV.E.8 to 10 CFR Part 50, Appendix E)</p> <p>a) <i>ESBWR conformance with NUREG-0696:</i>            In DCD Subsection 9.4.7, and in its response to RAI 9.4 25 and RAI 13.3-5 (Supplement 1), the applicant stated that the ESBWR design conforms to NUREG-0696. In contrast, the applicant further stated that the TSC is not specifically committed to providing a safety-related environment in full compliance with the Control Room habitability acceptance criteria defined in GDC 19.</p> <p>Section 2.6, "Habitability," of NUREG-0696 states the following with respect to TSC habitability (emphasis added):</p> <p style="padding-left: 40px;">Since the TSC <input type="checkbox"/> to provide direct management and technical support to the control room during an accident, <u>it shall have the same radiological habitability</u> as the control room under accident conditions. TSC personnel shall be protected from radiological hazards, including direct radiation and airborne radioactivity from inplant sources under accident conditions, <u>to the same degree</u> as control room personnel. Applicable criteria are specified in General Design Criterion 19; Standard Review Plan 6.4; and NUREG-0737, "Clarification of TMI Action Plan Requirements," Item II.B.2 [per 50.34 (f)(2)(vii)].</p> <p>The applicant specifically takes exception to this clear guidance in stating that "the TSC is not specifically committed to providing a safety-related environment in full compliance with GDC 19." The staff sees this as contradictory to the applicant's statement in DCD Subsection 9.4.7 that "the ESBWR complies with the requirements of NUREG-0696, which requires the</p>

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			<p>TSC to supply the same level of radiological protection as that supplied to the MCR under GDC 19.” In short, the applicant has basically said that the TSC complies with NUREG-0696, and then follows with the clarification that it actually does not.</p> <p>Please clarify this apparent contradiction, which relates to protection of TSC personnel (including communication personnel that are part of the TSC staff) from radiological hazards, including the extent to which the ESBWR design comports with the applicable guidance in NUREG-0696.</p> <p>b) <i>Communications Room outside the TSC:</i>  Responses to RAI 13.3-1 and RAI 13.3-5, Supplement 1, state that Communications Room 5189 is outside the TSC, and that communication personnel are part of the TSC staff size. Further, the Electric and Electronic Rooms HVAC Subsystems services Communications Room 5189, and does not provide the same level of radiological protection as the TSC ventilation system, which services the TSC. The applicant justifies the lesser radiological protection for communication personnel by stating that the occupation of the Communication[s] Room 5189 by personnel will only be for a “brief period of time when the TSC is activated,” and that otherwise, they will normally occupy the TSC.</p> <p>It is not clear whether the TSC communication personnel will perform their emergency duties from within the TSC or from Communications Room 5189. Please clarify. If they perform their duties from Communications Room 5189, describe how this comports with the applicable habitability criteria in NUREG-0696.</p> <p>c) <i>TSC functions transferred to EOF:</i>  The response to RAI 13.3-5, Supplement 1, states that “[i]f at any time the director of the TSC facility considers it to be uninhabitable due to loss of communications or other reasons, the functions of the TSC will be transferred to the Emergency Offsite [sic] Facility (EOF).”</p>

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			<p>This statement is problematic, in that the EOF is not a plant-specific, design-related aspect of the ESBWR. Any such transfer of TSC functions to the EOF would be programmatic in nature, and would depend on the individual characteristics of any specific site. Consistent with Section 13.3, "Emergency Planning," of the Standard Review Plan (SRP) (NUREG-0800), the staff's review of design-related aspects of emergency planning in a design certification application should be limited to site-independent emergency planning features that are technically relevant to the design, and usable for a multiple number of units or sites.</p> <p>Further, as reflected in the staff's earlier review of the AP1000 reactor design (see NUREG-1793, September 2004), the designation of the EOF as an alternate TSC is problematic. TSC design features cannot be ignored based on unknown compensatory measures, and if the EOF is an alternate TSC, its location would need to be evaluated against the applicable guidance criteria in NUREG-0696. Finally, Section 2.6 of NUREG-0696 states that "[i]f the TSC becomes uninhabitable, the TSC plant management function shall be transferred to the control room."</p> <p>Please clarify how transferring the TSC functions to the EOF is relevant to the ESBWR standard design; including how this would be addressed for an existing reactor site that calls for the TSC plant management function to be transferred to the control room if the TSC becomes uninhabitable – rather than to the EOF or retract the statement that the TSC functions will be transferred to the EOF if the TSC facility becomes uninhabitable.</p>

DC GE - ESBWR Mailing List  
cc:

(Revised 03/18/2008)

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