

April 11, 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. 183 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 301-415-2375 or leslie.perkins@nrc.gov, or you may contact Eric Oesterle at 301-415-1365 or eric.oesterle@nrc.gov.

Sincerely,

/RA/

Leslie Perkins, 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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Leslie Perkins, Project Manager
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Distribution: See next page

ADAMS ACCESSION NO. ML081010599

NRO-002

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DATE	04/10/08	04/11/08	4/11/08

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SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO.183 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
14.3-209 S01	Radlinski R	Table 2.16.3-2, Item 3	The following statement was provided in the GEH response to RAI 14 3-209 as a revision to Section 9.5.1.9: “The manual firefighting capability is provided for those containment spaces containing mechanical or electrical equipment that use, contain or requires for maintenance, significant quantities of combustibles, when the containment is not otherwise inerted.” This new statement of design criteria is not the same as the design criteria provided in other sections of the DCD and in another RAI response related to hose station coverage inside containment, including the following (underlining added for emphasis): • Tier 2, Section 9.5.1.6, Revision 4, states “<u>All rooms within the plant buildings</u> are within the reach of at least one effective hose stream from a Class III hose station.” • GEH response to RAI 9.5-21 states “Hose racks are located in each stairwell, with extra fire hose and fire extinguishers staged at hatch openings as required, to provide <u>full coverage throughout the Drywell and Containment</u> during outages.” • Appendix 9A, Table 9A.5-1, Revision 4, indicates that for containment backup fire suppression “Hose racks and ABC fire extinguishers (via hatches at EL 6400, EL 13570 and EL17500) (extra fire hose and fire extinguishers staged at hatches as required)” are provided. Other draft changes provided in the GEH response to RAI 14.3-209 <u>are consistent</u> with the DCD excerpts and RAI 9.5-21 response above, including (underlining added for emphasis):

RAI Number	Reviewer	Question Summary	Full Text
			• Tier 1 Section 2.16.3, Item (3), Draft Revision 5 states “The FPS provides for manual suppression capability to <u>plant areas containing safety-related equipment</u>.” • Table 2.16.3-2, Item 3, Draft Revision 5, Inspections, Tests, and Analyses (ITAAC) for this item states that “Inspections of the as-built manual fire suppression system will be performed to verify that <u>any location that contains or could present a hazard to safety-related equipment</u> can be reached by at least one effective hose stream with a maximum of 30.5 meters (100 ft) of hose.” The above descriptions and response to RAI 9.5-21 are consistent and in accordance with regulatory expectations, as well as the acceptance criteria for manual hose station protection provided in Regulatory Guide 1.189, Regulatory Position 3.4.1. They reflect a design criteria based on the location of safety related equipment. On the other hand, the revised design criteria provided in draft Revision 5 of Section 9.5.1.9, as quoted above, is not in accordance with Regulatory Position 3.4.1. This new criteria is based on combustible loading, not on the location of safety related equipment. 1. Table 2.16.3-2, Item 3, Draft Revision 5, ITAAC and Acceptance Criteria: This ITAAC does not distinguish between areas inside containment and areas outside containment. GEH should verify that all areas of the containment and drywell can be reached by an effective hose stream using 100 ft of hose connected to a hose station outside containment. A separate ITAAC should be provided for hose station coverage inside containment, if additional hose will be required. 2. During an NRC/GEH phone conference on April 4, 2008, GEH noted that they are crediting the standard 30 feet of hose stream when determining adequate coverage – which is acceptable to the NRC. This is consistent with the description in the Inspection, Tests,

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			Analyses description for Item 3 of Table 2.16.3-2 in Tier 1. However, the description in the Acceptance Criteria column for this same item does not appear to credit the length of the hose stream – only the 100 ft hose length – for determining acceptable coverage. The Acceptance Criteria should be revised. Section 9.5.1.9, Smoke Detection and Fire Alarm System, which was revised for draft Rev 5 of the DCD to respond to RAI 14.3-209, is not the appropriate location for a discussion of manual fire fighting capabilities. This issue should be addressed in Section 9.5.1.6, Manual Suppression Means.
14.3-246 S01	Beacom R	Table 2.1.2-2, NBS Electrical Equipment	Item 8 a, under the design description of Section 2.1.2 Nuclear Boiler System, states "Control Room alarms, displays, and/or controls provided for the NBS System are defined in Table 2.1.2-2." the following issues still exist with regards to Table 2.1.2-2: 1) The table does not identify the existence of alarms or controls. 2) The table does not identify what functions or equipment is in the control room. 3) The table lists pressure and level transmitters which should be shown on Figure 2.1.2-2. 4) The table has a column heading of "active function". The text does not define what that means, or specifically how that relates to the transmitters listed. 5) The table lists the attributes of "Safety Related Electrical Equipment" and "Seismic Category I" for the pressure and level transmitters but does not list them as being qualified for harsh environments. Will these be located in a harsh environment?

RAI Number	Reviewer	Question Summary	Full Text
14.3-359 S01	Kleeh E	Review Tier 2 material to ensure its consistent with Tier 1	Staff requested that GEH include a design commitment for the seismic qualification as none was present in Revision 4 of the DCD. Additionally, GEH was requested to modify the ITA to clearly state that "inspections and analyses ...will be performed." In their response GEH agreed to include a DC for the item, additionally they committed to modify the design descriptions in Section 2.5.5 of Tier 1 material to match. However, GEH did not comment on modifying the corresponding descriptions in Tier 2 material. It is requested that GEH review the supporting tier 2 material to ensure complete agreement of the seismic qualification of the equipment.

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(Revised 04/01/08)

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