

December 28, 2007

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. 128 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.

To support the review schedule, you are requested to provide the requested additional information within 45 days of the date of this letter.

If you have any questions or comments concerning this matter, you may contact me at 301-415-2375 or ltp1@nrc.gov, or you may contact Eric Oesterle at 301-415-1365 or ero1@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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SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 128 RELATED TO
ESBWR DESIGN CERTIFICATION APPLICATION DATED
DECEMBER 28, 2007

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

RAI Number	Reviewer	Question Summary	Full Text
10.3-4 (a) S03	Davis R	Requesting applicant to list filler materials used in the steam and feedwater systems	DCD, Revision 4, states that “Weld filler materials for the Class 2 portions of the TMSS and Feedwater Systems are the same as those specified in Table 6.1-1 for Engineered Safety Features component materials.” By letter dated December 10, 2007 (MFN 06-365 Supplement 2), GEH provided a response to RAI 6.1-2 S02 which includes a proposed revision to Table 6.1-1. In the proposed revision to Table 6.1-1, to be included in Revision 5 of the DCD, GEH eliminated their weld filler material specifications for welding Grade SA-335 P22/SA-335 F22 materials. As a result, the proposed GEH revised Table 6.1-1 will no longer list appropriate weld filler materials for welding feedwater piping. The staff requests that the applicant list filler materials used in the steam and feedwater systems in Table 10.3-2 or reference a table (such as Table 5.2-4) that includes the appropriate weld filler materials.
10.3-4 (c) S03	Davis R	Modify DCD to include applicant’s response to RAI 6.1-4	Although the applicant appropriately addressed RG 1.50, the applicant’s modifications to DCD, Tier 2, Revision 4, did not include the applicant’s response to RAI 6.1-4 as requested by the staff in RAI 10.3-4 (c) S02. The applicants response to RAI 6.1-4 states that the ASME Boiler and Pressure Vessel (B&PV) Code, Section III, Appendix D, Article D-1000, minimum preheat recommendations will be applied to all ASME Code, Section III, Class 1, 2, and 3 carbon steel and low alloy steel components in the ESBWR design. The staff requests that the applicant make the appropriate modifications described above to the DCD.
10.3-6 S03	Davis R	Include discussion regarding mitigation of FAC in non-ASME Code Class systems	DCD, Tier 2, Revision 4, does not include a discussion regarding mitigation of FAC in non-ASME Code Class systems. The staff requests that the applicant modify DCD, Tier 2, Section 10.4.7, to include a discussion of system design and materials selection used to mitigate FAC in non-ASME Code Class steam, feedwater and condensate systems.

RAI Number	Reviewer	Question Summary	Full Text
5.2-38 S04	Davis R	Discuss aging effects, thermal embrittlement, inspection needs, and ferrite content calculation of cast Austenitic Stainless Steel	<p>In NRC RAI 5.2-38-03, the staff requested that the applicant consider using Hull's equivalent factors when determining ferrite content of cast austenitic stainless steel (CASS) components in order to be consistent with the recommendations of NUREG/CR-4513, Revision 1, or propose a compensating factor to be applied to the applicant's alternative approach (ASTM 800) that ensures that 20 percent ferrite is not exceeded. In addition, the staff requested that the approach apply to both CASS reactor coolant pressure boundary (RCPB) components as well as reactor pressure vessel internal components. By letter dated November 9, 2007, GEH stated that it will modify DCD, Tier 2, Subsection 5.2.3.4, to state that for CASS materials used as part of the RCPB or reactor vessel internals component fabrications, the percent ferrite is calculated using Hull's equivalent factors as indicated in NUREG/CR-4513, Revision 1 (May 1994).</p> <p>DCD, Tier 2, Section 4.5.2.4 states that delta ferrite in CASS components used in reactor pressure vessel internal components is limited to a maximum value of 20 percent in order to limit the effects of thermal aging degradation. DCD, Tier 2, Subsection 5.2.3, does not provide a limit on percent ferrite in CASS components used as part of the RCPB. The staff requests that GEH modify DCD, Subsection 5.2.3 to include a limit on ferrite content (20 percent maximum) of CASS components in the RCPB.</p>

DC GE - ESBWR Mailing List

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