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Subject: Response to Portion of NRC Request for Additional Information Letter No. 126 Related to ESBWR Design Certification Application RAI Number 14.3-379

The purpose of this letter is to submit the GE Hitachi Nuclear Energy (GEH) Response to the U.S. Nuclear Regulatory Commission (NRC) Request for Additional Information (RAI) sent by NRC letter dated December 20, 2007 (Reference 1).

Enclosure 1 contains the GEH response to RAI Number 14.3-379. The enclosed changes will be incorporated in the upcoming DCD Revision 5 submittal.

Verified DCD changes associated with this RAI response are identified in the enclosed DCD markups by enclosing the text within a black box. The marked-up pages may contain unverified changes in addition to the verified changes resulting from this RAI response. Other changes shown in the markups may not be fully developed and approved for inclusion in DCD Revision 5.

If you have any questions or require additional information, please contact me.

Sincerely,

James C. Kinsey
Vice President, ESBWR Licensing

DO68
NRC

Reference:

1. MFN 07-718, Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, *Request For Additional Information Letter No. 126 Related To ESBWR Design Certification Application*, December 20, 2007.

Enclosure:

1. Response to Portion of NRC Request for Additional Information Letter No. 126 Related to ESBWR Design Certification Application – RAI Number 14.3-379

cc: AE Cabbage USNRC (with enclosure)
GB Stramback GEH/San Jose (with enclosure)
RE Brown GEH/Wilmington (with enclosure)
DH Hinds GEH/Wilmington (with enclosure)
eDRF 0000-0084-2601 RAI 14.3-379

MFN 08-086, Supplement 52

Enclosure 1

**Response to Portion of NRC Request for Additional
Information Letter No. 126 Related to ESBWR
Design Certification Application**

RAI Number 14.3-379

**VERIFIED DCD CHANGES ASSOCIATED WITH THIS RAI RESPONSE ARE
IDENTIFIED IN THE ENCLOSED DCD MARKUPS BY ENCLOSING THE TEXT WITHIN
A BLACK BOX. THE MARKED-UP PAGES MAY CONTAIN UNVERIFIED CHANGES IN
ADDITION TO THE VERIFIED CHANGES RESULTING FROM THIS RAI RESPONSE.
OTHER CHANGES SHOWN IN THE MARKUP(S) MAY NOT BE FULLY DEVELOPED
AND APPROVED FOR INCLUSION IN DCD REVISION 5.**

NRC RAI 14.3-379

*NRC Summary:
Divisional separation*

*NRC Full Text:
For ITAAC Table 2.15.1-2 Item 6a, there is no clear correlation between the safety-related components and their power division in either Section 2.13 or in Table 2.15-1. The staff requests that the applicant provide this correlation.*

GEH RESPONSE

Discussions with NRC verified that the reference to ITAAC Table 2.15.1-2 Item 6a should be ITAAC Table 2.15.1-2 Item 6b

Note: Table 2.15.1-2 has been renumbered to Table 2.15.1-3, and the ITAAC items have been renumbered to match the text in Section 2.15.1 as follows:

Current ITAAC 6 was changed from 6a,

Current ITAAC 6a was changed from 6b.

In ITAAC Table 2.15.1-3 Item 6a, the "Inspections, Tests Analyses" column and the "Acceptance Criteria" column incorrectly include "See Tier 1 Section 2.13." In ITAAC Table 2.15.1-3 Item 6a, "See Tier 1 Section 2.13" will be replaced with specific descriptions of testing to demonstrate powering from respective safety-related divisions and the acceptance criteria.

DCD IMPACT

DCD Tier 1, Section 2.15.1 and Table 2.15.1-3 will be revised as shown in the attached markup.

2.15 CONTAINMENT, COOLING AND ENVIRONMENTAL CONTROL SYSTEMS

2.15.1 Containment System

Design Description

The Containment System confines the potential release of radioactive material in the event of a design basis accident. The Containment System is comprised of a reinforced concrete containment vessel (RCCV), penetrations and drywell head.

The Containment System is as shown in Figure 2.15.1-1. The RCCV is located in the Reactor Building.

- (1) The functional arrangement of the Containment System is described in the Design Description of this Section 2.15.1 and as shown in Figure 2.15.1-1.
- (2) Components and piping identified in Table 2.15.1-1a as ASME Code Section III are designed and constructed in accordance with ASME Code Section III requirements.
 - a. The RCCV and its liners are designed to meet the requirements in Article CC-3000 of ASME Code, Section III, Division 2.
 - b. The steel components of the RCCV are designed to meet the requirements in Article NE-3000 of ASME Code, Section III, Division 1.
- (3) Pressure Boundary Welds
 - a. Pressure boundary welds in components and piping identified in Tables 2.15.1-1a and 2.15.1-1b as ASME Code Section III meet ASME Code Section III requirements.
 - b. Pressure boundary welds in piping identified in Tables 2.15.1-1a and 2.15.1-1b as ASME Code Section III meet ASME Code Section III requirements.
- (4) The components and piping identified in Tables 2.15.1-1a and 2.15.1-1b as ASME Code Section III retain their pressure boundary integrity at their design pressure.
- (5) The seismic Category I equipment identified in Tables 2.15.1-1a, 2.15.1-1b, and 2.15.1-1c can withstand seismic design basis load without loss of structural integrity and safety function.
- (6) The equipment qualification of Containment Systems components is addressed in ~~DCD Tier 1~~ Section 3.8.
 - a. The electrical safety-related components identified in Table 2.15.1-1 associated with actuation and status monitoring of final control elements of the Containment System components listed in Table 2.15.1-1, are powered from their respective safety-related division.
 - b. Separate electrical penetrations are provided for circuits of each safety-related division and for nonsafety-related circuits.
 - c. The circuits of each electrical penetration are of the same voltage class.
- (7) The containment system provides a barrier against the release of fission products to the atmosphere.

Table 2.15.1-2-3
ITAAC For The Containment System

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
6a. The equipment qualification of Containment Systems components is addressed in DCD Tier 1 Section 3.8.	See Tier 1 Section 3.8.	See Tier 1 Section 3.8.
6a. The <u>electrical safety-related components identified in Table 2.15.1-1 associated with actuation and status monitoring of final control elements of the Containment System components listed in Table 2.15.1-1, are powered from their respective safety-related division.</u>	<u>See Tier 1 Section 2.13. Test(s) will be performed on the Containment System by providing a test signal in only one safety-related division at a time.</u>	<u>See Tier 1 Section 2.13. Test report(s) exist and document that the test signal exists only in the safety-related division (or at the equipment powered from the safety-related division) under test in the Containment System.</u>
6b. Separate electrical penetrations are provided for circuits of each safety-related division and for nonsafety-related circuits.	Inspection of the as-built electrical containment penetrations will be performed.	Inspection report(s) document that each as-built electrical penetration contains cables of only one division or non- <u>division</u> contains nonsafety-related cables.