



**HITACHI**

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MFN 08-904

Docket No. 52-010

November 17, 2008

U.S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, D.C. 20555-0001

**Subject: Response to Portion of NRC Request for Additional Information  
Letter No. 238 - Related To ESBWR Design Certification  
Application – RAI Number 14.3-204 Supplement 2**

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 the Reference 1 NRC letter. GEH response to RAI Number 14.3-204 Supplement 2 is addressed in Enclosures 1 and 2.

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

Sincerely,

Richard E. Kingston  
Vice President, ESBWR Licensing

D068  
NRC

Reference:

1. MFN 08-643, Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, *Request For Additional Information Letter No. 238 Related To ESBWR Design Certification Application 5*, dated August 8, 2008.

Enclosures:

1. MFN 08-904 – Response to Portion of NRC Request for Additional Information Letter No. 238 - Related To ESBWR Design Certification Application – RAI Number 14.3-204 S02
2. MFN 08-904 – Response to Portion of NRC Request for Additional Information Letter No. 238 - Related To ESBWR Design Certification Application – RAI Number 14.3-204 S02 – DCD Markup

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**Enclosure 1**

**MFN 08-904**

**Response to Portion of NRC Request for  
Additional Information Letter No. 238  
Related to ESBWR Design Certification Application  
RAI Number 14.3-204 S02.**

**NRC RAI 14.3-204 S02**

*In DCD, Tier 1, Table 2.1.1-3, "ITAAC for Reactor Pressure Vessel*

*System", Item # 11, 'Design Commitment' section, it is stated that "---reactor internals arrangement will accommodate the fuel bundle and control rod locations----". Please also include instrumentation and neutron source locations. Additionally, the term "accommodate" is subject to interpretation and hence should be replaced with "conforms to".*

**GEH Response**

GEH concurs with your request.

DCD Tier 1, Subsection 2.1.1 Item (11) and Table 2.1.1-3, "ITAAC for Reactor Pressure Vessel System", Item 11, will be revised to include the instrumentation and neutron source locations in the Design Commitment.

The GEH response to RAI 14.3-399 (MFN 08-872 dated November 6, 2008) revises the term "accommodate" to "conforms to" in the Design Commitment and Acceptance Criteria on Table 2.1.1-3.

**DCD Impact**

In DCD, Tier 1, Table 2.1.1-3, "ITAAC for Reactor Pressure Vessel System", Item 11, "Design Commitment" will be revised for DCD Revision 6 as shown on the enclosed marked-up pages to include instrumentation and neutron source locations. Subsection 2.1.1, Item 11, will be revised to match the change to the ITAAC Table.

The GEH response to RAI 14.3-399 revises the Table 2.1.1-3 Acceptance Criteria to include instrumentation and neutron source locations.

The GEH response to RAI 14.3-399 also revises the term "accommodate" to "conforms to" in the Design Commitment and Acceptance Criteria on Table 2.1.1-3.

**Enclosure 2**

**MFN 08-904**

**Response to Portion of NRC Request for**

**Additional Information Letter No. 238**

**Related to ESBWR Design Certification Application**

**RAI Number 14.3-204 S02**

**DCD Markup**

- a3. The RPV and its components identified in Table 2.1.1-1 (shroud, shroud support, top guide, core plate, control rod guide tubes and fuel supports) as ASME Code Section III are fabricated, installed, and inspected in accordance with ASME Code Section III requirements.
- (4) Pressure boundary welds in components identified in Table 2.1.1-1 as ASME Code Section III meet ASME Code Section III requirements.
  - (5) The components identified as ASME Code Section III retain their pressure boundary integrity at their design pressure.
  - (6) The seismic Category I equipment identified in Table 2.1.1-1 can withstand seismic design basis loads without loss of safety function.
  - (7) RPV surveillance specimens are provided from the forging material of the beltline region and the weld and heat affected zone of a weld typical of those adjacent to the beltline region. Brackets welded to the vessel cladding at the location of the calculated peak fluence are provided to hold the removable specimen holders and a neutron dosimeter in place.
  - (8) The RPV internal structures listed in Table 2.1.1-1 (chimney and partitions, chimney head and steam separators assembly, and steam dryer assembly) must meet the limited provisions of ASME Code Section III regarding certification that these components maintain structural integrity so as not to adversely affect RPV core support structure.
  - (9) The initial fuel to be loaded into the core will withstand flow-induced vibration and maintain fuel cladding integrity during operation.
  - (10) The fuel bundles and control rods intended for initial core load have been designed and constructed in accordance with the principal design requirements.
  - (11) The reactor internals arrangement will ~~accommodate~~ conform to the fuel

#### **Inspections, Tests, Analyses and Acceptance Criteria**

Table 2.1.1-3 provides a definition of the inspections, tests, and/or analyses, together with associated acceptance criteria for the Reactor Pressure Vessel System.

**Table 2.1.1-3  
ITAAC For Reactor Pressure Vessel System**

<b>Design Commitment</b>	<b>Inspections, Tests, Analyses</b>	<b>Acceptance Criteria</b>
<p>10. The fuel bundles and control rods intended for initial core load have been designed and constructed in accordance with the established design requirements.</p>	<p>An analysis will be performed of the reactor core design.</p>	<p><del>A</del> Report(s) exists and concludes that the fuel bundles and control rods intended for the initial core load have been designed and constructed in accordance with the principal design requirements.</p>
<p>11. The reactor internals arrangement will <del>accommodate</del> conform to the fuel bundle, instrumentation, neutron sources, and control rod locations shown on Figure 2.1.1-2.</p>	<p>An inspection of the as-built system will be performed.</p>	<p><u>Report(s) exist and conclude that the as-built reactor system fuel bundle, control rod, instrumentation, and neutron source locations conform to the locations shown on Figure 2.1.1-2</u><del>The as-built reactor system accommodates the fuel bundle and control rod locations shown on Figure 2.1.1-2.</del></p>