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MFN 08-587

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U.S. Nuclear Regulatory Commission  
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**Subject: Response to Portion of NRC Request for Additional Information  
Letter Nos. 168 and 208 - Related to ESBWR Design Certification  
Application – RAI Numbers 15.2-22 and 4.3-21**

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 Referenced NRC letters. The GEH response to RAI Numbers 15.2-22 and 4.3-21 is addressed in Enclosure 1.

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

Sincerely,

Richard E. Kingston  
Vice President, ESBWR Licensing

*DOB*  
*NRO*

References:

1. MFN 08-247, Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, *Request for Additional Information Letter No. 168 Related to the NEDO-33337, "ESBWR Initial Core Transient Analysis"*, dated March 13, 2008.
2. MFN 08-508, Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, *Request For Additional Information Letter No. 208 Related To NEDE-33338P, "ESBWR Feedwater Temperature Operating Domain For Transient And Accident Analysis"*, dated June 3, 2008.

Enclosure:

1. MFN 08-587 – Response to Portion of NRC Request for Additional Information Letter Nos. 168 and 208 - Related to ESBWR Design Certification Application – RAI Numbers 15.2-22 and 4.3-21

cc: AE Cubbage      USNRC (with enclosure)  
RE Brown          GEH/Wilmington (with enclosure)  
DH Hinds          GEH/Wilmington (with enclosure)  
eDRF                0000-0087-2924

**Enclosure 1**

**MFN 08-587**

**Response to Portion of NRC Request for  
Additional Information Letter Nos. 168 and 208  
Related to ESBWR Design Certification Application  
RAI Numbers 15.2-22 and 4.3-21**

**NRC RAI 15.2-22**

*Was the TRACG fine nodalization model used for the startup stability calculations in Section 2.2.2.2.3 of NEDO-33337? Justify the model used.*

**GEH Response**

Yes, a single base case scheme, employing fine nodalization in the bottom of the fuel channel was used for all stability related studies. That scheme overpredicts the decay ratio near the onset of instability, which makes its use conservative. Thus its use was considered adequate and appropriate for startup stability calculations. Details can be seen in the sections 5.2 of Reference 1 and sections 3.7.5 and 6.2 of Reference 2.

**References:**

1. "TRACG Application for ESBWR Stability Analysis", GE-Hitachi LTR, NEDE 33083-P-A, Supplement 1, Rev 1, MFN- 08-016, January 2008.
2. "TRACG Qualification", GE-Hitachi LTR, NEDE-32177P, Rev. 3, MFN-07-452, August 2007.

**DCD/LTR Impact**

No DCD changes will be made in response to this RAI.

No changes to the LTR; NEDO-33337 will be made in response to this RAI.

**NRC RAI 4.3-21**

*Was the TRACG fine nodalization model used for the startup stability calculations in Section 2.2.2.2.3 of NEDO-33337? Justify the model used.*

**GEH Response**

Please see response to RAI 15.2-22.

**DCD/LTR Impact**

No DCD changes will be made in response to this RAI.

No changes to the LTR; NEDO-33337 will be made in response to this RAI.