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MFN 07-638

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**Subject: Response to Portion of NRC Request for Additional Information
Letter No. 109 – Related to ESBWR Design Certification
Application – RAI Number 4.2-5 Supplement 2 and Letter No. 110
– Related to ESBWR Design Certification Application – RAI
Number 4.2-6 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 and Reference 2 NRC letters. GEH response to RAI Numbers 4.2-5S02 and 4.2-6 S02 is addressed in Enclosure 1.

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

Sincerely,

James C. Kinsey
Vice President, ESBWR Licensing

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References:

1. MFN 07-555, Letter from U.S. Nuclear Regulatory Commission to David Hinds, *Request for Additional Information Letter No. 109 Related to the ESBWR Design Certification Application*, October 12, 2007.
2. MFN 07-510, Letter from U.S. Nuclear Regulatory Commission to David Hinds, *Request for Additional Information Letter No. 110 Related to the ESBWR Design Certification Application*, September 19, 2007.
3. MFN 06-297, *Response to Portion of NRC Request for Additional Information Letter No. 53 Related to ESBWR Design Certification Application - DCD Chapter 4 and GNF Topical Reports - RAI Numbers 4.2-2 through 4.2-7, 4.3-3, 4.3-4, 4.4-2, 4.4-5, 4.4-6, 4.4-15 through 4.4-17, 4.4-19, 4.4-24, 4.4-27, 4.4-31 through 4.4-34, 4.4-36 through 4.4-38, 4.4-42 through 4.4-50, 4.4-52 through 4.4-56, 4.8-1 through 4.8-16*, August 23, 2006.
4. MFN 06-297 S04, *Response to Portion of NRC Request for Additional Information Letter No. 53 Related to ESBWR Design Certification Application - DCD Chapter 4 and GNF Topical Reports - RAI Numbers 4.2-5 S01, 4.2-6 S01, 4.2-7 S01 and 4.4-46 S01 – Supplement*, January 26, 2007.

Enclosure:

1. MFN 07-638– *Response to Portion of NRC Request for Additional Information Letter No. 109 – Related to ESBWR Design Certification Application – RAI Number 4.2-5 Supplement 2 and Letter No. 110 – Related to ESBWR Design Certification Application – RAI Number 4.2-6 Supplement 2*

cc: AE Cubbage USNRC (with enclosure)
GB Stramback GEH/San Jose (with enclosure)
RE Brown GEH/Wilmington (with enclosure)
eDRF 0000-0078-0913

Enclosure 1

MFN 07-638

**Response to Portion of NRC Request for Additional Information
Letter No. 109 – Related to ESBWR Design Certification
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Related to ESBWR Design Certification Application – RAI Number
4.2-6 Supplement 2**

NRC RAI 4.2-5 S02

Critical power correlation Tier 2 requirement.*

As discussed during the July 2007 GEH Control Blade and Fuel Assembly Design Audit, please revise the critical power correlation Tier 2 requirement, Appendix 4B, to remove the change process description.*

GEH Response

This change was incorporated into DCD Revision 4.

DCD Impact

None.

NRC RAI 4.2-6 S02

Fuel temperature Tier 2 requirement*

As discussed during the July 2007 GEH Control Blade and Fuel Assembly Design Audit, please revise the fuel temperature Tier 2 requirement, Appendix 4B, to remove "whole core" subset of AOOs.*

GEH Response

This change will be incorporated into DCD Revision 5. The subject paragraph in Appendix B will be modified as follows.

Fuel Temperature (Melting, Item 2 of Table 4B.1-1)

Numerous irradiation experiments have demonstrated that extended operation with significant fuel pellet central melting does not result in damage to the fuel rod cladding. However, the fuel rod performance is evaluated to ensure that fuel melting will not occur. To achieve this objective, the fuel rod is evaluated to ensure that fuel melting during normal steady-state operation and ~~whole-core~~ anticipated operational occurrences is not expected to occur.

DCD Impact

Appendix 4B of DCD Revision 5 will include the above modification.