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MFN 08-335

Docket No. 52-010

April 18, 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. 158 Related to ESBWR Design Certification Application - Auxiliary Systems - RAI Number 9.4-46 S01**

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 February 29, 2008, Reference 1. The GEH response to RAI Number 9.4-46 S01 is addressed in Enclosure 1. The original response was transmitted via Reference 2 in response to Reference 3.

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 08-209, Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, GEH, *Request For Additional Information Letter No. 158 Related To ESBWR Design Certification Application*, dated February 29, 2008
2. Response to Portion of NRC Request for Additional Information Letter No. 103 Related to ESBWR Design Certification Application – Heating, Ventilation, and Air Conditioning – RAI Numbers 9.4-40, 9.4-41, 9.4-44, 9.4-45, and 9.4-46
3. MFN 07-414, Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, Senior Vice President, Regulatory Affairs, *Request For Additional Information Letter No. 103 Related To ESBWR Design Certification Application*, dated July 23, 2007

Enclosure:

1. Response to Portion of NRC Request for Additional Information Letter No. 158 Related to ESBWR Design Certification Application - Auxiliary Systems - RAI Number 9.4-46 S01

cc: AE Cubbage      USNRC (with enclosure)  
GB Stramback      GEH/San Jose (with enclosure)  
RE Brown          GEH/Wilmington (with enclosure)  
DH Hinds          GEH/Wilmington (with enclosure)  
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**Enclosure 1**

**MFN 08-335**

**Response to Portion of NRC Request for**

**Additional Information Letter No. 158**

**Related to ESBWR Design Certification Application**

**Auxiliary Systems**

**RAI Number 9.4-46 S01**

**For historical purposes, the original text of RAI 9.4-46 and the GEH response is included. The response does not include any attachments or DCD mark-ups.**

**NRC RAI 9.4-46**

*DCD, Tier 2, Revision 3, Figure 9.4-9 indicates that the smoke purge is exhausted directly to the environment.*

*Include the building isolation dampers and note if they are safety-related in Figure 9.4-9. Since the smoke exhaust could be from contaminated areas, is there any provision to monitor for radioactive release?*

**GEH Response**

It is assumed that fire only affects one fire-area. Therefore the Reactor Building Clean Area HVAC Subsystem (CLAVS) remains in operation except for in the affected fire area. See Revision 4 DCD Tier 2 Appendix 9A for fire area details.

If smoke is detected in rooms served by the CLAVS the smoke exhaust fans extract smoke-air only from the affected rooms, which are clean rooms. Therefore, monitoring for radioactive release is not required. The CLAVS smoke exhaust subsystem is not designed to exhaust smoke from contaminated areas. Since Figure 9.4-9 is a Simplified System Diagram the safety-related designation is not shown on the figure, however, Table 9.4-9 does not show that the Building Isolation Dampers are safety-related. Figure 9.4-9 will be revised to show the building isolation dampers. Table 9.4-9 will be revised to show the CLAVS isolation dampers.

**DCD Impact**

DCD Tier 2 Figure 9.4-9 and Table 9.4-9 will be revised in Revision 5, to include the building isolation dampers, as indicated on the attached markups.

**NRC RAI 9.4-46 S01**

*In the table 9.4-9 provided with the response to 9.4-46, the dampers were not designated as safety related. The reactor building has a defined maximum leakage rate used in the design basis analysis. Failure of these dampers to close or be closed tightly could affect the building leakage rate post accident. Please state that these dampers are safety related in the DCD or provide a basis for classifying them as non-safety.*

**GEH Response**

Table 9.4-9 corresponds to the Clean Area HVAC Subsystem that serves the clean (non-radiologically controlled) areas of the Reactor Building. This clean area has safety-related isolation dampers at the RB wall. Please refer to response to RAI 9.4-42, MFN 07-592 dated November 23, 2007.

**DCD Impact**

DCD Tier 2, Table 9.4-9, will be revised as indicated in response to RAI 9.4-42, MFN 07-592 dated November 23, 2007. No further DCD changes will be made in response to this RAI.