

GE-Hitachi Nuclear Energy Americas LLC

James C. Kinsey
Vice President, ESBWR Licensing

PO Box 780 M/C A-55
Wilmington, NC 28402-0780
USA

T 910 675 5057
F 910 362 5057
jim.kinsey@ge.com

MFN 06-460 Supplement 1
October 26, 2007

Docket No. 52-010


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

Subject: **GEH-Initiated Response to Portion of NRC Request for Additional Information Letter No. 68 Related to ESBWR Design Certification Application - Heating, Ventilation, and Air Conditioning - RAI Number 9.4-11 S01**

The purpose of this letter is to submit the GE-Hitachi Nuclear Energy Americas (GEH) response to the U.S. Nuclear Regulatory Commission (NRC) Request for Additional Information (RAI) sent by NRC letter dated October 10, 2006 (Reference 1). GEH initiated response to RAI Number 9.4-11 S01 is included in Enclosure 1.

Should you have any questions about the information provided here, please contact me.

Sincerely,



James C. Kinsey
Vice President, ESBWR Licensing

D068
NRC

Reference:

1. MFN 06-379, Letter from U. S. Nuclear Regulatory Commission to David H. Hinds, Manger ESBWR, *Request for Additional Information Letter No. 68 Related to ESBWR Design Certification Application*, October 10, 2006.

Enclosure:

1. GEH-Initiated Response to Portion of NRC Request for Additional Information Letter No. 68 Related to ESBWR Design Certification Application – Heating Ventilation, and Air Conditioning Systems – RAI 9.4-11 S01.

cc: AE Cabbage USNRC (with enclosure)
GB Stramback GEH/San Jose (with enclosure)
RE Brown GEH/Wilmington (with enclosure)
eDRF 0000-0069-9453

Enclosure 1

MFN 06-460 Supplement 1

GEH-Initiated Response to Portion of NRC Request for

Additional Information Letter No. 68

Related to ESBWR Design Certification Application

Heating, Ventilation, and Air Conditioning Systems

RAI Number 9.4-11 S01

For historical purposes, the original text and GE response to RAI 9.4-11 is included.

NRC RAI 9.4-11

In DCD Tier 2, Rev. 1, Sections 9.4.3, 9.4.4.2, 9.4.6.5 and 9.4.7.1, the expression of both slightly negative and slightly positive is used when referring to differential pressure. Quantify these expressions by providing values for slightly positive and slightly negative for these sections, and if these expressions are used other places in the DCD, provide values there also. In addition, provide intake and exhaust flows for all systems that are required to support differential pressure (table format preferred).

GE Response

Slightly negative pressure typically ranges from less than zero inches water column to -0.75" wg. Slightly positive pressure typically ranges from greater than zero inches water column to +0.75" wg. These are industry standard terms applied to generically describe protection against infiltration or exfiltration of air into or out of a controlled building, room, or space boundary. This information will be added to DCD Tier 2 Section 9.4 in Revision 3 to define these terms. DCD Tier 2, Revision 2, Tables 9.4-1 through 9.4-16, list Design Parameter and Major Equipment for the various buildings including intake and exhaust flow for all systems required to support differential pressure with the exception of the Radwaste and TSC buildings. A table or addition to existing tables will be provided for the Radwaste and TSC buildings to include intake and exhaust flows that are required to support differential pressure in DCD Tier 2, Revision 3.

DCD Impact

DCD Tier 2, Subsections 9.4.1, Control Building HVAC System; 9.4.3.1 Radwaste Building Heating, Ventilation and Air Conditioning System (Control Room), RWCRVS; 9.4.7 Electrical Building HVAC System (TSC HVAC Subsystem - TSCVS) will be revised to define slightly positive pressure as: "Slightly positive pressure is a range of pressure typically from greater than zero inches water column to +0.75"wg. This information will be added in Revision 3 of the DCD Tier 2.

DCD Tier 2, Subsections 9.4.2, Fuel Building HVAC System; 9.4.3.1 Radwaste Building Heating, Ventilation and Air Conditioning System (General Area), RWGAVS; 9.4.4.2 Turbine Building Ventilation System; and 9.4.6.1 Reactor Building HVAC System; will be revised to define "Slightly Negative Pressure" as: "Slightly negative pressure is a range of pressure which typically ranges from less than zero inches water column to -0.75" wg" This information will be added in DCD Tier 2 Revision 3.

A table or addition to existing tables will be provided for the Radwaste (9.4-7) and TSC (9.4-16) building ventilation systems to include intake and exhaust flows that are required to support differential pressure in DCD Tier 2 Revision 3.

This supplement was initiated by GEH to revise the response to RAI 9.4-11

The terms "Slightly Positive Pressure" and "Slightly Negative Pressure" were defined as a range from zero to (positive or negative) 0.75" water gauge (wg) respectively. These are industry standard terms applied to generically describe protection against infiltration or exfiltration of air into or out of a controlled building, room, or space boundary. This range, upon reevaluation, was deemed to be too high a typical value. Applying 0.75" wg develops significant pressure when considering opening large surface area doors. It was decided to lower the upper range for both the negative and positive pressure from 0.75" to 0.50" wg. The upper value of the range (0.50" wg.) is more in line with the definition and narrowing the band is a conservative change. The design pressurization values for the applicable HVAC systems remain bounded by this range. Slightly negative pressure typically ranges from less than zero inches water gauge to -0.50" wg. Slightly positive pressure typically ranges from greater than zero inches water gauge to +0.50" wg. This information has been added to DCD Tier 2 Section 9.4 in Revision 4 to define these terms.

DCD Impact

DCD Tier 2, Subsections 9.4.3.1, Radwaste Building Heating, Ventilation and Air Conditioning System, Design Bases (RWCRVS) and 9.4.7.1, Electrical Building HVAC System, Design Bases (TSCVS) have been revised to define slightly positive pressure as: slightly positive pressure is a range of pressure typically from greater than zero inches water gauge to +0.50" wg.

DCD Tier 2, Subsections 9.4.2.1, Fuel Building HVAC System (FBVS); 9.4.3.1, Radwaste Building Heating, Ventilation and Air Conditioning System, Design Bases (RWGAVS); 9.4.4.2 Turbine Building HVAC System, System Description; and 9.4.6.1 Reactor Building HVAC System, Design Bases have been revised to define slightly negative pressure as: slightly negative pressure is a range of pressure which typically ranges from less than zero inches water gauge to -0.50" wg.

DCD Tier 2 Rev 4 has incorporated the above. There is no further DCD impact.