HITACHI

GE Hitachi Nuclear Energy

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 06-441, Supplement 1

Docket No. 52-010

November 9, 2007

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. 40 Related to ESBWR Design Certification Application, RAI Number 19.2-17 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 July 5, 2006 (Reference 1). The GEH response to RAI Number 19.2-17 is in Enclosure 1.

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

Sincerely,

Kathy Sedney for

James C. Kinsey
Vice President, ESBWR Licensing

D068

NRO

Reference:

1. MFN 06-222, Letter from U.S. Nuclear Regulatory Commission to David H. Hinds, *Request for Additional Information Letter No. 40 Related to ESBWR Design Certification Application*, July 5, 2006.

Enclosure:

1. Response to Portion of NRC Request for Additional Information Letter No. 40 Related to ESBWR Design Certification Application Probabilistic Risk Assessment RAI Number 19.2-17 S01

   Attachment 1 - DCD Section 6.2.5.4.1, Revision 5 (Markup)

cc: AE Cubbage	USNRC (with enclosure)	
GB Stramback	GEH/San Jose (with enclosure)	
RE Brown	GEH/Wilmington (with enclosure)	
eDRFSection	0000-0076-5633	NRC RAI 19.2-17 S01

Enclosure 1
MFN 06-441, Supplement 1

Response to Portion of NRC Request for
Additional Information Letter No. 40
Related to ESBWR Design Certification Application
Probabilistic Risk Assessment
RAI Number 19.2-17 S01

NRC RAI 19.2-17 S01

Received by e-mail from T. Kevern.

Based on the response to RAIs 19.2-17 and -18, the design of the containment vent system has not been completed and is considered beyond the scope of the DCD. Given that containment venting is credited in the Level 2 analysis, sufficient information regarding the vent system should be provided to establish that the credit taken in the PRA is appropriate, e.g., pressure and flow capacity, containment vent valve design features and dependencies. Provide additional information regarding the vent system. In the absence of this information, this system should be removed from the design certification, and assessed for each plant-specific COL submittal.

GEH Response

Containment venting on the ESBWR is achieved using the Containment Inerting System. The design of the Containment Inerting System will be enhanced to include all attributes credited in the PRA level 2 analysis (Reference NEDO 33201, Rev. 2, Sections 4 and 8). These attributes will be included in the next revision of the DCD in section 6.2.5.

DCD/NEDO-33201 Impact

DCD Tier # 2, Section 6.2.5 will be revised as noted in the attached markup.

No changes will be made to NEDO-33201 in response to this RAI.

Attachment 1 to Enclosure 1
MFN 06-441, Supplement 1

DCD Section 6.2.5.4.1, Revision 5 (Markup)

6.2.5.4 Containment Overpressure Protection

6.2.5.4.1 Design Evaluation

The pressure capability of the ESBWR containment vessel is such that it will not be exceeded by any design basis or special event.

The pressure capability of the containment's limiting component is higher than the pressure that results from assuming 100% fuel clad-coolant reaction. There is sufficient margin to the containment pressure capability such that there is no need for an automatic containment overpressure protection system. In the hypothetical situation where containment depressurization is required, this depressurization can be performed by manual operator action.

The containment can be manually vented through the Containment Inerting System. The Containment Inerting System is equipped with containment penetrations, valves and pipes that may be used for containment depressurization. This system is provided with two normal deinerting flow paths, each with tandem-paired containment isolation valves. One de-inerting flow path receives flow from the suppression pool airspace which forces evacuated atmosphere through the suppression pool to scrub out fission products. For containment overpressure protection during severe accident conditions, only this line will be used. This line will have two air-operated valves in series outside containment. The valves will have the capability to be operated with bottled air for local operation during accident conditions. The downstream piping is tied into the Plant Vent Stack. ~~Having the release point in the suppression pool airspace forces evacuated atmosphere through the suppression pool to scrub out fission products.~~ The piping downstream of the valves is designed for the maximum expected operating pressure following the accident.