

GE-Hitachi Nuclear Energy

**James C. Kinsey**  
Project Manager, 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 07-366

Docket No. 52-010

August 8, 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. 97 - Reactor Building Functional Design - RAI Number  
6.2-155**

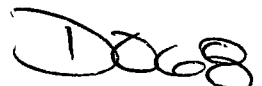
Enclosure 1 contains GEH's response to the subject NRC RAI transmitted via the  
Reference 1 letter.

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

Sincerely,



James C. Kinsey  
Project Manager, ESBWR Licensing



Reference:

1. MFN 07-292, Letter from U.S. Nuclear Regulatory Commission to Robert Brown, *Request for Additional Information Letter No. 97 Related to ESBWR Design Certification Application*, May 10, 2007

Enclosure:

1. MFN 07-366 - Response to Portion of NRC Request for Additional Information Letter No. 97 - Related to ESBWR Design Certification Application - Reactor Building Functional Design - RAI Number 6.2-155

cc: AE Cubbage USNRC (with enclosures)  
BE Brown GEH/Wilmington (with enclosures)  
GB Stramback GEH/San Jose (with enclosures)  
eDRF 0000-0069-7465R1

**Enclosure 1**

**MFN 07-366**

**Response to Portion of NRC Request for**

**Additional Information Letter No. 97**

**Related to ESBWR Design Certification Application**

**Reactor Building Functional Design**

**RAI Number 6.2-155**

**NRC RAI 6.2-155:**

*The applicant did not provide sufficient information in DCD Tier 2, Revision 3, Section 6.2.3, to determine if the requirements of GDC 4 are met. GDC 4 requires that "structures, systems, and components important to safety shall be designed to accommodate the effects of and to be compatible with the environmental conditions associated with normal operation, maintenance, testing, and postulated accidents, including loss-of-coolant accidents. These structures, systems, and components shall be appropriately protected against dynamic effects, including the effects of missiles, pipe whipping, and discharging fluids, that may result from equipment failures and from events and conditions outside the nuclear power unit."*

*Please identify the equipment important to safety and the provisions of the ESBWR reactor building design that assure compliance with GDC 4.*

**GEH Response:**

As outlined in NUREG-0800, Standard Review Plan (SRP) 6.2.3, Revision 2, compliance with General Design Criterion (GDC) 4 to protect safety-related structures, systems and components from dynamic effects requires high energy lines passing through secondary containment to be provided with guard pipes, or analyses should be provided which demonstrate the ability of both the primary and secondary containment to withstand the effects of a high energy line break occurring inside the secondary containment without loss of integrity. The ESBWR does not utilize guard pipes in the reactor building. Analyses of the ESBWR reactor building design for compliance with GDC 4 will be performed as part of the detailed plant design activities. The methods of evaluating high energy line breaks and mitigation are provided in DCD Tier 2, Revision 3, Section 3.6. The analyses of the ESBWR reactor building design for compliance with GDC 4 is included in the inspections, tests, analyses, and acceptance criteria (ITAAC) identified in DCD Tier 1, Revision 3, Table 2.16.5-2, Item 1, and Table 3.1-1, Item 2.

Safety-related equipment located inside of the reactor building is identified in DCD Tier 2, Revision 3, Table 3.2-1. Reactor building design is outlined in DCD Tier 2, Revision 3, Subsection 6.2.3.

**DCD Impact:**

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