



GE Energy

David H. Hinds  
Manager, ESBWR

PO Box 780 M/C L60  
Wilmington, NC 28402-0780  
USA

T 910 675 6363  
F 910 362 6363  
david.hinds@ge.com

MFN 06-132

Docket No. 52-010

May 25, 2006

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

Subject: **Partial Response to RAI Letter No. 22 for the ESBWR Design  
Certification Application – Component and Subsystem Design – RAI  
Numbers 5.4-11 through 5.4-13**

Enclosure 1 contains GE responses to the subject NRC RAIs transmitted via the  
Reference 1 letter.

If you have any questions about the information provided here, please let me know.

Sincerely,

A handwritten signature in cursive script that reads "David H. Hinds for".

David H. Hinds  
Manager, ESBWR

Reference:

- 1) MFN 06-117 - Letter from U.S. Nuclear Regulatory Commission to David H. Hinds, *Request for Additional Information Letter No. 22 Related to ESBWR Design Certification Application*, April 25, 2006

Enclosure:

1. MFN 06-132 – Partial Response to RAI Letter No. 22 for the ESBWR Design Certification Application – Component and Subsystem Design – RAI Numbers 5.4-11 through 5.4-13

cc: WD Beckner USNRC (w/o enclosures)  
AE Cabbage USNRC (with enclosures)  
LA Dudes USNRC (w/o enclosures)  
GB Stramback GE/San Jose (with enclosures)  
eDRF 0000-0053-8215

MFN 06-132  
Enclosure 1

**ENCLOSURE 1**

**MFN 06-132**

**Partial Response to RAI Letter No. 22 for the  
ESBWR Design Certification Application  
Component and Subsystem Design  
RAI Numbers 5.4-11 through 5.4-13**

NRC RAI 5.4-11

*In DCD Tier 2, Section 5.4.7, add GDC 1 and 3 as being applicable to systems that deal with accomplishing the residual heat removal (RHR) function.*

GE Response

Agreed. In DCD Section 5.4.7, items G and H will be added to read as follows:

“G. GDC 1, as it relates to the quality standards and records for structures, systems, and components important to safety.”

“H. GDC 3, as it relates to fire protection for structures, systems, and components important to safety.”

NRC RAI 5.4-12

*Because of the functional limitations of the passive plant designs, the Commission, in a staff requirements memorandum (SRM) issued June 30, 1994, approved the position in SECY-94-084, “Policy and Technical Issues Associated with the Regulatory Treatment of Non-safety systems in Passive Plant Designs.” This position accepts 420°F or lower, rather than the cold shutdown specified in Regulatory Guide (RG) 1.139, as the safe stable condition that the passive systems must be capable of achieving and maintaining following non-loss of coolant accident (LOCA) events. DCD Tier 2, Section 5.4.7 does not address this issue. Explain in detail how the ESBW R design complies with the Commission position on safe shutdown.*

GE Response

DCD Tier 2 Section 5.4.7 refers to Tier 2 Section 5.4.6 for passive decay heat removal system description.

In order to incorporate the requirement for reactor safe shutdown given in Section C - “Safe Shutdown Requirements” of SECY-94-084, DCD Section 5.4.6.1 under the heading “General System Requirements”, first paragraph will be revised to read as follows:

“The ICs are sized to remove post-reactor isolation decay heat with three out of four ICs operating and to reduce reactor pressure and temperature from full operating conditions to safe shutdown conditions, i.e., to 215.6°C (420°F) or lower within 36 hours from reactor shutdown with occasional venting of radiolytically generated noncondensable gases to the suppression pool (see Table 5.4-1).”

NRC RAI 5.4-13

*In the RWCU/SDC Piping and Instrumentation Diagram (P& I.D) 105E3981, Sheet No.2, the inlet to the system from the RPV is shown as coming from the bottom of the bottom head of the RPV. In DCD Tier 1, Figure 2.6.1-1, the connections are shown as coming from the side near the bottom of the RPV. Which is correct?*

GE Response

The P&ID and the Tier 1 Figure are schematic representations. Tier 2 Figure 5.3-3 shows a closer representation of one of the four drain lines.