



HITACHI

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U.S. Nuclear Regulatory Commission
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**Subject: Response to Portion of NRC Request for Additional Information
Letter No. 124 Related to ESBWR Design Certification Application
- Mechanical Systems and Components - RAI Number 3.9-197**

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) originally transmitted via the Reference 1 letter. The GEH response to RAI Number 3.9-197 is addressed in Enclosure 1.

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

Sincerely,

James C. Kinsey
Vice President, ESBWR Licensing

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NRO

Reference:

1. MFN 08-029, Letter from U.S. Nuclear Regulatory Commission to Mr. Robert E. Brown, Senior Vice President, Regulatory Affairs, GE-Hitachi Nuclear Energy Americas, LLC, *Request For Additional Information Letter No. 124 Related To ESBWR Design Certification Application*, dated January 14, 2008.

Enclosure:

1. Response to Portion of NRC Request for Additional Information Letter No. 124 Related to ESBWR Design Certification Application - Mechanical Systems and Components - RAI Number 3.9-197.

cc: AE Cubbage USNRC (with enclosure)
DH Hinds GEH/Wilmington (with enclosure)
GB Stramback GEH/San Jose (with enclosure)
RE Brown GEH/Wilmington (with enclosure)
eDRF 0000-0081-1980

Enclosure 1

MFN 08-149

**Response to Portion of NRC Request for
Additional Information Letter No. 124
Related to ESBWR Design Certification Application
Mechanical Systems and Components
RAI Number 3.9-197**

NRC RAI 3.9-197

NRC Summary:

ESBWR systems for shutting reactor and maintaining safe shutdown

NRC Full Text:

In MFN 06-489 (Supplement 4) dated November 15, 2007, GEH states that Revision 4 of the DCD provides system descriptions that discuss whether specific systems are required to achieve and/or maintain safe shutdown. GEH also states that Section 7 of the DCD discusses safe shutdown systems from an I&C standpoint and that Table 9A.2-2 lists systems required to achieve safe shutdown in the event of a fire. Rather than the general reference to various portions of the DCD Revision 4 with different objectives, GEH is requested to provide a specific list of systems used for shutting down the reactor and maintaining the reactor in stable safe shutdown condition.

GEH Response

The following is a list of the ESBWR systems needed to shutdown the reactor and maintain it in a stable safe shutdown condition. The list is broken down into safety-related systems, and nonsafety-related systems that have containment isolation valves.

Safety-Related Systems:

- Nuclear Boiler System (B21)
- Isolation Condenser System (B32)
- Control Rod Drive System (C12)
- Leak Detection and Isolation System (C21)
- Standby Liquid Control System (C41)
- Neutron Monitoring System (C51)
- Remote Shutdown System (C61), or Main Control Room Panels (H11)
- Safety-Related Q-DCIS (C63)
- Reactor Protection System (C71)
- Safety System Logic and Control (C74)
- Process Radiation Monitoring (D11)
- Gravity-Driven Cooling System (E50)
- Uninterruptible AC Power Supply (R13)
- Direct Current Power Supply (R16)
- Containment System (T10)
- Passive Containment Cooling System (T15)
- Containment Monitoring System (T62)
- Control Building HVAC (U77)

Containment Isolation Valves:

- Reactor Water Cleanup/Shutdown Cooling (G31)
- Fuel and Auxiliary Pool Cooling System (G21)
- Containment Inerting System (T31)
- Chilled Water System (P25)
- High Pressure Nitrogen Supply System (P54)
- Makeup Water System (P10)
- Service Air System (P51)
- Equipment Floor and Drain System (U50)

See DCD Tier 2, Table 3.2-1 for a detailed classification summary of these systems.

DCD Impact

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