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MFN 06-461 Supplement 4

Docket No. 52-010

September 12, 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. 79 - Related to ESBWR Design Certification Application -
Containment Systems - RAI Number 6.2-107 S01**

Enclosure 1 contains the GE-Hitachi Nuclear Energy Americas LLC (GEH) response to the subject NRC RAI originally transmitted via the Reference 1 letter and supplemented by an NRC request for clarification.

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

Sincerely,



James C. Kinsey
Project Manager, ESBWR Licensing

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NRO

Reference:

1. MFN 06-393, Letter from U.S. Nuclear Regulatory Commission to David Hinds, *Request for Additional Information Letter No. 79 Related to ESBWR Design Certification Application*, October 11, 2006

Enclosure:

1. MFN 06-461 Supplement 4 - Response to Portion of NRC Request for Additional Information Letter No. 79 - Related to ESBWR Design Certification Application - Containment Systems - RAI Number 6.2-107 S01

cc: AE Cubbage USNRC (with enclosures)
 GB Stramback GEH/San Jose (with enclosures)
 RE Brown GEH/Wilmington (with enclosures)
 eDRF 0000-0073-4998

Enclosure 1

MFN 06-461 Supplement 4

Response to Portion of NRC Request for

Additional Information Letter No. 79

Related to ESBWR Design Certification Application

Containment Systems

RAI Number 6.2-107 S01

NRC RAI 6.2-107:

In DCD Tier 2, Revision 1, Section 6.2.4.1, "Design Bases," under the heading "Safety Design Bases," the 7th bullet states:

Containment isolation valves and associated piping and penetrations meet the requirements of the ASME Boiler and Pressure Vessel Code, Section III, Class 1, 2, or MC, in accordance with their quality group classification.

The approved guidance documents (SRP 6.2.4, Rev. 2, RG 1.141, and ANS-56.2/ANSI N271-1976) say that these components must be Class 2 or better.

Explain how, and if, Class MC satisfies the guidelines, or revise the design in conformance with the guidelines.

GEH Response:

Steel components of containment penetrations other than piping penetrations are governed by ASME Section III, Division 1, Class MC, as per DCD Table 3.2-3 and SRP 3.8.2. The statement in the DCD Tier 2, Subsection 6.2.4.1, under heading "Safety Design Bases", seventh bullet refers to the code for the piping (ASME Section III, Class 1 or 2) as well as the steel components (ASME Section III, Class MC) of other than piping penetrations.

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

NRC RAI 6.2-107 S01:

The Code requirements are as follows:

Piping penetrations through the containment (that is, the penetrations themselves and not the pipes) are to be designed by the requirements of Subsection NE (MC component) of Section III of the ASME Code.

The piping passing through the containment penetrations and associated isolation valves are to be designed in accordance with Subsection NB (Class 1) or Subsection NC (Class 2) of the Code, as appropriate.

The staff is not absolutely certain that the applicant's response is consistent with Code requirements as described above. A clear statement of the above understanding of the Code requirements is necessary to be included in the DCD, Tier 2, Section 6.2.4.1, for the staff to conclude a reasonable assurance finding in the safety evaluation report. Please revise the DCD accordingly.

GEH Response:

DCD Tier 2, Subsection 6.2.4.1, will be revised to clarify the design requirements for piping and piping penetrations.

DCD Impact:

DCD Tier 2, Subsection 6.2.4.1, will be revised as shown in the attached markup.

6.2.4.1 Design Bases

Safety Design Bases

- Containment isolation valves provide the necessary isolation of the containment in the event of accidents or other conditions and prevent the unfiltered release of containment contents that cannot be permitted by 10 CFR 50.34(a)(1) limits. Leak-tightness of the valves shall be verified by Type C test.
- Capability for rapid closure or isolation of all pipes or ducts that penetrate the containment is performed by means or devices that provide a containment barrier to limit leakage within permissible limits;
- The design of isolation valves for lines penetrating the containment follows the requirements of General Design Criteria 54 through 57 to the greatest extent practicable consistent with safety and reliability. Exemptions from GDCs are listed in Table 1.9-6.
- Isolation valves for instrument lines that penetrate the DW/containment conform to the requirements of Regulatory Guide 1.11;
- Isolation valves, actuators and controls are protected against loss of their safety-related function from missiles and postulated effects of high and moderate energy line ruptures;
- Design of the containment isolation valves and associated piping and penetrations meets the requirements for Seismic Category I components;
- Containment isolation valves and associated piping meet the requirements of the ASME Boiler and Pressure Vessel Code, Section III, Class 1 or 2, in accordance with their quality group classification; and
- The design of the control functions for automatic containment isolation valves ensures that resetting the isolation signal shall not result in the automatic reopening of containment isolation valves.
- Penetrations with trapped liquid volume between the isolation valves have adequate relief for thermally-induced pressurization;
- Piping penetrations through the containment (that is, penetration themselves and not the pipes) are designed to the requirements of subsection NE, (MC component) of Section III of the ASME Code.