

GE-Hitachi Nuclear Energy Americas LLC

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 06-489
Supplement 2

Docket No. 52-010

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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. 67 Related to ESBWR Design Certification Application –
Tests and Analysis Criteria and Methods – RAI Numbers 3.9-42 S01
and 3.9-42 S02**

Enclosure 1 contains GEH's response to the subject NRC RAIs transmitted via e-mail on February 1, 2007 and May 10, 2007, respectively. GEH's original response was provided in the Reference 1 letter.

If you have any questions or require additional information regarding the information provided here, please contact me.

Sincerely,



James C. Kinsey
Project Manager, ESBWR Licensing



NRC

Reference:

1. MFN 06-489, Letter from David Hinds to U.S. Nuclear Regulatory Commission, *Response to Portion of NRC Request for Additional Information Letter No. 67 Related to ESBWR Design Certification Application – DCD Section 3.9 – RAI Numbers 3.9-30, 3.9-42, 3.9-82 through 3.9-86, 3.9-88, 3.9-90, 3.9-95, 3.9-120 through 3.9-122, 3.9-152, 3.9-154 through 3.9-156, 3.9-158 through 3.9-160 and 3.9-174*, November 29, 2006

Enclosure:

1. MFN 06-489, Supplement 2 – Response to Portion of NRC Request for Additional Information Letter No. 67 Related to ESBWR Design Certification Application – Tests and Analysis Criteria and Methods – RAI Numbers 3.9-42 S01 and 3.9-42 S02

cc: AE Cabbage USNRC (with enclosures)
DH Hinds GEH (with enclosures)
RE Brown GEH (w/o enclosures)
eDRF 0000-0069-7702/1

Enclosure 1

MFN 06-489

Supplement 2

Response to Portion of NRC Request for

Additional Information Letter No. 67

Related to ESBWR Design Certification Application

Tests and Analysis Criteria and Methods

RAI Numbers 3.9-42 S01 and 3.9-42 S02

Original response to RAI 3.9-42 is provided for clarity.

NRC RAI 3.9-42

DCD Tier 2, Section 3.9.2.2.1, "Tests and Analysis Criteria and Methods," does not discuss the codes and standards used for the seismic and dynamic qualification of mechanical equipment. Identify all relevant codes and standards, including their editions, and discuss their applicability for the seismic and dynamic qualification of all major mechanical equipment covered under Section 3.9.2.2.2. Also, identify the equipment that will be seismically qualified by GE and available for staff audit.

GE Response

The codes and standards that are applicable to equipment identified in Subsection 3.9.2.2.2 are specified in Table 3.2-1, and the applicable ASME Code edition and addenda are shown in Table 1.9-22. Also, the testing and/or analysis records for all ASME mechanical equipment that is required to meet seismic category I equipment qualification requirements will be available for staff review. Such reports will not be available until equipment is ready for delivery.

DCD Impact

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

NRC RAI 3.9-42 S01

The staff requested the applicant to provide all relevant codes and standards, including pertinent editions, for all equipment qualification covered under DCD Tier 2, Subsection 3.9.2.2.2. The staff also requested the applicant to explain how these codes and standards are used for the plant specific qualification. In its response dated November 30, 2006, the applicant stated that the codes and standards that are applicable to equipment identified in Subsection 3.9.2.2.2 are specified in Table 3.2-1, and the applicable ASME Code edition and addenda are shown in Table 1.9-22. The applicant stated that the testing and/or analysis records for all ASME mechanical equipment that is required to meet seismic Category I equipment qualification requirements will be available for staff review when the equipment is ready for delivery.

The staff found the applicants commitment to make available the testing and/or analysis records of equipment qualification for staff audit is acceptable. However, the applicant should include this commitment in its revised DCD as a COL action item.

The staff also found the applicants response on the codes and standards to be inadequate. Although some mechanical equipment items are qualified solely by design/analysis, in accordance with industry standards such as ASME Code Section III, there are others which may be qualified by tests or a combination of tests and analyses. The applicant is requested to identify all relevant mechanical equipment items for which tests are involved in their qualification. And, for such equipment items, the applicant is requested to identify the standards (such as IEEE 344), with the editions, which will be used for the seismic and dynamic qualification. The applicant is also requested to provide a summary description of how the qualification will be performed for each of these equipment items.

This RAI is still open.

GEH Response

Seismic qualification testing is required for active mechanical equipment that is required to perform a required safety function. Seismic qualification is per IEEE 344-1987. For the ESBWR, active valves are the only active mechanical equipment. In Table 3.9-8, any valve listed with a function of Active and/or Isolation is subject to testing under the seismic and dynamic equipment qualification program in Subsection 3.10.2.1. However, in lieu of testing, these components can also be qualified by the combined testing and analysis methods covered in Subsection 3.10.2.3 when it is applicable.

The criteria for seismic qualification testing of Seismic Category I mechanical equipment by testing is in DCD Tier 2 section 3.10. Specific requirements for qualification by testing are covered in Subsection 3.10.2.1, and requirements for qualification by combined testing and analysis are covered in Subsection 3.10.2.3.

The commitment to make available the testing and/or analysis records of equipment qualification for staff audit is already covered under DCD Tier 1. In Tier 1, Section 1, Equipment Qualification is included in the scope of the system Basic Configuration. Each system has an ITAAC requirement to validate the Basic Configuration, which includes making the equipment qualification records available.

DCD Impact

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

NRC RAI 3.9-42 S02

By letter dated November 30, 2006, the applicant stated that the codes and standards that are applicable to equipment identified in Subsection 3.9.2.2.2 are specified in Table 3.2 1, and the applicable ASME Code edition and addenda are shown in Table 1.9 22. The applicant also stated that the testing and/or analysis records for all ASME mechanical equipment that is required to meet Seismic Category I equipment qualification requirements will be available for staff review when the equipment is ready for delivery. The staff found the applicant's commitment to make available the testing and/or analysis records of equipment qualification for staff audit acceptable. However, the applicant should include this commitment in its revised DCD as a COL action item. The staff found the applicant's response on the codes and standards to be inadequate. It should be noted that although some mechanical equipment items are qualified solely by design/analysis, in accordance with industry standards such as ASME Code Section III, there are others which are qualified by tests or a combination of testing and analysis. The applicant is requested to identify all relevant mechanical equipment items for which testing is involved in their qualification. And, for such equipment items, the applicant is requested to identify the qualification standards (such as IEEE 344), with the editions, which are acceptable to the NRC for the equipment seismic and dynamic qualification. In addition, the applicant is also requested to provide a summary description of how the qualification will be performed for each of these equipment items.

GEH Response

Please refer to response to RAI 3.9-42 S01.

DCD Impact

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