



GE Energy

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Supplement 1

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**Subject: Response to Portion of NRC Request for Additional Information
Letter No. 67 Related to ESBWR Design Certification Application –
Dynamic Loading Events – RAI Number 3.9-7 S01**

Enclosure 1 contains GE's response to the subject NRC RAI transmitted via e-mail on February 15, 2007. GE'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

Reference:

1. MFN 06-464, 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 3.9-4 through 3.9-11, 3.9-17, 3.9-18, 3.9-23, 3.9-26, 3.9-27, 3.9-29, 3.9-32, 3.9-34 through 3.9-36, 3.9-38 through 3.9-40, 3.9-44, 3.9-46 through 3.9-55, 3.9-57, 3.9-59, 3.9-60, 3.9-67, 3.9-72 through 3.9-76, 3.9-79, 3.9-80, 3.9-91 through 3.9-94, 3.9-96 through 3.9-99, 3.9-101, 3.9-102, 3.9-104, 3.9-105, 3.9-108, 3.9-110, 3.9-132, 3.9-140, 3.9-142, 3.9-147, 3.9-150, 3.9-151, and 3.9-153, November 22, 2006*

Enclosure:

1. MFN 06-464, Supplement 1 – Response to Portion of NRC Request for Additional Information Letter No. 67 Related to ESBWR Design Certification Application – Dynamic Loading Events – RAI Number 3.9-7 S01

cc: AE Cabbage USNRC (with enclosures)
DH Hinds GE (with enclosures)
RE Brown GE (w/o enclosures)
eDRF 0000-0066-8892

Enclosure 1

MFN 06-464

Supplement 1

Response to Portion of NRC Request for

Additional Information Letter No. 67

Related to ESBWR Design Certification Application

Dynamic Loading Events – RAI Number 3.9-7 S01

NRC RAI 3.9-7

Discuss the basis of the "Dynamic Loading Events" in DCD Tier 2, Table 3.9-1.

GE Response

The dynamic loading events apply the loads on reactor components calculated in the seismic and hydrodynamic analyses. These cyclic loads are included in the component fatigue analysis.

DCD/LTR Impact

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

NRC RAI 3.9-7 SO1

The response didn't provide the information needed. RAI 3.9-7 requested a discussion of the basis of the Dynamic Loading Events listed in Table 3.9-1. By this we mean, why were these transients chosen and no others. Were they chosen from previous experience, or were they postulated because this is a new design, or both? In fact, were all transients that could impact the plant postulated? If this has been answered somewhere else, please provide a reference to the particular section.

GE Response

The dynamic loading events specified in Table 3.9-1 are consistent with events specified for earlier BWR product lines. Based on previous experience and analysis, these events cover all conceivable dynamic conditions that the plant would experience during its life. As for the specified number of dynamic events, there are some differences from earlier product lines including the ABWR. For example, the number of predicted Safety Relief Valve (SRV) actuations postulated for the ESBWR is lower than for the ABWR. The reason for this is that the ESBWR has a much larger steam volume above the core that provides a cushion that slows pressure increases. Also, initiation of the IC system and the 100% bypass capability of the reactor will lead to fewer actuations of the SRVs. The ASME Code Service Levels assigned to the events are based on the event encounter probability per reactor year as described in DCD Tier 2, Appendix 15A.

With reference to DCD Tier 2, Section 3.7.3.2 the fatigue evaluation of the ASME Code Class 1, 2 and 3 components and Core Support Structures takes into consideration two SSE events with 10 peak stress cycles per event. This is equivalent to the cyclic load basis of one SSE and five OBE events as recommended in the Standard Review Plan (SRP), Section 3.7.3. This is consistent with the number of seismic events that were specified in the ABWR DCD, Tier 2 document.

DCD Impact

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