GE Energy

James C. Kinsey
Project Manager, ESBWR Licensing

PO Box 780 M/C J-70
Wilmington, NC 28402-0780
USA

T 910 675 5057
F 910 362 5057
jim.kinsey@ge.com

MFN 07-060
Supplement 1

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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. 77 Related to ESBWR Design Certification Application – LBB Discussion – RAI Number 3.6-22 S01**

Enclosure 1 contains GE's response to the subject NRC RAI transmitted via e-mail on February 22, 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,

Kathy Sedney for

James C. Kinsey
Project Manager, ESBWR Licensing

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Reference:

1. MFN 07-060, Letter from James C. Kinsey to U.S. Nuclear Regulatory Commission, *Response to Portion of NRC Request for Additional Information Letter No. 77 Related to ESBWR Design Certification Application – LBB Discussion and Circulating Water System – RAI Numbers 3.6-22 and 14.3-93,* January 23, 2007

Enclosure:

1. MFN 07-060, Supplement 1 – Response to Portion of NRC Request for Additional Information Letter No. 77 Related to ESBWR Design Certification Application – LBB Discussion – RAI Number 3.6-22 S01

cc:	AE Cubbage	USNRC (with enclosures)
	DH Hinds	GE (with enclosures)
	RE Brown	GE (w/o enclosures)
	eDRF	0000-0067-2963

Enclosure 1

MFN 07-060

Supplement 1

Response to Portion of NRC Request for

Additional Information Letter No. 77

Related to ESBWR Design Certification Application

LBB Discussion – RAI Number 3.6-22 S01

NRC RAI 3.6-22

We are not aware of any plans to use Leak Before Break (LBB) evaluation techniques for the ESBWR however LBB is described or referred to in several areas of the DCD. This primarily involves ESBWR DCD Tier 2, Revision 1,Section 3.6.3 and Appendix 3E, but it also includes references to LBB in ESBWR DCD Tier 1, Revision 1 and in other areas of the ESBWR DCD Tier 2, Revision 1. Please describe your plans to use LBB or remove discussions related to LBB from the DCD if it is not to be part of the certified design.

GE Response

LBB will not be used in ESBWR design due to conservative piping stress limits (ref. GE document 26A6910 rev. 0 section 4.6). LBB will be removed from the DCD and appendix 3E content will be removed.

DCD/LTR Impact

DCD Tier #2 Subsection 1.2.2.15.1, Table 1.9-3, Table 1.9-20, Table 1.10-1, Table 3.2-1, Subsection 3.6, Subsection 3.6.3, Subsection 3.6.6, Table 3.9-2, Appendix 3E will be revised as noted in the attached markup.

NRC RAI 3.6-22 S01

Comment on response to RAI 3.6-22: The response provided changes to DCD Tier 2 as a result of removing leak-before-break (LBB) but it did not address Tier 1 which was also part of this RAI. LBB is mentioned in Section 3.1 of Tier 1. Please address changes to Tier 1 due to removing LBB.

GE Response

The LBB option was deleted from the DCD Tier 2 in Revision 3, and this option should have been deleted from the Tier 1. This RAI supplement response commits to the removal of the LBB option from the text of the DCD Tier 1.

DCD Impact

DCD Tier #1, Section 3.1 will be revised as noted in the attached markup.

3.1 PIPING DESIGN

Design Description

Piping associated with fluid systems is categorized as either safety-related (i.e., Seismic Category I) or nonsafety-related (i.e., non-Seismic Category I). The piping has a design life of 60 years. Piping systems and their components are designed and constructed in accordance with their applicable design code requirements identified in the individual system design specifications.

Safety-related piping systems are designed to ASME Code class and Seismic Category I requirements.

For ASME Code Class 1 piping systems, a fatigue analysis shall be performed in accordance with the ASME Code Class 1 piping requirements. Environmental effects shall be included in the fatigue analysis. The Class 1 piping fatigue analysis shall show that the ASME Code Class 1 piping fatigue requirements have been met.

For ASME Code Class 2 and 3 piping systems, piping stress ranges due to thermal expansion shall be calculated in accordance with the ASME Code Class 2 and 3 piping requirements. The piping stress analysis shall show that the ASME Code Class 2 and 3 piping thermal expansion stress range requirements have been met. For the ASME Code Class 2 and 3 piping systems and their components, which will be subjected to severe thermal transients, the effects of these transients shall be included in the design.

~~Piping systems that are qualified for leak-before-break design may exclude design features to mitigate the dynamic effects from postulated high energy pipe breaks.~~

Inspections, Tests, Analyses and Acceptance Criteria

Table 3.1-1 provides a definition of the inspections, test and/or analyses, together with associated acceptance criteria for the Piping Design.