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MFN 06-366
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. 61 Related to ESBWR Design Certification Application – Seismic, Structural and Piping Analyses – RAI Number 3.12-38 S01**

Enclosure 1 contains GEH's response to the subject NRC RAI transmitted via e-mail on May 9, 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
Vice President, ESBWR Licensing

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NRO

Reference:

1. MFN 06-366, Letter from David Hinds to U.S. Nuclear Regulatory Commission, *Response to Portion of NRC Request for Additional Information Letter No. 61 – Seismic, Structural and Piping Analyses – RAI Number 3.12-38,* October 6, 2006

Enclosure:

1. MFN 06-366, Supplement 1 – Response to Portion of NRC Request for Additional Information Letter No. 61 Related to ESBWR Design Certification Application – Seismic, Structural and Piping Analyses – RAI Number 3.12-38 S01

cc:	AE Cubbage	USNRC (with enclosures)
	DH Hinds	GEH (with enclosures)
	RE Brown	GEH (w/o enclosures)
	GB Stramback	GEH (w/o enclosures)
	eDRF	0000-0064-7035

Enclosure 1

MFN 06-366, Supplement 1

Response to Portion of NRC Request for

Additional Information Letter No. 61

Related to ESBWR Design Certification Application

Seismic, Structural and Piping Analyses

RAI Number 3.12-38 S01

NRC RAI 3.12-38 S01

Include the direct loading of safety relief valve (SRV) discharge and loss-of-coolant accident (LOCA) on submerged components in the suppression pool. Include these loads in the DCD Tables and the main steam (MS)/SRV analysis.

GE RESPONSE - MFN 06-366, October 6, 2006

The SRV discharge piping will be anchored at the air space interface to the wetwell. Therefore, there will be no wetwell loadings transferred to the main steam piping and SRV discharge piping in the drywell. There will be load combinations for the wetwell piping to include all the LOCA loads on submerged components similar to the ABWR analysis.

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

STAFF EVALUATION

GE's response is not acceptable, since it does not address the issue described in this RAI.

This will be discussed during the audit.

AUDIT RESULTS

GE indicated that they will revise the DCD (text and applicable tables) to define that direct loadings from SRV and LOCA on submerged components in the suppression pool are considered.

Based on GE's markup of the DCD revision, the proposed change is acceptable..

GE Response

DCD subsection 3.9.3.4 was revised in Revision 3 by adding the following sentence, "For submerged piping and associated supports, the applicable direct external loads (e.g. hydrodynamic, etc.) applied to the submerged components shall be included in the analysis."

DCD Impact

DCD Tier #2, Section 3.9.3.4 has been revised as noted in the attached markup.

Code requirements for Class 3 components are used in the design and construction of the RWCU System pump and heat exchanger components.

ASME Class 2 and 3 Vessels

The Class 2 and 3 vessels (all vessels not previously discussed) are constructed in accordance with the Code. The stress analysis of these vessels is performed using elastic methods.

ASME Class 1, 2 and 3 Valves

The Class 1, 2, and 3 valves (all valves not previously discussed) are constructed in accordance with the Code.

All valves and their extended structures are designed to withstand the accelerations due to seismic and other RBV loads. The attached piping is supported so that these accelerations are not exceeded. The stress analysis of these valves is performed using elastic methods. Refer to Subsection 3.9.3.5 for additional information on valve operability.

ASME Class 1, 2 and 3 Piping

The Class 1, 2 and 3 piping (all piping not previously discussed) is constructed in accordance with the Code. For Class 1 piping, stresses are calculated on an elastic basis and evaluated in accordance with NB-3600 of the Code. For Class 2 and 3 piping, stresses are calculated on an elastic basis and evaluated in accordance with NC/ND-3600 of the Code. In the event that a NB-3600 analysis is performed for Class 2 or 3 pipe, all the analysis requirements for Class 1 pipe as specified in this document and the ASME code will be performed. Table 3.9-9 shows the specific load combinations and acceptance criteria for Class 1 piping systems. For the Class 1 piping that experiences the most significant stresses during operating conditions, the thermal loads per Equation 12 of NB-3600 are less than 2.4 S_{m}, and are more limiting than the dynamic loads that are required to be analyzed per Equation 13 of NB-3600. The piping considered in this category is the RWCU/SDC, feedwater, main steam, and isolation condenser steam piping within the containment. Thes[illegible] expansion, pipe size, transient th[illegible] N-122-2 is used for analysis of[illegible] included in the Design Report for the piping system.

Sentence added per RAI 3.12-38 S01

For submerged piping and associated supports, the applicable direct external loads (e.g. hydrodynamic etc.) applied to the submerged components shall be included in the analysis.

3.9.3.5 Valve Operability Assurance

Active mechanical (with or without electrical operation) equipment designed to perform a mechanical motion for its safety-related function is Seismic Category I. Equipment with faulted condition functional requirements includes active pumps and valves in fluid systems such as the RHR System, ECCS, and MS system.

This subsection discusses operability assurance of active Code valves, including the actuator that is a part of the valve (Subsection 3.9.2.2).

Safety-related valves are qualified by testing and analysis and by satisfying the stress and deformation criteria at the critical locations within the valves. Operability is assured by meeting