HITACHI

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U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555-0001

Subject: **Transmittal of ESBWR Tier 2, Table 3.9-9 DCD Markups Related to GEH Internal Correction Action**

The purpose of this letter is to submit markups to ESBWR DCD, Tier 2, Table 3.9-9 - Load Combinations and Acceptance Criteria for Class 1 Piping Systems, which are the result of a GEH internal corrective action based on errors identified by the staff and transmitted to GEH by Reference 1. This transmittal letter closes out a GEH Internal Corrective Action item. These changes to Table 3.9-9 will be incorporated into DCD Revision 7.

The markups to Table 3.9-9 are contained in Enclosure 1. Verified DCD changes associated with the comment received by Reference 1 are identified in the attached markups by enclosing the text within a black box. Changes made to Table 3.9-9 Rev 6 are identified by blue underlined additions and red strike out's in Enclosure 1.

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

Sincerely,

FOR

Richard E. Kingston
Vice President, ESBWR Licensing

Reference:

1. Email from Zahira Cruz to H. A. Upton, RE: *Table 3.9.9 (Revision 6)* dated March 1, 2010

Enclosure:

1. Document Improvements and Specific Changes to DCD Tier 2 Section 3.9 – Table 3.9-9 - Load Combinations and Acceptance Criteria for Class 1 Piping Systems

cc:	AE Cubbage	USNRC (with enclosures)
	JG Head	GEH/Wilmington (with enclosures)
	DH Hinds	GEH/Wilmington (with enclosures)
	HA Upton	GEH/San Jose (with enclosures)
	eDRF Section	0000-0114-9055

Enclosure 1

MFN 10-087

Document Improvements and Specific Changes to

DCD Tier 2 Section 3.9 – Table 3.9-9

Load Combinations and Acceptance Criteria for

Class 1 Piping Systems

[*Table 3.9-9*

Load Combinations and Acceptance Criteria for Class 1 Piping Systems

Condition	*Load Combination for all terms*(1) (2)(3)	*Acceptance Criteria*
Design	*PD + WT*	*Eq 9 ≤ 1.5 S_m NB-3652*
Service Level A & B	*PP, TE, ΔT1, ΔT2 , TA-TB, RV_1, RV_2I, RV_2D, TSV, SSEI, SSED*	*Eq 12 & 13 ≤ 2.4 S_m* *Fatigue - NB-3653:* *U < 0.40*(4)
Service Level B	*PP + WT + (TSV)* *PP + WT + (RV_1)* *PP + WT + (RV_2I)*	*Eq 9 ≤ 1.8 S_m, but not greater than 1.5 S_y* *Pressure not to exceed 1.1P_a (NB-3654)*
Service Level C	*PP + WT + $[(CHUGI)^2 + (RV_1)^2]^{1/2}$* *PP + WT + $[(CHUGI)^2 + (RV_2I)^2]^{1/2}$*	*Eq 9 ≤2.25 S_m, but not greater than 1.8 S_y* *Pressure not to exceed 1.5 P_a (NB-365~~4~~5)*
Service Level D	*PP + WT + $[(SSEI)^2 + (TSV)^2]^{1/2}$* *PP + WT + $[(SSEI)^2 + (CHUGI)^2 + (RV_1)^2]^{1/2}$* *PP + WT + $[(SSEI)^2 + (CHUGI)^2 + (RV_2I)^2]^{1/2}$* *PP + WT + $[(SSEI)^2 + (CONDI)^2 + (RV_1)^2]^{1/2}$* *PP + WT + $[(SSEI)^2 + (CONDI)^2 + (RV_2I)^2]^{1/2}$* *PP + WT + $[(SSEI)^2 + (API)^2]^{1/2}$*	*Eq 9 ≤ 3.0 S_m but not greater than 2.0 S_y* *Pressure not to exceed 2.0 P_a (NB-365~~4~~6)*

(1) RV1 and TSV loads are used for MS Lines only

(2) RV2 represents RV2 ALL (all valves), RV2SV (single Valve) and RV2 AD (Automatic Depressurization operation)

(3) For the SRV discharge piping, all direct loads for SRV and LOCA loads are evaluated for submerged piping.

(4) In conjunction with compliance with RG 1.207, the fatigue usage limit of ≤ 0.40 will be used as the criteria for piping locations exempt from pipe break consideration.

Where: *API = Annulus Pressurization Loads (Inertia Effect)*

CHUGI = Chugging Load (Inertia Effect)

CONDI = Condensation Oscillation (Inertia Effect)

PD = Design Pressure

PP = Peak Pressure or the Operating Pressure Associated with that transient

RV_1 = SRV Opening Loads (Acoustic Wave)]*

* Text sections that are bracketed and italicized with an asterisk following the brackets are designated as Tier 2*. Prior NRC approval is required to change.