GE Hitachi Nuclear Energy

Richard E. Kingston
Vice President, ESBWR Licensing

PO Box 780 M/C A-65
Wilmington, NC 28402-0780
USA

T 910 819 6192
F 910 362 6192
rick.kingston@ge.com

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Subject: Response to Portion of NRC Request for Additional Information Letter No. 298, Related to ESBWR Design Certification Application - Auxiliary Systems - RAI Numbers 9.1-117 and 9.1-118

The purpose of this letter is to submit the GE Hitachi Nuclear Energy (GEH) response to the U.S. Nuclear Regulatory Commission Request for Additional Information (RAI) sent by NRC Letter 298, dated February 11, 2009 (Reference 1). The GEH response to RAI Numbers 9.1-117 and 9.1-118 are addressed in Enclosure 1.

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

Sincerely,

Richard E. Kingston

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Vice President, ESBWR Licensing

Reference:

1. MFN 09-130, Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, *Request for Additional Information Letter No. 298 Related to ESBWR Design Certification Application,* February 11, 2009**.**

Enclosure:

1. Response to Portion of NRC Request for Additional Information Letter No. 298 Related to ESBWR Design Certification Application - Auxiliary Systems - RAI Numbers 9.1-117 and 9.1-118

cc:	AE Cubbage	USNRC (with enclosure)
	DH Hinds	GEH (with enclosure)
	JG Head	GEH (with enclosure)
	eDRF Sections	0000-0100-7452 and 0000-0100-7457 respectively

Enclosure 1

MFN 09-268

Response to Portion of NRC Request for

Additional Information Letter No. 298

Related to ESBWR Design Certification Application

Auxiliary Systems

RAI Numbers 9.1-117 and 9.1-118

NRC RAI 9.1-117

GEH's non-linear models in NEDE-33373P, Revision 1, are developed, one for an N-S row of FSR array and another for an E-W row of FSR array. Both models were built with 2-D beams and point masses, which are adequate for capturing vibrations in both E-W and N-S directions. However, the 2-D models will not be able to simulate 3-D effect of vibrations where FSRs may be supported by only one foot and pivot about that point. Past studies (NUREG/CR-5912) showed the pivotal effect may induce large horizontal displacements of the racks. The staff requests that either GEH show the 2-D analyses envelop the pivotal vibration or provide an assessment of pivotal effect on the seismic responses.

GEH Response

Per the telephone call between GEH and the NRC on March 10, 2009, GEH agreed to perform a dynamic analysis of fuel storage rack array. This analysis will include an evaluation of the pivotal effect due to the seismic responses of the fuel storage rack structure using a 3-D model of the racks.

DCD Impact

LTR NEDC-33373P, Revision 2, will be submitted with the dynamic analysis of the fuel storage rack array and the evaluation of the pivotal effect due to seismic responses of the fuel storage rack structure included. There is no DCD impact due to the changes made to the LTR document.

NRC RAI 9.1-118

NEDE-33373P, Revision 1, Table 1-18 presents the local stress results FSR due to impacts of fuels to cells and rack to rack. The staff requests that GEH define the terms for local membrane and mean membrane stresses for 7mm top cell plates. The staff also requests that GEH describe why the 10mm enveloping plates were not included in the Table.

GEH Response

Per the telephone call between GEH and the NRC on March 10, 2009, GEH agreed to define the terms, local and mean membrane stresses, in Revision 2 of LTR NEDC-33373P. In addition, GEH agreed to include the 10 mm enveloping plate local and mean membrane stresses in Table 1-18.

DCD Impact

LTR NEDC-33373P, Revision 2, will include the terms, local and mean membrane stresses, defined and the local and mean membrane stresses for the 10 mm enveloping plates. There is no DCD impact due to the changes made to the LTR document.