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MFN 08-167

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Subject: **Response to Portion of NRC Request for Additional Information Letter No. 124 Related to ESBWR Design Certification Application - Nuclear Boiler System - RAI Number 5.2-66**

Enclosure 1 contains the GE Hitachi Nuclear Energy (GEH) response to the subject NRC RAI transmitted via the Reference 1 letter.

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

Sincerely,

James C. Kinsey

James C. Kinsey
Vice President, ESBWR Licensing

D068
NRO

Reference:

1. MFN 08-029, Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, *Request for Additional Information Letter No. 124 Related to ESBWR Design Certification Application*, January 14, 2008

Enclosure:

1. MFN 08-167 - Response to Portion of NRC Request for Additional Information Letter No. 124 Related to ESBWR Design Certification Application - Nuclear Boiler System - RAI Number 5.2-66

cc:	AE Cubbage	USNRC (with enclosures)
	DH Hinds	GEH/Wilmington (with enclosures)
	GB Stramback	GEH/San Jose (with enclosures)
	RE Brown	GEH/Wilmington (with enclosures)
	eDRF	0000-0079-9684

Enclosure 1

MFN 08-167

Response to Portion of NRC Request for Additional Information Letter No. 124 Related to ESBWR Design Certification Application

Nuclear Boiler System

RAI Number 5.2-66

NRC RAI 5.2-66:

It seems that the SRV capacities given in Table 5.2.2 and Table 6.3-1 are inconsistent, please verify the correct value.

GEH Response:

The tables noted in this RAI are inconsistent in DCD Tier 2, Revision 4. This inconsistency will be rectified. Table 5.2-2 contains the design minimum discharge capacity values for the safety relief valves (SRVs) and safety valves (SVs), and does not need to be changed. Table 6.3-1 will be revised to include a value range for the SRV collective capacity from 1,380 kg/s to 1,440 kg/s. A note will be added to the table to explain the basis for using these values in the analysis.

DCD Impact:

DCD Tier 2, Table 6.3-1 will be revised as shown in the attached markup.

Table 6.3-1

Significant Input Variables to the ECCS-LOCA Performance Analysis

B.4 Standby Liquid Control System **Variable**	**Units**	**Value**
Initiating Signal	—	DPV actuation (See B.5)
Liquid Volume per Tank	m^3 [ft^3]	7.8 [275.4]
B.5 Automatic Depressurization Subsystem **Variable**	**Units**	**Value**
Initiating Signal	—	ECCS-LOCA confirmed initiating signal (See B.1)
Valve Actuation Sequence:		
5 ADS	sec	0
5 ADS	sec	10
3 DPVs	sec	50
2 DPVs	sec	100
2 DPVs	sec	150
1 DPVs	sec	200
Total Number of Safety Relief Valves With ADS Function	—	10
Total Min. ADS Flow Capacity at Vessel Pressure[1]	kg/~~hrs~~ MPa (gauge) [lbm/hr] [psig]	~~5.18 x 10^5~~1,380 to 1,440 8.618 [~~1.14 x 10^4~~1.095 x 10^7 to 1.143 x 10^7] [1250]
Total Number of Depressurization Valves	—	8
Total min. DPV flow capacity at vessel pressure	kg/hr MPa (gauge) [lbm/hr] [psig]	6.89 x 10^6 7.481 [15.2 x 10^6] [1085]
Total max. DPV flow capacity at vessel pressure	kg/hr MPa (gage) [lbm/hr] [psig]	8.47 x 10^6 7.481 [18.7 x 10^6] [1085]

Table 6.3-1

Significant Input Variables to the ECCS-LOCA Performance Analysis

C. Fuel Parameters * Variable	Units	Value
Fuel type	—	See Chapter 4
Peak Linear Heat Generation Rate (Bounding)	kW/m [kW/ft]	44 [13.4]
Initial Minimum Critical Power Ratio (Bounding)	—	1.10

* SRV capacity of 1440 kg/s (1.143 x 10^7 lbm/hr), based on imposing the maximum design discharge loads on the discharge line and quencher assembly, is the conservative analysis bounding flow with respect to calculated minimum chimney water level during LOCA.