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MFN 08-253

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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. 68 Related to ESBWR Design
Certification Application - Emergency Core Cooling Systems -
RAI Number 6.3-56**

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,

R.E. Brown for

James C. Kinsey
Vice President, ESBWR Licensing

11080 200144

DO68
NRC

Reference:

1. MFN 06-379, Letter from U.S. Nuclear Regulatory Commission to David H. Hinds, *Request for Additional Information Letter No. 68 Related to ESBWR Design Certification Application*, October 10, 2006

Enclosure:

1. MFN 08-253 - Response to Portion of NRC Request for Additional Information Letter No. 68 Related to ESBWR Design Certification Application - Emergency Core Cooling Systems - RAI Number 6.3-56

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 0000-0077-3412R1

Enclosure 1

MFN 08-253

**Response to Portion of NRC Request for
Additional Information Letter No. 68
Related to ESBWR Design Certification Application**

Emergency Core Cooling Systems

RAI Number 6.3-56

NRC RAI 6.3-56:

Provide more details on the sequence of events than the information that is provided in DCD Tier 2, Revision 1, Tables 6.3-7 through 6.3-10. Include trip signals and set-points for all reactor protection system (RPS) actions. Include actions necessary for long-term core cooling.

GEH Response:

DCD Tier 2, Tables 6.3-7 through 6.3-10, were revised between Revision 1 and Revision 4 to include the detailed Sequence of Events (SOE) information requested, and to include trip signals for all Reactor Protection System (RPS) actions expected to occur. The RPS trip signals included are high drywell pressure and reactor water Level 3. In addition, Emergency Core Cooling System (ECCS) initiation signals are included in the subject tables. These actions include expected system actions, not all of which are credited in the analyses of these events. The initial credited RPS trip is assumed to be a loss of power generation bus simultaneous with the initiating event. The setpoints for the ECCS loss-of-coolant accident (LOCA) initiation signals are given in DCD Tier 2, Table 6.3-1 and Table 15.2-1. The timeframes for the SOE tables include the initiating events out to 2000 seconds after event initiation. This is sufficient time to include the automatic system responses for the various inside containment line break conditions and for reactor water level to stabilize. The analyses show that no operator actions are required to be performed to support long-term core cooling (e.g., opening the Gravity-Driven Cooling System (GDCS) equalizing line valves from the wetwell suppression pool to the reactor pressure vessel) for the timeframe of the SOE tables. The actions supporting long-term core cooling beyond the timeframe established in the SOE tables, if required, are described in DCD Tier 2, Subsections 6.3.2.7 and 15.4.3.

DCD Impact:

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