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MFN 06-241 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. 34 – Emergency Core Cooling Systems - RAI Number 6.3-12 S01**

Enclosure 1 contains GE's response to the subject NRC RAI originally transmitted via the Reference 1 letter and supplemented by an NRC request for clarification.

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

Sincerely,

/Kathy Sedney for

James C. Kinsey
Project Manager, ESBWR Licensing

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References:

1. MFN 06-198, Letter from U.S. Nuclear Regulatory Commission to David Hinds, *Request for Additional Information Letter No. 34 Related to ESBWR Design Certification Application*, June 22, 2006

Enclosure:

1. MFN 06-241 Supplement 1 – Response to Portion of NRC Request for Additional Information Letter No. 34 – Related to ESBWR Design Certification Application – Emergency Core Cooling Systems – RAI Number 6.3-12 S01

cc:

AE Cubbage	USNRC (with enclosures)
DH Hinds	GE/Wilmington (with enclosures)
BE Brown	GE/Wilmington (with enclosures)
GB Stramback	GE/San Jose (with enclosures)
GA Zinke	NuStart (with enclosures)
eDRF	0065-5387

Enclosure 1

MFN 06-241 Supplement 1

Response to Portion of NRC Request for Additional Information Letter No. 34 Related to ESBWR Design Certification Application

Emergency Core Cooling Systems

RAI Number 6.3-12 S01

NRC RAI 6.3-12 S01:

GE's response to RAI 6.3-12 (MFN 06-241) stated that "Electrical separation and mechanical train separation is complete." Since mechanical trains B and C draw water from a common pool designated as B/C, staff does not agree with the use of the term "complete". When the pool is shared, there is not complete redundancy. Staff suggests to revise the DCD, Tier 2, Section 6.3.2.7.2, with a statement such as "Electrical separation and mechanical separation between the divisions is provided."

GE Response:

Suggestion has been accepted.

DCD Impact:

DCD Tier 2, Section 6.3.2.7.2, will be revised in DCD Tier 2, Revision 4, as noted on the attached markup.

6.3.2.7.2 System Description

Summary Description

The GDCS provides short-term post-LOCA water makeup to the annulus region of the reactor through eight injection line nozzles, by gravity-driven flow from three separate water pools located within the drywell at an elevation above the active core region. The system provides long-term post-LOCA water makeup to the annulus region of the reactor through four equalization nozzles and lines connecting the suppression pool to the RPV. During severe accidents the GDCS floods the lower drywell region directly via four GDCS injection drain lines (one each from two pools and two from the third pool) through deluge system, if the core melts through the RPV.

Detailed System Description

The GDCS is composed of four divisions designated as Divisions A, B, C, and D. Electrical separation and mechanical train separation between the divisions is provided. The mechanical trains A and D draw water from independent pools designated as A and D and trains B and C draw water from a common pool designated as B/C. Physical separation is ensured between divisions by locating each train in a different area of the reactor containment. A single division of the GDCS consists of three independent subsystems: a short-term cooling (injection) system, a long-term cooling (equalizing) system, and a deluge line. The short-term and long-term systems provide cooling water under force of gravity to replace RPV water inventory lost during a LOCA and subsequent decay heat boil-off. The deluge line connects the GDCS pool to the lower drywell.