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MFN 06-348 Supplement 1

Docket No. 52-010

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

Subject: **Response to Portion of NRC Request for Additional Information Letter No. 33 - Containment Peak Pressure Analysis - RAI Number 6.2-58 S01**

Enclosure 1 contains GHNEA'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, please contact me.

Sincerely,

Kathy Sedney for

James C. Kinsey
Project Manager, ESBWR Licensing

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NRO

Reference:

1. MFN 06-167, Letter from U.S. Nuclear Regulatory Commission to David Hinds, *Request for Additional Information Letter No. 33 Related to ESBWR Design Certification Application*, June 1, 2006

Enclosure:

1. MFN 06-348 Supplement 1 - Response to Portion of NRC Request for Additional Information Letter No. 33 - Related to ESBWR Design Certification Application - Containment Peak Pressure Analysis - RAI Number 6.2-58 S01

cc: AE Cubbage USNRC (with enclosures)
BE Brown GHNEA/Wilmington (with enclosures)
GB Stramback GHNEA/San Jose (with enclosures)
eDRF 0000-0065-5480

Enclosure 1

MFN 06-348 Supplement 1

Response to Portion of NRC Request for

Additional Information Letter No. 33

Related to ESBWR Design Certification Application

Containment Peak Pressure Analysis

RAI Number 6.2-58 S01

NRC RAI 6.2-58 S01:

In GE's response to RAI 6.2-58 (MFN 06-348) various single active failures were considered in regards to the emergency core cooling system analysis. However, the intent of this RAI was to identify the limiting sequence considering the worst single active failure with respect to peak containment pressure. For example, why is not a MSLB or FWLB with a failure of a shut-off valve in one of the standby liquid control system trains (SLCS) considered for peak pressure containment analysis? It is noted in the DCD, Subsection 9.3.5.2, that the operation of the accumulator vent could limit the amount of nitrogen injected into the reactor vessel by assisting in reducing accumulator pressure. Considering a failure of a shut-off valve in one of the SLCS trains from the onset of the failure of the shut-off valve to close until the accumulator tank depressurizes (with the assistance of the accumulator vent) to cease further nitrogen release into the vessel, how much nitrogen could be transported to the reactor vessel? Considering all relevant delays and action, how would this event affect peak ESBWR containment pressure calculations?

GHNEA Response:

To avoid the injection of nitrogen into the reactor vessel, four divisional, safety-related level sensors per Standby Liquid Control (SLC) accumulator are used to provide automatic isolation of the associated accumulator shut-off valves (two in series) on a low accumulator level signal, using a two-out-of-four voting logic (DCD Tier 2, Revision 3, Subsection 7.4.1.2). The SLC System instrumentation of the Anticipated Transient Without Scram (ATWS)/SLC mitigation logic perform the accumulator shut-off valve isolation logic.

The revised design prevents the injection of nitrogen into the reactor vessel for any single active failure in one of the SLCS trains.

DCD Impact:

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