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MFN 07-313

Docket No. 52-010

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

Subject: **Response to Portion of NRC Request for Additional Information Letter No. 96 - High Energy Line Break Analysis - RAI Number 6.2-154**

Enclosure 1 contains GHNEA's 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,

Kathy Sedney for

James C. Kinsey
Project Manager, ESBWR Licensing

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NRO

Reference:

1. MFN 07-231, Letter from U.S. Nuclear Regulatory Commission to Robert Brown, *Request for Additional Information Letter No. 96 Related to ESBWR Design Certification Application*, April 12, 2007

Enclosure:

1. MFN 07-313 - Response to Portion of NRC Request for Additional Information Letter No. 96 - Related to ESBWR Design Certification Application - High Energy Line Break Analysis - RAI Number 6.2-154

cc: AE Cubbage USNRC (with enclosures)
BE Brown GHNEA/Wilmington (with enclosures)
GB Stramback GHNEA/San Jose (with enclosures)
eDRF 0000-0068-3505

Enclosure 1

MFN 07-313

Response to Portion of NRC Request for

Additional Information Letter No. 96

Related to ESBWR Design Certification Application

High Energy Line Break Analysis

RAI Number 6.2-154

NRC RAI 6.2-154:

DCD, Tier 2, Rev. 3, Section 3G.1.5.2.1.10 states that "the design pressure in the [reactor building] main steam tunnel to account for a main steam line break is 76.0 kPag (11.0 psig)."

Please describe how you determined the design pressure for the main steam tunnel.

GHNEA Response:

According to DCD Tier 2, Revision 3, Subsection 6.2.3.2, the main steam line break is excluded from the pressurization analysis given the ability of the steam to blow down into the turbine building.

The ESBWR main steam tunnel (MST) design pressure of 76 kPag (11 psig) was selected as a conservative value based on the Advanced Boiling Water Reactor (ABWR) MST design pressure. The main steam lines and feedwater lines have the same diameter and pressure in both the ABWR and the ESBWR, and the ESBWR MST is shorter and more open to the turbine building than the ABWR MST.

An analysis for the ESBWR MST pressurization (considering a double-ended main steam line break) was performed. Results show that the peak pressure is approximately one-third of the 76 kPag (11 psig) design pressure.

DCD Impact:

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