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Subject: **Response to Portion of NRC Request for Additional Information
Letter No. 95 –Auxiliary Systems– RAI Number 9.3-30**

Enclosure 1 contains GHNEA's response to the subject NRC RAIs transmitted via the Reference 1 letter.

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

Sincerely,



James C. Kinsey
Project Manager, ESBWR Licensing

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MRO

Reference:

1. MFN 07-204, Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, *Request for Additional Information Letter No. 95 Related to the ESBWR Design Certification Application*, March 27, 2007.

Enclosure:

1. MFN 07-320 - Response to Portion of NRC Request for Additional Information Letter No. 95 – RAI Number 9.3-30.

cc: AE Cabbage USNRC (with enclosure)
BE Brown GHNEA/Wilmington (with enclosure)
LE Fennern GHNEA/San Jose (with enclosure)
GB Stramback GHNEA/San Jose (with enclosure)
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Enclosure 1

MFN 07-320

**Response to Portion of NRC Request for
Additional Information Letter No. 95
Related to ESBWR Design Certification**

Auxiliary Systems

RAI Number 9.3-30

NRC RAI 9.3-30

DCD Tier 2, Revision 3, Section 9.3.3.3, states that failure of the equipment and floor drainage system (EFDS) does not prevent safety-related equipment from performing their safety-related functions. However, the method of achieving this protection is not specified. SRP 9.3.3, Rev. 2, 1981, Criterion II.1.d states that, if a failure or malfunction in a portion of the system could result in adverse effects on essential systems or components (i.e., necessary for safe shutdown, accident prevention, or accident mitigation) it is considered safety-related in this area. Clarify how failure of non-safety-related portions of the EFDS are precluded from adversely affecting safety-related portions of the system or safety-related equipment located in the areas where the drain lines are routed.

GHNEA Response

As a part of Acceptance Criteria, SRP 9.3.3, Rev. 2, 1981, Criterion II.1 states, "General Design Criterion 2 as related to safety-related portions of the system being capable of withstanding the effects of earthquakes. Acceptance is based on meeting the guidance of Regulatory Guide 1.29, Position C.1, if any portion is deemed to be safety related, and Position C.2, for nonsafety-related functions."

In order to determine what is safety-related and thus acceptance based on RG 1.29, Position C.1, SRP 9.3.3, Rev. 2, 1981, Criterion II.1.d states that, "If a failure or malfunction in a portion of the system could result in adverse effects on essential systems or components (i.e., necessary for safe shutdown, accident prevention, or accident mitigation) it is considered safety-related in this area."

The ESBWR Standard Plant conforms with GDC 2 (withstanding the effects of earthquakes) by ensuring both safety-related and nonsafety-related portions of the EFDS meets the guidance provided by Regulatory Guide 1.29, Position C.1 and Position C.2 respectively, as stated in Revision 3, Tier 2, DCD Subsection 9.3.3.1. This Subsection references Tier 2, DCD Table 3.2-1, which requires piping and components located in buildings housing safety-related components to be designed to Seismic Category I or II requirements.

Furthermore, Revision 3, Tier 2, DCD Subsection 9.3.3.3 states that failure of the EFDS does not prevent safety-related equipment from performing their safety-related functions. Subsection 9.3.3.3 also provides the following discussion from Revision 3, Tier 2, DCD Section 3.4:

"...Water Level (Flood) Design, presents analyses demonstrating that safety-related equipment in areas drained by the EFDS is not affected by drain or flood water backing up in the drainage system because of malfunction of active components, blockage, or the probable maximum flood."

In accordance with Revision 3, Tier 2, DCD Sections 3.4 and 3.6, flooding due to high and moderate energy pipe failure does not affect any safety-related equipment and the ability to safely shut down the plant. The internal flooding analysis and protective features are described in Subsection 3.4.1.1. The internal flooding evaluation criteria, for which no credit is taken for drains, are presented in Subsection 3.4.1.3, and the evaluation of internal flooding utilizing these criteria is presented in Subsection 3.4.1.4.

Therefore, nonsafety-related portions of the EFDS are designed to not adversely affect safety-related portions of the system or safety-related equipment located in the areas where the drain lines are routed as already documented in Revision 3, Tier 2, DCD Subsection 9.3.3.3.

DCD Impact

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