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**Subject: Response to Portion of NRC Request for Additional Information  
Letter No. 97 Related to ESBWR Design Certification Application –  
Quality Assurance – RAI Number 17.4-17**

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 regarding the information provided here, please contact me.

Sincerely,



James C. Kinsey  
Project Manager, ESBWR Licensing

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Reference:

1. MFN 07-292, Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, *Request for Additional Information Letter No. 97 Related to ESBWR Design Certification Application*, May 10, 2007

Enclosure:

1. MFN 07-328 – Response to Portion of NRC Request for Additional Information Letter No. 97 Related to ESBWR Design Certification Application – Quality Assurance – RAI Number 17.4-17

cc: AE Cabbage USNRC (with enclosures)  
DH Hinds GHNEA (with enclosures)  
RE Brown GHNEA (w/o enclosures)  
eDRF 0000-0068-2413

**ENCLOSURE 1**

**MFN 07-328**

**Response to Portion of NRC Request for  
Additional Information Letter No. 97  
Related to ESBWR Design Certification Application  
Quality Assurance – RAI Number 17.4-17**

**NRC RAI 17.4-17**

*The second sentence of the third paragraph of DCD Tier 2, Rev. 3, Section 17.4.2 should be revised to read: "This information forms part of the basis for the high-safety-significant (HSS) category, as described in NUMARC 93-01, and as endorsed by RG 1.160, of the SSCs within the scope of the Maintenance Rule program, as prescribed by 10CFR 50.65(b)." A new third sentence that incorporates the remainder of the existing second sentence should be added thus: "The Maintenance Rule Program ensures... [remainder of the existing second sentence]." A new fourth sentence should be added: "The HSS category within the Maintenance Rule Program scope must encompass the SSCs in the RAP scope as modified for the operations phase if the Maintenance Rule Program is to be used along with the QA and maintenance and surveillance programs in implementation of the RAP in the operations phase."*

**GHNEA Response**

Section 17.4.2 will be revised with the suggested changes.

DCD Tier 2 Rev. 3 reads as follows:

**17.4.2 Scope**

The scope of the ESBWR D-RAP includes risk-significant SSCs, both safety-related and nonsafety-related, that provide defense-in-depth or result in significant improvement in the PRA evaluations.

A preliminary list of risk-significant SSCs within the scope of the D-RAP is developed in the design phase.

The list is updated, using a blended approach and an Expert Panel when plant-specific information is available. This information forms the basis for the Maintenance Rule program, which ensures that risk-significant SSCs operate throughout plant life with reliable performance that is consistent with the PRA. The PRA for the ESBWR, and other sources, such as historical records of BWR system and components are used to identify and prioritize those SSCs that are important to prevent or mitigate plant AOOs or other events that could present a risk to the public.

DCD Tier 2 Rev. 4 will be revised as follows:

**17.4.2 Scope**

The scope of the ESBWR D-RAP includes risk-significant SSCs, both safety-related and nonsafety-related, that provide defense-in-depth or result in significant improvement in the PRA evaluations.

A preliminary list of risk-significant SSCs within the scope of the D-RAP is developed in the design phase.

The list is updated, using a blended approach and an Expert Panel when plant-specific information is available. This information forms part of the basis for the high-safety-

significant (HSS) category, as described in NUMARC 93-01, and as endorsed by RG 1.160, of the SSCs within the scope of the Maintenance Rule program, as prescribed by 10CFR 50.65(b). The Maintenance Rule Program ensures that risk-significant SSCs operate throughout plant life with reliable performance that is consistent with the PRA. The HSS category within the Maintenance Rule Program scope must encompass the SSCs in the RAP scope as modified for the operations phase if the Maintenance Rule Program is to be used along with the QA and maintenance and surveillance programs in implementation of the RAP in the operations phase. The PRA for the ESBWR, and other sources, such as historical records of BWR system and components are used to identify and prioritize those SSCs that are important to prevent or mitigate plant AOOs or other events that could present a risk to the public.

**DCD Impact**

The changes described above will be implemented in DCD Rev. 4 as shown in the attached markup.

## 17.4 RELIABILITY ASSURANCE PROGRAM DURING DESIGN PHASE

This section presents the ESBWR Design Reliability Assurance Program (D-RAP).

### 17.4.1 Introduction

The GE ESBWR D-RAP is a program utilized during detailed design and specific equipment selection phases to assure that the important ESBWR reliability assumptions of the Probabilistic Risk Assessment (PRA) are considered throughout the plant life. The PRA is used to evaluate the plant response to anticipated operational occurrence (AOO) initiating events and mitigation to ensure potential plant damage scenarios pose a very low risk to the public.

The D-RAP identifies relevant aspects of plant operation, maintenance, and performance monitoring of important plant SSCs for owner/operator consideration in assuring safety of the equipment and limiting risk to the public. An example is provided to demonstrate how the D-RAP applies to the Isolation Condenser System (ICS). The ICS example shows how the principles of D-RAP are applied to other systems identified by the PRA as being risk-significant.

### 17.4.2 Scope

The scope of the ESBWR D-RAP includes risk-significant SSCs, both safety-related and nonsafety-related, that provide defense-in-depth or result in significant improvement in the PRA evaluations.

A preliminary list of risk-significant SSCs within the scope of the D-RAP is developed in the design phase.

The list is updated, using a blended approach and an Expert Panel when plant-specific information is available. This information forms part of the basis for the high-safety-significant (HSS) category, as described in NUMARC 93-01, and as endorsed by RG 1.160, of the SSCs within the scope of the Maintenance Rule program, as prescribed by 10CFR 50.65(b). The Maintenance Rule Program ensures that risk-significant SSCs operate throughout plant life with reliable performance that is consistent with the PRA. The HSS category within the Maintenance Rule Program scope must encompass the SSCs in the RAP scope as modified for the operations phase if the Maintenance Rule Program is to be used along with the QA and maintenance and surveillance programs in implementation of the RAP in the operations phase. ~~This information forms the basis for the Maintenance Rule program, which ensures that risk-significant SSCs operate throughout plant life with reliable performance that is consistent with the PRA.~~ The PRA for the ESBWR, and other sources, such as historical records of BWR system and components are used to identify and prioritize those SSCs that are important to prevent or mitigate plant AOOs or other events that could present a risk to the public.

### 17.4.3 Purpose

The purpose of the D-RAP is to ensure that the plant safety, as estimated by the PRA, is maintained as the detailed design evolves through the implementation and procurement phases, and that pertinent information is provided in the design documentation to the future owner/operator so that equipment reliability, as it affects plant safety, is maintained through operation and maintenance during the entire plant life.