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Washington, D.C. 20555-0001

Subject: **Response to Portion of NRC Request for Additional Information  
Letter No. 98 Related to ESBWR Design Certification Application –  
Environmental Qualification – RAI Number 3.11-7**

Enclosure 1 contains GEH'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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URO

Reference:

1. MFN 07-317, Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, *Request for Additional Information Letter No. 98 Related to ESBWR Design Certification Application*, May 29, 2007

Enclosure:

1. MFN 07-490 – Response to Portion of NRC Request for Additional Information Letter No. 98 Related to ESBWR Design Certification Application – Environmental Qualification – RAI Number 3.11-7

cc: AE Cubbage USNRC (with enclosures)  
DH Hinds GEH (with enclosures)  
RE Brown GEH (w/o enclosures)  
GB Stramback GEH (with enclosures)  
eDRF 0000-0071-9378/1

**Enclosure 1**

**MFN 07-490**

**Response to Portion of NRC Request for  
Additional Information Letter No. 98  
Related to ESBWR Design Certification Application  
Environmental Qualification  
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**NRC RAI 3.11-7**

*In DCD Tier 2, Rev 3, Section 3.11.5, the applicant stated that the COL holders shall prepare the environmental qualification document summarizing the qualification results for all equipment identified in DCD Section 3.11.1. Provide the basis for environmental qualification of 10 CFR 50.49(b) electrical equipment being addressed by the COL holder.*

**GEH Response**

The requirement for addressing the environmental qualification program will be changed from the COL holder to the COL applicant. The first paragraph of Section 3.11.5 will be changed to read as follows.

“The COL applicant will describe the Environmental Qualification program and provide a milestone for program implementation. This program description will address the development of an Environmental Qualification Document (EQD) that will summarize the qualification results for all equipment identified in Subsection 3.11.1”

**DCD Impact**

DCD Tier 2, Section 3.11.5 will be revised as noted in the attached markup.

maximum heat loads assuming operation of all operable equipment regardless of safety-related classification.

### 3.11.4 Estimated Chemical and Radiation Environment

#### Chemical Environment

Equipment in the lower portions of the containment is potentially subject to submergence. The chemical composition and resulting pH to which safety-related equipment is exposed during normal operation and design basis accident conditions is reported in Appendix 3H.

Sampling stations are provided for periodic analysis of reactor water, refueling and fuel storage pool water, and suppression pool water to assure compliance with operational limits of the plant technical specifications.

#### Radiation Environment

Safety-related systems and components are designed to perform their safety-related function when exposed to the normal operational radiation levels and accident radiation levels.

The normal operational exposure is based on the radiation sources provided in Chapter 12.

The radiation sources associated with the Design Basis Accident (DBA) and developed in accordance with NUREG-1465 are used. Dose rates and integrated doses of neutron, gamma and beta radiation that are associated with normal plant operation and the DBA condition for various plant compartments are presented in Appendix 3H; these parameters are presented in terms of time-based profiles where applicable.

The gamma and beta doses in Appendix 3H are bounding values based on generic design considerations, and are to be revised and/or verified by the COL holder based upon the site-specific equipment considerations (exact design, specific location, materials of construction and leakage characteristics).

### 3.11.5 Combined Operating License Information

#### Environmental Qualification Document (EQD)

The COL applicant will describe the Environmental Qualification program and provide a milestone for program implementation. This program description will address the development of an Environmental Qualification Document (EQD) that will summarize the qualification results for all equipment identified in Subsection 3.11.1. ~~COL holders shall prepare the EQD summarizing the qualification results for all equipment identified in Subsection 3.11.1.~~ The EQD shall include the following:

- The test environmental parameters and the methodology used to qualify the equipment located in harsh environments shall be identified.
- A summary of environmental conditions and qualified conditions for the equipment located in a harsh environment zone shall be presented in the System Component Evaluation Work (SCEW) sheets as described in Table I-1 of GE's Environmental Qualification Program (Reference 3.11-3). The SCEW sheets shall be compiled in the EQD.