

#### **GE Hitachi Nuclear Energy**

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HITACHI

## Subject: Response to Portion of NRC Request for Additional Information Letter No. 98 Related to ESBWR Design Certification Application – Environmental Qualification – RAI Number 3.11-9 S01

Enclosure 1 contains GEH's response to the subject NRC RAI discussed in a telecon held on September 20, 2007. GEH's original response was provided in the Reference 1 letter.

If you have any questions or require additional information, please contact me.

Sincerely,

Bathy Sedney for

James C. Kinsey Vice President, ESBWR Licensing



NRO

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### Reference:

 MFN 07-483, Letter from James C. Kinsey to U.S. Nuclear Regulatory Commission, Response to Portion of NRC Request for Additional Information Letter No. 98 Related to ESBWR Design Certification Application – Environmental Qualification – RAI Numbers 3.11-6 and 3.11-8 through 3.11-11, dated September 7, 2007

## Enclosure:

- MFN 07-483, Supplement 1 Response to Portion of NRC Request for Additional Information Letter No. 98 Related to ESBWR Design Certification Application – Environmental Qualification – RAI Number 3.11-9 S01
- cc: AE Cubbage USNRC (with enclosure) GB Stramback GEH/San Jose (with enclosure) RE Brown GEH/Wilmington (with enclosure) DH Hinds GEH/Wilmington (with enclosure) eDRF 0000-0077-1068

# **Enclosure 1**

# MFN 07-483, Supplement 1

# **Response to Portion of NRC Request for**

Additional Information Letter No. 98

**Related to ESBWR Design Certification Application** 

**Environmental Qualification – RAI Number 3.11-9 S01** 

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#### NRC RAI 3.11-9

In Section 3.11.2.2, of ESBWR DCD, Tier 2, Rev 3, states that vendors of equipment located in a mild environment are required to submit a certificate of compliance certifying that the equipment has been qualified to assure its required safety-related function in its applicable environment.

The DCD also states that a surveillance and maintenance program shall be developed to ensure the operability during its design life. Provide examples of the environmental qualification methods and standards for electrical equipment (including I&C and digital I&C) located in mild environments, and the surveillance and maintenance program to be developed to ensure functionality during their design life.

#### **GEH Response**

The ESBWR design will incorporate the new guidance of Regulatory Guide (RG) 1.209, "Guidelines for Environmental Qualification of Safety-Related Computer-based Instrumentation and Control systems in Nuclear Power Plants," dated March 2007. RG 1.209 states that the guidance described in IEEE Std. 323-2003 is appropriate for satisfying the environmental qualification of safety-related computer-based I&C systems for service in mild environments at nuclear power plants. GE will revise DCD Tier 2, Section 3.11 to demonstrate ESBWR compliance with RG 1.209, as described below.

Examples of qualification methods for equipment in a mild environment includes specification and certification to temperature extremes, Electromagnetic Interference (EMI), Radio frequency Interference (RFI), Voltage surge testing, and Seismic performance analysis and/or testing. A specific equipment example is the Video Display Unit in the control room, which will be specified and certified to temperature extremes, tested for EMI, RFI and Voltage surges, and seismically tested.

A surveillance/maintenance program is based on vendor's recommendations, which may be supplemented with operating experience, and typically includes inspections, adjustments, modifications and calibration.

#### **DCD Impact**

DCD Tier 2, Section 3.11.2.2 will be revised as noted in the attached markup.

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## NRC RAI 3.11-9 S01

Per 9/20/07 telecom with Chandu Patel.

Summary:

The markup text of DCD Tier 2, Section 3.11.2.2 included with GEH response to RAI 3.11-9 states the qualification documentation will be in accordance with the applicable elements of IEEE 323, Section 7.1. The correct method of documentation should be IEEE 323, Section 7.2.

Please confirm the documentation will be in accordance with IEEE 323, Section 7.2.

#### **GEH Response**

The qualification documentation will be in accordance with IEEE 323, Section 7.2.

### DCD Impact

None.

DCD Tier 2, Section 3.11.2.2, Revision 4, currently provides the requirement for documentation in accordance with IEEE 323, Section 7.2.