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MFN 07-174  
Supplement 1

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. 75 – Environmental Qualification of Safety-Related  
Mechanical and Electrical Equipment – RAI Number 3.11-5 S01**

Enclosure 1 contains GEH's response to the subject NRC RAI transmitted via Reference 1 which is a supplemental request to the RAI transmitted via Reference 2. The original RAI response was submitted to the NRC via Reference 3.

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

DO68  
KRO

Reference:

1. E-mail dated May 7, 2007 from C. Patel (NRC).
2. MFN 07-174 – Letter from GE to U.S. Nuclear Regulatory Commission, *Response to Portion of NRC Request for Additional Information Letter No. 75 Related to ESBWR Design Certification Application – Environmental Qualification of Safety-Related Mechanical and Electrical Equipment*, March 28, 2007.
3. MFN 06-387, Letter from U.S. Nuclear Regulatory Commission to David H. Hinds, *Request for Additional Information Letter No. 75 Related to the ESBWR Design Certification Application*, October 10, 2006.

Enclosure:

1. MFN 07-174, Supplement 1- Response to Portion of NRC Request for Additional Information Letter No. 75 – RAI Number 3.11-5 S01.

cc: AE Cabbage USNRC (with enclosure)  
BE Brown GEH/Wilmington (with enclosure)  
LE Fennern GEH/Wilmington (with enclosure)  
GB Stramback GEH/San Jose (with enclosure)  
eDRF: 0000-0063-7989 R2

**Enclosure 1**

**MFN 07-174  
Supplement 1**

**Response to Portion of NRC Request for  
Additional Information Letter No. 75  
Related to ESBWR Design Certification Application  
Environmental Qualification of Mechanical and Electrical  
Equipment**

**RAI Number 3.11-5 S01**

**NRC RAI 3.11-5:**

*DCD, Tier 2, Revision 1, Section 3.11 discusses the environmental qualification of safety-related mechanical equipment. Discuss the evaluation of the degradation of the performance of ESBWR equipment under adverse environments (such as the reduction in electric motor output under high temperature conditions).*

**GE Response:**

Equipment performance degradation from the environmental aging conditions for the EQ considerations, follow the GE EQ program guidelines addressed in NEDE-24326-1-P.

Test specimens will be exposed to the required DBE Environmental Aging Profile and de-ionized water spray rates, as applicable. The test specimens will be subject to the baseline function test and then disassembled and inspected. Test reports are drafted based on the accumulative data.

**DCD Impact:**

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

*E-mail dated May 7, 2007, from C. Patel (NRC).*

**NRC RAI 3.11-5 S01:**

*RAI 3.11-5 S01 Comment on response to RAI 3.11-5 from MFN 07-174:*

*Please address potential performance degradation of mechanical equipment under environmental conditions (such as electric motor output).*

**GEH Response:**

In accordance with NEDE-24326-1-P (Class III January 1983) "General Electric Environmental Qualification Program" which is a Licensing Topical Report (LTR) based on interpretation of NUREG-0588, Cat. I requirements, Paragraph j.(2) of NEDE-24326-1-P states:

"Expected extremes in power supply voltage, range, and frequency, as defined in the product performance specification, shall be applied during simulated event environmental testing."

Testing shall be performed in accordance with Section 4 of NEDE-24326-1-P.

**DCD Impact:**

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