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MFN 07-533

Docket No. 52-010

October 15, 2007

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. 97 Related to ESBWR Design Certification Application -  
Technical Specifications - RAI Numbers 16.2-134, 16.2-136, 16.2-137,  
16.2-138, 16.2-139, and 16.2-142**

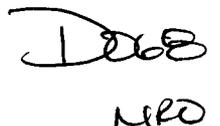
Enclosure 1 contains GE-Hitachi Nuclear Energy's (GEH's) responses to the subject  
NRC RAIs transmitted via the Reference 1 letter.

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

Sincerely,



James C. Kinsey  
Vice President, ESBWR Licensing



References:

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

Enclosures:

1. MFN 07-533 – Response to Portion of NRC Request for Additional Information Letter No. 97 Related to ESBWR Design Certification Application - Technical Specifications - RAI Numbers 16.2-134, 16.2-136, 16.2-137, 16.2-138, 16.2-139, and 16.2-142

cc: AE Cabbage USNRC (with enclosures)  
DH Hinds GEH (with enclosures)  
RE Brown GEH (w/o enclosures)  
eDRFs 72-7085, 72-7086, 72-7088, 72-7097, 72-7100, 72-7110

**Enclosure 1**

**MFN 07-533**

**Response to Portion of NRC Request for**

**Additional Information Letter No. 97**

**Related to ESBWR Design Certification Application**

**- Technical Specifications -**

**RAI Numbers 16.2-134, 16.2-136, 16.2-137, 16.2-138, 16.2-139, and  
16.2-142**

**NRC RAI 16.2-134**

*The reduced safety system capability described by the condition "Capability Not Maintained" describes multiple SSC failures, representing a loss of two or three required channels/divisions of instrumentation out of four installed channels/divisions. This Condition would permit the plant to operate for up to one hour with one or more accident prevention or mitigation functions of safety-related SSCs not operable. This is not an acceptable remedial action allowance. For this specified plant condition, the staff will only accept a required action to immediately exit the TS Applicability or immediately enter LCO 3.0.3. Revise the required action and completion time accordingly.*

**GEH Response**

GEH revised the DCD Chapter 16, and associated Chapter 16B Bases, Technical Specifications (TS) in Revision 4 to address this Request for Additional Information (RAI). The Required Actions and Completion Times for Conditions describing "capability not maintained" have been revised to remove certain restoration time allowances that the NRC staff found unacceptable.

**DCD Impact**

DCD Chapter 16 and Chapter 16B were revised in Revision 4 in response to this RAI.

**NRC RAI 16.2-136**

*The LCO for RPS Manual Actuation states that the Division 1 and 2 manual actuation channels and Mode Switch Actuation channels must be operable. Revise the ESBWR TS Section 3.3.1.3, "Reactor Protection System Manual Actuation," LCO to add the number of channels required to be operable for each manual actuation feature.*

**GEH Response**

GEH revised the DCD, Chapter 16, Technical Specification (TS) 3.3.1.3, "Reactor Protection System Manual Actuation," and associated Chapter 16B TS Bases, to specify the number of channels required to be operable for each manual function. DCD Chapter 16, TS 3.3.1.3 was revised by the addition of Table 3.3.1.3-1, "Reactor Protection System Manual Actuation." This table specifies the manual functions, the Applicable Modes or Other Specified Conditions, and the number of required channels for each manual actuation function. The Limiting Condition for Operation and the Applicability were revised to refer to Table 3.3.1.3-1. The DCD Chapter 16 TS Bases were also revised to support these changes, as appropriate.

**DCD Impact**

DCD Chapter 16 and Chapter 16B were revised in Revision 4 in response to this RAI.

**NRC RAI 16.2-137**

*In ESBWR TS Section 3.3.1.3, "Reactor Protection System Manual Actuation," the Actions Note permitting separate condition entry for each function does not match the per channel requirements in the LCO. Revise the specification to make the Note and LCO refer to the same basis for usage.*

**GEH Response**

GEH revised the DCD, Chapter 16, Technical Specifications (TS) 3.3.1.3, "Reactor Protection System Manual Actuation," Actions Note to state "Separate Condition entry is allowed for each RPS manual actuation channel." The DCD Chapter 16 TS Bases were also revised to support this change, as appropriate. Note that the TS 3.3.1.3, Limiting Condition for Operation was also revised in response to NRC Request for Additional Information (RAI) 16.2-136.

**DCD Impact**

DCD Chapter 16 and Chapter 16B were revised in Revision 4 in response to this RAI.

**NRC RAI 16.2-138**

*In ESBWR TS Section 3.3.1.3, "Reactor Protection System Manual Actuation," for the Actions Condition of "One or more channels inoperable," the reduced functional capability of the degraded condition described represents a loss one or both required channels of instrumentation for one or both manual actuation items. This condition would permit the plant to operate for up to 12 hours with a loss of all required safety system RPS manual actuation instrumentation. Additional information is needed to justify that the loss of function condition is a credible condition for which a temporary relaxation of the required design basis should be approved. Justify why operation should be permitted with more than one channel of each type of ESBWR manual actuation channels inoperable. Note that NUREG-1434 permits only one RPS manual actuation functions channel to be inoperable.*

**GEH Response**

GEH revised the DCD, Chapter 16, Technical Specifications (TS) 3.3.1.3, "Reactor Protection System Manual Actuation," in Revision 4 to eliminate the 12 hour allowance to operate with all required safety system RPS manual actuation instrumentation inoperable. The DCD Chapter 16B TS Bases associated with TS 3.3.1.3 were also revised as described in Chapter 16B, Revision 4.

**DCD Impact**

DCD Chapter 16 and Chapter 16B were revised in Revision 4 in response to this RAI.

**NRC RAI 16.2-139**

*Instrumentation LCOs state the number of divisions required to be operable, whereas, associated Actions Conditions refer to required channels inoperable. Revise LCOs to state the number of channels required to be operable for each division.*

**GEH Response**

GEH revised the DCD, Chapter 16, Technical Specifications (TS) 3.3.1.4, " Neutron Monitoring System (NMS) Instrumentation," and the associated Chapter 16B Bases in Revision 4 to clarify channels and divisions to address this NRC Request for Additional Information (RAI).

**DCD Impact**

DCD Chapter 16 and Chapter 16B were revised in Revision 4 in response to this RAI.

**NRC RAI 16.2-142**

*The proposed end state for RCS Leakage Detection Instrumentation LCO 3.3.4.1, LCO 3.3.6.3, Table 3.3.6.3-1, Function 13 (feedwater isolation instrumentation), and LCO 3.3.6.4, Table 3.3.6.4-1 Function 14 (Feedwater Isolation Valves) and Function 15 (Feedwater Pump Breakers) is Mode 3; whereas these Functions have Modes 1, 2, 3 and 4 applicabilities. Add Required Actions to place the plant in Mode 5 as the TS required end state. See RAI 16.0-7*

**GEH Response**

GEH proposes to retain the current end state for LCO 3.3.4.1, "Reactor Coolant System (RCS) Leakage Detection Instrumentation." Retaining the LCO 3.3.4.1 end state is consistent with the response to NRC Request for Additional Information (RAI) 16.0-7. With respect to LCO 3.3.4.1, the response to RAI 16.0-7 stated: "Given that Reactor Coolant System (RCS) leakage continues to be monitored to be within limits in accordance with LCO 3.4.2, RCS Operational LEAKAGE, the risk of operation in Mode 3 versus Mode 4 with inoperable RCS leakage detection system(s) is bounded by evaluations made with other more risk significant systems inoperable."

GEH revised the end states for DCD Chapter 16, Limiting Condition for Operation (LCO) 3.3.6.3, "Isolation Instrumentation," Function 13, and LCO 3.3.6.4, "Isolation Actuation," Functions 14 and 15, and the associated Chapter 16B Bases to require entry into Mode 5 in Revision 4 in response to this RAI.

**DCD Impact**

DCD Chapter 16 and Chapter 16B were revised in Revision 4 in response to this RAI.