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MFN 08-915

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**Subject: Response to Portion of NRC Request for Additional Information
Letter No. 244 - Related To ESBWR Design Certification
Application – RAI Number 14.2-98**

The purpose of this letter is to submit the GE Hitachi Nuclear Energy (GEH) response to the U.S. Nuclear Regulatory Commission (NRC) Request for Additional Information (RAI) sent by the Reference 1 NRC letter. GEH response to RAI Number 14.2-98 is addressed in Enclosure 1. DCD markup associated with this response is provided in Enclosure 2.

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

Sincerely,

Richard E. Kingston
Vice President, ESBWR Licensing

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MRD

Reference:

1. MFN 08-664, Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, *Request For Additional Information Letter No. 244 Related To ESBWR Design Certification Application*, dated August 21, 2008.

Enclosures:

1. MFN 08-915 – Response to Portion of NRC Request for Additional Information Letter No. 244 - Related To ESBWR Design Certification Application – RAI Number 14.2-98
2. MFN 08-915 – Response to Portion of NRC Request for Additional Information Letter No. 244 - Related To ESBWR Design Certification Application – RAI Number 14.2-98 – DCD Markup

cc: AE Cubbage USNRC (with enclosures)
RE Brown GEH/Wilmington (with enclosures)
DH Hinds GEH/Wilmington (with enclosures)
eDRF 0000-0093-6252

Enclosure 1

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Response to Portion of NRC Request for

Additional Information Letter No. 244

Related to ESBWR Design Certification Application

RAI Number 14.2-98

NRC RAI 14.2-98

DCD, Tier 2, Rev. 5, Section 14.2.8.1.36 states that "Performance shall be observed and recorded during a series of individual component and integrated system tests to demonstrate the following: (1) Proper operation of initiating, transfer, and trip devices; (2) Proper operation of relaying and logic; (3) Proper operation of equipment protective devices, including permissive and prohibit interlocks; (4) Proper operation of instrumentation and alarms used to monitor system and equipment status; (5) Proper operation and load carrying capability of breakers, switchgear, transformers, and cables; (6) The capability of transfer between onsite and offsite power sources as per design; (7) The ability of emergency and vital loads to start in the proper sequence and to operate properly under simulated accident conditions; and (8) The adequacy of the plant emergency lighting system."

Include the following additional items in the initial test program or provide justification for exclusion:

- (a) Verification of analytically derived voltage values from voltage analyses of the onsite distribution system against actual measurements (PSB 1) and*
- (b) Proper operation of the automatic transfer capability of normal preferred power source to the alternate preferred power source is verified.*

GEH Response

GEH concurs with Item (a). GEH considers Item (b) to be satisfied by existing requirements in DCD Tier 2, Subsection 14.2.8.1.36 as described below.

- (a) An item will be added to DCD, Tier 2, Subsection 14.2.8.1.36 to verify the analytically derived voltage values of the onsite distribution system against actual measurements.
- (b) The requested verification of the transfer capability from the normal preferred power source to the alternate preferred power source is satisfied by the existing requirement in DCD Tier 2, Subsection 14.2.8.1.36, that verifies "Proper operation of initiating, transfer, and trip devices". This verification includes proper operation of the controls, relaying and breakers required for transfer from the normal preferred power source to the alternate preferred power source.

DCD Impact

DCD Tier 2, Subsection 14.2.8.1.36 will be revised in Revision 6 as noted in the Enclosure 2 markup.

Enclosure 2

MFN 08-915

Response to Portion of NRC Request for

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Related to ESBWR Design Certification Application

RAI Number 14.2-98

DCD Markup

- Proper operation of instrumentation and alarms used to monitor system and equipment status;
- Proper operation and load carrying capability of breakers, motor controllers, switchgear, transformers, and cables;
- The capability to transfer between onsite and offsite power sources as per design;
- The ability of emergency and vital loads to start in the proper sequence and to operate properly under simulated accident conditions; ~~and~~
- The adequacy of the plant emergency lighting system; and
- Verify the analytically derived voltage values of the onsite distribution system against actual measurements.

14.2.8.1.37 Standby Diesel Generator & AC Power System Preoperational Test

Purpose

The objective of this test is to demonstrate the capability of the standby diesel generators (SDGs) to provide electrical power to plant nonsafety-related loads when the normal offsite power sources are unavailable.

Prerequisites

The construction tests have been successfully completed and the SCG has reviewed the test procedure and approved the initiation of testing. The diesel generator auxiliary systems (for example, diesel fuel oil transfer, diesel-generator starting air supply, jacket cooling water, and lube oil) are operable to support continuous diesel operation. Appropriate electrical power sources, cooling water supply, diesel generator room HVAC and equipment required to support system operation shall be available, as needed, for the specified testing configuration. Additionally, sufficient diesel fuel shall be available onsite to perform the scheduled tests.

General Test Methods and Acceptance Criteria

Performance is observed and recorded during a series of individual component and integrated system tests which demonstrate the following:

- Proper automatic startup and operation of the SDGs upon Loss Of Preferred Power (LOPP) and attainment of the required frequency and voltage within the specified time limits;
- Proper operation of the SDGs during load shedding, load sequencing, and load rejection, including a test of the loss of the largest single load and of the complete loss of load, verifying that voltage and frequency are maintained within design limits and that overspeed limits are not exceeded;
- That termination of parallel operations (test mode from either the main control room or local panel) of the SDG when a LOPP, or a LOCA signal appears is consistent with the design description of these events. See Chapter 8 subsection 8.3.1.1.7 for this description;