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MFN 08-582

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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. 193 - Related to ESBWR Design Certification Application – RAI Number 14.2-95, Supplement 1**

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. The GEH response to RAI Number 14.2-95, Supplement 1 is addressed in Enclosure 1.

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

Sincerely,

Richard E. Kingston

Richard E. Kingston
Vice President, ESBWR Licensing

D068
NRO

Reference:

1. MFN 08-469, Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, *Request for Additional Information Letter No. 193 Related to the ESBWR Design Certification Application*, dated May 9, 2008

Enclosure:

1. MFN 08-582 – Response to Portion of NRC Request for Additional Information Letter No. 193 - Related to ESBWR Design Certification Application – RAI Number 14.2-95 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 0000-0087-6825

Enclosure 1

MFN 08-582

Response to NRC Request for

Additional Information Letter No. 193

Related to ESBWR Design Certification Application

RAI Number 14.2-95, Supplement 1

NRC RAI 14.2-95, Supplement 1

First-of-a-kind tests

In the applicant's response dated April 16, 2008, the applicant agreed that the ESBWR does have first-of-a-kind (FOAK) testing associated with the new design. The applicant identified the following FOAK tests:

- *Reactor Pre-Critical Heat-up with RWCU/SDC*
- *ICS Heatup and Steady State Operations*
- *Power Maneuvering in the Feedwater Temperature Operating Domain, and*
- *Load Following*

The applicant also added a new Power Ascension Test Subsection 14.2.8.2.35, "ESBWR First of Kind Tests," and added this new information to Table 14.2-1, "Power Ascension Test Matrix." The applicant also identified augmented FOAK tests in DCD Subsections 14.2.8.2.7, Core Performance and 14.2.8.2.11, Reactor Internal Vibration (Internal Startup Flow-Induced Vibration). Since the applicant plans to add these FOAK tests to DCD Revision 5, this is Confirmatory Item 14.2-95.

The staff also found that some preoperational test abstracts on new passive design systems in the ESBWR design such as the gravity drain cooling system and the passive containment cooling system are FOAK tests. The applicant should also identify these test abstracts as FOAK tests in the ESBWR design.

GEH Response

GEH agrees with the NRC observation that Gravity Driven Cooling System (GDCS) and Passive Containment Cooling System (PCCS) are new and unique designs that are specific to the ESBWR. Both of these systems will have preoperational testing performed as described in DCD Chapter 14. However, the GEH position is that neither system will have testing that is to be performed only on the first unit built and thus will not have any FOAK test exclusions written into the DCD.

DCD Tier 2, Subsections 14.2.8.1.64 and 14.2.8.1.65 have been revised in DCD Revision 5 to describe these two systems as ESBWR unique designs and to describe the required preoperational testing. The subsection descriptions also include the statement that the systems will not have any exclusion based on a FOAK test but rather all plants will repeat the necessary preoperational testing. Please refer to the issued DCD Revision 5.

DCD Impact

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