HITACHI

GE Hitachi Nuclear Energy

James C. Kinsey
Vice President, ESBWR Licensing

PO Box 780 M/C A-55
Wilmington, NC 28402-0780
USA

T 910 675 5057
F 910 362 5057
jim.kinsey@ge.com

MFN 08-456

Docket No. 52-010

May 05, 2008

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. 169 - Related to ESBWR Design Certification Application – RAI Number 14.2-81 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. GEH response to RAI Number 14.2-81 Supplement 1 is addressed in Enclosures 1 and 2.

Verified DCD changes associated with this RAI response are identified in the enclosed DCD markups by enclosing the text within a black box. The marked-up pages may contain unverified changes in addition to the verified changes resulting from this RAI response. Other changes shown in the markups may not be fully developed and approved for inclusion in DCD Revision 5.

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

Sincerely,

James C. Kinsey

James C. Kinsey
Vice President, ESBWR Licensing

D068
NRO

Reference:

1. MFN 08-352, Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, *Request for Additional Information Letter No. 169 Related to the ESBWR Design Certification Application*, dated April 8, 2008.
2. MFN 07-411, *Response to Portion of NRC Request for Additional Information Letter No. 97 – Related to ESBWR Design Certification Application – RAI Numbers 14.2-81 through 14.2-88.* July 24, 2007.

Enclosures:

1. MFN 08-456 – Response to Portion of NRC Request for Additional Information Letter No. 169 - Related to ESBWR Design Certification Application – RAI Number 14.2-81 S01
2. MFN 08-456 – Response to Portion of NRC Request for Additional Information Letter No. 169 - Related to ESBWR Design Certification Application – DCD Markups from the Response to RAI Number 14.2-81 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 0000-0084-6569

Enclosure 1

MFN 08-456

Response to Portion of NRC Request for

Additional Information Letter No. 169

Related to ESBWR Design Certification Application

RAI Number 14.2-81 S01

NRC RAI 14.2-81 S01

Revise ESBWR DCD Section 14.2-10, 'COL Information,' COL Action Item 14.2-1-H to be consistent with requiring the COL applicant to provide the SAM.

In RAI 14.2-81, the staff requested additional information regarding the construction test objectives contained in Subsection 14.2.1.1 of DCD Tier 2. Specifically, a staff review of DCD Section 14.2.1 indicated that the objectives of construction tests do not consider the possibility of field engineering changes to SSCs and does not identify how such changes will be documented and reflected in the conduct of field tests and test acceptance criteria. Accordingly, the staff requested that the applicant update the DCD to include a description of the process that will be used to address how field engineering design changes to SSCs will be documented and reflected in the conduct of initials test to ensure that the as-built plant will be built and will be operated in accordance with the design certification and compliance with NRC regulations.

In its July 24, 2007, response to this RAI, the applicant stated 'the process of controlling and resolving problems encountered during plant testing phases is to be controlled by the quality process described in the Quality Assurance Program Document (QAPD) established by the COL applicant and maintained by the COL holder. Problems uncovered in testing will be tied to the QAPD through a link in the startup administration manual and will be added to the list of the items this manual will provide.'

Based on the response above, the applicant stated that a change will be made in DCD Tier 2, Revision 3 by adding a bullet to the content requirements of the startup administrative manual. Specifically, the statement read:

Identifies the quality process to be used to control the resolution of test failures, deficiencies and oversights discovered in the ITP. This program will address the control of any plant modifications required to resolve these deficiencies.

The statement resided under the other six requirements shown for the startup administration manual. These requirements were located in DCD Subsection 14.2.9.1 but were relocated to DCD Subsection 14.2.2.1, Revision 4, under the topic title - Startup Administration Manual.

The NRC staff determined that the COL applicant will provide this information in the Startup Administration Manual (SAM). The staff found that RAI 14.2-81 was partially resolved in that closure of this issue will be accomplished by NRC review of the SAM during the COL application review phase. In accordance with SRP 14.2 and RG 1.206, the COL applicant is required to provide the administrative controls governing the ITP. As currently written, the ESBWR DCD is not consistent with SRP 14.2 and RG 1.206 in that it requires the COL holder to provide this information. The staff requests in RAI 14.2-81, Supplement 1, that the DC applicant revise ESBWR DCD Section 14.2-10, 'COL Information,' COL Action Item 14.2-1-H to be consistent with requiring the COL applicant to provide the SAM.

GEH Response

GEH does not agree completely with the requested change. The delivery of the SAM (Startup Administration Manual) has been shown as a COL Holder item since Revision 2 of the DCD. We believe SRP 14.2 states:

"The applicant should provide in Tier 1 a general description of the preoperational and power ascension test programs and the major program documents that define how the ITP will be conducted and controlled (i.e., a site-specific startup administrative manual, test specifications, and test procedures). Tier 2, Chapter 14.2, should contain a complete description of the ITP."

We do not view this as a requirement that SAM, test specifications and test procedures are applicant items. What is required is a "general description" of these major program documents. GEH has met this commitment in the DCD Tier 1 and Tier 2.

However we do agree to add a new COL Applicant item in the form of a description of how the initial test program administration is developed. This includes a discussion and description of the process, organizational controls and requirements that are to be included in the Startup Administrative Manual.

In addition, we will change the wording for SAM from "Startup Administration Manual" back to "Startup Administrative Manual" to be consistent with the guidance provided in NRC SRP 14.2.

DCD Impact

DCD Tier 2, Subsections 14.2.2.1, 14.2.9 and 14.2.10 will be revised in Revision 5 as shown in the markup in enclosure 2.

Enclosure 2

MFN 08-456

Response to Portion of NRC Request for

Additional Information Letter No. 169

Related to ESBWR Design Certification Application

DCD Markups from the Response to RAI Number 14.2-81 S01

Verified DCD changes associated with this RAI response are identified in the enclosed DCD markups by enclosing the text within a black box. The marked-up pages may contain unverified changes in addition to the verified changes resulting from this RAI response. Other changes shown in the markups may not be fully developed and approved for inclusion in DCD Revision 5.

Interrelationships and Interfaces

Effective coordination between the various site organizations involved in the test program is achieved through the SCG, which is composed of representatives of the plant owner/operator, GEH, and others. The duties of the SCG are to review and approve project testing schedules and to effect timely changes to construction or testing in order to facilitate execution of the preoperational and initial startup test programs.

14.2.2 Startup Admin Manual/Test Procedures/Program/Results/Reports

14.2.2.1 Startup ~~Administration~~ Administrative Manual

A description of the initial test program administration is developed and made available to the NRC by the COL Applicant. This includes a discussion and description of the process and organizational controls and requirements that are included in the Startup Administrative Manual. See Subsection 14.2.10 COL Information item 14.2-1-A.

~~A~~The Startup ~~Administration~~ Administrative Manual (SAM) is developed and made available by the COL Holder to the NRC 60 days prior to the scheduled start of the ~~Preoperational~~ preoperational ~~Test~~ test program. [Note: the official designation of this manual may differ for the plant owner/operator referencing the ESBWR design, the term SAM is used throughout this discussion for illustrative purposes only.] See Subsection 14.2.10 COL Information item 14.2-2-H.

This manual:

- Describes the responsibilities of the organization that will carry out the test program, methods and plans for providing the necessary manpower, and a description of the staff responsibilities, and authorities and personnel qualifications for conducting the ITP.
- Delineates the development, review and approval of test procedures per Appendix C of RG 1.68. These site approved test procedures are to be made available approximately 60 days before their intended use.
- Delineates utilization of reactor operating and testing experience in the development of the test procedures.
- Requires the development of plant operating and emergency procedures prior to fuel loading, and their application during the test program, consistent with Section C.7 of RG 1.68.
- Defines requirements for the test program schedule consistent with Section C.5 of RG 1.68 and the test sequence, consistent with Sections 1 through 5 in Appendix A of RG 1.68.
- Defines requirements for the test methodology, prerequisites, initial conditions, acceptance criteria, and analysis techniques consistent with RG 1.68.
- Identifies the quality process to be used to control the resolution of test failures, deficiencies and oversights discovered in the ITP. This program will address the control of any plant modifications required to resolve these deficiencies.

Criteria

Throughout the planned automatic load following test interval, PAS and other features and functions of plant automation and control performs in accordance with the applicable design and operational specifications. Automatic maneuvering characteristics of plant and systems meets the appropriate response and stability requirements. Safety and protection features perform at all times to be consistent with safety analysis assumptions and predictions. Plant parameters do not reach or exceed plant technical or administrative limits, nor require operator action to be taken to avoid exceeding them.

14.2.9 Site-Specific Preoperational and Start up Tests

The preceding discussion of preoperational and startup tests was limited to those systems and components within, or directly related to, the ESBWR. Other testing, with respect to site-specific aspects of the plant, is necessary.

The COL ~~applicant~~ Applicant will define any required site specific preoperational and startup testing. See Subsection 14.2.10 for COL Information item 14.2-5-A. Testing of such systems and components should be adequate to demonstrate conformance to such requirements as defined throughout the specific chapters of the Standard Safety Analysis Report (SSAR). Below are systems that may require such testing:

- Electrical switchyard and equipment;
- Station Water System~~-~~;
- Personnel monitors and radiation survey instruments; and
- The automatic dispatcher control system (if applicable).

~~See Subsection 14.2.10 for COL Information.~~If site-specific preoperational or startup tests are identified as necessary, the appropriate procedures will be prepared by the same method and to the same standard as discussed in Subsection 14.2.2.2. Approved test procedures satisfying the commitments of this chapter are to be made available to the NRC approximately 60 days prior to their intended use for preoperational tests and not less than 60 days prior to scheduled fuel loading for power ascension tests. See Subsection 14.2.10 COL Information item 14.2-6-H.

14.2.9.1 Site-Specific Preoperational Tests

System tests as appropriate.

14.2.9.2 Site Specific Startup Tests

System tests as appropriate.

14.2.10 COL Information

14.2-1-~~H~~ A Description – Initial Test Program Administration

A description of the initial test program administration is developed and made available to the NRC by the COL Applicant (Subsection 14.2.2.1).

14.2-2-H Startup Administrative Manual

~~Per Subsection 14.2.2.1, the COL Holder will make available 60 days prior to the scheduled start of the preoperational test program, the Startup Administration Manual~~A Startup Administrative Manual (SAM) is developed and made available by the COL Holder to the NRC 60 days prior to the scheduled start of the preoperational test program (Subsection 14.2.2.1).

14.2-~~2~~3-H Test Procedures

~~Per Subsection 14.2.2.2, the COL Holder will make available jointly developed approved test procedures to the NRC approximately 60 days prior to their intended use for preoperational tests and not less than 60 days prior to scheduled fuel loading for power ascension tests~~Approved test procedures for satisfying the commitments of this chapter are made available to the NRC by the COL Holder approximately 60 days prior to their intended use for preoperational tests and not less than 60 days prior to scheduled fuel loading for power ascension tests (Subsection 14.2.2.2).

14.2-~~3~~4-H Test Program Schedule and Sequence

The detailed testing schedule is generated by GEH and the COL Holder and is made available to the NRC prior to actual implementation.~~Per Subsection 14.2.7, the COL Holder will make available to the NRC a detailed testing schedule generated by GEH and the COL Holder~~ (Subsection 14.2.7).

14.2-5-A Site Specific Tests

The COL Applicant will define any required site specific preoperational and startup testing (Subsection 14.2.9).

14.2-~~4~~6-H Site Specific Test Procedures

Approved test procedures satisfying the commitments of this chapter are to be made available to the NRC approximately 60 days prior to their intended use for preoperational tests and not less than 60 days prior to scheduled fuel loading for power ascension tests~~Per Subsection 14.2.9, the COL Holder will make available approved test procedures for site-specific system to the NRC approximately 60 days prior to their intended use for preoperational tests and not less than 60 days prior to scheduled fuel loading for power ascension tests~~ (Subsection 14.2.9).

14.2.11 References

See Subsection 14.2.3 for a list of applicable Regulatory Guides.