



**HITACHI**

**GE Hitachi Nuclear Energy**

**Richard E. Kingston**  
Vice President, ESBWR Licensing  
Regulatory Affairs

P.O. Box 780 M/C A-65  
Wilmington, NC 28402 USA

T 910.819.6192  
F 910.362.6192  
rick.kingston@ge.com

Security Notice

*This letter forwards Security-Related information in accordance with 10CFR2.390. Upon removal of Enclosure 2, the balance of this letter may be considered non-Security-Related.*

MFN 09-420

Docket 52-010

June 22, 2009

U.S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, DC 20555-0001

Subject      Submittal of Preliminary ESBWR Design Control Document, Revision 6, Chapter 9, Auxiliary Systems, including Appendices 9A and 9B

GE Hitachi Nuclear Energy (GEH) submitted a design certification application for the ESBWR to the U.S. Nuclear Regulatory Commission (NRC) in a letter dated August 24, 2005 (reference 1), which included Revision 0 of the Design Control Document (DCD). The NRC accepted this application in a letter dated December 1, 2005 (reference 2). As part of the ongoing NRC review, GEH has responded to NRC requests for additional information (RAIs) and has submitted revisions to the DCD through Revision 5, which was submitted June 1, 2008. GEH is currently preparing Revision 6 of the DCD, which will incorporate RAI responses intended to address remaining NRC open items and establish the basis for the NRC Final Safety Evaluation for the design certification. The NRC issued a review schedule in a letter dated February 18, 2009 (reference 3).

In recent interactions between GEH and the NRC regarding incorporation of RAI responses into the DCD, GEH and the NRC discussed submittal of completed preliminary DCD chapters and associated change lists in advance of Revision 6 to facilitate NRC staff actions in preparing the advanced Final Safety Evaluation Report for review by the Advisory Committee on Reactor Safeguards (ACRS).

In this regard, GEH has determined the chapter, with associated appendices, contained in Enclosures 1 through 4 is complete with the exceptions identified in Attachment 1. GEH is currently evaluating and answering the RAIs listed in Attachment 1. The response to be provided for each may, or may not, impact the chapter. Otherwise, the chapter content to date, as contained in Enclosures 1 through 4, has been verified by the ESBWR technical team.

DOEB  
NRS

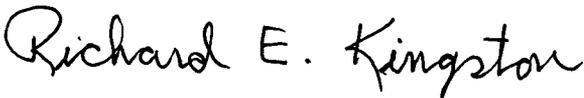
Note that Enclosure 2 contains Security-Related Information identified by the designation "{{{Security-Related Information - Withhold Under 10 CFR 2.390}}}". GEH hereby requests this information be withheld from public disclosure in accordance with the provisions of 10 CFR 2.390. A public version is contained in Enclosure 3.

Other than potential impacts as discussed above, the chapter is not expected to undergo significant changes before issuance of Revision 6; however, GEH plans to perform an integrated quality review of the entire DCD prior to final submittal. The integrated quality review may result in changes such as any needed for: (1) correction of administrative information, formatting, or conversion issues; (2) ensuring consistency; (3) ensuring internal references remain appropriate; and (4) improving quality of the document. To reflect the status of the enclosed chapter and appendices, and ensure the NRC technical reviewers will be able to differentiate between the preliminary version and the final version (Revision 6), GEH has marked the chapter and appendices as "Preliminary."

Any issues that would change the technical content in the DCD will be discussed with the NRC in advance of submitting Revision 6.

If you have any questions, please contact me.

Sincerely,

A handwritten signature in cursive script that reads "Richard E. Kingston".

Richard E. Kingston  
Vice President, ESBWR Licensing

## References:

1. MFN 05-084, General Electric Company Application for Final Design Approval and Design Certification of ESBWR Standard Plant Design, dated August 24, 2005
2. Letter from U.S. Nuclear Regulatory Commission to Steven A. Hucik, *Acceptance of the General Electric Company Application for Final Design Approval and Standard Design Certification for the Economic Simplified Boiling Water Reactor (ESBWR) Design*, dated December 1, 2005
3. MFN 09-144, Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, *Economic Simplified Water Reactor (ESBWR) Design Certification Schedule Update*, dated February 18, 2009

## Attachment:

1. Table - Preliminary ESBWR Design Control Document, Revision 6, Chapter 9 (including Appendices 9A and 9B), Unsubmitted RAI Responses Potentially Affecting Preliminary Chapter

## Enclosures:

1. CD Enclosure 1 - Preliminary ESBWR Design Control Document, Revision 6, Chapter 9, Auxiliary Systems – Public Version
2. CD Enclosure 2 - Preliminary ESBWR Design Control Document, Revision 6, Chapter 9, Auxiliary Systems, Appendix 9A – with Security Information
3. CD Enclosure 3 - Preliminary ESBWR Design Control Document, Revision 6, Chapter 9, Auxiliary Systems, Appendix 9A – Public Version
4. CD Enclosure 4 - Preliminary ESBWR Design Control Document, Revision 6, Chapter 9, Auxiliary Systems, Appendix 9B – Public Version

cc: AE Cabbage USNRC (with enclosure)  
JG Head GEH/Wilmington (w/o enclosure)  
DH Hinds GEH/Wilmington (w/o enclosure)  
eDRF Sections 0000-0102-3585 (Chapter 9)  
0000-0102-3574 (Appendix 9A)  
0000-0101-2491 (Appendix 9B)

**Attachment 1**

**MFN 09-420**

**Preliminary ESBWR Design Control Document, Revision 6**

**Chapter 9 (including Appendices 9A and 9B),**

**Table - Unsubmitted RAI Responses Potentially Affecting  
Preliminary Chapter**

Table - Unsubmitted RAI Responses Potentially Affecting Preliminary Chapter<sup>1</sup>

RAI #	Potentially Affected Chapter 9 Section(s) / LTRs <sup>2</sup>	DCD Mark-up Expected?	Subject/Comments
3.8-126	9.1.2.4	Yes	Tier 2* Spent Fuel Racks
6.4-21 S01	9.4.1	No	Control Room Habitability Issue Official Supplement not received.  Draft email: Amy.Cubbage@nrc.gov Sent: Thu May 21, 2009 15:34:48.
9.1-15 S03	9.1.2.4	Yes	Spent Fuel Pool Structural Evaluation
9.1-20 S04	9.1.3	Yes	FAPCS Train Performance Requirements
9.1-50 S03	9.1.4	No	Fuel Handling Dose Rates
9.1-78 S01	9.1.2	See Comments	Fuel Rack (NEDE-33374) A partial response was sent to the NRC (MFN 09-355 on 6/10/09). The rest of the response will be completed with LTR NEDC-33374P and has no DCD impact.
9.1-98 Revised Response	9.1.3.2	Yes	Dual Mode Operation of FAPCS GEH Commitment via Telecom to revise response to RAI 9.1-98
9.1-110 S01	9.1.4.12	Yes	Fuel Transfer  RAI 9.1-110 S01 has a Tier 1 impact - 2.5.10 and Table 2.5.10-1 in addition to DCD Tier 2 Subsection 9.1.4.12.

RAI #	Potentially Affected Chapter 9 Section(s) / LTRs <sup>2</sup>	DCD Mark-up Expected?	Subject/Comments
9.1-115 S01	9.1.4	Yes	Fuel Transfer
9.1-119	9.1.2	Yes	Spent Fuel Pool Liner DCD Mark-ups incorporated in Preliminary Chapter; RAI response not yet submitted to NRC.
9.1-120	9.1.2 and 9.1.3	Yes	Fuel Rack Thermal Hydraulic Analysis DCD Mark-ups incorporated in Preliminary Chapter; RAI response not yet submitted to NRC.
9.2-26	9.2.1	TBD	Cooling Water Systems Minimization of Contamination
9.2-27	9.2.2	TBD	Cooling Water Systems Minimization of Contamination
9.2-28	9.2.7	TBD	Cooling Water Systems Minimization of Contamination
9.4-54	9.4.2, 9.4.3, 9.4.4 and 9.4.6	TBD	HVAC Systems Minimization of Contamination
12.7-5 S01	9.1.3 and 9.3.3	TBD	FAPCS Minimization of Contamination
9.1-77 S01	LTR# NEDC-33374P	No	Impact to LTR, not DCD.
9.1-80 S01	LTR# NEDC-33374P	No	Impact to LTR, not DCD.
9.1-81 S01	LTR# NEDC-33374P	No	Impact to LTR, not DCD.
9.1-83 S01	LTR# NEDC-33374P	No	Impact to LTR, not DCD.
9.1-84 S01	LTR# NEDC-33374P	No	Impact to LTR, not DCD.

RAI #	Potentially Affected Chapter 9 Section(s) / LTRs <sup>2</sup>	DCD Mark-up Expected?	Subject/Comments
9.1-85 S01	LTR# NEDC-33374P	No	Impact to LTR, not DCD.
9.1-87 S01	LTR# NEDC-33374P	No	Impact to LTR, not DCD.
9.1-88 S01	LTR# NEDC-33374P	No	Impact to LTR, not DCD.
9.1-89 S01	LTR# NEDC-33374P	No	Impact to LTR, not DCD.
9.1-90 S01	LTR# NEDC-33374P	No	Impact to LTR, not DCD.
9.1-95 S01	LTR# NEDC-33374P	No	Impact to LTR, not DCD.
9.1-121	LTR# NEDC-33373P	No	Impact to LTR, not DCD.
9.1-122	LTR# NEDC-33373P	No	Impact to LTR, not DCD.
9.1-123	LTR# NEDC-33373P	No	Impact to LTR, not DCD.
9.1-124	LTR# NEDC-33373P	No	Impact to LTR, not DCD.
9.1-125	LTR# NEDC-33373P	No	Impact to LTR, not DCD.
9.1-126	LTR# NEDC-33373P	No	Impact to LTR, not DCD.
9.1-127	LTR# NEDC-33373P	No	Impact to LTR, not DCD.

## Notes:

1. The information in this table presents GEH's best estimation as of the date of this letter.
2. There are currently no unsubmitted RAI responses related to Appendix 9A or 9B.

**CD Enclosure 1**

**MFN 09-420**

**Preliminary ESBWR Design Control Document, Revision 6**

**Chapter 9, Auxiliary Systems – Public Version**

**CD Enclosure 2**

**MFN 09-420**

**Preliminary ESBWR Design Control Document, Revision 6**

**Chapter 9, Auxiliary Systems  
Appendix 9A – with Security Information**

**Security Related Information Notice**

Enclosure 2 contains Security-Related Information identified by the designation "{{{Security-Related Information - Withhold Under 10 CFR 2.390}}}" GEH hereby requests this information be withheld from public disclosure in accordance with the provisions of 10 CFR 2.390.

**CD Enclosure 3**

**MFN 09-420**

**Preliminary ESBWR Design Control Document, Revision 6**

**Chapter 9, Auxiliary Systems  
Appendix 9A – Public Version**

**CD Enclosure 4**

**MFN 09-420**

**Preliminary ESBWR Design Control Document, Revision 6**

**Chapter 9, Auxiliary Systems  
Appendix 9B – Public Version**