



# HITACHI

## GE Hitachi Nuclear Energy

Jerald G. Head  
Senior Vice President, Regulatory Affairs

3901 Castle Hayne Road  
PO Box 780 M/C A-18  
Wilmington, NC 28402-0780  
USA

T 910 819 5692  
F 910 362 5692  
jerald.head@ge.com

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**Subject: GEH Proposed Resolution of Items #14, 15 and 16 – ABWR Probabilistic Risk Assessment - of NRC Suggested U.S. Advanced Boiling Water Reactor Design Changes**

References:

1. Letter from R.E. Kingston, GEH to USNRC, Subject: ABWR Standard Plant Design Certification Renewal Application Design Control Document, Revision 5, Tier 1 and Tier 2, December 7, 2010.
2. Letter from USNRC to Jerald G. Head, GEH, Subject: GE-Hitachi Nuclear Energy – United States Advanced Boiling-Water Reactor Design Certification Renewal Application, July 20, 2012.
3. Letter from Jerald G. Head, GEH, to USNRC, Subject: Response to NRC Letter: GE Hitachi Nuclear Energy – United States Advanced Boiling-Water Reactor Design Certification Renewal Application (July 20, 2012), September 17, 2012.

GEH submitted a Design Certification Renewal application for the U.S. Advanced Boiling Water Reactor (ABWR) in Reference 1 pursuant to the requirements of Subpart B, "Standard Design Certifications," of Title 10 of the Code of Federal Regulations (10 CFR) Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants."

In Reference 2, the NRC suggested design changes to address issues that the agency considered to be regulatory improvements or changes that could meet the 10 CFR 52.59(b) criteria. In addition, the NRC requested that GEH implement the Fukushima Near-Term Task Force recommendations contained in SECY-12-0025, "Proposed Orders and Requests for Information in Response to Lessons Learned from Japan's March 11, 2011, Great Tohoku

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Earthquake and Tsunami," dated February 17, 2012. Collectively, these items are termed the "28-item backfit list".

In Reference 3, GEH responded to Reference 2 and committed to address the "28-item backfit list".

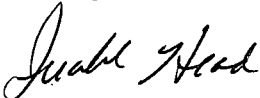
In public and private meetings the that NRC held with GEH on May 7<sup>th</sup>, 2015, GEH reviewed the closure plan for the "28-item backfit list" for those items that GEH would not receive any additional Requests for Additional Information. During that meeting, Items #14, 15 and 16 of the "28-item backfit list" were discussed. GEH has reviewed our closure plan for items #14, 15 and 16 and has taken the staff's feedback into consideration.

Please find GEH's proposed resolution to Items #14, 15 and 16 of the "28-item backfit list" transmitted in Reference 2. Enclosure 1 contains the complete response.

If you have any questions concerning this letter, please contact Hugh Upton at 408-314-8499.

I declare under penalty of perjury that the foregoing information is true and correct to the best of my knowledge, information, and belief.

Sincerely,



Jerald G. Head  
Senior Vice President, Regulatory Affairs

Commitments: No additional commitments are made in this response.

Enclosures:

1. GEH Response to Items #14, 15 and 16 – ABWR Probabilistic Risk Assessment

cc: Adrian Muniz, NRC  
David Sledzik, GEH  
Peter Yandow, GEH  
Patricia Campbell, GEH  
Shailesh R. Sheth, GEH  
Hugh A. Upton, GEH  
James A. Beard, GEH  
Erik Kirstein, GEH  
Jonathan Li, GEH  
Jordan Hagaman, GEH  
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## **Enclosure 1**

**MFN 15-086**

### **GEH Response to Items #14, 15 and 16 – ABWR Probabilistic Risk Assessment**

#### **IMPORTANT NOTICE REGARDING CONTENTS OF THIS DOCUMENT Please Read Carefully**

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**NRC- Suggested Design Changes Item # 14 – Full Power PRA**

*Update the Level 1 and 2 full-power probabilistic risk assessment (PRA) for the ABWR, including its description and results in Chapter 19 of the DCD.*

**GEH Response:**

It is GEH's position that the certified PRA remains applicable to the renewal application for Levels 1 and 2 Full-Power PRA, Level 3 PRA, and Shutdown risk. As required by then effective 10 CFR 52.47(a)(1)(v), a design-specific PRA that addresses internal initiating events was submitted, with evaluation of seismic, internal flood, and fire-initiating events. The NRC evaluated the design-specific PRA as part of the design certification and concluded that the ABWR PRA is adequate for supporting and improving the ABWR design process; providing relative importance of sequences (as well as identifying important structures, systems, and components (SSCs)) leading to core damage or containment failure; and searching for design and procedure vulnerabilities that could be eliminated on a cost-benefit basis. The Level 3 PRA estimated total risk to the public for the ABWR as extremely small, in part, because GE made certain design changes early in the design based on insights from the PRA.

To implement the commitment in DCD section 19.9.30 (COL Information Item 19.30), a COL applicant referencing the ABWR certified design will review and, if necessary, update the design PRA to ensure that it bounds the site specific design and that interface requirements of the standard design are satisfied. Further, in accordance with 10 CFR 50.71(h), a site-specific Level 1 and Level 2 PRA using NRC-endorsed consensus standards will be available no later than scheduled date for initial loading of fuel for an ABWR.

**Impact on DCD:**

No changes to the DCD will be made as a result of this response.

**NRC- Suggested Design Changes Item # 15 – Shutdown PRA**

*Complete a Level 1 and 2 shutdown PRA for the ABWR, including its description and results in Chapter 19 of the DCD.*

**GEH Response:**

As stated in the GEH response to Item # 14, it is GEH's position that the certified PRA remains applicable to the renewal application for shutdown risk. Regarding shutdown risk, the NRC concluded that the ABWR shutdown risk does not represent a disproportionate risk to the public. The NRC's assessment of the design-specific PRA is documented in the Final Safety Evaluation Report, NUREG-1503, Volume 1, Chapter 19.

**Impact on DCD:**

No changes to the DCD will be made as a result of this response.

**NRC- Suggested Design Changes Item # 16 – Risk Significant SSCs**

*Update Appendix 19K to develop a comprehensive list of risk-significant SSCs.*

**GEH Response:**

The Design Control Document (DCD), Tier 2, Appendix 19K, contains a comprehensive list of risk-significant structures, systems, and components (SSCs). GEH has established a process that requires evaluation of the design changes that are included in the renewal application. The process specifies evaluation of the changes for impact on the PRA. If a design change results in a significant impact on PRA, risk evaluation will be performed at an appropriate level. If additional risk-significant SSCs are identified, Appendix 19K will be updated to include those SSCs. DCD Chapter 19 would be revised, if appropriate, and evaluations will be available for NRC audit.

**Impact on DCD:**

No changes to the DCD will be made as a result of this response.