

November 27, 2007

Mr. Robert E. Brown  
Senior Vice President, Regulatory Affairs  
GE-Hitachi Nuclear Energy Americas, LLC  
3901 Castle Hayne Road MC A-45  
Wilmington, NC 28401

SUBJECT: ECONOMIC SIMPLIFIED BOILING WATER REACTOR (ESBWR) DESIGN  
CERTIFICATION SCHEDULE UPDATE

Dear Mr. Brown:

The staff has updated its schedule for the ESBWR design certification review. Staff issuance of the final safety evaluation report (SER) for the ESBWR is scheduled for June 30, 2009; however, there are significant risks to this schedule as noted below and in the enclosure.

By letter dated August 24, 2005, GE-Hitachi Nuclear Energy Americas, LLC (GEH) submitted an application for final design approval and standard design certification of the ESBWR standard plant design pursuant to 10 CFR Part 52. By letter dated December 1, 2005, the U.S. Nuclear Regulatory Commission (NRC) staff informed GEH that the application, as revised and supplemented, was sufficiently complete to allow the staff to proceed with its detailed technical review. In its December 1, 2005, letter, the staff established a review schedule for the ESBWR review including a milestone of October 2007 for issuance of the SER with open items (OIs).

By letter dated February 2, 2007, GEH proposed a process adjustment for the ESBWR design certification review. As a result, the October 2007 SER with OIs milestone was eliminated. Instead, the staff and GEH placed increased emphasis towards the identification and resolution of the OIs. Of the total 3,170 requests for additional information (RAIs) that have been issued to date, over 2300 RAIs have now been resolved.

While a consolidated SER with OIs will not be published, SERs with OIs and OI letters are being issued on a chapter basis to facilitate issue identification and resolution, and to support early interactions with the Advisory Committee on Reactor Safeguards (ACRS). To date, the staff has issued OI letters for Chapters 2, 5, 6, 8, 9, 10, 11, 12, 13, 15, 16, 17, and 21, and SERs with OIs for Chapters 2, 5, 8, 9, 10, 11, 12, 13, 16, and 17. ACRS Sub-committee meetings were held on October 2, 3, and 25, 2007, and November 15, 2007, and a Full Committee meeting was held on November 2, 2007. Additional Subcommittee meetings and Full Committee meetings will be scheduled to discuss remaining SER with OI chapters in early to mid-2008.

By letter dated June 1, 2007, as updated by letter dated October 31, 2007, GEH submitted a schedule for remaining major deliverables supporting the ESBWR review including design control document (DCD) Revision 5 and new and revised topical reports (TRs). The staff notes that a number of new TRs were scheduled to be submitted by GEH on or after September 28, 2007. These TRs have since been submitted. These TR submittals were not considered in establishing the staff's review schedule. The staff plans to conduct acceptance reviews for

R. Brown

-2-

these TRs, establish schedules for the TRs based on the results of the associated acceptance reviews, assess impacts on the ESBWR design certification review schedule, and update the schedule accordingly. These TRs are listed in the enclosure. The staff will notify you of any changes to the schedule for the review of the ESBWR design certification review.

If you have any questions, please contact Mohammed Shuaibi at (301) 415-3232 or Amy Cabbage at (301) 415-2875.

Sincerely,

*/RA/*

David B. Matthews, Director  
Division of New Reactor Licensing  
Office of New Reactors

Docket No. 52-010

Enclosure: As stated

cc: See next page

R. Brown

-2-

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## ESBWR DESIGN CERTIFICATION APPLICATION REVIEW SCHEDULE

The staff has updated its schedule for the Economic Simplified Boiling Water Reactor (ESBWR) design certification review including milestones up to issuance of the final safety evaluation report (FSER).

This schedule depends on GEH's ability to address open items in a timely manner. Timely receipt of high-quality information that satisfactorily addresses these issues is crucial to completing the review in accordance with the current schedule. Any delay in submission of this information will result in a delay in the established target dates.

GEH has committed to submit Revision 5 of the design control document (DCD) by March 31, 2008, incorporating all remaining changes associated with resolution of requests for additional information (RAIs). Any delay in submission of DCD Revision 5 will also result in a delay in the established target dates.

With respect to security design, the Commission published a proposed rule for comment on October 3, 2007, "Consideration of Aircraft Impacts for New Nuclear Power Reactor Designs." Anticipating that this rulemaking may be finalized prior to certification of the ESBWR, the staff has engaged GEH on this topic, and plans to address this subject in a timely manner. However, any significant issues identified during this review or resulting changes to the DCD may necessitate changes to target dates for issuance of the FSER.

### ESBWR PROJECT MILESTONES AND TARGET DATES

Milestone	Target Date
NRC Issues RAIs related to COL action items in DCD Revision 4	December 7, 2007
NRC Issues RAIs related to DCD Tier 1, Revision 4	December 20, 2007
NRC Issues RAIs related to remaining DCD Tier 2, Revision 4, issues	January 15, 2008
GEH respond to all remaining outstanding RAIs	February 29, 2008 <sup>1</sup>
GEH submit DCD Revision 5 incorporating revisions associated with all RAI responses (FSER will be based on this DCD revision)	March 31, 2008 <sup>2</sup>
NRC forwards advance FSER to ACRS for review	October 22, 2008

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<sup>1</sup> If GEH fails to respond to RAIs by this milestone, the schedule for issuance of the FSER may be revised.

<sup>2</sup> GEH commitment made in MFN-07-265 dated June 1, 2007, as updated in MFN-07-524 dated October 31, 2007. It is assumed that all open issues will be resolved in DCD Revision 5. Any significant changes to the design and/or DCD in DCD Revision 5 or beyond will result in delays to the schedule for issuance of the FSER.

ACRS Subcommittee meetings on FSER	November 2008 through January 2009 <sup>3</sup>
ACRS Full Committee meetings on FSER	December 2008 and February 2009 <sup>4</sup>
FSER complete	March 30, 2009
3-Month Management Reserve	June 30, 2009
NRC Issues FSER and Final Design Approval (FDA)	June 30, 2009 <sup>5</sup>

The schedule for newly submitted TRs, and the impact on the overall schedule for the design certification, will be established after the acceptance reviews for these TRs have been completed. These TRs are listed below.

Topical reports currently under staff acceptance review:

NEDE-33388P, Revision 0, "ESBWR I&C TRICON (SSLC/ESF) Platform Application," dated September 28, 2007

NEDO-33337, "ESBWR Initial Core Transient Analysis," dated October 4, 2007

NEDO-33304, "GEH ABWR/ESBWR Setpoint Methodology," dated October 23, 2007

NEDO-33338, "ESBWR Feedwater Temperature Operating Domain Transient and Accident Analysis," dated October 27, 2007

NEDE-33295P, "ESBWR Cyber Security Program Plan," dated October 31, 2007

NEDE-33243P, Revision 1, "ESBWR Control Rod Nuclear Design," dated November 9, 2006<sup>6</sup>

NEDC-33374P, "Safety Analysis Report for Fuel Storage Racks Criticality Analysis for ESBWR Plants," dated November 9, 2007

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<sup>3</sup> Specific meeting dates subject to ACRS availability and scheduling.

<sup>4</sup> See note 3 above.

<sup>5</sup> Schedule for staff's issuance of FSER is contingent upon GEH submitting DCD Revision 5, topical report revisions and RAI responses by the dates listed.

<sup>6</sup> Due to the nature of the changes in these revised TRs, the staff will conduct an acceptance review of this submittal.

NEDE-33244P, Revision 1, "ESBWR Marathon Control Rod Mechanical Design Report," dated November 15, 2007<sup>7</sup>

NEDE-33313P, "Steam Dyer - Structural Evaluation," dated November 15, 2007<sup>8</sup>

NEDE-33390P, "ESBWR Interim Compensatory Measures Assessment Report," dated November 16, 2007

NEDE-33389P, "ESBWR Security Enhancements Report," dated November 16, 2007

NEDE-33312P, "Steam Dryer - Acoustic Load Definition," dated November 16, 2007<sup>9</sup>

NEDC-33373P, "Dynamic, Load-Drop, and Thermal-Hydraulic Analysis for ESBWR Fuel Racks," dated November 16, 2007

NEDE-33391P, "ESBWR Safeguards Assessment Report," dated November 21, 2007

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<sup>7</sup> See note 6 above.

<sup>8</sup> The staff believes that the review of NEDE-33312P and NEDE-33313P rely on another topical report regarding the steam dryer analysis methodology that is scheduled to be submitted by GEH in January 2008 in support of both ESBWR and operating unit power uprates. As a result, the schedule for the staff's review of NEDE-33312P and NEDE-33313P may be impacted by the review of this expected submittal.

<sup>9</sup> See note 8 above.

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