December 1, 2005

Mr. Steven A. Hucik, General Manager
Nuclear Plant Projects
General Electric Company
P.O. Box 780, M/C A-30
Wilmington, NC 28401

SUBJECT: ACCEPTANCE OF THE GENERAL ELECTRIC COMPANY APPLICATION FOR FINAL DESIGN APPROVAL AND STANDARD DESIGN CERTIFICATION FOR THE ECONOMIC SIMPLIFIED BOILING WATER REACTOR (ESBWR) DESIGN

Dear Mr. Hucik:

By letter dated August 24, 2005, the General Electric Company (GE) 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 September 23, 2005, the NRC staff informed you that portions of the ESBWR design certification application were not sufficiently complete for the staff to begin its review of those areas, and that the application would not be formally accepted for docketing until you provided additional information that was required to address deficiencies that were identified in the staff's letter. GE supplemented its application by letters dated September 19 and 20, 2005, and October 6, 12, 17, 20, 22 (2 letters), 24 (5 letters), and 28, 2005, to address the deficiencies identified by the staff.

In accordance with 10 CFR 2.101(a)(4), the Nuclear Regulatory Commission (NRC) staff performed an acceptance review to determine if the ESBWR application, as revised and supplemented, is sufficiently complete to allow the staff to proceed with its detailed technical review.

The staff finds that the application, as supplemented, now contains the information identified in 10 CFR 52.47, and fulfills the completeness requirements of 2.101(a). Accordingly, GE's application is considered sufficiently complete to be accepted formally as a docketed application for design certification. The docket number established for this application is 52-010. The NRC staff is performing a detailed review of your design certification application, and is formulating requests for additional information (RAIs) regarding the information submitted to date. In response to the RAIs, you should ensure that you provide information to enable the NRC staff to reach a conclusion on all safety questions associated with the design.

The NRC staff has also reviewed the information submitted for the purpose of formulating a design certification review schedule. Based on the information available to the staff, including commitments made by GE regarding submission of supporting documentation, the staff has formulated a design certification review schedule, with milestones and associated target dates, which is included in Enclosure 1. Based on your commitments, the staff expects to issue a safety evaluation report with open items no later than October 11, 2007. The schedule for development of supplemental safety evaluation report(s) (SSER), final design approval, and design certification rulemaking will be established when the number and scope of open items to

be resolved is determined. Based on experience with previous design certifications, the staff concludes that a final design approval could be issued approximately 15 months after the SER with open items. However, this time period depends on GE providing complete and timely responses to open items. In addition, GE should assure that the open issue closure process is fully coordinated and standardized among the expected 2007 and 2008 ESBWR combined license (COL) applications so that the need to re-review open technical issues on each COL application is minimized or eliminated. Based on experience with previous design certification rulemakings, a 12 month period is assumed for the ESBWR design certification rulemaking.

Enclosure 2 is a copy of the notice relating to the application that will be forwarded to the *Federal Register* for publication.

If you have any questions or comments concerning this matter, you may contact Ms. Amy E. Cubbage, the lead ESBWR Project Manager, at (301) 415-2875 or aec@nrc.gov.

Sincerely,

/RA W. D. Beckner for:/

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

Docket No. 52-010

Enclosures: As stated

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be resolved is determined. Based on experience with previous design certifications, the staff concludes that a final design approval could be issued approximately 15 months after the SER with open items. However, this time period depends on GE providing complete and timely responses to open items. In addition, GE should assure that the open issue closure process is fully coordinated and standardized among the expected 2007 and 2008 ESBWR combined license (COL) applications so that the need to re-review open technical issues on each COL application is minimized or eliminated. Based on experience with previous design certification rulemakings, a 12 month period is assumed for the ESBWR design certification rulemaking.

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ESBWR DESIGN CERTIFICATION APPLICATION REVIEW SCHEDULE

The staff has developed a detailed schedule, shown in the following table, for the Economic Simplified Boiling Water Reactor (ESBWR) design certification review including milestones up to issuance of the safety evaluation report (SER) with open items. The SER with open items will be as complete as possible based on the information available, and will identify the issues remaining for resolution (open items) before the design certification review can be completed. The resolution of open items will be documented in one or more supplemental safety evaluation reports (SSERs). In the SSER(s), the staff will not normally revisit issues that have been closed in the SER with open items, unless a safety or compliance issue is identified, or significant changes are made to the design and/or the inspections, tests, analysis and acceptance criteria (ITAAC).

When the SER with open items is complete, the staff will develop a detailed schedule for issuance of SSER(s), final design approval (FDA) issuance (if granted), and completion of the design certification rulemaking, if the design is certified. This schedule will depend on the number and scope of open items identified in the SER with open items, and General Electric Company's (GE's) ability to address these open items in a timely manner. For the AP1000 review, resolution of open items and completion of the safety evaluation took about 15 months. If the number and scope of ESBWR open items is comparable to those for the AP1000, the staff expects to complete SSER(s) supporting an FDA in a similar timeframe. Design certification rulemaking takes about 12 months following issuance of an FDA.

In the early stages of the review, the staff has identified several significant issues that will need to be resolved. These issues include (but may not be limited to) the areas of ESBWR fuel design, probabilistic risk assessment and severe accident mitigation, fission product removal, reactor vessel internals structural integrity, and security design (as discussed below). In several topical areas, the staff is waiting for GE to submit supplemental information to support its review of these issues. The target dates for NRC milestones in the following schedule were established based on GE's commitment to submit this supplemental information in accordance with agreed upon due dates (MFN-05-140, dated November 22, 2005). 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.

GE has committed (MFN-05-193, dated November 22, 2005, as supplemented on November 30, 2005) to submit Revision 1 of the design control document (DCD) removing the "Conditional Release" status from all Tier 1 and Tier 2 documents by January 31, and February 28, 2006, respectively. Any delay in submission of this information will also result in a delay in the established target dates.

With respect to security design, the Commission has provided direction to the staff in a staff requirements memorandum (SRM) on SECY-05-120, "Security Design Expectations for New Reactor Licensing Activities," dated September 9, 2005. In the SRM, the Commission directed the staff to revise the 1994 Commission Policy Statement on the Regulation of Advanced

Nuclear Power Plants to integrate the expectations for security and preparedness with the current expectations for safety. The Commission also directed the staff to conduct a rulemaking to require applicants to submit a safety and security assessment addressing the relevant security requirements which were established for currently operating plants by order, including the requirements for protection against the supplemented design basis threat and the requirements for enhanced mitigative measures. The SRM stated further that "applicants whose reactor designs are in the design certification review process before the final rule is issued should be encouraged, but not required, to submit a design specific safety and security assessment as part of the application. If an applicant voluntarily submits this assessment, the staff should review it to assure that the design features identified and described are consistent with the relevant security requirements imposed on currently operating plants by order, and that reasonable and practicable safety and security features have been appropriately integrated into the design." The staff plans to address this subject in a timely manner and in accordance with the established schedule. However, any significant issues identified during security design review may necessitate changes to target dates for the safeguards and security portions of the review.

ESBWR PROJECT MILESTONES AND TARGET DATES

Milestone	Target Date
General Electric (GE) submit NEDO-33201, Revision 1, "ESBWR Certification Probabilistic Risk Assessment"	January 6, 2006[1]
GE submit NEDC-31276P, Revision 3, "TRACG Model Description"	January 6, 2006[1]
GE submit NEDE-33083P, Supplement 2, "TRACG ATWS"	January 13, 2006[1]
GE submit reactor internal components flow induced vibration (FIV) evaluation, Part 1	January 13, 2006[1]
GE submit Design Control Document (DCD) Tier 2, Revision 1	January 31, 2006[2]
GE submit DCD Tier 1, Revision 1, and Technical Specifications, Revision 1	February 28, 2005[2]
GE submit licensing topical reports (LTRs) in the human factors engineering area (total of 12 additional LTRs to be submitted between January 6, 2006 and March 31, 2006)	March 31, 2006[1]

[1]GE committed, in MFN-05-140, dated November 22, 2005, to submit multiple LTRs. Submittal dates for each specific LTR are listed in MFN-05-140.

[2]GE commitment documented in MFN-05-139, dated November 22, 2005, as supplemented on November 30, 2005. Significant changes to the design and/or DCD after this revision will result in delays to the schedule for issuance of the SER with open items.

GE submit LTRs in the fuel design area (total of 7 additional LTRs to be submitted between December 12, 2005 and April 24, 2006)	April 24, 2006[1]
GE submit LTR regarding fission product removal evaluation model	April 28, 2006[1]
GE submit LTRs in the Instrumentation and Control area (total of 15 additional LTRs to be submitted between December 12, 2005, and April 30, 2006)	May 12, 2006[1]
NRC Issue Requests for Additional Information (RAIs)	October 11, 2006[3]
GE respond to RAIs	November 22, 2006[4]
GE submit DCD revision incorporating RAI responses (SER with open items will be based on this DCD revision)	February 22, 2007
NRC Issue SER with open items	October 11, 2007[5]

[3]This milestone corresponds to the last set of RAIs to be sent to GE. The staff sent the first RAI letter to GE in November 2005, and will continue to send RAIs to GE, as they are formulated, up to the milestone target date.

[4]This milestone corresponds to the last RAI response submitted by GE. Based on a verbal commitment made by GE representatives, the staff has assumed a nominal response time of 4 weeks for all RAIs except RAIs associated with Chapters 15 and 19, and a 6 week response time for RAIs associated with Chapters 15 and 19. All RAI letters sent to GE will include a due date to document GE's commitment to respond to those specific RAIs. If GE's commitment for RAI responses is longer than the nominal response times assumed, or if GE fails to respond by the agreed upon due date, the schedule for issuance of the SER with open items may be revised.

[5]Schedule for staff's issuance of SER with open items is contingent upon GE submitting DCD revisions and supplemental topical reports by the due dates listed.

cc:

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