May 9, 2008

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

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 193 RELATED TO ESBWR DESIGN CERTIFICATION APPLICATION

Dear Mr. Brown:

By letter dated August 24, 2005, GE Hitachi Nuclear Energy submitted an application for final design approval and standard design certification of the economic simplified boiling water reactor (ESBWR) standard plant design pursuant to 10 CFR Part 52. The U. S. Nuclear Regulatory Commission (NRC) staff is performing a detailed review of this application to enable the staff to reach a conclusion on the safety of the proposed design.

The NRC staff has identified that additional information is needed to continue portions of the review. The staff's request for additional information (RAI) is contained in the enclosure to this letter.

If you have any questions or comments concerning this matter, you may contact me at 301-415-2375 or leslie.perkins@nrc.gov or you may contact Eric Oesterle at (301) 415-1365 or eric.oesterle@nrc.gov.

Sincerely,

/RA/

Leslie Perkins, Project Manager
ESBWR/ABWR Projects Branch 2
Division of New Reactor Licensing
Office of New Reactors

Docket No. 52-010

Enclosure:
Request for Additional Information

cc w/encl: See next page

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Dear Mr. Brown:

By letter dated August 24, 2005, GE Hitachi Nuclear Energy) submitted an application for final design approval and standard design certification of the economic simplified boiling water reactor (ESBWR) standard plant design pursuant to 10 CFR Part 52. The U. S. Nuclear Regulatory Commission (NRC) staff is performing a detailed review of this application to enable the staff to reach a conclusion on the safety of the proposed design.

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Sincerely,

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Leslie Perkins, Project Manager
ESBWR/ABWR Projects Branch 2
Division of New Reactor Licensing
Office of New Reactors

Docket No. 52-010
Enclosure:
Request for Additional Information
cc w/encl: See next page

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OFFICE	PM:NGE1	PM:NGE2	PM:NGE1
NAME	LPerkins	EOesterle	ACubbage
DATE	05/9/2008	0/9/2008	05/9/2008

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SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 193 RELATED TO ESBWR DESIGN CERTIFICATION APPLICATION DATED MAY 9, 2003

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Request for Additional Information (RAI)
ESBWR Design Control Document (DCD), Revision 4

RAI Number	Reviewer	Question Summary	Full Text
14.2-95 S01	Talbot F	First-of-a-kind tests	In the applicant's response dated April 16, 2008, the applicant agreed that the ESBWR does have first-of-a-kind (FOAK) testing associated with the new design. The applicant identified the following FOAK tests: • Reactor Pre-Critical Heat-up with RWCU/SDC • ICS Heatup and Steady State Operations • Power Maneuvering in the Feedwater Temperature Operating Domain, and • Load Following The applicant also added a new Power Ascension Test Subsection 14.2.8.2.35, "ESBWR First of Kind Tests," and added this new information to Table 14.2-1, "Power Ascension Test Matrix." The applicant also identified augmented FOAK tests in DCD Subsections 14.2.8.2.7, Core Performance and 14.2.8.2.11, Reactor Internal Vibration (Internal Startup Flow-Induced Vibration). Since the applicant plans to add these FOAK tests to DCD Revision 5, this is Confirmatory Item 14.2-95. The staff also found that some preoperational test abstracts on new passive design systems in the ESBWR design such as the gravity drain cooling system and the passive containment cooling system are FOAK tests. The applicant should also identify these test abstracts as FOAK tests in the ESBWR design.
14.3-305 S01	Oesterle E	ITAAC for testing of pneumatically operated valves	In letter MFN 08-086, Supplement 27, GEH provided their response to RAI 14.3-305 regarding testing of pneumatically operated valves as required by ITAAC #10 in Tier 1, Table 2.1.2-3 of the ESBWR DCD. In its response, GEH indicated that the testing necessary to adequately demonstrate valve function is adequately covered by ITAAC #15 and #16 for the MSIVs and by ITAAC #26 for the Safety Relief Valves (SRVs) and, as a result, ITAAC #10 would be deleted. The staff does not agree with GEH's proposed resolution to RAI 14.3-305. In it's review of the response, the staff found that it was not readily apparent that the requirements of ITAAC #15 and #16 for MSIVs and ITAAC #26 for SRVs adequately demonstrate the valve functions that were intended to be verified by ITAAC #10. The

RAI Number	Reviewer	Question Summary	Full Text
			staff requests that GEH provide additional clarification and an appropriate basis that demonstrates that the requirements of ITAAC #15 and #16 for MSIVs and ITAAC #26 for SRVs adequately demonstrate the valve functions to be verified by ITAAC #10. This RAI supplement also applies to the GEH response to RAI 14.3-284.
14.3-304 S01	Oesterle E	ITAAC for testing of repositionable valves	In letter MFN 08-086, Supplement 15, GEH provided their response to RAI 14.3-304 regarding testing of repositionable valves as specified in ITAAC #9 in Tier 1, Table 2.1.2-3 of the ESBWR DCD. In its response, GEH indicated that the valve testing could only be performed under preoperational conditions and that this is in accordance with NRC guidance in SRP 14.3.3. The staff does not agree with GEH's proposed resolution to RAI 14.3-304. In its review of the response, the staff was still in disagreement with GEH in that testing at preoperational conditions alone could not be relied upon to demonstrate valve function at design conditions. The staff reiterates that without analyses to extrapolate the test results at pre-operational conditions to design conditions the valve function at design conditions cannot be adequately verified. In addition, the staff confirms that the guidance in SRP 14.3.3 for MOVs and other valves discusses in-situ testing of valves at pre-operational conditions. However, the guidance goes on to state that "Tier 2 information should be provided that defines that these tests will be conducted under maximum achievable pre-operational conditions and describes the analyses that will be performed to show how test results demonstrate the valves will function under design basis conditions." During a public meeting with GEH on April 22, 2008, the GEH response to RAI 14.3-304 was discussed further. Potential clarifications regarding the purpose of the test specified in ITAAC #9 were discussed. These discussions focused on the proper functioning of valves (e.g., solenoid valves) and closure signals that are necessary to support the design function of the repositionable valves. In addition, the adequate verification of the design function of the repositionable valves was discussed as being addressed by other ITAAC. In light of these meeting discussions, the staff requests that GEH provide additional clarification on the purpose of ITAAC #9 and revise it, as appropriate.

DC GE - ESBWR Mailing List (Revised 04/28/2008)

cc:

Ms. Michele Boyd
Legislative Director
Energy Program
Public Citizens Critical Mass Energy
and Environmental Program
215 Pennsylvania Avenue, SE
Washington, DC 20003

Mr. Ray Ganthner
Senior Vice President
AREVA, NP, Inc. 3315
Old Forest Road
P.O. Box 10935
Lynchburg, VA 24506-0935

DC GE - ESBWR Mailing List

Email

aec@nrc.gov (Amy Cubbage)
APH@NEI.org (Adrian Heymer)
art.alford@ge.com (Art Alford)
awc@nei.org (Anne W. Cottingham)
bennettS2@bv.com (Steve A. Bennett)
bevans@enercon.com (Bob Evans)
bob.brown@ge.com (Robert E. Brown)
BrinkmCB@westinghouse.com (Charles Brinkman)
cberger@energetics.com (Carl Berger)
chris.maslak@ge.com (Chris Maslak)
CumminWE@Westinghouse.com (Edward W. Cummins)
cwaltman@roe.com (C. Waltman)
dan1.williamson@ge.com (Dan Williamson)
david.hinds@ge.com (David Hinds)
david.lewis@pillsburylaw.com (David Lewis)
David.piepmeyer@ge.com (David Piepmeyer)
dennis.chin@ge.com (Dennis Chin)
dlochbaum@UCSUSA.org (David Lochbaum)
don.lewis@ge.com (Don Lewis)
erg-xl@cox.net (Eddie R. Grant)
Eugene_Grecheck@dom.com (Eugene S. Grecheck)
frankq@hursttech.com (Frank Quinn)
Frostie.white@ge.com (Frostie White)
gcesare@enercon.com (Guy Cesare)
GEH-NRC@hse.gsi.gov.uk (Geoff Grint)
george.honma@ge.com (George Honma)
george.stramback@gene.ge.com (George Stramback)
george.wadkins@ge.com (George Wadkins)
GovePA@BV.com (Patrick Gove)
greshaja@westinghouse.com (James Gresham)
gzinke@entergy.com (George Alan Zinke)
hickste@earthlink.net (Thomas Hicks)
james.beard@gene.ge.com (James Beard)
jcurtiss@winston.com (Jim Curtiss)
jeff.waal@ge.com (Jeff Waal)
jgutierrez@morganlewis.com (Jay M. Gutierrez)
jim.kinsey@ge.com (James Kinsey)
jim.riccio@wdc.greenpeace.org (James Riccio)
jim.rogers@ge.com (Jim Rogers)
JJNesrsta@cpsenergy.com (James J. Nesrsta)
joel.Friday@ge.com (Joel Friday)
John.O'Neill@pillsburylaw.com (John O'Neill)
john.sorensen@ge.com (John Sorensen)
Joseph_Hegner@dom.com (Joseph Hegner)

DC GE - ESBWR Mailing List

junichi_uchiyama@mnes-us.com (Junichi Uchiyama)
kathy.sedney@ge.com (Kathy Sedney)
kathy.warnock@ge.com (Kathy Warnock)
kenneth.ainger@exeloncorp.com (Kenneth Ainger)
kimberly.milchuck@ge.com (Kimberly Milchuck)
KSutton@morganlewis.com (Kathryn M. Sutton)
kurt.schaefer@ge.com (Kurt Schaefer)
kwaugh@impact-net.org (Kenneth O. Waugh)
laura.bello@ge.com (Laura Bello)
lou.lanese@ge.com (Lou Lanese)
Marc.Brooks@dhs.gov (Marc Brooks)
maria.webb@pillsburylaw.com (Maria Webb)
mark.beaumont@wsms.com (Mark Beaumont)
Marvin.Smith@dom.com (Marvin L. Smith)
matias.travieso-diaz@pillsburylaw.com (Matias Travieso-Diaz)
media@nei.org (Scott Peterson)
mike_moran@fpl.com (Mike Moran)
MSF@nei.org (Marvin Fertel)
mwetterhahn@winston.com (M. Wetterhahn)
nirsnet@nirs.org (Michael Mariotte)
PAC2@nrc.gov (Peter Cochran)
pareez.golub@ge.com (Pareez Golub)
Pat.Woodfin@ge.com (Pat Woodfin)
patriciaL.campbell@ge.com (Patricia L. Campbell)
paul.gaukler@pillsburylaw.com (Paul Gaukler)
Paul@beyondnuclear.org (Paul Gunter)
peter.jordan@ge.com (Peter Jordan)
phinnen@entergy.com (Paul Hinnenkamp)
pshastings@duke-energy.com (Peter Hastings)
randy.newton@ge.com (Randy Newton)
RJB@NEI.org (Russell Bell)
RKTemple@cpsenergy.com (R.K. Temple)
roberta.swain@ge.com (Roberta Swain)
sandra.sloan@areva.com (Sandra Sloan)
SauerB@BV.com (Robert C. Sauer)
sfrantz@morganlewis.com (Stephen P. Frantz)
sharon.lyons@ge.com (Sharon Lyons)
steven.hucik@ge.com (Steven Hucik)
steven.stark@ge.com (Steven Stark)
tdurkin@energetics.com (Tim Durkin)
tom.miller@hq.doe.gov (Tom Miller)
trsmith@winston.com (Tyson Smith)
Vanessa.quinn@dhs.gov (Vanessa Quinn)
VictorB@bv.com (Bill Victor)
Wanda.K.Marshall@dom.com (Wanda K. Marshall)

DC GE - ESBWR Mailing List

waraksre@westinghouse.com (Rosemarie E. Waraks)
wayne.cutright@ge.com (Wayne Cutright)
wayne.marquino@ge.com (Wayne Marquino)
whorin@winston.com (W. Horin)