

February 10, 2009

Mr. Robert E. Brown  
Senior Vice President, Regulatory Affairs  
GE Hitachi Nuclear Energy  
3901 Castle Hayne Road MC A-50  
Wilmington, NC 28401

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 303 RELATED TO  
ESBWR DESIGN CERTIFICATION APPLICATION

Dear Mr. Brown:

By letter dated August 24, 2005, GE Hitachi Nuclear Energy (GEH) 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 301-415-3808 or [zahira.cruz@nrc.gov](mailto:zahira.cruz@nrc.gov), or you may contact Chandu Patel at 301-415-3025 or [chandu.patel@nrc.gov](mailto:chandu.patel@nrc.gov).

Sincerely,

*/RA/*

Zahira Cruz Perez, Project Manager  
ESBWR/ABWR Projects Branch 1  
Division of New Reactor Licensing  
Office of New Reactors

Docket No. 52-010

Enclosure:  
Request for Additional Information

cc: See next page

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Sincerely,

**/RA/**

Zahira Cruz Perez, Project Manager  
ESBWR/ABWR Projects Branch 1  
Division of New Reactor Licensing  
Office of New Reactors

Docket No. 52-010

Enclosure:  
Request for Additional Information  
cc: See next page  
Distribution: See next page

**ADAMS ACCESSION NO.** ML090360710

**NRO-002**

|               |             |             |             |
|---------------|-------------|-------------|-------------|
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| <b>NAME</b>   | ZCruz Perez | CPatel      | ACubbage    |
| <b>DATE</b>   | 2/6/09      | 2/6/09      | 2/ /09      |

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SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO.303 RELATED TO  
ESBWR DESIGN CERTIFICATION APPLICATION DATED FEBRUARY 10.  
2009

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NGE1/2 R/F  
ZCruz Perez, NRO  
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**Requests for Additional Information (RAIs)  
ESBWR Design Control Document (DCD), Revision 5**

| RAI Number  | Reviewer  | RAI Summary                                                                                                                                                                                                                                                       | RAI Text                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3.11-26 S01 | Hinson, C | <p>Modify the DCD to describe what steps the applicant will take to reduce doses to equipment in the event that the calculated integrated dose to the equipment exceeds the equipment integrated dose qualification criteria for normal operating conditions.</p> | <p>In RAI 3.11-26, the staff requested that the applicant describe the plant design features which will be used in the drywell areas listed in Table 3H-5 to ensure that the integrated dose equipment qualification criteria of the equipment in these areas will not be exceeded for normal operating conditions.</p> <p>As part of the response to RAI 3.11-26, the applicant described the process of performing detailed calculations (in accordance with the ITAAC listed in DCD Tier 1 Table 3.8-1) to determine the integrated doses to mechanical and electrical equipment in different areas of the plant which are subject to various environmental conditions, including radiation. For those cases where the integrated dose to a piece of equipment exceeds the integrated dose qualification criteria for that piece of equipment, the applicant stated that it will commit to evaluate and incorporate specific plant design features, such as shielding or other methods (e.g., equipment replacement program), to reduce the integrated dose to that piece of equipment to levels below the equipment qualification criteria.</p> <p>Although this process is clearly described in the response to RAI 3.11-26, it does not appear to be addressed in the DCD. In the January 27, 2009 telecom with the GEH, GEH referenced the following sentence in Tier II Section 3.11.3.1 of the DCD as describing this process, "Plant-specific analysis is used to justify any reductions in dose or dose rate resulting from component location or shielding." The staff interprets this as stating that, during the detailed dose analysis, the component/equipment location and any adjacent shielding will be factored into the analysis when determining the integrated dose to that component or piece of equipment. This is not the same as saying that the applicant will consider the use of shielding or component relocation as a means of reducing the integrated dose to the component if the calculated integrated dose to the component exceeds the component qualification criteria. Please modify Section 3.11.3.1 of the DCD to more clearly address what steps the applicant will take to reduce the dose to equipment in the event that the integrated dose to equipment (determined as a result of the detailed calculations) exceeds the equipment integrated dose qualification criteria for normal operating conditions.</p> |

|                    |        |                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------|--------|-----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RAI 3.11-37<br>S01 | A. Pal | Justification for using 145 degree F as the upper temperature limit for mild environment equipment. | In response to RAI 3.11-37, GEH stated that Table 3H-13 defines the environmental conditions for which a room/zone is considered to be a mild environment. The Table 3H-13 indicates 145 degree F as the upper temperature limit for mild environment. The temperature limits for mild environment conditions are often specified below 104-135 degree F based on detailed utility evaluations and general experiences with electronic equipment. Provide your justification of using 145 degree F as the upper temperature limit for mild environment equipment. |
|--------------------|--------|-----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

DC GE - ESBWR Mailing List

(Revised 07/11/2008)

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)  
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)  
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)  
junichi\_uchiyama@mnes-us.com (Junichi Uchiyama)  
kathy.sedney@ge.com (Kathy Sedney)

## DC GE - ESBWR Mailing List

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)  
rick.kingston@ge.com (Rick Kingston)  
RJB@NEI.org (Russell Bell)  
RKTemple@cpsenergy.com (R.K. Temple)  
Robert.Peters@ge.com (Robert Peters)  
roberta.swain@ge.com (Roberta Swain)  
Russell.Wells@Areva.com (Russell Wells)  
sandra.sloan@areva.com (Sandra Sloan)  
SauerB@BV.com (Robert C. Sauer)  
sfrantz@morganlewis.com (Stephen P. Frantz)  
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

wayne.cutright@ge.com (Wayne Cutright)  
wayne.marquino@ge.com (Wayne Marquino)  
whorin@winston.com (W. Horin)