

July 19, 2006

APPLICANT: General Electric Company

PROJECT: Economic Simplified Boiling Water Reactor (ESBWR) Design Certification

SUBJECT: SUMMARY OF MAY 26, 2006, MEETING WITH GENERAL ELECTRIC,  
REGARDING AUDIT OF ESBWR PIPING DESIGN AND ANALYSIS

On May 26, 2006, a Category 1 public meeting was held between the U.S. Nuclear Regulatory Commission (NRC) and representatives of General Electric Company (GE) at GE Nuclear Energy, 3901 Castle Hayne Road, Wilmington, North Carolina. The purpose of the meeting was to discuss the results of an audit of the ESBWR piping design and analysis conducted May 22 to 26, 2006, at the GE Nuclear Energy facilities in Wilmington, North Carolina. A list of attendees at the May 26, 2006, public meeting is provided as Enclosure 1.

An agenda for the audit which described documents to be available during the audit and information needed for a confirmatory analysis by NRC was given to GE and is provided as Enclosure 2. During the audit, GE's responses to NRC's requests for additional information (RAIs) in the piping area were discussed. NRC's RAIs in the piping area are available in the Agencywide Documents Access and Management System (ADAMS) at Accession Number ML060880224. GE's responses to these RAIs are available in ADAMS at Accession Number ML061280481. Also during the audit, GE presented information describing the modeling and computer programs used in the stress analysis of the ESBWR main steam lines. GE's presentation is available in ADAMS at Accession Number ML061560245.

Detailed discussions on each RAI response are summarized in the audit trip report provided as Enclosure 3. The response to RAI 3.12-6 was acceptable. Responses to the remaining RAIs remain open pending receipt of acceptable revised responses. Seven of these RAI responses involved issues that were considered significant and remained unresolved. These were responses to RAIs 3.12-3, 11, 17, 21, 22, 25, and 27. GE agreed to provide revised responses.

Eight followup questions were identified during the audit as described in Enclosure 3. Audit question eight involves information requested to support a confirmatory analysis by NRC. GE agreed to submit this information. Audit questions one through seven will be followed up through the RAI process. Audit questions five and six are associated with RAI responses 3.12-11 and 14.

Members of the public were not in attendance.

Please direct any inquiries to Lawrence Rossbach at 301-415-2863, or [lwr@nrc.gov](mailto:lwr@nrc.gov).

**/RA/**

Lawrence Rossbach, Project Manager  
ESBWR/ABWR Projects Branch  
Division of New Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 52-0010

Enclosures: 1. List of Attendees  
2. NRC agenda  
3. Audit trip report

cc w/encls: See next page

Members of the public were not in attendance.

Please direct any inquiries to Lawrence Rossbach at 301-415-2863, or [lwr@nrc.gov](mailto:lwr@nrc.gov).

**/RA/**

Lawrence Rossbach, Project Manager  
ESBWR/ABWR Projects Branch  
Division of New Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 52-0010

Enclosures: 1. List of Attendees  
2. NRC agenda  
3. Audit trip report

cc w/encls: See next page

ACCESSION NO. ML061980062

OFFICE	NESB/PM	EEMB/BC	NESB/(A)BC
NAME	LRossbach	KManoly	ACubbage
DATE	07/18/2006	07/18/2006	07/19/2006

**OFFICIAL RECORD COPY**

## MEETING ATTENDEES

**Subject:** ESBWR Piping design and analysis

**Date:** May 26, 2006

Name	Title	Organization
John Fair	Sr. Mechanical Engineer	NRC/NRR/EEMB
Joseph Braverman	Sr. Research Engineer	BNL (Brookhaven National Laboratory, NRC consultant)
Mano Subudhi	Engineering Scientist	BNL
Larry Rossbach	Project Manager	NRC/NRR/NESB
David Hinds (by phone)	ESBWR Engineering Mgr.	GENE (GE Nuclear Energy)
Jerry Deaver	Lead, ESBWR Engineering	GENE
Louis Quintana	Manager, Licensing	GENE
Ted Jordan	NQA Quality Systems	GENE
Henry Hwang	Principal Engineer	GENE
Kirti Doshi	Principal Engineer	GENE
Teresa Dominguez	Project Manager	EA (Empresarios Agrupados, GENE contractor)
Pedro Santiago Diez	Sr. Engineer	EA
Tomas Romero	Piping Engineer	EA

**ESBWR PIPING DESIGN AUDIT**  
**May 22 to 26, 2006**

**A G E N D A**

Topics to be Included in the audit

- Discussion of outstanding RAIs
- Review of Design Specifications and Design Reports
- Review of Design Procedures, Handbooks, GE Technical Documents identified in the DCD and RAI responses
- Review of two Main Steam Piping or other piping system analysis calculations
- Collect adequate information on one MS piping system for confirmatory analysis
- Review of ITAAC and COL items for piping systems

Documents to be available during the audit

- Industry Codes, Standards, Guidelines identified in the DCD and RAI responses
- GE procedures, design specifications and design reports, technical reports and critical references cited within these documents
- Drawings of piping systems to illustrate concerns identified in the RAIs, e.g., thermal oscillations, thermal stratification, etc.
- Verification and validation documents relating to computer codes requiring design certification
- Summary of COL items to be included in the design certification
- Summary of ITAAC items for piping design
- Documents to support GE's RAI responses, including revised DCD pages when applicable
- Piping analysis modeling details of MS piping systems including the SRV piping for BNL to perform a confirmatory analysis\*
  - GE computer input and output, calculation and summary sheets, drawings of two MS piping systems including the SRV piping
  - Piping layout and enough details for use in mathematical modeling of the system
  - Piping support information [e.g., locations, directions, type, stiffnesses, masses (if any), etc.]
  - Loads and load combinations
  - Analysis results for comparison with BNL's confirmatory analyses
  - Summary sheets
  - GE computer code manuals (e.g., PISYS)

\* Copies of documents needed for BNL to perform confirmatory analyses

Distribution for May 26, 2006, Meeting Summary dated July 19, 2006

Hard Copy

NESB R/F  
ACubbage  
LRossbach

E-Mail:

PUBLIC  
NESB Grp.  
DMatthews/WBeckner  
OPA  
AKugler  
CFairbanks  
MCullingford  
KWinsberg  
JFair  
KManoly  
JDixon-Herrity, EDO  
RJasinski  
OGC  
ACRS  
JDanna  
MGavrilas  
MLesser  
TKobetz

ESBWR

cc:

Mr. David H. Hinds, Manager  
ESBWR  
P.O. Box 780, M/C L60  
Wilmington, NC 28402-0780

Mr. George B. Stramback  
Manager, Regulatory Services  
GE Nuclear Energy  
1989 Little Orchard Street, M/C 747  
San Jose, CA 95125

Mr. David Lochbaum, Nuclear Safety  
Engineer  
Union of Concerned Scientists  
1707 H Street, NW., Suite 600  
Washington, DC 20006-3919

Mr. Paul Gunter  
Nuclear Information & Resource Service  
1424 16th Street, NW, Suite 404  
Washington, DC 20036

Mr. James Riccio  
Greenpeace  
702 H Street, Suite 300  
Washington, DC 20001

Mr. Adrian Heymer  
Nuclear Energy Institute  
Suite 400  
1776 I Street, NW  
Washington, DC 20006-3708

Mr. Paul Leventhal  
Nuclear Control Institute  
1000 Connecticut Avenue, NW  
Suite 410  
Washington, DC 20036

Mr. Ron Simard  
6170 Masters Club Drive  
Suwanne, GA 30024

Mr. Brendan Hoffman  
Research Associate on Nuclear Energy  
and Environmental Program  
215 Pennsylvania Avenue, SE  
Washington, DC 20003

Mr. Jay M. Gutierrez  
Morgan, Lewis & Bockius, LLP  
1111 Pennsylvania Avenue, NW  
Washington, DC 20004

Mr. Glenn H. Archinoff  
AECL Technologies  
481 North Frederick Avenue  
Suite 405  
Gaithersburg, MD. 20877

Mr. Gary Wright, Director  
Division of Nuclear Facility Safety  
Illinois Emergency Management Agency  
1035 Outer Park Drive  
Springfield, IL 62704

Mr. Charles Brinkman  
Westinghouse Electric Co.  
Washington Operations  
12300 Twinbrook Pkwy., Suite 330  
Rockville, MD 20852

Mr. Ronald P. Vijuk  
Manager of Passive Plant Engineering  
AP1000 Project  
Westinghouse Electric Company  
P. O. Box 355  
Pittsburgh, PA 15230-0355

Mr. Ed Wallace, General Manager  
Projects  
PBMR Pty LTD  
PO Box 9396  
Centurion 0046  
Republic of South Africa

Mr. Russell Bell  
Nuclear Energy Institute  
Suite 400  
1776 I Street, NW  
Washington, DC 20006-3708

Mr. Jerald S. Holm  
Framatome ANP, Inc.  
3315 Old Forest Road  
P.O. Box 10935  
Lynchburg, VA 24506-0935

Mr. Robert E. Sweeney  
IBEX ESI  
4641 Montgomery Avenue  
Suite 350  
Bethesda, MD 20814

Mr. Eugene S. Grecheck  
Vice President, Nuclear Support Services  
Dominion Energy, Inc.  
5000 Dominion Blvd.  
Glen Allen, VA 23060

Mr. George A. Zinke  
Manager, Project Management  
Nuclear Business Development  
Entergy Nuclear, M-ECH-683  
1340 Echelon Parkway  
Jackson, MS 39213

E-Mail:

tom.miller@hq.doe.gov or  
tom.miller@nuclear.energy.gov  
sfrantz@morganlewis.com  
ksutton@morganlewis.com  
jgutierrez@morganlewis.com  
mwetterhahn@winston.com  
whorin@winston.com  
gcesare@enercon.com  
jerald.holm@framatome-anp.com  
eddie.grant@exeloncorp.com  
joseph\_hegner@dom.com  
mark.beaumont@wsms.com  
steven.hucik@ge.com  
patriciaL.campbell@ge.com  
bob.brown@ge.com  
david.hinds@ge.com  
chris.maslak@ge.com  
james1beard@ge.com  
louis.quintana@gene.ge.com  
wayne.massie@ge.com  
kathy.sedney@ge.com  
mgiles@entergy.com  
george.stramback@gene.ge.com