January 11, 2006

ORGANIZATION: General Electric Nuclear Energy (GE)

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

SUBJECT: SUMMARY OF MEETING HELD ON OCTOBER 25, 2005, REGARDING THE ESBWR DESIGN CERTIFICATION APPLICATION

The Nuclear Regulatory Commission (NRC) hosted a public meeting with General Electric Nuclear Energy (GE) on October 25, 2005, at NRC Headquarters to discuss GE's ESBWR design certification application. A list of attendees is provided as Enclosure 1. Enclosure 2 contains the agenda for the meeting.

GE provided handouts during the meeting which can be accessed through the Agencywide Documents Access and Management System (ADAMS). This system provides text and image files of NRC's publicly available documents. The handouts mentioned above may be accessed through the ADAMS system under Accession No. ML053190084. If you do not have access to ADAMS or if there are problems in accessing the handouts located in ADAMS, contact the NRC Public Document Room (PDR) Reference staff at 1-800-397-4209, 301-415-4737, or by e-mail to pdr@nrc.gov. A summary of the meeting is included below.

By letter dated August 24, 2005, GE submitted an application for final design approval and standard design certification of the ESBWR standard plant design. The purpose of the meeting was to discuss GE's proposed fuel design for the ESBWR and GE's plans to submit additional supporting information for staff review. This meeting was closed because the detailed fuel design and supporting information are proprietary information. A non-proprietary summary of the meeting is provided in Enclosure 3.

/RA/

Amy E. Cubbage, ESBWR Project Manager
New Reactor Licensing Branch
Division of New Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 52-0010

Enclosures: As stated

cc w/encls: See next page

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ATTENDEES FOR MEETING WITH GENERAL ELECTRIC
ESBWR DESIGN CERTIFICATION
OCTOBER 25, 2005

Name	Organization
Amy Cubbage	NRR/RNRP
Tony Attard	NRR/DSSA/SRXB
Paul Clifford	NRR/DSSA/SRXB
Mark Paul	Dominion/ESP (COL)
Larry Rossbach	NRR/RNRP
Louis Quintana	GE Energy
Francis Akstulewicz	NRR/DSSA/SRXB
George Thomas	NRR/DSSA/SRXB
Walton Jensen	NRR/DSSA/SRXB
Robert Taylor	NRR/DSSA/SRXB
Ralph Landry	NRR/DSSA/SRXB
Muhammad M. Razzaque	NRR/DSSA/SRXB
Veronica Klein	NRR/DSSA/SRXB
Benjamin T. Parks	NRR/DSSA/SRXB
Margaret Harding	GNF
Steve Frantz	Morgan Lewis
Fran Bolger	GE
Jens Andersen	GNF
Russell Stachowski	GNF
Russ Fawcett	GNF
Mark Colby	GE
James Han	NRC/RES
Wayne Marquiro (by phone)	GE
Mike Kiernan (by phone)	GNF
Bob Rand (by phone)	GNF

Enclosure 1

Name	Organization
Russ Higgins (by phone)	GNF
Steve Shelton (by phone)	GNF
Dave Keck (by phone)	GE

AGENDA FOR PUBLIC MEETINGS WITH GENERAL ELECTRIC
ESBWR DESIGN CERTIFICATION
October 25, 2005

Topic	Time	Presenter
Opening remarks	12:30 p.m. - 12:40 p.m.	A. Cubbage (NRC)
Introduction and DCD discussion	12:40 p.m. - 1:00 p.m.	R. Fawcett (GNF)
Overall program layout		R. Fawcett (GNF)
DCD schedule layout		R. Fawcett (GNF)
Thermal-hydraulic reports and GEXL14 application		R. Fawcett (GNF)
Nuclear report		R. Stachowski (GNF)
Break		
Mechanical reports and overview		R. Higgins (GNF)
Fuel rod thermal-mechanical report and overview		R. Rand (GNF)
Conclusions		R. Fawcett (GNF)

SUMMARY OF PUBLIC MEETING WITH GENERAL ELECTRIC (GE)
REGARDING ECONOMIC SIMPLIFIED BOILING WATER REACTOR (ESBWR)
DESIGN CERTIFICATION
OCTOBER 25, 2005

General Electric (GE) selected the GE14 fuel bundle as the ESBWR reference fuel design. GE used this reference fuel in the ESBWR safety analysis that was performed to support the ESBWR design control document (DCD) which was submitted on August 24, 2005. During the ESBWR DCD acceptance review, the staff raised issues with the level of detail that was provided regarding ESBWR fuel design. GE stated that they would provide additional material to support their conclusion that the ESBWR fuel is "certified" and resides within the licensing basis of GE14 fuel. GE will also provide additional information to demonstrate how GE14 fuel bundle data can be applied to GE14E to justify the applicability of the GEXL correlation to the ESBWR fuel design. GE does not currently plan to peform tests on the GE14E fuel bundle design.

During the meeting, GE outlined the differences between the GE14 and GE14E fuel bundles. The ESBWR fuel bundle (GE14E) is 2 feet shorter than the standard GE14 fuel bundle (10 ft. vs. 12 ft.). In addition to having a shorter active fuel length, the length of the part-length rods was reduced. Both of these changes reduce the core pressure drop and increase core flow which were accounted for in the ESBWR analyses. The fuel rod spacers locations were also adjusted. The ESBWR control blades are the same as current marathon control blades with respect to mechanical design and materials, and they are shorter in length.

GE committed to submit a total of nine topical reports to supplement the information provided in the ESBWR DCD. The topical reports will be submitted between December 2005 and April 2006. Three of the topical reports would provide information regarding the standard GE14 fuel design and would be provided as reference material. Four of the topical reports will be specific to the ESBWR GE14E fuel design. The GE14E reports will cover the following topics: nuclear design; fuel assembly mechanical design; and fuel rod thermal-mechanical design. GE will submit two topical reports regarding the ESBWR marathon control rods to address the nuclear design and mechanical design of the control blades. These ESBWR-specific fuel and control rod topical reports will be submitted for staff review as part of the ESBWR design certification review.

The staff raised a question about the potential for xenon oscillation in the ESBWR core. GE stated that xenon oscillations are a pressurized water reactor (PWR) phenomenon that have not been observed in BWRs. GE will perform calculations to show that oscillations are dampened.

The staff raised a question related to the potential for fuel melt during a control rod withdrawal error event. GE stated their position that the current licensing basis allows limited melt during control rod withdrawal event, however, the number of fuel rods affected is limited and the plastic strain limit is still imposed. The staff stated that they were not aware of this being allowed for operating reactors. This was left as an issue for future discussion.

Enclosure 3

The staff also questioned GE's analysis of the control rod drop event. GE stated that there is no velocity limiter in the ESBWR design, rather a load cell is provided in the fine motion control rod drive (FMCRD) design which would provide detection of a de-coupled control blade and provide
a rod block signal. This is the same design as the advanced boiling water reactor (ABWR) design. The staff asked about the design specification of the FMCRD load cell (redundancy and safety classification). GE stated that the specifications for the load cell in use at foreign ABWR units is available.

The staff proposed another meeting in January, perhaps in Wilmington, N.C., to discuss the GE14 data in more detail and its applicability to 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

Dr. Jack W. Roe
Nuclear Energy Institute
1776 I Street, NW
Washington, DC 20006-3708

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. Tom Clements
6703 Gude Avenue
Takoma Park, MD 20912

Ms. Patricia Campbell
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

Ms. Kathryn Sutton, Esq.
Morgan, Lewis & Bockius, LLP
1111 Pennsylvania Avenue, NW
Washington, DC 20004

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
mwetterhahn@winston.com
whorin@winston.com
gcesare@enercon.com
jerald.holm@framatome-anp.com
eddie.grant@exeloncorp.com
joseph_hegner@dom.com
steven.hucik@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
george.stramback@gene.ge.com