

January 9, 2007

APPLICANT: Westinghouse

SUBJECT: SUMMARY OF THE NOVEMBER 7, 8 AND 9, 2006, OPEN AND CLOSED MEETING WITH WESTINGHOUSE TO DISCUSS AP1000 HUMAN FACTORS ENGINEERING

On November 7, 8 and 9, 2006, an open and closed meeting was held between the U.S. Nuclear Regulatory Commission (NRC) and representatives of Westinghouse, at the Westinghouse Office in Monroeville, PA. The purpose of the meeting was to discuss human factors engineering (HFE) issues related to the AP1000 design. A list of meeting attendees is included as Enclosure 1, and the topics discussed is included as Enclosure 2. Enclosure 3 contains Westinghouse's meeting handout, which can be accessed through the Agencywide Documents Access and Management System (ADAMS). This system provides text and image files of NRC's public documents. The handout mentioned above may be accessed through the ADAMS system under Accession No. ML063210351. 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.

Westinghouse started the meeting by discussing their pre-application activities as they relate to the AP1000 design certification and how the technical reports are submitted to close combined license (COL) information items or document completion of design acceptance criteria (DAC). The technical reports are submitted as part of the NRC design centered review approach. Westinghouse plans to submit a revised document control document in May 2007. Westinghouse stated that they will be providing an overview of the status of the HFE program since the design certification and will be providing a description of the work which will be completed and submitted to the NRC to support combined license (COL) applications.

During the closed portion of the meeting, Westinghouse presented a detailed discussion of the design and implementation of the 12 Elements which make up the AP1000 HFE Program Plan as discussed on the handouts in Enclosure 3. Westinghouse discussed the various plans and associated documents which make up the HFE Program. The NRC staff audited some of these documents, which are listed in Enclosure 4, to get an understanding of what they contain. Westinghouse and NRC staff also discussed the minimum inventory of controls, displays and alerts for the main control room. Lastly, Westinghouse discussed the contents of future proposed technical reports planned for submission to the NRC staff.

In addition to the presentations, Westinghouse gave the NRC staff a tour of an early AP1000 main control room mock up. Also, the NRC staff viewed cabinets and control room panels for the Swedish reactor, Ringhals 2.

Please direct any inquires concerning this meeting to Steven Bloom at 301-415-1313, or sdb1@nrc.gov.

/RA/

Steven D. Bloom, Senior Project Manager
AP1000 Projects Branch 1
Division of New Reactor Licensing
Office of New Reactors

Project No. 740

Enclosures: 1. List of Attendees
 2. Topics
 3. AP1000 HFE Program Presentation (ML063210351)
 4. List of documents audited

cc: See next page

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DISTRIBUTION:

NSalgado	JBongarra	JCai	M. Boggi	J. Smith
SBloom	RidsDnrlNroNwe1(SCoffin)		LPlisco	M. Miernicki
J. Cai	G. Eagle			

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OFFICE	DNRL\NWE1:PM	DIRS\IOLB:BC	DNRL\NWE1:BC
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DATE	01/03/2007	01/03/2007	01/09/2007

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**Meeting with Westinghouse Related
Technical Reports Related to Human Factors Engineering**

**Tuesday, Wednesday, and Thursday, November 7, 8 and 9, 2006
1:00 p.m. to 5:00 p.m., 8:30 a.m. to 5:00p.m., and 8:30 a.m. to 12:30 p.m.
Westinghouse Offices, Monroeville, PA**

Name	Organization	Phone Number
Steven Bloom	NRO\DNRL\NWE1	(301) 415-1313, sdb1@nrc.gov
Mike Boggi	NRC	(301) 415-5309
Jim Bongarra	NRC	(301) 415-1046
June Cai	NRC	(301) 415-5192
Gene Eagle	NRC	(301) 415-3706
John Smith	NRC	(301) 415-1320
Jim Higgins	Brookhaven National Lab	(631) 344-2432
John O'Hara	Brookhaven National Lab	(631) 344-3638
Matt Gibson	Progress Energy	(919) 546-3425
Tom Ryan	TVA	(423) 751-2596
Mahendra Shah	Exelon	(815) 406-2816
Andy Underwood	SCE&G	(803) 931-5204
Tom Jablonski	Enercon	(770) 792-6956
John Loyd	Enercon	(770) 590-2019
Jay Maisler	Enercon	(813) 962-1800
Fred Redwanz	Enercon	(973) 601-0512
Richard Grumbir	NuStart	(574) 315-8695
Thomas Chaney	Westinghouse	(412) 374-6911
Albert Crew	Westinghouse	(412) 374-6851
Andrew Drake	Westinghouse	(412) 374-6522
Robert Fuld	Westinghouse	(860) 673-1331
Michael Gasparovic	Westinghouse	(412) 374-2633

Name	Organization	Phone Number
Daryl Harmon	Westinghouse	(860) 731-6174
Tom Hayes	Westinghouse	(412) 374-4420
Paul Hippely	Westinghouse	(412) 374-3710
Paul Hunton	Westinghouse	(412) 374-3242
Donald Hutchings	Westinghouse	(412) 374-5109
Steve Kerch	Westinghouse	(412) 374-6041
William Kolb	Westinghouse	(412) 374-4095
Mark Loeffler	Westinghouse	(412) 374-4363
Julie Reed	Westinghouse	(208) 535-3815
Michael Shaffer	Westinghouse	(412) 374-6865
Andrea Sterdis	Westinghouse	(412) 374-6306
David Vaglia	Westinghouse	(412) 374-6513
Mark Williams	Westinghouse	(412) 374-5715

Agenda for Meeting with Westinghouse Regarding Human Factors Engineering
November 7-9, 2006, Westinghouse Office, Monroeville, PA

Tuesday, November 7, 2006

1:00 p.m.-1:10 p.m.	Introduction and Agenda
1:10 p.m.-1:45 p.m.	Licensing Status and Process
Closed Session Begins	
1:45 p.m.-2:45 p.m.	HFE Program Overview
2:45 p.m.-5:00 p.m.	Adjourn to 286 Facility for Ringhals Simulator Tour

Wednesday, November 8, 2006

8:30 a.m.-12:00p.m.	Detailed HFE Element Discussion Element 1: HFE Program Element 2: Operating Experience Review Element 3: Functional Requirements Analysis and Allocation Element 4: Task Analysis Element 5: Staffing Element 6: Integration of HFE with Human Reliability Analysis
12:00 p.m.-12:30 p.m.	Working Lunch
12:30 p.m.-5:00 p.m.	Element 7: HSI Design AP1000 Simulator Demonstration
5:00 p.m.	Adjourn for the day

Thursday, November 9, 2006

8:30 a.m.-11:30 a.m.	Detailed HFE Element Discussion (continued) Element 8: Procedure Development Element 9: Training Element 10: HFE V&V Element 11: Design Implementation Element 12: Human Performance Monitoring Minimum Inventory
11:30 a.m.-12:15 p.m.	Plan Going Forward - Westinghouse - NRC
12:15 p.m.-12:30 p.m.	Public Meeting for Conclusions
12:30 p.m.	Adjourn

Enclosure 3:

Westinghouse Hand-out -
“HFE Program Presentation”

ML063210351

Documents Audited During Meeting with Westinghouse On Human Factors Engineering

November 7-9, 2006

1. AP1000 Human Factors Engineering Program and Human System Interface Design (Technical Report 72)
2. AP1000 HFE Program Plan
3. Operating Experience Review for the AP1000 Nuclear Power Plant (WCAP-14645)
4. Operating Experience Review for the AP600 Nuclear Power Plant (WCAP-14645)
5. AP600 Functional Requirements Analysis and Function Allocation (WCAP-14644)
6. Description of the Operator Decision Making Model and Function-Based Task Analysis Methodology (WCAP-14695)
7. Function-Based Task Analysis Data
8. Function-Based Task Analysis Summary
9. Function-Based Task Analysis Methodology and Implementation
10. Operational Sequence Analysis Methodology, OSA-1
11. AP1000 Main Control Room Staffing Roles and Responsibilities (Technical Report 52)
12. Designer's Input to Determination of the AP600 Main Control Room Staffing Level (WCAP-14694)
13. Integration of Human Reliability Analysis with Human Factors Engineering Design Implementation Plan (WCAP-14651)
14. AP1000 Identification of Critical Human Actions and Risk Important Tasks (WCAP-16555)
15. Execution and Documentation of the Human Reliability Analysis/Human Factors Engineering Integration (Technical Report 59)
16. Concept of Operation
17. AP1000 Alarm System Functional Requirements
18. AP1000 Human System Interface Design Guidelines
19. Wall Panel Information System Functional Requirements
20. AP1000 Display Functional Requirements
21. Computerized Procedures System Functional Requirements
22. AP1000 OCS System Specification Documents
23. AP1000 Engineering Tests Phase 1 Test Report
24. Man-in-the-Loop Test Plan Description (WCAP-14396)
25. Effects of Control Lad and Interaction Mode on Operator's Use of Soft Controls
26. Designer's Input to Procedure Development for AP600 (WCAP-14690)
27. Plant Operations, Surveillance, and Maintenance Procedures (Technical Report 70)
28. Designer's Input to the Training of HFE Verification and Validation Personnel (WCAP-14655)
29. Programmatic Level Description of the AP1000 Verification and Validation Plan (WCAP-15860)

AP 1000 Mailing List

cc:

Mr. W. Edward Cummins
AP600 and AP1000 Projects
Westinghouse Electric Company
P.O. Box 355
Pittsburgh, PA 15230-0355

Mr. Barton Z. Cowan, Esq.
Eckert Seamans Cherin & Mellott, LLC
600 Grant Street 44th Floor
Pittsburgh, PA 15219

Mr. Charles Brinkman, Director
Washington Operations
Westinghouse Electric Company
12300 Twinbrook Parkway, Suite 330
Rockville, MD 20852

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

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, NW, Suite 300
Washington, DC 20001

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

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

Mr. Gary Wright, Manager
Office of Nuclear Facility Safety
Illinois Department of Nuclear Safety
1035 Outer Park Drive
Springfield, IL 62704

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

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

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

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

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

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

Ms. Sandra Sloan
Areva NP, Inc.
3315 Old Forest Road
P.O. Box 10935
Lynchburg, VA 24506-0935

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

Ms. Marilyn Kray
Vice President, Special Projects
Exelon Generation
200 Exelon Way, KSA3-E
Kennett Square, PA 19348

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

Dr. Regis Matzie
Senior Vice President and
Chief Technology Officer
Westinghouse Electric Company
200 Day Hill Road
Windsor, CT 06095-0500

E-Mail:

tom.miller@hq.doe.gov
tom.miller@nuclear.energy.gov
mwetterhahn@winston.com
whorin@winston.com
gcesare@enercon.com
sandra.sloan@areva.com
louis.quintana@ge.com
steven.hucik@ge.com
david.hinds@ge.com
chris.maslak@ge.com
crpierce@southernco.com
tomccall@southernco.com
garry.miller@pgnmail.com
gzinke@entergy.com
rclary@scana.com
pshastings@duke-energy.com
James1.B Beard@ge.com
patriciaL.campbell@ge.com
bob.brown@ge.com
erg-xl@cox.net
mark.beaumont@wsms.com
sfrantz@morganlewis.com
ksutton@morganlewis.com
jgutierrez@morganlewis.com
mgiles@entergy.com
sterdia@westinghouse.com
cristina.lonescu@pgnmail.com
gwcurtis2@tva.gov
robert.kitchen@pgnmail.com
sterdiA@westinghouse.com
mike_moran@fpl.com
amonroe@scana.com
george.stramback@gene.ge.com
david.lewis@pillsburylaw.com
paul.gaukler@pillsburylaw.com
john.o'neill@pillsburylaw.com
matias.travieso-diaz@pillsburylaw.com
maria.webb@pillsburylaw.com
roberta.swain@ge.com
cwaltman@roe.com
lindf1da@westinghouse.com