

From: David Fischer
To: John Sieber; John Stetkar; Mario Bonaca; Michael Corradini; Otto Maynard; Said Abdel-Khalik; Sam Armijo; William Shack
Date: 12/13/2007 3:13:22 PM
Subject: WORKING DRAFT AP1000 SUBCOMMITTEE MEETING MINUTES

Mario et. al.

A working copy of the minutes of the October 31, 2007, AP1000 Subcommittee meeting on the AP100 design and the AP1000 COL applications is attached for your review. Please review and comment on them at your earliest convenience. If you are satisfied with these minutes please sign, date, and return the attached certification memo.

Best Regards,
Dave

CC: Cayetano Santos; Sam Duraiswamy

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, DC 20555 - 0001

December 13, 2007

MEMORANDUM TO: Mario V. Bonaca, Chairman
AP1000 Subcommittee

FROM: David C. Fischer, Senior Staff Engineer
Technical Support Staff
ACRS

A handwritten signature in black ink, appearing to read "David C. Fischer".

SUBJECT: WORKING COPY OF THE MINUTES OF THE ACRS AP1000
SUBCOMMITTEE MEETING ON THE AP1000 DESIGN AND AP1000
COMBINED LICENSE APPLICATIONS, OCTOBER 31, 2007,
ROCKVILLE, MARYLAND

A working copy of the minutes of the subject meeting is attached for your review.

Please review and comment on them at your earliest convenience. If you are satisfied with these minutes please sign, date and return the attached certification letter.

Attachment: Certification Letter
Minutes (Working Copy)

cc w/o Attachment:

C. Santos
S. Duraiswamy



UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, DC 20555 - 0001

December , 2007

MEMORANDUM TO: David C. Fischer, Senior Staff Engineer
Technical Support Staff, ACRS

FROM: Mario V. Bonaca, Chairman
AP1000 Subcommittee

SUBJECT: CERTIFICATION OF THE MINUTES OF THE ACRS AP1000
SUBCOMMITTEE MEETING ON THE AP1000 DESIGN AND AP1000
COMBINED LICENSE APPLICATIONS, OCTOBER 31, 2007,
ROCKVILLE, MARYLAND

I hereby certify, to the best of my knowledge and belief, that the minutes of the subject meeting on October 31, 2007, are an accurate record of the proceedings for that meeting.

Mario V. Bonaca, Chairman
AP1000 Subcommittee

Date

Issued: 12/13/07

**ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
AP1000 SUBCOMMITTEE MEETING MINUTES
October 31, 2007
ROCKVILLE, MARYLAND**

INTRODUCTION

The ACRS Subcommittee on AP1000 met on October 31, 2007, at 11545 Rockville Pike, Rockville, Maryland, in Room T-2B3. The purpose of this meeting was to discuss the AP1000 design, proposed revisions to 10 CFR Part 52 Appendix D, issues to be resolved collectively for Combined License (COL) applicants referencing the AP1000 certified design by the AP1000 Design-Centered Working Group (DCWG), and issues that will be resolved on a plant-specific basis by COL applicants. The Subcommittee planned to gather information, analyze relevant issues and facts to formulate proposed positions, as appropriate, for deliberation by the full Committee. The entire meeting was open to public attendance. Mr. David C. Fischer was the cognizant staff engineer and the Designated Federal Official for this meeting. The Subcommittee received no written comments, or requests for time to make oral statements from any members of the public regarding this meeting. The meeting was convened at 8:00 am and adjourned at 1:28 pm.

ATTENDEES

ACRS

M. Bonaca, Chairman
S. Abdel-Khalik, Member
J. Sam Armijo, Member
M. Corradini, Member
D. Fischer, ACRS Staff

O. Maynard, Member
W. Shack, Member
J. Sieber, Member
J. Stetkar, Member

ACNW&M

J. Clarke, Member

M. Ryan, Chairman

NRC

Y. Chung, NRO/DLR
E. Coffman, NRO/DNRL
D. Dube, NRO/DSRA
B. Gleaves, NRO/DNRL
D. Jaffee, NRO/DNRL
M. Lee, ACNW&M
E. McKenna, NRO/DNRL
M. Melnicoff, NRO/DSRA

M. Mernicki, NRO/DNRL
L. Mrowca, NRO/DSRA
L. Patterson, NRO/DSRA
S. Sanders, NRO/DNRL
J. Sebrosky, NRO/DNRL
T. Simms, NRO/DNRL
W. Wang, NRO/DSER
J. Wilson, NRO/DNRL

ATTENDEES (CONT'D)

OTHERS

E. Cummins, Westinghouse	R. Beatin, ISL
A. Sterdis, Westinghouse	R. Bell, NEI
T. Schulz, Westinghouse	J. Bowie, GE/Hitachi
J. Winters, Westinghouse	R. Grumbir, NuStart
C. Brinkman, Westinghouse	L. Kass, NEI
P. Hastings, NuStart	A. Levin, AREVA
E. Grant, NuStart	J. Mihalcik, UniStar Nuclear Energy
N. Haggerty, NuStart	D. Raleigh, US Scientech
P. Ray, TVA	

A complete list of attendees is in the ACRS Office file and will be made available upon request. The presentation slides and handouts used during the meeting are attached.

OPENING REMARKS BY THE SUBCOMMITTEE CHAIRMAN

Dr. Mario Bonaca, Chairman of the AP1000 Subcommittee, stated that the purpose of this meeting was to discuss the AP1000 design, proposed revisions to 10 CFR Part 52 Appendix D, issues to be resolved collectively for Combined License (COL) applicants referencing the AP1000 certified design by the AP1000 Design-Centered Working Group (DCWG), and issues that will be resolved on a plant-specific basis by COL applicants.

DESIGN CERTIFICATION OVERVIEW

Mr. W. Ed Cummins, Westinghouse's Vice President for Regulatory Affairs and Standardization, offered some introductory comments for Westinghouse.

Ms. Andrea Sterdis, Westinghouse's Manager for AP1000 Licensing and Customer Interface, provided the subcommittee with an overview of the AP1000 design certification amendment (i.e., Revision 16 to the AP1000 Design Certification Document (DCD)). Information in approximately 141 Westinghouse technical reports, currently under NRC staff review, will form the technical basis for the changes proposed in Revision 16 to the AP1000 DCD. Ms. Sterdis said that 63 of the technical reports address COL information items. Forty seven of the technical reports justify design changes that impact DCD content (in even the slightest way). Two technical reports address standardization for COL application content. Technical Report 135 provides severe accident management design alternative (SAMDA) confirmation for the design certification amendment. Revision 16 to the AP1000 DCD will include changes to both Tier 1 and Tier 2 documentation. While Westinghouse's application to amend the AP1000 design certification rule was submitted on May 29, 2007, the staff have not yet accepted that application for review. Ms. Sterdis said that Westinghouse anticipates that the NRC staff's acceptance review will begin on November 5, 2007. Some of the more significant DCD changes mentioned include: extension of the seismic spectra to soil conditions, revision of buildings for enhanced protection, update of the fuel design approach, update of the protection system instrumentation and control, update of the electrical system, completion of the human factors engineering activities, and a change in turbine manufacturer (Mitsubishi Heavy

Industries to Toshiba). (See Westinghouse slides 6 through 18 attached)

TECHNOLOGY OVERVIEW

Mr. Jim Winters provided the subcommittee with an overview of the AP1000 technology (Westinghouse slides 19 through 33 attached). When asked by Dr. Shack, Mr. Winters indicated that there is only one source for the two AP1000 ultra-big forgings. Mr. Terry Schulz described the AP1000 passive safety systems and defense-in-depth systems (Westinghouse slides 34 through 57 attached). Dr. Corradini asked if the AP1000 containment could be vented. Mr. Schulz said that while there is not a containment vent in the AP1000 design, the AP1000 containment can be vented through the shutdown cooling system and spent fuel pit. He also explained that the AP1000 design has active systems to mitigate the more probable events, but not necessarily all of the traditional design basis accidents (e.g., large break loss of coolant accidents, main feedwater line break). Mr. Schulz showed the core damage frequency and large release frequency with all AP1000 systems (order of 10^{-7} to 10^{-8}) and compared it to the core damage frequency and large release frequency without non-safety (active) systems (order of 10^{-6} to 10^{-7}). Ms. Sterdis summarized the AP1000 instrumentation and control systems (e.g., protection and safety monitoring system, diverse actuation system, plant control system, data display and processing system). She said that a detailed I&C design is being developed based on the functional requirements in the DCD, using the certified design process, and which will meet the certified acceptance criteria. Mr. Maynard asked about shift staffing in the AP1000 compact control room and Mr. Sieber asked about the number of local control stations. (Westinghouse slides 58 through 64 attached) Finally, Mr. Winters described the AP1000 structures, secondary systems, electrical systems, and fire protection features. (See Westinghouse slides 65 through 76 attached) The AP1000 design has three electrical systems: a four-train 1E DC electrical system, a non-1E DC electrical system, and a non-1E AC electrical system.

DESIGN CERTIFICATION AMENDMENT PROCESS

Mr. Jerry Wilson, NRO/DNRL, summarized the amendment process for certified designs. He mentioned the seven criteria that can form the basis for amending the rulemaking (e.g., Appendix D to 10 CFR Part 52). He noted that any modification the NRC imposes on a design certification rule will be applied to all plants referencing the certified design. (See Staff slides 1 and 2 attached)

DESIGN-CENTERED WORKING GROUP (DCWG) AND R-COL ISSUES

Mr. Peter Hastings, NuStart Energy described the design-centered review approach, identified the AP1000 design-centered working group (DCWG) members, and discussed DCWG coordination. He identified and described the various parts of a combined license (COL) application. He said that the COL applications will, as much as practicable, be based on "incorporation-by-reference" of DCD Revision 16 plus Technical Report TR-134. [TR-134 provides DCD post-Revision 16 impacts to support COL standardization.] He described how the Final Safety Analysis Report (FSAR) portion of the COL applications will contain left margin annotations to indicate where that information originally came from. Mr. Hastings explained that of the 175 COL information items (DCD Rev 16 Table 1.8-2), 48 will be closed in revision 16 to

the AP1000 DCD. Eighteen COL items will transition to COL holders. He said the remainder would be closed in the COL application (including three covered by operational program technical reports). Finally, Mr. Hastings described, going chapter-by-chapter through the FSAR, what material would be incorporated-by-referencing portions of the AP1000 DCD or resolved by the reference COL plant. He said that COL applications that incorporated information by reference from the AP1000 DCD would contain "hot-links" back to the applicable portion of the AP1000 DCD. However, subsequent COL applications would not have "hot links" to the reference COL application. (See NuStart Energy slides 1 through 35 attached)

SUBSEQUENT COL ISSUES

Mr. Hastings summarized issues that will need to be resolved by COL applicants on a plant-specific basis. He said that to the extent practicable COL applicants will resolve these issues using a common format, content, and level-of-detail. Some of the plant-specific features to be addressed by COL applicants include: circulating water pumps and pump intake structure, raw water pumps and pump intake structure, training facilities, administrative building, maintenance facilities, switch yards and rights-of-ways. (See NuStart Energy slides 36 through 41 attached)

Subcommittee's Action

None.

Documents Provided to the Subcommittee

1. New Reactor Licensing Applications (Site and Technology Selected), September 13, 2007
2. AP1000 COLA and DCD Review Schedule
3. The Westinghouse AP1000 Advanced Nuclear Plant, Plant Description
4. AP1000 Design Control Document (Revision 16) Presentation, June 19, 2007
5. AP1000 R-COLA FSAR Standardization DCWG Meeting Presentation, July 25, 2007

NOTE : Additional details of this meeting can be obtained from a transcript of this meeting available for downloading or viewing on the Internet at <http://www.nrc.gov/reading-rm/adams.html> or <http://www.nrc.gov/reading-rm/doc-collections/> can be purchased from Neal R. Gross and Co., 1323 Rhode Island Ave., N.W., Washington, DC 20005 (202) 234-4433.