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

February 26, 2007

The Honorable Dale E. Klein
Chairman
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Dear Chairman Klein:

SUBJECT: SUMMARY REPORT - 539th MEETING OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS, FEBRUARY 1-3, 2007, AND OTHER RELATED ACTIVITIES OF THE COMMITTEE

During its 539th meeting, February 1-3, 2007, the Advisory Committee on Reactor Safeguards (ACRS) discussed several matters and completed the following reports, letter, and memorandum:

REPORTS:

Reports to Dale E. Klein, Chairman, NRC, from William J. Shack, Chairman, ACRS:

- Browns Ferry Nuclear Plant, Unit 1, 5-Percent Power Uprate, dated February 16, 2007
- Report on the Safety Aspects of the License Renewal Application for the Oyster Creek Generating Station, dated February 8, 2007

LETTER:

Letter to Luis A. Reyes, Executive Director for Operations, NRC, from William J. Shack, Chairman, ACRS:

- Draft Final Revision 1 to Regulatory Guide 1.189 (DG-1170), "Fire Protection for Nuclear Power Plants," dated February 14, 2007

MEMORANDUM:

Memorandum to Luis A. Reyes, Executive Director for Operations, NRC, from Frank P. Gillespie, Executive Director, ACRS:

- Proposed Revisions to Standard Review Plan Sections in Support of New Reactor Licensing, dated February 6, 2007

HIGHLIGHTS OF KEY ISSUES

1. Final Review of the Power Uprate Application for the Browns Ferry Nuclear Plant, Unit 1

The Committee met with representatives of the Tennessee Valley Authority and the NRC staff to discuss the proposed 5-percent uprate application for Browns Ferry Nuclear Plant, Unit 1. The discussions focused on the modifications to the plant to make it ready for restart after being shut down since 1985, the plans for the uprate, and details of several of the analyses that were used to support the uprate request. This application is the first step in uprating all three Browns Ferry units to 120-percent of their original licensed thermal power levels. The discussion was focused on the licensee's request to change its licensing-basis methodology to include credit for containment accident pressure in calculating the net positive suction head for the residual heat removal (RHR) and core spray pumps during a variety of scenarios. The licensee explained the basis for the analysis assumptions and described the results of testing that had been performed on a similar RHR pump at Browns Ferry Unit 3 to demonstrate that the pumps can operate successfully in cavitation mode for a limited period of time.

Committee Action

The Committee issued a report to the NRC Chairman on this matter dated February 16, 2007, recommending that the 5-percent power uprate for Browns Ferry Unit 1 be granted. The Committee also noted that granting of containment overpressure credit during long-term loss-of-coolant accident (LOCA) and 10 CFR Part 50 Appendix R fire scenarios at 120-percent power will require support by more complete evaluations.

2. Final Review of the License Renewal Application for the Oyster Creek Generating Station

The Committee met with representatives of the NRC staff and its contractor (Sandia National Laboratories [SNL]), members of the public, and AmerGen Energy Company, LLC (AmerGen) and its contractors to review the license renewal application for the Oyster Creek Generating Station (OCGS) and the updated Safety Evaluation Report (SER) prepared by the NRC staff. The applicant, AmerGen, has requested approval for continued operation for a period of 20 years beyond the current license expiration date of April 9, 2009.

AmerGen representatives described the leakage from the reactor cavity liner that caused corrosion of the exterior surface of the drywell shell and the corrective actions taken to prevent water from entering the sand bed region. The applicant concluded that the corrective actions taken to mitigate the drywell shell corrosion have been effective, the corrosion in the embedded portion of the drywell shell is not significant, the drywell shell meets the ASME Code requirements, and an effective aging management program is in place to ensure continued safe operation.

The staff described buckling analyses of the OCGS drywell shell performed by General Electric (GE) and SNL. The key difference between these analyses is the inclusion of hoop tensile stresses. The staff concluded that if the SNL analysis included these hoop tensile stresses, the

minimum thickness results would be similar to the GE analysis. In the updated SER, the staff concluded that the applicant has appropriately identified the structures, systems, and components within the scope of license renewal and that the aging management programs described by the applicant are appropriate and sufficient to manage aging of long-lived passive components that are within the scope of license renewal.

A representative from the Coalition to Stop the Relicensing of Oyster Creek expressed concerns regarding the drywell shell, the analysis methods used to evaluate the drywell shell, and the adequacy of the inspection data used in the analyses.

The ACRS members received a letter from Jon S. Corzine, Governor of the State of New Jersey (NJ), inviting the Committee to tour OCGS and hold its public meeting in NJ to facilitate public attendance. The ACRS members also received a letter signed by Senator Frank Lautenberg (NJ), Senator Robert Menendez (NJ), Congressman Christopher Smith (NJ), and Congressman Jim Saxton (NJ) asking the Committee to ensure that the safety issues regarding the drywell are fully resolved before it makes any decisions regarding the OCGS license renewal application. The NRC is in the process of responding to these letters.

Committee Action:

The Committee issued a report to the NRC Chairman on this matter dated February 8, 2007, recommending that the application for license renewal for OCGS be approved with the incorporation of certain license conditions. These license conditions are (1) to increase the frequency of the drywell inspections and to monitor the two drywell trenches to ensure that the sources of water are identified and eliminated; (2) to ensure that the applicant fulfills its commitment to perform an engineering study prior to the period of extended operation to identify options to eliminate or reduce the leakage in the OCGS refueling cavity liner; and (3) to ensure that the applicant fulfills its commitment to perform a 3 dimensional finite-element analysis of the drywell shell prior to entering the period of extended operation.

3. Development of the TRACE Thermal-Hydraulic Code

The Committee met with representatives of the NRC staff concerning the development of the TRACE thermal-hydraulic system analysis code. This development effort is intended to establish a new state-of-the-art tool for the analysis of reactor thermal-hydraulic performance during transients and accidents. The staff expects this effort will result in the consolidation of the capabilities of four separate computer programs into one code. The Committee members expressed concern about the pace of the code development and the slow rate of introduction of the code into the NRC analytical community. They also noted that the code documentation is not complete and no outside peer-review of the code capability has been performed.

Committee Action

The Committee plans to consider a letter to the Executive Director for Operations on this matter during its March 8-10, 2007 meeting.

4. Proposed Revision to 10 CFR 50.46 LOCA Criteria for Fuel Cladding Materials

The Committee met with representatives of the NRC staff and its contractor, Argonne National Laboratory, and the Electric Power Research Institute (EPRI) regarding the development of the technical basis for a revision to the fuel cladding embrittlement criteria in 10 CFR 50.46. The objectives of this effort are to remove alloy-specific references in the regulation and establish a more performance-based standard that would not impede the introduction of new cladding materials. The staff described the experiments used to establish the underlying phenomena of fuel cladding embrittlement that are relevant to zirconium alloys containing tin and/or niobium during a LOCA. These experiments used samples from a number of operating reactors with different cladding materials and different geometries. These experiments also considered the effect of cladding performance as a function of fuel burnup because some early experiments had indicated that the current acceptance criteria might not be appropriate for high-burnup fuel. A representative from EPRI commented that the research results were impressive but additional experiments need to be performed with modern alloys such as Zirlo and M5 to confirm that the proposed technical criteria are appropriate for the newer materials.

Committee Action

The Committee plans to consider a letter to the Executive Director for Operations on this matter during a future ACRS meeting.

5. Draft Final Revision 1 of Regulatory Guide 1.189 (DG-1170), "Fire Protection for Nuclear Power Plants"

The Committee met with representatives of the NRC staff to discuss the draft final Revision 1 to Regulatory Guide 1.189 and resolution of public comments. In a letter dated November 17, 2006, the ACRS requested the opportunity to review the draft final version of this Guide after the resolution of public comments. Regulatory Guide 1.189 provides comprehensive guidance on the scope and depth of fire protection programs that the staff considers acceptable for existing and new plants. The staff noted that this technical guidance has also been incorporated into Standard Review Plan (SRP) Section 9.4.1, "Fire Protection Program."

Committee Action:

The Committee issued a letter to the Executive Director for Operations on this matter dated February 14, 2007, recommending that Revision 1 to Regulatory Guide 1.189 be issued.

6. Wolf Creek Pressurizer Weld Flaws

The Committee met with representatives of the NRC staff and the Nuclear Energy Institute (NEI) to discuss the weld flaws discovered in the Wolf Creek pressurizer during an October 2006 inservice inspection. The staff presented an evaluation of the safety significance of these circumferential flaws and the implications to other plants with similar dissimilar metal butt welds. The staff also described the analysis of the growth of these flaws. The results of this analysis revealed that in some cases the flaws may lead to a rupture soon after they begin to leak. As a

result, the staff has determined that the currently scheduled inspections or mitigations of these welds may need to be accelerated for some plants. NEI representatives provided the basis for the current schedule of inspections or mitigations of these flaws. They stated that the staff's analysis is extremely conservative and there is time between pipe leakage and rupture to allow plant personnel to take preventive actions.

Committee Action

This was an information briefing. No Committee action was necessary. The Committee plans to review the technical basis associated with the proposed NRC staff action for dealing with dissimilar metal butt weld issues during its March 8-10, 2007 meeting.

7. Proposed Revisions to Regulatory Guides and Standard Review Plan (SRP) Sections in Support of New Reactor Licensing

The Committee discussed "high-priority" SRP sections that are being revised or developed in support of new reactor licensing. The Committee noted that it is awaiting receipt of additional high priority SRP Sections from the staff.

Committee Action

The Committee plans to conduct an accelerated review of all Regulatory Guides and SRP Sections that it determines warrants ACRS review.

8. Subcommittee Report on Reliability and Probabilistic Risk Assessment

The Chairman of the Reliability and Probabilistic Risk Assessment (PRA) Subcommittee provided a report to the Committee summarizing the results of the December 14-15, 2006, meeting with the NRC staff and representatives of GE to discuss the PRA for the Economic Simplified Boiling Water Reactor that is in the design certification process. During the meeting, the Subcommittee reviewed several topics identified at a prior meeting, including the dominant accident sequences, the common cause failure method, the effects of thermal-hydraulic uncertainties on the PRA, the regulatory treatment of non-safety systems, and staff requests for additional information. The Subcommittee raised several issues to discuss at future meetings, and decided that no interim letter was necessary at this time. The next Subcommittee meeting will focus on the effects of thermal-hydraulic uncertainties on the PRA, the Level 2 PRA, and severe accident phenomena.

RECONCILIATION OF ACRS COMMENTS AND RECOMMENDATIONS/EDO COMMITMENTS

- The Committee considered the EDO's response of January 11, 2007, to comments and recommendations included in the December 12, 2006, ACRS report on draft final Regulatory Guide DG-1145, "Combined License Applications for Nuclear Power Plants (LWR Edition)." The Committee decided that it was not satisfied with the EDO's response related to the Committee's recommendation that "the proposed final rule, 10 CFR Part 52, should include the requirements that a PRA be submitted with the design certification application and that a plant-specific PRA be submitted with the combined license (COL) application." The EDO's response articulated the staff's basis for deleting these

requirements from the draft final Part 52 rule and stated that the Commission will decide on this matter when it votes on the final rule. The Committee reiterates its previous position with regard to including a requirement in 10 CFR Part 52 for submitting PRAs to the staff.

The staff committed to inform the ACRS of any significant changes to the final regulatory guide prior to publication.

- The Committee considered the EDO's response of January 19, 2007, to comments and recommendations included in the November 16, 2006 ACRS report on the proposed rulemaking to modify 10 CFR 50.46, "Risk-informed Changes to Loss-of-Coolant Accident Technical Requirements." The Committee decided that is was satisfied with the EDO's response.

The staff committed to inform the Commission of the impact of the Committee's recommendations on its resources and schedule.

- The Committee considered the EDO's response of January 19, 2007, to comments and recommendations included in the December 15, 2006 ACRS letter on the proposed revision to SRP Section 13.3, "Emergency Planning." The Committee decided that it was satisfied with the EDO's response.

OTHER RELATED ACTIVITIES OF THE COMMITTEE

During the period from December 9, 2006, through January 31, 2007, the following Subcommittee meetings were held:

- Reliability and Probabilistic Risk Assessment - December 14-15, 2006

The Subcommittee reviewed the PRA for the Economic Simplified Boiling Water Reactor.

- Power Uprates - January 16-17, 2007

The Subcommittee discussed the proposed 5-percent power uprate for the Browns Ferry Nuclear Plant, Unit 1.

- Plant License Renewal - January 18, 2007

The Subcommittee reviewed the license renewal application for the Oyster Creek Generating Station and the associated updated Safety Evaluation Report prepared by the NRC staff.

- Materials, Metallurgy, and Reactor Fuels - January 19, 2007

The Subcommittee discussed the proposed technical basis for revising the embrittlement criteria in 10 CFR 50.46.

- Planning and Procedures - January 31, 2007

The Subcommittee discussed proposed ACRS activities, practices, and procedures for conducting Committee business and organizational and personnel matters relating to ACRS and its staff.

LIST OF MATTERS FOR THE ATTENTION OF THE EDO

- The Committee would like to be kept informed of any significant changes made to the SRP Sections, prior to issuing them in final form, listed in the February 6, 2007 memorandum from Frank P. Gillespie, Executive Director, ACRS, to Luis A. Reyes, Executive Director for Operations, NRC.

- The Committee is awaiting receipt of additional high priority SRP Sections from the staff.

- The Committee plans to review the draft final version of Generic Letter 2007-XX, "Managing Gas Intrusion in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems," during a future meeting.

- The Committee would like to be briefed by the staff on the results of the 3-dimensional finite element analysis of the Oyster Creek Generating Station drywell shell.

- The Committee plans to review the extended power uprate applications for Browns Ferry, Units 1, 2, and 3 during a future meeting.

- The Committee plans to review the technical basis associated with the proposed NRC staff actions for dealing with the dissimilar metal butt weld issue during its March 8-10, 2007 meeting.

- The Committee stated that granting of containment overpressure credit during long-term LOCA and 10 CFR Part 50 Appendix R fire scenarios at 120-percent of the original licensed thermal power for Browns Ferry Nuclear Plant Units 1, 2, and 3 will require support by more complete evaluations.

PROPOSED SCHEDULE FOR THE 540th ACRS MEETING

The Committee agreed to consider the following topics during the 540th ACRS meeting, to be held on March 8-10, 2007:

- Technical Basis Associated with the Proposed NRC Staff Action for Dealing with the Dissimilar Metal Butt Weld Issue (Open/Closed)
- Proposed Revisions to SRP Sections 15.0, "Accident Analysis - Introduction," and 15.9, "BWR Core Stability"
- Final Results of the Chemical Effects Head Loss Tests Related to the Resolution of the PWR Sump Performance Issues
- Technology Neutral Licensing Framework and Related Matters
- Proposed Revisions to Regulatory Guides and SRP Sections in Support of New Reactor Licensing

- Safeguards and Security Matters (Open/Closed)
- Proposed ACRS Report on the Development of the TRACE Thermal-Hydraulic System Analysis Code.

Sincerely,

William J. Shack

- Safeguards and Security Matters (Open/Closed)
- Proposed ACRS Report on the Development of the TRACE Thermal-Hydraulic System Analysis Code.

Sincerely,

/RA/

William J. Shack

- Safeguards and Security Matters (Open/Closed)
- Proposed ACRS Report on the Development of the TRACE Thermal-Hydraulic System Analysis Code.

Sincerely,

/RA/

William J. Shack

Distribution:

RidsSecyMailCenter	RidsEDOMailCenter	RidsNRROD
RidsNMSSOD	RidsFSMEOD	RidsOCAMailCenter
RidsOIGMailCenter	RidsOGCMailCenter	RidsASLBPMailCenter
RidsOCAAMailCenter	RidsOPAMailCenter	RidsRGN1MailCenter
RidsRGN2MailCenter	RidsRGN3MailCenter	RidsRGN4MailCenter

BChamp	CSantos	MBanerjee	SMcKelvin
ABates	RCaruso	CHammer	LMike
JPerry	HNourbakshs	BSosa	
	MJunge	JFlack	

ADAMS ML070570430

OFFICE	ACRS/ACNW	ACRS/ACNW
NAME	CSantos	FGillespie
DATE	02/26/07	02/26/07

- Safeguards and Security Matters (Open/Closed)
- Proposed ACRS Report on the Development of the TRACE Thermal-Hydraulic System Analysis Code.

Sincerely,

William J. Shack

Distribution:

RidsSecyMailCenter	RidsEDOMailCenter	RidsNRROD
RidsNMSSOD	~~RidsSTPMailCenter~~	RidsOCAMailCenter
RidsOIGMailCenter	RidsOGCMailCenter	RidsASLBPMailCenter
RidsOCAAMailCenter	RidsOPAMailCenter	RidsRGN1MailCenter
RidsRGN2MailCenter	RidsRGN3MailCenter	RidsRGN4MailCenter

BChamp	CSantos	MBanerjee	SMcKelvin
ABates	RCaruso	CHammer	LMike
JPerry	HNourbakshs	BSosa	
~~MEl-Zeftawy~~	MJunge	JFlack	

ADAMS ML070570430

OFFICE	ACRS/ACNW	ACRS/ACNW
NAME	CSantos CS	FGillespie
DATE	2/26	2/26

SM155

From: John Flack
To: Carol Brown
Date: 03/02/2007 3:01:02 PM
Subject: Re: Please SUNSI Review the Summary Report (ML070570430) from the 539th ACRS Meeting

Carol: The following ACRS letter can be released to the general public:

Letter To: The Honorable Dale E. Klein, Chairman

Subject: SUMMARY REPORT - 539th MEETING OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS, FEBRUARY 1-3, 2007, AND OTHER RELATED ACTIVITIES OF THE COMMITTEE

Dated: 2/26/07

Thanks,

John

>>> Carol Brown 03/02/2007 2:44 PM >>>

SUBJECT:SUMMARY REPORT - 539th MEETING OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS, FEBRUARY 1-3, 2007, AND OTHER RELATED ACTIVITIES OF THE COMMITTEE

Carol Anne Brown
Administrative Assistant
US Nuclear Regulatory Commission
Advisory Committee on Reactor Safeguards
Operations Support Branch
415-7998, MS T2-E26

From: Carol Brown
To: Banerjee, Maitri; Bates, Andrew; Caruso, Ralph; Champ, Billie; Flack, John; Hammer, Charles; Junge, Michael; McKelvin, Sheila; Mike, Linda; Nourbakhsh, Hossein; Perry , Jamila; RidsAslbpMailCenter; RidsEdoMailCenter; RidsFsmeOd; RidsNmssOd; RidsNrrOd; RidsOcaaMailCenter; RidsOcaMailCenter; RidsOgcMailCenter; RidsOigMailCenter; RidsOpaMail; RidsRgn1MailCenter; RidsRgn2MailCenter; RidsRgn3MailCenter; RidsRgn4MailCenter; RidsSecyMailCenter; RidsStpOd; Santos, Cayetano; Sosa, Belkys
Date: 02/28/2007 5:39:44 PM
Subject: SUBJECT: SUMMARY REPORT - 539th MEETING OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS, FEBRUARY 1-3, 2007

Letter To: The Honorable Dale E. Klein, Chairman

Subject: SUMMARY REPORT - 539th MEETING OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS, FEBRUARY 1-3, 2007, AND OTHER RELATED ACTIVITIES OF THE COMMITTEE

Dated: 2/26/07

ADAMS Accession Number: ML070570430

Carol Anne Brown
Administrative Assistant
US Nuclear Regulatory Commission
Advisory Committee on Reactor Safeguards
Operations Support Branch
415-7998, MS T2-E26

15 copies + original to Jamilla
one copy to my file

CERTIFIED

Date Issued: 03/29/07
Date Certified: 03/29/07

TABLE OF CONTENTS
MINUTES OF THE **539th** ACRS MEETING

February 1 - 3, 2007

I. Opening Remarks by the ACRS Chairman (Open)

II. Final Review of the Power Uprate Application for the Browns Ferry Nuclear Plant, Unit 1 (Open/Closed)

III. Final Review of the License Renewal Application (Open)

IV. Development of TRACE Thermal-Hydraulic Code (Open)

V. Proposed Revision to 10 CFR 50.46 LOCA Criteria for Fuel Cladding Materials (Open)

VI. Draft Final Revision 1 to Regulatory Guide 1.189 (DG-1170), "Fire Protection for Nuclear Power Plants," and SRP Section 9.5.1, "Fire Protection Program." (Open)

VII. Wolf Creek Pressurizer Weld Flaws (Open)

VIII. Proposed Revisions to Regulatory Guides and SRP Sections in Support of New Reactor Licensing (Open)

IX. Subcommittee Report on Reliability and Probabilistic Risk Assessment (Open)

X. Executive Session (Open)

A. Reconciliation of ACRS Comments and Recommendations

B. Report on the Meeting of the Planning and Procedures Subcommittee Held on January 31, 2007

C. Future Meeting Agenda

REPORTS:

The following reports to Dale E. Klein, Chairman, NRC, from William J. Shack, Chairman, ACRS:

1. **Browns Ferry Nuclear Plant, Unit 1, 5-Percent Power Uprate**, dated February 16, 2007.

2. **Report on the Safety Aspects of the License Renewal Application for the Oyster Creek Generating Station**, dated February 8, 2007.

LETTERS:

The following letters to Luis A. Reyes, Executive Director for Operations, NRC, from William J. Shack, Chairman, ACRS:

1. **Draft Final Revision 1 to Regulatory Guide 1.189 (DG-1170), "Fire Protection for Nuclear Power Plants,"** dated February 14, 2007.

MEMORANDA:

The following memoranda to Luis A. Reyes, Executive Director for Operations, NRC, from, Frank P. Gillespie, Executive Director, ACRS:

1. **Proposed Revisions to Standard Review Plan Sections in Support of New Reactor Licensing,** dated February 6, 2007.

APPENDICES

I. *Federal Register Notice*
II. Meeting Schedule and Outline
III. Attendees
IV. Future Agenda and Subcommittee Activities
V. List of Documents Provided to the Committee

MINUTES OF THE 539th MEETING OF THE
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
February 1 - 3, 2007
ROCKVILLE, MARYLAND

The **539th** meeting of the Advisory Committee on Reactor Safeguards (ACRS) was held in Conference Room 2B3, Two White Flint North Building, Rockville, Maryland, on **February 1 - 3, 2007**. Notice of this meeting was published in the *Federal Register* on **December 29, 2006** (71 FR **78470**) (Appendix I). The purpose of this meeting was to discuss and take appropriate action on the items listed in the meeting schedule and outline (Appendix II). The meeting was open to public attendance.

A transcript of selected portions of the meeting is available in the NRC's Public Document Room at One White Flint North, Room 1F-19, 11555 Rockville Pike, Rockville, Maryland. Copies of the transcript are available for purchase from Neal R. Gross and Co., Inc., 1323 Rhode Island Avenue, NW, Washington, DC 20005. Transcripts are also available at no cost to download from, or review on, the Internet at http://www.nrc.gov/ACRS/ACNW.

ATTENDEES

ACRS Members: Dr. William J. Shack (Chairman), Dr. Mario V. Bonaca (Member-at-large), Dr. Said Abdel-Khalik, Dr. George E. Apostolakis, Dr. J. Sam Armijo, Dr. Sanjoy Banerjee, Dr. Michael Corradini, Dr. Thomas S. Kress, Mr. Otto L. Maynard, and Dr. Dana A. Powers. For a list of other attendees, see Appendix III.

I. Chairman's Report (Open)

[Note: Mr. Frank P. Gillespie was the Designated Federal Official for this portion of the meeting.]

Dr. William J. Shack, Committee Chairman, convened the meeting at 8:30 A.M. He announced in his opening remarks that the meeting was being conducted in accordance with the provisions of the Federal Advisory Committee Act. In addition, he reviewed the agenda for the meeting and noted that no written comments or requests for time to make oral statements from members of the public had been received. Dr. Shack also noted that a transcript of the open portions of the meeting was being kept and speakers were requested to identify themselves and speak with clarity and volume. He discussed the items of current interest and administrative details for consideration by the full Committee.

II. Final Review of the Power Uprate Application for the Browns Ferry Nuclear Plant, Unit 1

[Note: Mr. Ralph Caruso was the Designated Federal Official for this portion of the meeting.]

Opening and Licensee Presentation

The Committee met with representatives of the Tennessee Valley Authority and the NRC staff to discuss the proposed 5-percent uprate application for Browns Ferry Nuclear Plant, Unit 1. Dr. Bonaca opened the session with a report of the Power Uprate Subcommittee on

January 16-17, 2007. He noted that much of the analyses performed to support this uprate were performed at 120% of the Original Licensed Thermal Power (OLTP). He also invited the members to carefully consider the request for containment overpressure credit because it involves some scenarios that the Committee has not considered before for other plants.

Mr. McGinty, Office of Nuclear Reactor Regulation (NRR), opened the staff presentation with a history of the Browns Ferry (BF) plants, and their current status. He recalled the extended shutdown period, and the program used by the Tennessee Valley Authority (TVA) to restart the 3 BF units. He noted that the original plan was to restart Unit 1 at 120% OLTP, but because of a lack of necessary information to complete the review of the steam dryers, TVA decided to request a 5% uprate for Unit 1. The information for the steam dryer analyses should be provided to the staff by April 2, 2007 and the staff should then proceed to complete its Extended Power Uprate (EPU) review.

Ms. Brown, NRR, described the staff review process for the uprate, which used the guidance in Review Standard (RS) 001, and also followed the plan laid out in the ELTR1 and ELTR2 Topical Reports. The staff used RS-001 to evaluate synergistic effects, safety margin reductions, and operating procedures. This guidance was endorsed by the ACRS in September 2003. She described how the staff evaluates the effects of the EPU on equipment operation and analysis results. She presented example results of the review for both low pressure injections systems and the control rod drive (CRD) systems.

Mr. Bhatagrat, TVA, described the status of the uprate efforts. The work is nearly complete, with the focus of the project shifting to the balance-of-plant (BOP) systems, where testing is in progress. He noted that they were able to move up the refueling outage for Unit 2 so that both plants will not be involved in a restart/startup test program at the same time. At this time, the operations department has full control of the entire plant, and they are proceeding as scheduled.

Mr. Crouch, TVA, noted that after the 5% uprate, Unit 1 will be operating very similarly to Units 2 and 3. Dr. Bonaca asked whether Units 2 and 3 would be replacing their condensate pumps like Unit 1, and Mr. Crouch replied that they would. Mr. Bhagarat commented that they would not be modifying the high-pressure (HP) turbines for Units 2 and 3 until the EPU applications are approved. Dr. Armijo asked about the water chemistry controls for the plants, and Mr. Phillips, TVA, explained that they would eventually be operating with the same chemistry, after the noble metal chemistry is fully implemented.

Mr. Crouch emphasized that TVA has generally used the 120% analyses to support the 105% operating conditions, except for the core analyses, and a few other specialized situations. After implementation of the 105% uprate, Unit 1 will have effectively the same licensing basis as Units 2 and 3. Dr. Bonaca asked about the different fuel in the plants and whether TVA is performing the calculations required by ELTR1. Mr. Crouch replied that they had not done the SAFER/GESTR analyses at 100%. Ms. Brown commented that the staff has issued a letter requiring the performance of a plant-specific core analysis. The staff did a plant-specific review of the core analyses. Mr. Thomas, NRR, explained that the staff did independent calculations of the loss-of-coolant accident (LOCA) scenario for Unit 1. Dr. Bonaca asked whether the staff was happy about the change in the methodology. Mr. Crouch commented that TVA looked at this change in methodology when they uprated Units 2 and 3. Mr. Sieber asked whether TVA or General Electric (GE) had performed the reload analyses, and Mr. Crouch explained that the

fuel vendors did the analyses. Dr. Armijo asked what was special about operation at 105% compared to 120% for the core that has been loaded, and Mr. Storey, TVA, replied that they have a special operating strategy for the 105% condition.

Dr. Shack asked when the piping at Units 2 and 3 were replaced, and Mr. Crouch replied that this was done either during the restart efforts, or during subsequent outages.

Mr. Crouch also described the large number of related licensing activities that were needed to support the restart of the plant, and how they related to both license renewal and the uprate. He also described the plant modifications performed to support the uprate. Many of these were done to add margin to plant operations, as well as to support the uprate. Some of these modifications have not yet been performed on Units 2 and 3.

NRC Staff Review

Ms. Brown then described the application for the 105% uprate, which was submitted on September 22, 2006. She also described the staff review process, which built on the 120% review process, and used the guidance in RS-001, ELTR1, and ELTR2. The staff also reviewed a number of independent licensing changes to support the uprate and restart. Almost all of the licensee's analyses to support the 105% uprate were performed at 120% and were found to be bounding for 105%. The staff found that the Unit 2 and 3 flow-accelerated corrosion and stress corrosion cracking programs are applicable to Unit 1.

Dr. Shack asked about extraction steam erosion issues. Mr. Crouch replied that they have replaced all of the susceptible piping and based on the pre-startup inspections, they have confidence that the piping will not drop below minimum wall thicknesses before the next inspection.

Dr. Kress asked what constituted an acceptable margin, and Ms. Brown replied that this meant that the analyses met the acceptance limits.

Dr. Powers asked about the alternate source term (AST), and Ms. Hart, NRR, explained that the AST proposal was reviewed by the staff for 120% well before the uprates were proposed. She reported that the staff verified that none of the assumptions had changed. Dr. Powers noted that the source term varies with the use of high-burnup fuel, and he asked Ms. Hart if the staff had considered this. Ms. Hart replied that she did not have any details of the high burnup source term, but the review did consider the use of both GE and AREVA fuel types.

Ms. Brown described the TVA change in operating strategy, and the extra analyses that the staff asked TVA to perform at 105%. As a result of these analyses, the staff concluded that the analyses performed at 120% envelope and operation at 105%. Dr. Razzaque, NRR, commented that the staff performed independent calculations of the LOCA at 120%, and they believe that this is bounding. Dr. Kress asked why they did not perform a station blackout (SBO) calculation. Mr. Rubin, NRR, explained that SBO is a required calculation but is not a licensing basis calculation. Dr. Bonaca commented that this brings into question whether the SBO and Appendix R calculations are part of the licensing basis. Mr. Lobel, NRR, explained that these calculations are part of the licensing basis, but are not part of the design basis for the plant, and they have different acceptance criteria. Design basis is defined in 10 CFR 50.2, and license basis is defined in part 10 CFR 54.

Ms. Brown noted that the licenses for BF were renewed before the uprate review was completed. As a result, there is a license renewal component in the uprate review. Dr. Corradini asked whether this was done for 105% or 120% operation, and Ms. Brown explained that it was done at 120%. Dr. Bonaca noted that although the Committee may determine that the analyses are acceptable for 105%, it will not conclude that they are acceptable for 120%. Ms. Brown agreed with this comment.

Ms. Brown also described the proposed test program that includes component, system, and integrated testing. This test program is similar to that done for the Unit 3 restart. She also described the detailed tests to be performed at increments between 100% and 120% power, and the steam dryer monitoring that will be performed, which will be similar to the program at Vermont Yankee (VY). The testing program is consistent with Standard Review Plant (SRP) Section 14.2.1, and Appendix L of ELTR1. The staff believes that integrated testing is necessary only for Unit 1.

The Unit 1 steam dryer is similar to ones at Units 2 and 3, so the staff and TVA believe that the Unit 1 steam dryer is acceptable for operation at 105%. Dr. Abdel-khalik asked what sort of program TVA has to monitor low-frequency (<30Hz) vibrations. TVA replied that they have a program to do this, and they will be discussing this with the staff in the spring. Dr. Kress asked what could be seen during walk-downs, and Mr. Fuente, TVA, replied that they are useful to detect unusual vibrations and failure of hangers and fasteners.

Risk Evaluation

Mr. Stutzke, NRR, noted that this is not a risk-informed application, but TVA and the staff did perform risk evaluations of the proposed uprate. Dr. Powers asked why there was any consideration of risk if there was no consideration of the increase in fission product inventory. Mr. Stutzke replied that the increase in inventory risk is directly related to the power level, so the Level 1 evaluation is useful in considering the increase in the level of risk.

He noted that several success criteria have changed for this plant as a result of the uprate and the plant modifications. These relate to CRD flow rates, main steam relief valve (MSRV) operation during anticipated transients without scram (ATWS), and containment overpressure credit. The overpressure credit issue related to a loss of containment integrity caused by pre-existing leaks or failure to achieve containment isolation. This could cause loss of core spray (CS) and residual heat removal (RHR) pumps as well as loss of pump function.

Mr. Stutzke noted that the need for overpressure credit depends on the number of RHR pumps running for suppression pool cooling - credit is only needed for 1 pump operating, or 2 pumps under certain plant conditions. Dr. Armijo asked whether this was at 105% or 120%, and Mr. Stutzke replied that this was done at 120% - no calculations were done at 105%. Dr. Banerjee asked who had done the calculations, and TVA replied that they had been done by one of their consultants. Mr. Anderson, GE, explained that the calculations were similar to those done for VY, starting with the GE base calculations and varying the parameters to see what sort of combinations required overpressure credit.

Mr. Stutzke also noted that credit is always required for SBO, ATWS, and the Appendix R scenario. The Appendix R scenario is the driving scenario. The risk impact of these scenarios is quite small, with a total core damage frequency (CDF) of 1.7E-7, for the assumption of loss of

containment integrity. Dr. Powers asked about seismic events, and Mr. Stutzle replied that they only considered internal events. The staff looks at external events qualitatively, and since the licensee did not identify any seismic vulnerabilities, the seismic events are not considered. Dr. Apostolakis noted that the seismic analyses are quite stylized and may not be applicable. Mr. Rubin replied that there may be some coupling, but the initiating earthquake would be quite low in frequency and that it would be comparable in overall risk. Dr. Powers noted that he thought that the seismic studies extant were providing risk values on the order of 1E-5, so he did not understand how this was consistent with the 1.7E-7 value presented. Mr. Rubin replied that safe shutdown earthquake (SSE) is part of the design basis, and the margins analyses show that the equipment is quite robust for larger earthquake. Dr. Powers commented that the staff is looking at the wrong class of accidents, if it does not include seismic considerations, because of the possibility that seismic events may compromise a large amount of equipment.

Mr. Stutzke described the human reliability evaluation, and he noted that TVA used cause-based decision trees with specific causal factors that were judged to be more likely to drive the probability rather than time constraints. They used human cognitive reliability for time sensitive errors, and this approach is consistent with the HRA good practices document. Dr. Apostolakis commented that the staff has never really reviewed this methodology.

All of the affected human failure events pertain to ATWS, and the human failure events (HFE) that became significant as a result of the EPU include controlling level using HPCI/RCIC, and initiation of depressurization. Other HFEs were modified to address EPU impacts. Overall, the influence of these changes has a small effect on risk frequencies. Dr. Bonaca noted that this information was not provided at the subcommittee meeting, and it is important to know how to evaluate this application. Mr. Rubin replied that this is quite an unusual situation, because the HFEs do not significantly affect the risk, but instead, it is the CRD flow rate that is significant.

Dr. Apostolakis asked whether the staff has captured the effects of HFEs in its deterministic evaluations, given that this is not a risk-informed application. Mr. Rubin replied that changes to the HFE are reflected in the design basis analyses, and therefore they are considered by the staff. These HFEs only consider design basis equipment. The PRA looks at a wider range of equipment.

Mr. Stutzke briefly described the staff review of the Unit 1 PRA, and concluded that the staff had not identified any "special circumstances" that rebut the presumption of adequate protection afforded by compliance with the Commission's regulations.

Mr. Crouch clarified an earlier condition regarding hydrogen injection, and he stated that the plant will run at a low level of hydrogen for about 30 days after the injection of the noble metals.

Mr. Walcott discussed the containment overpressure analyses and the ECCS systems involved. He explained that all of the Unit 1 net positive suction head (NPSH) analyses were performed at 120%, and this bounds operation at 105%. Four events need containment overpressure credit (COP): LOCA, ATWS, SBO, and Appendix R events.

Mr. Walcott presented comparisons of the amount of COP required for other BWR EPUs to that requested for BF1. He then presented the results of several events showing the amount of available pressure and the pump NPSH required. Dr. Abdel-Khalik asked whether they had done these at 105%, and Mr. Wolcott replied that they had not, but a reduction in the power

level would affect both the required and available pressures, equally. He also showed how the available containment pressure changed with changes to various analytical assumptions so that the actual amount of COP that is available is greater than the minimum value that results from using the staff-required assumptions. He also showed how the available and required pressure varies when realistic parameters are used for the calculations.

Dr. Banerjee and Dr. Corradini asked about the effects of energy partition on the results, and GE explained that much of the effect is due to differences in the assumption about the location of non-condensables in the containment. Mr. Lobel explained that this analysis is an integrated containment model of the LOCA scenario, where the energy partition is determined by the details of the model and the flow paths. He noted that the calculations are biased towards either higher or lower pressure depending on the intended use of the results. Also, the temperature of the pool is more important for NPSH calculations than the containment overpressure. Dr. Banerjee expressed some concern about the effects of the model itself, rather than the initial assumptions, and he wondered what would be the effect if the energy partition function varied.

Mr. Wolcott also showed the results of additional calculations using "realistic parameters" and how they do not significantly affect the minimum pressure available, but do reduce the pressure required so that essentially no COP is required. Dr. Abdel-Khalik asked how the realistic analysis could be lower than the minimum pressure results. Mr. Wolcott explained that this arises out of changes to the pool temperature and its effect on the relative humidity. Several parameters offset one another, and it is purely coincidence that the two curves overlay one another. This provoked a lively discussion about the incongruity of having the "realistic value" lower than the "minimum value." Dr. Banerjee thought that this resulted from the complexities of the analysis methodology, and Mr. Lobel tried to explain why it was physically reasonable, but the members continued to express some concern about this description.

Mr. Wolcott then described the scenario for the Appendix R case, and he showed again that both the available and required COP pressures drop for the analyses with realistic parameters. The overall margin available for the realistic case increases. He noted that they do not claim that the results are entirely accurate, but the difference between the two curves, which shows the margin available, is demonstrated.

Several members expressed a desire to understand the physical phenomena that change with the use of realistic analyses, and how they affect the results.

Mr. Wolcott completed his presentation with a description of the risk analysis that they performed, which followed some guidance that arose from the Vermont Yankee EPU. He noted that there is a very small risk increase for LOCA, ATWS, and SBO CDF, and large early release fraction (LERF) related to dependence on COP. The risk increases are also well within the acceptance guidelines for CDF and LERF.

Containment Systems Review

Mr. Lobel commented that the main issues that arose from this review related to (1) the need for pump cavitation credit, (2) behavior of the drywell fan coolers, and (3) the pump flows used.

TVA performed tests of the pumps to verify that they could operate satisfactorily in cavitation mode, and the pump vendor confirmed this assessment.

Dr. Banerjee asked about vortexing into the strainers. Mr. Ebberly, TVA, explained that they had evaluated the Froude number at the strainers and determined that vortexing would not occur. The flow rate into the strainers will not support vortices.

The staff asked TVA a number of questions about the drywell fan coolers and the pump flows. The staff determined that the operating procedures already contained appropriate guidance and the proposed design basis was acceptable. Dr. Abdel-Khalik asked whether the NPSH calculation took into account the change in the elevation of the free surface due to vortexing. Mr. Ebberly replied that they do not anticipate vortexing, and therefore do not consider it.

Mr. Dyer, NRR, closed the presentation by thanking the ACRS for accelerating its schedule to accommodate the staff and TVA. He thought that it will be good to allow some time before the plant start up, and he understands that there are still a number of issues to be addressed for 120%. Many of the issues that the Committee has identified are common to other plants, and he noted that the staff is struggling to deal with them.

III. Final Review of the License Renewal Application for the Oyster Creek Generating Station (Open)

[Note: Mr. Michael A. Junge was the Designated Federal Official for this portion of the meeting.]

The Committee met with representatives of the NRC staff and its contractor Sandia National Laboratories (SNL), members of the public, and AmerGen Energy Company, LLC (AmerGen) and its contractors to review the license renewal application (LRA) for the Oyster Creek Generating Station (OCGS) and the updated Safety Evaluation Report (SER) prepared by the NRC staff. The applicant, AmerGen, has requested approval for continued operation for a period of 20 years beyond the current license expiration date of April 9, 2009.

The presentations focused on: questions which were raised during the previous license renewal Subcommittee meetings; the safety evaluation report that accepted a structural analysis performed by the applicant to demonstrate acceptability of the containment in the degraded condition; the sources of water leakage that caused the degraded condition of the drywell; and a summary of the license renewal application.

AmerGen representatives presented a summary of the corrosion of the drywell shell. They described water leakage from the reactor cavity liner that accumulated in the sand bed region and corroded the exterior surface of the drywell shell. The corrective actions taken include preventing the water from entering the sand bed region, removing the sand and coating the exterior of the drywell shell with an epoxy coating, and performing various inspections of the drywell shell. During the 2006 refueling outage, the applicant inspected the drywell shell to determine if the corrective actions had been effective. They found low leakage from the reactor cavity liner, no water in the sand bed, the epoxy coating in all the bays were in good condition, and that no further corrosion was occurring in the lower or upper regions of the drywell.

AmerGen's overall conclusions were that the corrective actions to mitigate the drywell shell corrosion has been effective, the corrosion in the embedded portion of the drywell shell is not

significant, the drywell shell meets code safety margins, and there is an effective aging management program in place to ensure continued safe operation.

AmerGen responded to issues that were raised during the January 18, 2007 Oyster Creek License Renewal Subcommittee Meeting. The issues covered were 1) the acceptability of using a capacity reduction factor in the structural analysis of the drywell when no internal load is present, 2) the use of a modern 3-D (dimensional) finite-element model of the drywell shell, 3) eliminating leakage in the reactor cavity liner, 4) more aggressive monitoring of drywell shell thickness, and 5) corrective actions to eliminate the water on the drywell shell.

AmerGen presented the license renewal summary. The LRA was submitted on July 22, 2005 using the NEI 95-20 Revision 6 standard format. It was prepared using the January 2005 draft versions of NUREG-1800 (Standard Review Plan) and NUREG-1801 (Generic Aging Lessons Learned Report). The Aging Management Programs include 50 programs consistent with the GALL Report and 7 plant-specific programs. There were 65 license renewal commitments which were placed in the applicants commitment tracking system.

The staff presented information regarding the drywell shell and discussed the License Renewal Activities that have occurred. The staff clarified that the 1992 GE analysis is the current analysis of record and that the analysis performed by Sandia National Laboratories (SNL) in 2006 was confirmatory. The key difference between these analyses is the inclusion of hoop tensile stresses. The staff concluded that if the SNL analysis included these hoop tensile stresses, the minimum thickness results would be similar to the GE analysis.

The staff provided an overview of the License Renewal Process. The draft SER was issued on August 18, 2006 with five open items, no Confirmatory items and three license conditions. An updated SER was issued December 29, 2006 which closed the five open items and included additional commitments from the applicant. The Final SER will be issued after the ACRS letter is received and will include additional applicant commitments, two license conditions and will discuss the confirmatory analysis from SNL.

The OCGS application either demonstrates consistency with the Generic Aging Lessons Learned (GALL) Report or documents deviations from the approaches specified in the GALL Report. The staff reviewed this application in accordance with NUREG-1800, the "Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants."

The applicant identified those structure systems components (SSCs) that fall within the scope of license renewal. For these SSCs, the applicant performed a comprehensive aging management review. Based on the results of this review, the applicant will implement 57 AMPs for license renewal including existing, enhanced, and new programs. In the SER, the staff concludes that the applicant has appropriately identified SSCs within the scope of license renewal and that the AMPs described by the applicant are appropriate and sufficient to manage aging of long-lived passive components that are within the scope of license renewal.

The staff conducted inspections and an audit of the license renewal application. The purpose of the inspections was to verify that the scoping and screening methodologies are consistent with the regulations and are adequately reflected in the application. The audit confirmed the appropriateness of the AMPs and the aging management reviews. Based on the inspections and audit, the staff concluded that these programs are consistent with the descriptions

contained in the OCGS license renewal application. The staff also concluded that the existing programs, to be credited as AMPs for license renewal, are generally functioning well and that the applicant has established an implementation plan in its commitment tracking system to ensure timely completion of the license renewal commitments.

The applicant identified those systems and components requiring Time Limited Aging Analyses (TLAAs) and reevaluated them for 20 more years of operation. Affected TLAAs include those associated with neutron embrittlement, metal fatigue, irradiation-assisted stress corrosion cracking, environmental qualification of electrical equipment, and stress relaxation of hold-down bolts. The staff concluded that the applicant has provided an adequate list of TLAAs. Further, the staff concluded that in all cases the applicant has met the requirements of the license renewal rule by demonstrating that the TLAAs will remain valid for the period of extended operation, or that the TLAAs have been projected to the end of the period of extended operation, or that the aging effects will be adequately managed for the period of extended operation.

Members of the public provided their concerns regarding the drywell liner, the analysis methods used to evaluate the drywell liner, and the adequacy of the inspection data used in the analyses.

The ACRS members received a letter from Jon S. Corzine, Governor of the State of New Jersey (NJ), inviting the Committee to tour OCGS and hold its public meeting in NJ to facilitate public attendance. The ACRS members also received a letter from Senator Frank Lautenberg (NJ), Senator Robert Menendez (NJ), Congressman Christopher Smith (NJ), and Congressman Jim Saxton (NJ) asking the Committee to ensure that the safety issues regarding the drywell are fully resolved before it makes any decisions regarding the OCGS license renewal application. The NRC is in the process of responding to these letters.

Committee Action

The Committee issued a report to the NRC Chairman on this matter dated February 8, 2007, recommending that the application for license renewal for OCGS be approved with the incorporation of certain license conditions. These license conditions are (1) to increase the frequency of the drywell inspections and to monitor the two drywell trenches to ensure that the sources of water are identified and eliminated; (2) to ensure that the applicant fulfills its commitment to perform an engineering study prior to the period of extended operation to identify options to eliminate or reduce the leakage in the OCGS refueling cavity liner; and (3) to ensure that the applicant fulfills its commitment to perform a three dimensional finite-element analysis of the drywell shell prior to entering the period of extended operation.

IV. Development of the TRACE Thermal-Hydraulic Code

[Note: Mr. Ralph Caruso was the Designated Federal Official for this portion of the meeting.]

The Committee met with representatives of the NRC staff concerning the development of the TRACE thermal-hydraulic system analysis code. Dr. Banerjee recalled that the Thermal-Hydraulic Phenomena Subcommittee met in December 2006, to discuss TRACE development. Dr. Bajorek, RES, opened the meeting with a recapitulation of the code history, which started in 1998 when NRC began to consolidate the capabilities of four separate codes into one platform.

At the end of December 2006, the Office of Nuclear Regulatory Research (RES) issued version 5.0 of the code to staff for its use in licensing. He noted that it is important to actually start using TRACE.

Dr. Abdel-Khalik asked whether there was an adequate user manual to make good use of the code, and Dr. Bajorek replied that they do have such a manual. The manual is up-to-date and ready to use, and a user should be able to use it to build models. Dr. Shack asked whether there are staff assigned to provide code support, and Dr. Bajorek replied that people have been assigned to this function. Now they can complete the rest of the documentation, and move forward with its use. Dr. Corradini asked about the theory manual, and Dr. Bajorek explained that this manual is still being revised, because of the large number of structural changes being made to the code.

Dr. Banerjee asked why RES had invested in the development of new models for TRACE, rather than just using proven models from other codes. Dr. Bajorek replied that many of these decisions were made based on the amount of understanding that was available, and the decision was made back in 1998 that the code would be founded on TRAC-PF1/MOD2. Neither TRAC nor RELAP was considered to be state-of-the-art at the time, and one code was picked to be the starting point. Since then, as good models have been identified, they have incorporated them into the code. Much effort was spent in the intervening years developing model improvements for reactors such as the ACR-700, which never materialized. The code developers also spent considerable amount of time dealing with emerging non-code issues.

In addition, as the assessment base expanded, it became clear that the models in the code needed to be revised because the predictions were sometimes conservative and sometimes non-conservative. In general, the small-break loss-of-coolant accident (SBLOCA) results have been better than the large-break loss-of-coolant accident (LBLOCA) cases. He noted that TRACE is supposed to be able to model a wider range of conditions than any of its predecessors, with a wider range of phenomena, so this should not be a surprise.

Dr. Banerjee asked about how well TRACE models containment, and Dr. Bajorek explained that TRACE is expected to model the reactor coolant system alone, but it has been coupled to containment codes such as CONTAIN. For the ESBWR, they are trying to develop an integrated model using only TRACE. TRACE should also be ready to model the EPR, with minor modifications. They are looking at assessment against reflux condensation tests right now to verify this ability.

Dr. Bajorek presented the results of some assessment cases, which show good agreement with data. Dr. Shack asked about run times, and Dr. Bajorek replied that for certain integral tests, especially for advanced reactors such as the AP1000, the code is having trouble, and run times are quite long.

The TRACE assessment matrix is based on phenomena identification and ranking tables (PIRT) for LBLOCA and SBLOCA in conventional light water reactors (LWR). Separate PIRTs are used to augment these for new plants. There are more than 500 individual simulations in the assessment base. RES believes that the assessment matrix is consistent with recommendations from the Committee on the Safety of Nuclear installations (CSNI) , and is sufficient for a code scaling applicability and uncertainty (CSAU) application to most plant types. Dr. Powers asked how TRACE compared to CATHARE, and Dr. Bajorek replied that some of

the TRACE models are close to the ones in CATHARE. RES is aware of that code, and how it works, and they have pushed some of their models to be more like CATHARE. Dr. Powers asked whether it was useful to have a multiplicity of codes, and Dr. Bajorek replied that he thought that it is better to have more codes. Comparison exercises with different codes have been quite useful to code developers. Dr. Banerjee commented that CATHARE seems to be able to perform 3-D calculations when they are needed, and 1-D when they are not, while TRACE seems to try to use a 1-D model for all situations.

Dr. Bajorek noted that the TRACE Theory Manual documentation has been slow, but it is now the focus of attention with the internal release of TRACE V5.0. The V5.0 executable and the user Manual were released in December 2006, and the assessment report should be complete by April 2007. The theory manual should be updated by June 2007, and a supplement with information that is relevant to code developers should be ready in August 2007. The ESBWR applicability report, which will provide guidance to users for ESBWR analyses, will be issued in November 2007.

Once the documentation is complete, a peer review will be initiated to provide critical reviews of the code, including the conservation equations, the numerical solutions, the assessment matrix, and the special features. They will not perform a line-by-line review of the code. It is not cost effective, and does not identify problems as readily as identification by users. Dr. Banerjee expressed some concern about how these sorts of fixes get implemented, in a piecemeal fashion, which can lead to obscurity in the code structure.

Dr. Powers asked about how the peer review would be conducted, and Dr. Bajorek explained that they would expect to make significant use of the results. The review will consider how the code will be applied, and will focus on issues that relate to the application, and not just on academic correctness.

User support will be an important component in integrating TRACE into the NRC regulatory process. The support includes a graphical user interface, plant input deck generation, training workshops, and expert support. They need to convince the people who are currently comfortable using RELAP to use TRACE.

Dr. Banerjee asked about converting old RELAP decks to TRACE, and Dr. Bajorek explained that SNAP can only convert 90% of a RELAP deck. The rest needs to be converted by hand. This can be quite frustrating for a user. The parts that do not convert include trips and signals, and logic. The hardware translates reasonably well. Regarding TRAC decks, TRACE can run all TRAC-P and TRAC-B input decks with little or no modification. Input decks are available for most plant types. RES plans to complete the initial set of input deck updates by August 2007. This will include Browns Ferry, RESAR 412, HB Robinson, and Calvert Cliffs. Within 6 to 24 months, input models for a wide variety of plant types should be available. Dr. Banerjee asked how much effort is going into this, and Dr. Barjorek replied that it takes about 2-3 staff-months per plant.

Dr. Bajorek briefly described plans to address issues raised in an anonymous letter. Upon consideration of the comments received by the Committee, RES plans to have Dr. Mahaffy, Pennsylvania State University, perform a rigorous evaluation of the comments and formally document them. The ACRS will be informed of the results of this evaluation. Dr. Banerjee commented that although the members may have agreed with this conclusion, the case was not

properly made, and he was concerned that in two months, nothing more has been done. Dr. Bajorek replied that they will have Dr. Mahaffy resolve the comment, and revise the description of these models in the theory manual. This should close the issue.

Dr. Bajorek also discussed an issue regarding ranging of Pi-groups for scaling experimental facilities. It arose because of a decision to use a particular limit for the Pi-groups, which did not have any defined basis. As a result, the staff and its contractors developed a figure-of-merit approach to determining the appropriate Pi-group range. Dr. Bajorek described the method, and concluded that it is important to not used fixed values for the Pi-group range, but instead should be tailored to the parameter of interest. The members commented that this is important, because it points to the need for the facility to produce the type of data that is important to the analysis, so that the codes can be assessed against the proper figure-of-merit, and the results can be trusted. Dr. Banerjee recalled that the members had suggested that this approach be documented so that it could see a wider application, and Dr. Bajorek explained that this was being done by Dr. diMarzo.

V. Proposed Revision to 10 CFR 50.46 LOCA Criteria for Fuel Cladding Materials

[Note: Mr. Ralph Caruso was the Designated Federal Official for this portion of the meeting.]

The Committee met with representatives of the NRC staff and its contractor, Argonne National Laboratory (ANL), and the Electric Power Research Institute (EPRI) regarding the development of the technical basis for a revision to the fuel cladding embrittlement criteria in 10 CFR 50.46. Dr. Armijo opened this session with a brief report on the meeting of the Materials, Metallurgy, and Fuels Subcommittee on January 19, 2007. At that meeting, the staff presented the results of its high burnup fuel research program that relate to revising the embrittlement criteria. He noted that this topic was covered in some depth, and they heard presentations from the industry as well as the staff. He commented that this work is quite admirable, but the industry is reluctant to use this information because they believe that it is not yet complete, and the technical issues are not settled.

Ms. Uhle, RES, opened the staff presentation and reviewed the history of the 10.46 acceptance criteria. They believe that this work is ready to move forward to rulemaking. This would enable the development and use of new materials and would reduce regulatory burden. Dr. Armijo asked how RES intends to proceed. Ms. Uhle replied that a regulatory guide is being prepared, and a proposed rule should be issued in January 2009. Based on the current understanding of this issue, the staff believes that this should be a high-priority rulemaking. Dr. Landry, NRR, commented that NRR would like to proceed to rulemaking in an orderly fashion, with criteria that will stand for a long period of time, and not need to be revised. They would like to move in the direction of a more "performance-based" rule and leave the details in regulatory guidance, but they are not yet sure how this will eventually end.

Mr. Meyer, RES, described the high burnup fuel program and noted the support from the Kurchatov Institute and the Russian fuel vendor, Tavel, that has proven to be important to understanding the phenomena.

The focus of the work has been the ductility of the fuel cladding. He described the metallurgical changes that occur in the fuel during a LOCA scenario, which includes phase changes, increased corrosion/oxidation, and an overall loss of ductility. The current embrittlement criteria

in 50.46 include a temperature limit and an oxidation limit that involves calculation of the oxidation on the outside of the rods, as well as that on the inside in any balloon regions of fuel. Information Notice 98-29 clarified the staff position that the oxidation limit includes both the oxidation during a transient and any pre-existing corrosion.

Dr. Meyer described the various alloys that were tested in the high-burnup fuel program, which include Zircaloy-4 (Zry-4), ZIRLO, M5, and E110. These materials were tested in a furnace that used external heaters and allowed steam to pass over the samples. Dr. Powers asked whether there was any significance to the fact that during the transient the heat would come from outside the rod, while in the experiment, the heat comes from the outside. Dr. Meyer replied that this is why they performed both single-sided tests and double-sided tests.

Dr. Meyer described the test method, which involves ring compression tests of small samples, to determine when the cladding loses ductility during an accident. Cladding ductility is the key to ensuring that the core will remain in a coolable geometry following a loss-of-coolant accident. They tested a number of actual high burnup fuel rod samples from power plants and have plans to test additional rods that use the newer types of cladding. However, they were not able to perform those tests in time to support this NUREG report. Dr. Meyer noted that it has always been the plan to examine unirradiated ZIRLO and M5 rods, and both irradiated and unirradiated Zry rods, and use those results to infer the behavior of the irradiated ZIRLO and M5.

Dr. Meyer described in detail the change in morphology of the cladding during a LOCA transient, and he pointed out that the most important phenomenon that occurs is the diffusion of oxygen that creates a brittle oxygen-stabilized alpha phase. He also noted that for this program, they have shifted from using the Baker-Just oxidation correlation to the Cathcart-Pawel (C-P) correlation. Dr. Armijo asked whether C-P has been shown to be valid for all zirconium alloys, and Dr. Meyer replied that they have found that at lower temperatures, some alloys have lower oxidation. Ms. Uhle commented that when the rule is eventually written, the staff plans to include a requirement that an appropriate correlation be used for the material proposed. Dr. Meyer believes that this method will work for all Zr/Sn/Nb alloys with Sn-Nb values in the 1% range.

With regard to burnup effects, they observed that the major effect of burnup is the consequence of hydrogen absorption during normal operation. High-burnup Zry embrittles at a much lower equivalent cladding reacted (ECR) than fresh material. This is due to the hydrogen effect on the oxygen solubility and diffusion rates in the metal. They have taken fresh Zry materials and pre-hydrided them to demonstrate this phenomenon.

Dr. Armijo asked whether the hydrogen contributed directly to embrittlement, and Dr. Billone, ANL, commented that it has some effect, and the cooling rate does have some effect, because it freezes in the hydrogen. This is accounted for in the F-factor.

Dr. Meyer also noted another phenomenon related to the impurity levels that were identified from testing of E110, which is very similar to M5, but which behaves much differently. It is believed that this arises from the Zr ingot fabrication process. E110 is produced from a very pure electro-refined ingot, while M5 is produced from a Kroll-process ingot.

He pointed out that there are two sources of oxygen during a transient - the expected source on the outside of the cladding and the UO_2 fuel that is bonded to the cladding on the inside of the fuel rod.

The proposed method would involve retaining the existing temperature limit of 2200F, while revising the oxidation limits to values that would be determined for each material from specific tests. The test material would have to be prototypical material, with respect to fabrication and surface condition. It would also include an allowance for normal corrosion that would be multiplied by an "F-factor" of 1.2 to account for cooling rate effects. The F-factor value incorporates information from the experiments and expert judgment. There would also be a limit on the amount of time that the fuel would be allowed to remain above the measured breakaway oxidation time.

Dr. Meyer presented examples of how the method would be applied to several different alloys and showed how some modern alloys would fare well with the new criteria, while other alloys, which are not used, but which has some similarities, would be screened out.

Dr. Ozer, EPRI, commented that the industry fully supports the ongoing high burnup fuel program, but it does not believe that the data obtained thus far indicates the presence of a public safety issue. The revisions proposed by RES are premature and not adequately supported by data. The evidence does not support use of 2-sided oxidation away from the balloon region, and the bounding approach will have a significant negative impact on the industry with little or no safety benefit.

Dr. Powers expressed skepticism about the statement that there is no safety issue, given the evidence that high burnup fuel may shatter during a LOCA. Dr. Ozer replied that the experimental evidence supports the view that even brittle material will withstand quench and post-LOCA impact forces. He presented data from operating reactor calculations to show that high burnup fuel will not be operated under conditions that would even approach 2200F during a LOCA. Mr. Dunn, Areva, explained that during a LOCA, the high burnup fuel which operated at a much lower peaking factor, will experience much lower temperatures, because both the decay heat and the stored energy will be much lower.

Dr. Powers asked what data was available to support the claim about loads, and Anatech commented that this comes from Japanese data where the rods were restrained in tension during the event, to see whether the rods will fail. Even 17% equivalent clad reacted (ECR) fuel does not fail, and they have discovered that much higher levels of oxidation are required to cause failure. Dr. Powers was concerned that these experiments might not be inclusive of all of the stresses that might occur, and Dr. Ozer replied that this data provide that sort of indication. Dr. Armijo commented that the high burnup focus seems to be the source of the industry concerns. The industry does not believe that there is sufficient data to support the 1.2 F-factor. Dr. Uhle noted that the F-factor would be determined for each cladding material, and this is not the time to discuss this factor.

Dr. Dunn commented that Areva believes that this method should have a well-established basis, but they are not quite there. He noted that since the last time this was discussed with the ACRS, two new phenomena have been identified, and they are concerned that this effort is moving too fast.

Mr. Ozer noted that the F-factor is a complicated function of hydrogen content, cladding design, and accident time-temperature history. It is also not appropriate for BWRs, where the hydrogen content is more important than oxide thickness. It is unclear how to address these variables through a single factor, or how to apply a single factor to a wide variety of LOCA scenarios.

Regarding the testing that was proposed, they do not believe that the quench temperatures that are proposed are appropriate, either, because predicted quench temperatures in PWRs are lower than the 800C temperature used in the methodology. Dr. Billone noted that this data is from Commissariat Energy Atomique (CEA) experiments, but Argonne National Laboratory (ANL) has not observed this sensitivity.

Mr. Dunn commented that the industry really wants to wait till the results of the high burnup ZIRLO and M5 tests are complete to fill in the rest of the data to support this proposal.

Dr. Ozer pointed to some of the results of the ANL tests where there is no significant internal cladding oxygen pickup due to fuel bonding. Dr. Armijo replied that this phenomenon is known to exist in BWRs, though. Dr. Powers pointed out that the only way to verify this is to actually look at irradiated fuel, and Dr. Ozer agreed. This is what the industry wants to do, to finish the rest of the test series. They also think that there will be new information coming out of other labs, such as Halden, and this data needs to be considered.

Finally, Dr. Ozer presented a summary of the effects of this research on the industry, and he noted that there is no urgency.

VI. Draft Final Revision 1 of Regulatory Guide 1.189 (DG-1170), "Fire Protection for Nuclear Power Plants," (Open)

[Note: Ms. Maitri Banerjee was the Designated Federal Official for this portion of the meeting.]

The Committee met with representatives of the NRC staff to discuss the draft final Revision 1 of Regulatory Guide (RG) 1.189, and resolution of public comments. In a letter dated November 17, 2006, the ACRS requested the opportunity to review the draft final version of this Guide after the resolution of public comments. The RG provides comprehensive guidance on the scope and depth of fire protection programs that the staff would consider acceptable for the existing and new reactor plants. It was issued for public comments in September 2006. Ninety-five comments were received from the Nuclear Energy Institute (NEI). The staff agreed with 67 of these comments and incorporated them in the final draft. In addition, the staff addressed 16 NEI comments received on previous versions of the draft guide. The staff noted that this technical guidance has also been incorporated into Standard Review Plan (SRP) Section 9.4.1, "Fire Protection Program."

The staff discussed the resolution of the following NEI comments:

NEI commented that the draft guide promulgates new staff positions that are backfit to the industry. The staff's response is that the RG promulgates one of the acceptable methods of meeting the regulatory requirements and that the licensees/applicants may propose alternative methods for showing compliance to a regulation. Also when alternative approaches are proposed, the staff reviews the application against the licensing bases of the plant and not the

RG. The Committee to Review Generic Requirements agreed with the staff's position, and no backfit analysis was required.

NEI commented that the RG should not be issued because the Commission did not authorize the issuance of a generic letter regarding analyses of multiple spurious actuations in case of a fire. In response the staff deleted the specific guidance on the spurious actuation analysis requirements from the RG.

Public Law 104-113 requires the use of available consensus standards in governmental rulemaking. NEI commented that equivalent guidance for this RG exists in NFPA-804 (Standard for Fire Protection for Advanced light Water Reactor Electric Generating Plants) and NEI 00-01 (Guidance for Post-Fire Safe-Shutdown Circuit Analysis) such that the RG could be replaced with portions of these documents. In response, the staff noted that specific endorsement of an NFPA standard has already been made via the rulemaking process, guidance on acceptable use of NEI 00-01 has been issued in a generic communication, and the regulatory review of NFPA-804 is ongoing. The staff's position is that the issuance of the RG does not prevent future endorsement of such industry standards.

NEI commented that industry would like to have credit for operator manual action to achieve and maintain post-fire safe shutdown in lieu of the separation required under Section III.G.2 of Appendix R. The RG clarifies that such credit may not be allowed as operator manual action does not provide the same level of protection provided by the separation requirements of Section III.G. 2. The staff also addressed the industry's question on the need for detection and suppression capabilities with the use of operator manual action. The staff noted that fire detection and suppression are essential elements of the defense-in-depth requirements of Appendix R, and the use of operator manual action as a substitute for separation does not obviate the detection and automatic suppression requirements.

NEI commented that automatic suppression in the peripheral rooms and smoke detectors in cabinets for the control room complex should be deleted from the guidance. The staff noted that automatic suppression may be required in the rooms if separation by a three hour barrier between the redundant trains is not provided. Also, cabinet detectors provide earlier warning and an exact location of the fire, and NFPA-804 recommends having them.

NEI asked for removal of the guidance that stated minimal reliance be placed on operator manual actions and alternative/dedicated shutdown systems for new reactors. The comments also stated that similar guidance on minimal reliance of electrical raceway fire barrier system be deleted. The staff pointed out that this guidance is appropriate for new plants and is consistent with the Commission's concept of enhanced fire protection for new reactors.

Dr. Apostolakis asked if the staff is planning to codify a requirement for a detailed fire protection PRA in the new reactor licensing process. The staff indicated that the requirement for a fire PRA is optional. The new reactor applicant must submit a plant specific version of the fire PRA if it references a certified design approved by the NRC that used a fire PRA. Also, the staff noted new reactor designs are risk informed, and the risk values are usually much lower than operating reactors. Dr. Apostolakis noted the benefits associated with the PRA approach.

Committee Action:

The Committee issued a letter to the Executive Director for Operations on this matter dated February 14, 2007, recommending that Revision 1 to Regulatory Guide 1.189 be issued.

VII. Wolf Creek Pressurizer Weld Flaws

[Note: Mr. Gary Hammer was the Designated Federal Official for this portion of the meeting.]

The Committee met with representatives of the NRC staff and the Nuclear Energy Institute (NEI) to describe the Wolf Creek pressurizer weld flaws discovered during an October 2006 inservice inspection. The staff described the nature of the large circumferential flaws in three different locations. The pressurizer surgeline nozzle contained three flaws: (1) 4 inches long and 31% throughwall (TW); (2) 2.2" long and 25% TW; and (3) 0.8" long at the inner surface. The pressurizer relief valve nozzle contained a circumferential flaw that was 7.7" long and 26% TW. The pressurizer safety nozzle contained a circumferential flaw that was 2.5" long and 23% TW.

The staff presented its evaluation of the significance of these flaws and the safety implications to other plants with similar welds. The staff described their estimates of how long it would take for such flaws to begin leaking and how long it would take for them to rupture. For some of the analyses, the staff found that such cracks may rupture at the same time they begin to leak. The staff also described significant uncertainties in the analyses which may dominate any potential sources of conservatism. As a result of these analyses, the staff has determined that currently scheduled inspections or mitigations of these welds need to be accelerated for some plants. The staff was also concerned that a more refined first-of-a-kind analysis intended to better characterize the time between the onset of leakage and pipe rupture would not reduce uncertainties in the modeling, the input assumptions, or the results. The staff was also concerned with the time frame needed to complete this kind of analysis.

NEI's presentation provided the basis for their position that the currently scheduled inspections or mitigations of these welds do not need to be accelerated. They stated that the Wolf Creek inspection results are not consistent with other experience worldwide and that it is safe to operate plants without interruption until their next scheduled refueling outage. They understand the reasons for the staff's concerns but noted that the staff's analysis is extremely conservative. They stated that the time between the occurrence of any leakage and pipe rupture allows plant personnel to take preventive actions. They also stated that advanced non-linear finite element modeling analyses are being pursued to provide more detailed calculations of the time interval between the onset of leakage and pipe rupture.

Committee Action

This was an information briefing. No Committee action was necessary. The Committee plans to review the technical basis associated with the proposed NRC staff action for dealing with dissimilar metal butt weld issues during its March 8-10, 2007 meeting.

VIII. Proposed Revisions to Regulatory Guides and Standard Review Plan Sections in Support of New Reactor Licensing (Open)

[Note: Mr. David C. Fischer was the Designated Federal Official for this portion of the meeting.]

The Committee discussed "high-priority" SRP Sections that are being revised or developed in support of new reactor licensing. The Committee identified eleven SRP Sections that it decided not to review. The Committee's decision is documented in a memorandum dated February 6, 2007, from Frank P. Gillespie, ACRS Executive Director to Luis A. Reyes, NRC Executive Director for Operations. The Committee noted that it is awaiting receipt of additional high priority SRP Sections from the staff.

Committee Action

The Committee plans to conduct an accelerated review of all Regulatory Guides and SRP Sections that it determines warrant ACRS review.

IX. Subcommittee Report on Reliability and Probabilistic Risk Assessment

[Note: Mr. Eric Thornsbury was the Designated Federal Official for this portion of the meeting.]

The Chairman of the Reliability and Probabilistic Risk Assessment (PRA) Subcommittee provided a report to the Committee summarizing the results of the December 14-15, 2006 meeting with the NRC staff and representatives of GE to discuss the PRA for the Economic Simplified Boiling Water Reactor that is in the design certification process. During the meeting, the Subcommittee reviewed several topics identified at a prior meeting, including the dominant accident sequences, the common cause failure method, the effects of thermal-hydraulic uncertainties on the PRA, the regulatory treatment of non-safety systems, and staff requests for additional information. The Subcommittee raised several issues to discuss at future meetings, and decided that no interim letter was necessary at this time. The next Subcommittee meeting will focus on the effects of thermal-hydraulic uncertainties on the PRA, the Level 2 PRA, and severe accident phenomena.

IX. Executive Session (Open)

[Note: Mr. Frank P. Gillespie was the Designated Federal Official for this portion of the meeting.]

A. RECONCILIATION OF ACRS COMMENTS AND RECOMMENDATIONS/EDO COMMITMENTS

The Committee discussed the response from the NRC Executive Director of Operations (EDO) to ACRS comments and recommendations included in recent ACRS reports:

- The Committee considered the EDO's response of January 11, 2007, to comments and recommendations included in the December 12, 2006, ACRS report on draft final Regulatory Guide DG-1145, "Combined License Applications for Nuclear Power Plants (LWR Edition)." The Committee decided that it was not satisfied with the EDO's response related to the Committee's recommendation that "the proposed final rule, 10 CFR Part 52, should include the requirements that a PRA be submitted with the design certification application and that a plant-specific PRA be submitted with the combined license (COL) application." The EDO's response articulated the staff's basis for deleting these requirements from the draft final Part 52 rule and stated that the Commission will decide on this matter when it votes on the final rule. The Committee reiterates its previous position with regard to including a requirement in 10 CFR Part 52 for submitting PRAs to the staff.

  The staff committed to inform the ACRS of any significant changes to the final regulatory guide prior to publication.

- The Committee considered the EDO's response of January 19, 2007, to comments and recommendations included in the November 16, 2006 ACRS report on the proposed rulemaking to modify 10 CFR 50.46, "Risk-informed Changes to Loss-of-Coolant Accident Technical Requirements." The Committee decided that it was satisfied with the EDO's response.

  The staff committed to inform the Commission of the impact of the Committee's recommendations on its resources and schedule.

- The Committee considered the EDO's response of January 19, 2007, to comments and recommendations included in the December 15, 2006 ACRS letter on the proposed revision to SRP Section 13.3, "Emergency Planning." The Committee decided that it was satisfied with the EDO's response.

OTHER RELATED ACTIVITIES OF THE COMMITTEE

During the period from December 9, 2006, through January 31, 2007, the following Subcommittee meetings were held:

- Reliability and Probabilistic Risk Assessment - December 14-15, 2006

The Subcommittee reviewed the PRA for the Economic Simplified Boiling Water Reactor.

- Power Uprates - January 16-17, 2007

The Subcommittee discussed the proposed 5-percent power uprate for the Browns Ferry Nuclear Plant, Unit 1.

- Plant License Renewal - January 18, 2007

The Subcommittee reviewed the license renewal application for the Oyster Creek Generating Station and the associated updated Safety Evaluation Report prepared by the NRC staff.

- Materials, Metallurgy, and Reactor Fuels - January 19, 2007

The Subcommittee discussed the proposed technical basis for revising the embrittlement criteria in 10 CFR 50.46.

- Planning and Procedures - January 31, 2007

The Subcommittee discussed proposed ACRS activities, practices, and procedures for conducting Committee business and organizational and personnel matters relating to ACRS and its staff.

LIST OF MATTERS FOR THE ATTENTION OF THE EDO

- The Committee would like to be kept informed of any significant changes made to the SRP Sections, prior to issuing them in final form, listed in the February 6, 2007 memorandum from Frank P. Gillespie, Executive Director, ACRS, to Luis A. Reyes, Executive Director for Operations, NRC.

- The Committee is awaiting receipt of additional high priority SRP Sections from the staff.

- The Committee plans to review the draft final version of Generic Letter 2007-XX, "Managing Gas Intrusion in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems," during a future meeting.

- The Committee would like to be briefed by the staff on the results of the 3-dimensional finite element analysis of the Oyster Creek Generating Station drywell shell.

- The Committee plans to review the extended power uprate applications for Browns Ferry, Units 1, 2, and 3 during a future meeting.

- The Committee plans to review the technical basis associated with the proposed NRC staff actions for dealing with the dissimilar metal butt weld issue during its March 8-10, 2007 meeting.

- The Committee stated that granting of containment overpressure credit during long-term LOCA and 10 CFR Part 50 Appendix R fire scenarios at 120-percent of the original licensed thermal power for Browns Ferry Nuclear Plant Units 1, 2, and 3 will require support by more complete evaluations.

B. Report on the Meeting of the Planning and Procedures Subcommittee Held January 31, 2007 (Open)

The ACRS Subcommittee on Planning and Procedures held a meeting on January 31, 2007, in Room T-2B3, Two White Flint North Building, Rockville, Maryland. The purpose of the meeting was to discuss matters related to the conduct of ACRS business. The meeting was convened at 10:00 am and adjourned at 11:45 am. A portion of this meeting was closed to discuss organizational and personnel matters.

ATTENDEES
W. Shack
J. Sieber
M. Bonaca

ACRS STAFF
F. Gillespie
S. Duraiswamy
H. Nourbakhsh
R. Caruso
J. Flack
E. Thornsbury
M. Junge
D. Fischer
J. Gallo
T. Santos
M. Afshar-Tous
G. Hammer
Z. Abdullahi

1) Review of the Member Assignments and Priorities for ACRS Reports and Letters for the February ACRS meeting

Member assignments and priorities for ACRS reports and letters for the February ACRS meeting are attached. Reports and letters that would benefit from additional consideration at a future ACRS meeting were discussed.

2) Anticipated Workload for ACRS Members

The anticipated workload for ACRS members through March 2007 is attached. The objectives are to:

- Review the reasons for the scheduling of each activity and the expected work product and to make changes, as appropriate
- Manage the members' workload for these meetings
- Plan and schedule items for ACRS discussion of topical and emerging issues

During this session, the Subcommittee also discussed and developed recommendations on items requiring Committee action.

RECOMMENDATION

The Subcommittee recommends that the members provide comments on the anticipated workload. Changes will be made, as appropriate.

3) Assignments and Due Dates to Respond to the Issues Raised by the Commission in the November 8, 2006 Staff Requirements Memorandum

In the November 8, 2006 Staff Requirements Memorandum (SRM) resulting from the ACRS meeting with the NRC Commissioners on October 20, 2006, the Commission requested ACRS to perform the following tasks. Assignments (as agreed to by the Committee at the December 2006 ACRS meeting) and due dates for completing these tasks are provided below:

- As licensing under Part 52 continues, the Committee should advise the Commission on effectiveness and efficiency of staff's implementation of lessons learned in areas it has reviewed, for example, the development of guidance documents for early site permits. [Powers/Fischer] **Due Date: 11/30/07**

- The Committee should provide its views to the Commission on staff's efforts related to digital instrumentation and controls. The Committee should consider potential means for providing reasonable backup, if appropriate. [Sieber/Junge] **Due Date: 5/31/07**

- The ACRS should provide its views to the Commission with respect to staff's work on technology neutral licensing framework with a focus on ensuring the value of such an approach versus the development of a licensing framework for specific designs, such as a high temperature gas cooled reactor or a liquid metal cooled reactor. [Kress/Fischer] **Due Date: 5/31/07**

- The ACRS should provide the Commission with its recommendations and basis for areas in which NRC should perform additional long term research. [Powers/Nourbakhsh] **Due Date: 3/15/08**

- The Committee should work with the staff and external stakeholders to evaluate the different Human Reliability models in an effort to propose either a single model for the agency to use or guidance on which model(s) should be used in specific circumstances. [Apostolakis/Thornsbury] **Due Date: 6/29/07**

4) Impact of Continuing Resolution on FY2007 ACRS/ACNW Activities

The Agency is currently operating under a Continuing Resolution (CR) which is expected to continue at least through February 15, 2007. If the budget is not appropriated by that time, the CR will continue. If the CR remains in effect through FY2007 all NRC Offices have been asked to identify cost-saving measures such as the temporary cancellation of non-essential domestic and foreign travels, and cancellation of external training not part of a formal qualification program. The ACRS/ACNW Office has provided the following cost-saving measures to the Chief Financial Officer:

- Cancellation of foreign travels.
- Cancellation of domestic travels related to non-Committee meetings.
- Cancellation of the LINK contract.
- Cancellation of external training programs for the staff.
- Cancellation of the visit to San Onofre and meeting with the Regional Administrator scheduled for June 2007.

Subcommittee and full Committee meetings will continue to be funded. However, efforts should be made to hold back-to-back Subcommittee meetings to ensure efficient use of the travel budget. When the budget is approved, all the restrictions mentioned above will be eliminated, as appropriate.

5) Interview of Candidates for ACRS Membership

The ACRS Member Candidate Screening Panel has identified four candidates with expertise in the area of digital I&C and another four candidates with expertise in plant operations. Three candidates with digital I&C experience and one candidate with experience in plant operations were interviewed by the Panel and the members during the February ACRS meeting. The other four candidates will be scheduled for interview during the March meeting.

6) Assessment of the Quality of the Selected NRC Research Projects

During its December 2006 meeting, the Committee selected the following two projects for quality assessment in FY2007:

- Associated Circuit Fire Testing (CAROLFIRE) - [Banerjee (Chair), Corradini, Sieber]

- Fatigue Crack Flaw Tolerance in Nuclear Plant Piping [Shack (Chair), Armijo, Abdel-Khalik]

The Committee requested Dr. Apostolakis and Mr. Maynard to decide whether quality assessment should be performed on the following two projects:

- Development of PRA Quality Standard and Incorporation into Regulatory Guide 1.200, "An Approach for Determining the Technical Adequacy of PRA Results for Risk-Informed Activities" (Apostolakis)

- Technical Review of Online Monitoring Techniques for Performance Assessment (Maynard)

Dr. Apostolakis recommends that the Committee not assess the quality of the research project on "Development of PRA Quality Standard and Incorporation into Regulatory Guide 1.200." Mr. Maynard should provide his views during the February 2007 meeting.

7) Regulatory Information Conference

The U.S. NRC's 19th Annual Regulatory Information Conference is scheduled to be held March 13-15, 2007, at the Marriott Bethesda North Hotel and Conference Center in Rockville, Maryland. A preliminary program for this Conference is attached. Drs. Shack, Apostolakis, and Kress have been invited to serve on the Panels on Acceptance Criteria – 10 CFR 50.46, PRA Models, Methods, and Tools, and on Safety Margins, respectively. Support will be provided to other members who are interested in attending this conference.

8) Reappointment of Mr. Sieber

The Commission has reappointed Mr. Sieber for a third term which will expire on July 10, 2011.

C. Future Meeting Agenda

Appendix IV summarizes the proposed items endorsed by the Committee for the **540th** ACRS Meeting, **March 8 - 10, 2007.**

The **539th** ACRS meeting was adjourned at **1:00 PM, February 3, 2007.**

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

March 29, 2007

MEMORANDUM TO: Carol A. Brown, Technical Secretary
Advisory Committee on Reactor Safeguards

FROM: William J. Shack
ACRS Chairman

SUBJECT: CERTIFIED MINUTES OF THE 539TH MEETING OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS (ACRS), February 1 - 3, 2007

I certify that based on my review of the minutes from the 539th ACRS full Committee meeting, and to the best of my knowledge and belief, I have observed no substantive errors or omissions in the record of this proceeding subject to the comments noted below.

N/A
Comments

From: John Flack
To: Carol Brown
Date: 04/03/2007 7:57:58 AM
Subject: Re: SUNSI Review of the 539th ACRS Minutes (ML070871206)

Carol: The 539th ACRS Minutes (ML070871206) can be released to the general public.

John

>>> Carol Brown 03/28/2007 4:41 PM >>>
Attached is the memo from Bill Shack transmitting the Certified Minutes of the 539th ACRS Meeting.
Please SUNSI Review the attached Minutes.

Thanks, John.

Carol Anne Brown
Administrative Assistant
US Nuclear Regulatory Commission
Advisory Committee on Reactor Safeguards
Operations Support Branch
415-7998, MS T2-E26

following general requirements: (1) The name, address and telephone number of the requestor or petitioner; (2) the nature of the requestor's/petitioner's right under the Act to be made a party to the proceeding; (3) the nature and extent of the requestor's/petitioner's property, financial, or other interest in the proceeding; and (4) the possible effect of any decision or order which may be entered in the proceeding on the requestor's/petitioner's interest. The petition must also identify the specific contentions which the petitioner/requestor seeks to have litigated at the proceeding.

Each contention must consist of a specific statement of the issue of law or fact to be raised or controverted. In addition, the petitioner/requestor shall provide a brief explanation of the bases for the contention and a concise statement of the alleged facts or expert opinion which support the contention and on which the petitioner intends to rely in proving the contention at the hearing. The petitioner/requestor must also provide references to those specific sources and documents of which the petitioner/requestor is aware and on which the petitioner/requestor intends to rely to establish those facts or expert opinion. The petitioner/requestor must provide sufficient information to show that a genuine dispute exists with the applicant on a material issue of law or fact. Contentions shall be limited to matters within the scope of the amendment under consideration. The contention must be one which, if proven, would entitle the petitioner/requestor to relief. A petitioner/requestor who fails to satisfy these requirements with respect to at least one contention will not be permitted to participate as a party.

Those permitted to intervene become parties to the proceeding, subject to any limitations in the order granting leave to intervene, and have the opportunity to participate fully in the conduct of the hearing.

If a hearing is requested, the Commission will make a final determination on the issue of no significant hazards consideration. The final determination will serve to decide when the hearing is held. If the final determination is that the amendment request involves no significant hazards consideration, the Commission may issue the amendment and make it immediately effective, notwithstanding the request for a hearing. Any hearing held would take place after issuance of the amendment. If the final determination is that the amendment request involves a significant hazards consideration, any hearing held would take place before the issuance of any amendment.

Nontimely requests and/or petitions and contentions will not be entertained absent a determination by the Commission or the presiding officer of the Atomic Safety and Licensing Board that the petition, request and/or the contentions should be granted based on a balancing of the factors specified in 10 CFR 2.309(c)(1)(i)–(viii).

A request for a hearing or a petition for leave to intervene must be filed by: (1) First class mail addressed to the Office of the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001, Attention: Rulemaking and Adjudications Staff; (2) courier, express mail, and expedited delivery services: Office of the Secretary, Sixteenth Floor, One White Flint North, 11555 Rockville Pike, Rockville, Maryland, 20852, Attention: Rulemaking and Adjudications Staff; (3) E-mail addressed to the Office of the Secretary, U.S. Nuclear Regulatory Commission, *HEARINGDOCKET@NRC.GOV;* or (4) facsimile transmission addressed to the Office of the Secretary, U.S. Nuclear Regulatory Commission, Washington, DC, Attention: Rulemakings and Adjudications Staff at (301) 415–1101, verification number is (301) 415–1966. A copy of the request for hearing and petition for leave to intervene should also be sent to the Office of the General Counsel, U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001, and it is requested that copies be transmitted either by means of facsimile transmission to 301–415–3725 or by e-mail to *OGCMailCenter@nrc.gov.* A copy of the request for hearing and petition for leave to intervene should also be sent to A. H. Gutterman, Esq., Morgan, Lewis & Bockius, 1111 Pennsylvania Avenue, NW., Washington, DC 20004, attorney for the licensee.

For further details with respect to this action, see the application for amendment dated December 20, 2006, which is available for public inspection at the Commission's Public Document Room (PDR), located at One White Flint North, Public File Area O1 F21, 11555 Rockville Pike (first floor), Rockville, Maryland. Publicly available records will be accessible electronically from the Agencywide Documents Access and Management System's (ADAMS) Public Electronic Reading Room on the Internet at the NRC web site *http://www.nrc.gov/reading-rm.html.* Persons who do not have access to ADAMS or who encounter problems in accessing the documents located in ADAMS should contact the NRC PDR Reference staff by telephone at 1–800–397–4209, or 301–415–4737, or by e-mail to *pdr@nrc.gov.*

Dated at Rockville, Maryland, this 22nd day of December 2006.

For the Nuclear Regulatory Commission.

Mohan C. Thadani,

Senior Project Manager, Plant Licensing Branch IV, Division of Operating Reactor Licensing, Office of Nuclear Reactor Regulation.

[FR Doc. E6–22390 Filed 12–28–06; 8:45 am]

BILLING CODE 7590–01–P

NUCLEAR REGULATORY COMMISSION

Advisory Committee on Reactor Safeguards; Meeting Notice

In accordance with the purposes of Sections 29 and 182b. of the Atomic Energy Act (42 U.S.C. 2039, 2232b), the Advisory Committee on Reactor Safeguards (ACRS) will hold a meeting on February 1–3, 2007, 11545 Rockville Pike, Rockville, Maryland. The date of this meeting was previously published in the **Federal Register** on Wednesday, November 15, 2006 (71 FR 66561).

Thursday, February 1, 2007, Conference Room T–2B3, Two White Flint North, Rockville, Maryland

8:30 A.M.–8:35 A.M.: Opening Remarks by the ACRS Chairman (Open)—The ACRS Chairman will make opening remarks regarding the conduct of the meeting.

8:35 A.M.–11:15 A.M.: Final Review of the Power Uprate Application for the Browns Ferry Nuclear Plant, Unit 1 (Open/Closed)—The Committee will hear presentations by and hold discussions with representatives of the NRC staff and Tennessee Valley Authority (TVA) regarding the 5% power uprate application for Browns Ferry Nuclear Plant, Unit 1 and the associated NRC staff's final Safety Evaluation.

[**Note:** A portion of this session will be closed to protect information that is proprietary to General Electric, TVA, and their contractors pursuant to 5 U.S.C. 552b(c)(4).]

12:45 P.M.–3:30 P.M.: Final Review of the License Renewal Application for the Oyster Creek Generating Station (Open)—The Committee will hear presentations by and hold discussions with representatives of the NRC staff and AmerGen Energy Company, LLC. regarding the license renewal application for the Oyster Creek Generating Station and the associated NRC staff's final Safety Evaluation Report.

3:45 P.M.–5:15 P.M.: Development of TRACE Thermal-Hydraulic Code (Open)—The Committee will hear presentations by and hold discussions with representatives of the NRC staff regarding the progress made by the staff in developing the TRACE thermal-hydraulic system analysis code and related matters.

5:30 P.M.–7 P.M.: Preparation of ACRS Reports (Open)—The Committee will discuss proposed ACRS reports on matters considered during this meeting.

Friday, February 2, 2007, Conference Room T–2B3, Two White Flint North, Rockville, Maryland

8:30 A.M.–8:35 A.M.: Opening Remarks by the ACRS Chairman (Open)—The ACRS Chairman will make opening remarks regarding the conduct of the meeting.

8:35 A.M.–10 A.M.: Proposed Revision to 10 CFR 50.46 LOCA Criteria for Fuel Cladding Materials (Open)—The Committee will hear presentations by and hold discussions with representatives of the NRC staff regarding proposed revision to 10 CFR 50.46 loss-of-coolant accident (LOCA) criteria for fuel cladding materials.

10:15 A.M.–11:15 A.M.: Draft Final Revision 1 to Regulatory Guide 1.189 (DG–1170), "Fire Protection for Nuclear Power Plants," and SRP Section 9.5.1, "Fire Protection Program" (Open)—The Committee will hear presentations by and hold discussions with representatives of the NRC staff regarding draft final revision 1 to Regulatory Guide 1.189 (DG–1170) and Standard Review Plan (SRP) Section 9.5.1, as well as resolution of public comments.

11:15 A.M.–11:30 A.M.: Subcommittee Report (Open)—Report by and discussions with the Chairman of the ACRS Subcommittee on Reliability and Probabilistic Risk Assessment (PRA) regarding the Economic Simplified Boiling Water Reactor (ESBWR) PRA that was discussed during a meeting on December 14, 2006.

1 P.M.–2 P.M.: Wolf Creek Pressurizer Weld Flaws (Open)—The Committee will hear presentations by and hold discussions with representatives of the NRC staff regarding the Wolf Creek Pressurizer Weld Flaws, including description, current status, and future actions.

2 P.M.–2:30 P.M.: Proposed Revisions to Regulatory Guides and SRP Sections in Support of New Reactor Licensing (Open)—The Committee will consider proposed revisions to Regulatory Guides and SRP Sections that are being made in support of new reactor licensing.

2:45 P.M.–3:30 P.M.: Future ACRS Activities/Report of the Planning and Procedures Subcommittee (Open)—The Committee will discuss the recommendations of the Planning and Procedures Subcommittee regarding items proposed for consideration by the full Committee during future meetings. Also, it will hear a report of the Planning and Procedures Subcommittee on matters related to the conduct of ACRS business, including anticipated workload and member assignments.

3:30 P.M.–3:45 P.M.: Reconciliation of ACRS Comments and Recommendations (Open)—The Committee will discuss the responses from the NRC Executive Director for Operations to comments and recommendations included in recent ACRS reports and letters.

4 P.M.–7 P.M.: Preparation of ACRS Reports (Open)—The Committee will discuss proposed ACRS reports.

Saturday, February 3, 2007, Conference Room T–2B3, Two White Flint North, Rockville, Maryland

8:30 A.M.–12:30 P.M.: Preparation of ACRS Reports (Open)—The Committee will continue discussion of proposed ACRS reports.

12:30 P.M.–1 P.M.: Miscellaneous (Open)—The Committee will discuss matters related to the conduct of Committee activities and matters and specific issues that were not completed during previous meetings, as time and availability of information permit.

Procedures for the conduct of and participation in ACRS meetings were published in the **Federal Register** on October 2, 2006 (71 FR 58015). In accordance with those procedures, oral or written views may be presented by members of the public, including representatives of the nuclear industry. Electronic recordings will be permitted only during the open portions of the meeting. Persons desiring to make oral statements should notify the cognizant ACRS staff named below five days before the meeting, if possible, so that appropriate arrangements can be made to allow necessary time during the meeting for such statements. Use of still, motion picture, and television cameras during the meeting may be limited to selected portions of the meeting as determined by the Chairman. Information regarding the time to be set aside for this purpose may be obtained by contacting the cognizant ACRS staff prior to the meeting. In view of the possibility that the schedule for ACRS meetings may be adjusted by the Chairman as necessary to facilitate the conduct of the meeting, persons planning to attend should check with the cognizant ACRS staff if such rescheduling would result in major inconvenience.

In accordance with Subsection 10(d) of the Government in the Sunshine Act, I have determined that it will be necessary to close a portion of this meeting noted above to discuss information that is proprietary to General Electric, the Tennessee Valley Authority, and their contractors pursuant to 5 U.S.C. 552b(c)(4).

Further information regarding topics to be discussed, whether the meeting has been canceled or rescheduled, as well as the Chairman's ruling on requests for the opportunity to present oral statements and the time allotted therefor can be obtained by contacting Mr. Sam Duraiswamy, cognizant ACRS staff (301–415–7364), between 7:30 a.m. and 4 p.m., (ET).

ACRS meeting agenda, meeting transcripts, and letter reports are available through the NRC Public Document Room at *pdr@nrc.gov*, or by calling the PDR at 1–800–397–4209, or from the Publicly Available Records System (PARS) component of NRC's document system (ADAMS) which is accessible from the NRC Web site at *http://www.nrc.gov/reading-rm/adams.html* or *http://www.nrc.gov/reading-rm/doc-collections/* (ACRS meeting schedules/agendas).

Videoteleconferencing service is available for observing open sessions of ACRS meetings. Those wishing to use this service for observing ACRS meetings should contact Mr. Theron Brown, ACRS Audio Visual Technician (301–415–8066), between 7:30 a.m. and 3:45 p.m., (ET), at least 10 days before the meeting to ensure the availability of this service. Individuals or organizations requesting this service will be responsible for telephone line charges and for providing the equipment and facilities that they use to establish the videoteleconferencing link. The availability of video-teleconferencing services is not guaranteed.

Dated: December 22, 2006.

Andrew L. Bates,

Advisory Committee Management Officer.

[FR Doc. E6–22383 Filed 12–28–06; 8:45 am]

BILLING CODE 7590–01–P

December 22, 2006

SCHEDULE AND OUTLINE FOR DISCUSSION
539th ACRS MEETING
FEBRUARY 1-3, 2007

THURSDAY, FEBRUARY 1, 2007, CONFERENCE ROOM T-2B3, TWO WHITE FLINT NORTH, ROCKVILLE, MARYLAND

1) 8:30 - 8:35 A.M.

Opening Remarks by the ACRS Chairman (Open) (WJS/FPG/SD)

1.1) Opening statement

1.2) Items of current interest

2) 8:35 - 11:15 A.M.
~~(10:00-10:15 BREAK)~~
(10:35 - 10:50)

Final Review of the Power Uprate Application for the Browns Ferry Nuclear Plant, Unit 1 (Open/Closed) (MVB/RC)

2.1) Remarks by the Subcommittee Chairman

2.2) Briefing by and discussions with representatives of the NRC staff and Tennessee Valley Authority (TVA) regarding the 5% power uprate application for the Browns Ferry Nuclear Plant, Unit 1 and the associated NRC staff's final Safety Evaluation.

Members of public may provide their views, as appropriate.

[Note: A portion of this session will be closed to protect information that is proprietary to General Electric, TVA, and their contractors pursuant to 5 U.S.C. 552b (c) (4).]

~~11:15 - 12:45 P.M.~~
12:10 - 1:15 PM

LUNCH

3) 12:45 - 3:30 P.M.
1:15 - 2:40 P.M.
~~(2:00-2:15 BREAK)~~
(2:55 - 3:45)

Final Review of the License Renewal Application for the Oyster Creek Generating Station (Open) (OLM/MAJ/MB)

3.1) Remarks by the Subcommittee Chairman

3.2) Briefing by and discussions with representatives of the NRC staff and AmerGen Energy Company, LLC. regarding the license renewal application for the Oyster Creek Generating Station and the associated NRC staff's final Safety Evaluation Report.

Members of the public may provide their views, as appropriate.

~~3:30 - 3:45 P.M.~~ ***BREAK***
3:45 - 4:15 P.M.

4) ~~3:45 - 5:15~~ P.M. Development of TRACE Thermal-Hydraulic Code (Open)
4:15 - 6:00
(SB/GBW/RC)
4.1) Remarks by the Subcommittee Chairman
4.2) Briefing by and discussions with representatives of the NRC staff regarding the progress made by the staff in developing the TRACE thermal-hydraulic system analysis code and related matters.

Representatives of the nuclear industry and members of the public may provide their views, as appropriate.

~~5:15 - 5:30~~ P.M. ***BREAK***
6:00 - 6:10

5) ~~5:30 - 7:00~~ P.M. Preparation of ACRS Reports (Open)
6:10 - 7:00
Discussion of proposed ACRS reports on:
5.1) Power Uprate Application for the Browns Ferry Nuclear Plant, Unit 1 (MVB/RC)
5.2) License Renewal Application for the Oyster Creek Generating Station (OLM/MAJ/MB)
5.3) Development of the TRACE Thermal-Hydraulic System Analysis Code (SB/GBW/RC)

FRIDAY, FEBRUARY 2, 2007, CONFERENCE ROOM T-2B3, TWO WHITE FLINT NORTH, ROCKVILLE, MARYLAND

6) 8:30 - 8:35 A.M. Opening Remarks by the ACRS Chairman (Open) (WJS/FPG/SD)

7) ~~8:35 - 10:00~~ A.M. Proposed Revision to 10 CFR 50.46 LOCA Criteria for Fuel
8:35 - 10:30
Cladding Materials (Open) (DAP/RC/CGH)
7.1) Remarks by the Subcommittee Chairman
7.2) Briefing by and discussions with representatives of the NRC staff regarding proposed revision to 10 CFR 50.46 loss-of-coolant accident (LOCA) criteria for fuel cladding materials.

Representatives of the nuclear industry and members of the public may provide their views, as appropriate.

~~10:00 - 10:15~~ A.M. ***BREAK***
10:30 - 10:40

8)	~~10:15 - 11:15~~ A.M. 10:40 - 11:40	Draft Final Revision 1 to Regulatory Guide 1.189 (DG-1170), "Fire Protection for Nuclear Power Plants," and SRP Section 9.5.1, "Fire Protection Program" (Open) (JDS/MAJ) 8.1) Remarks by the Subcommittee Chairman 8.2) Briefing by and discussions with representatives of the NRC staff regarding draft final revision 1 to Regulatory Guide 1.189 (DG-1170) and Standard Review Plan (SRP) Section 9.5.1, as well as the resolution of public comments. Representatives of the nuclear industry and members of the public may provide their views, as appropriate.
9)	~~11:15 - 11:30~~ A.M. 11:40 - 11:45	Subcommittee Report (Open) (GEA/EAT) Report by and discussions with the Chairman of the ACRS Subcommittee on Reliability and Probabilistic Risk Assessment (PRA) regarding the Economic Simplified Boiling Water Reactor (ESBWR) PRA that was discussed during a meeting on December 14, 2006.
	~~11:30 - 1:00~~ P.M. **11:45 - 1:00**	*****LUNCH*****
10)	~~1:00 - 2:00~~ P.M. 1:00 - 2:20	Wolf Creek Pressurizer Weld Flaws (Open) (JSA/CGH) 10.1) Remarks by the Subcommittee Chairman 10.2) Briefing by and discussions with representatives of the NRC staff regarding the Wolf Creek Pressurizer Weld Flaws, including description, current status, and future actions. Members of the public may provide their views, as appropriate.
11)	~~2:00 - 2:30~~ P.M. 2:20 - 2:35	Proposed Revisions to Regulatory Guides and SRP Sections in Support of New Reactor Licensing (Open) (OLM/DCF) 11.1) Remarks by the Subcommittee Chairman 11.2) Discussion of proposed revisions to Regulatory Guides and SRP Sections that are being made in support of new reactor licensing.
	~~2:30 - 2:45~~ P.M. **2:35 - 2:55**	*****BREAK*****
12)	2:45 - 3:30 P.M. 2:55 - 3:30	Future ACRS Activities/Report of the Planning and Procedures Subcommittee (Open) (WJS/FPG/SD) 12.1) Discussion of the recommendations of the Planning and Procedures Subcommittee regarding items proposed for consideration by the full Committee during future ACRS meetings.

12.2) Report of the Planning and Procedures Subcommittee on matters related to the conduct of ACRS business, including anticipated workload and member assignments.

13) 3:30 - 3:45 P.M. Reconciliation of ACRS Comments and Recommendations (Open) (WJS, et al./SD, et al.)
Discussion of the responses from the NRC Executive Director for Operations to comments and recommendations included in recent ACRS reports and letters.

3:45 - 4:00 P.M. *****BREAK*****

14) ~~4:00 - 7:00~~ P.M. 4:40 - 7:00 Preparation of ACRS Reports (Open)
Discussion of proposed ACRS reports on:

14.1) Power Uprate Application for the Browns Ferry Nuclear Plant, Unit 1 (MVB/RC)
14.2) License Renewal Application for the Oyster Creek Generating Station (OLM/MAJ/MB)
14.3) Development of the TRACE Thermal-Hydraulic System Analysis code (SB/GBW/RC)
14.4) Proposed Revision to 10 CFR 50.46 LOCA Criteria for Fuel Cladding Materials (DAP/RC/CGH)
14.5) Draft Final Revision 1 to Regulatory Guide 1.189 and SRP Section 9.5.1 (JDS/MAJ)

SATURDAY, FEBRUARY 3, 2007, CONFERENCE ROOM T-2B3, TWO WHITE FLINT NORTH, ROCKVILLE, MARYLAND

15) 8:30 - 12:30 P.M. Preparation of ACRS Reports (Open)
(10:15-10:30 A.M. BREAK) Continue discussion of proposed ACRS reports listed under Item 14.

16) 12:30 - 1:00 P.M. Miscellaneous (Open) (WJS/JTL)
Discussion of matters related to the conduct of Committee activities and matters and specific issues that were not completed during previous meetings, as time and availability of information permit.

NOTE:

- Presentation time should not exceed 50 percent of the total time allocated for a specific item. The remaining 50 percent of the time is reserved for discussion.
- Thirty-Five (35) hard copies and (1) electronic copy of the presentation materials should be provided to the ACRS.

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
539TH FULL COMMITTEE MEETING
February 1-3, 2007

NRC STAFF SIGN IN FOR ACRS MEETING

Today's Date: February 1, 2007

PLEASE PRINT

NAME	NRC ORGANIZATION
Margaret Chernoff	NRR/ADRS/DORL
Joe Ashcraft	NRR/DIRS/IPAB
Istar, ATA	RES
Matt Yoder	NRR/DCI/CSGB
Angelos Stubbs	NRR/DSS/SBPB
Marty Stutzke	NRR/DRA/APLA
Michelle Hart	NRR/DRA/AADB
Jim Tatum	NRR/DSS/SBPB
Lambros Lois	NRR/DSS/SBWB
Theresa Clark	NRR/DRA/APLB
Robert Dennig	NRR/DSS/SCUB
Matthew Mitchell	NRR/DCI/CVIB
Tai Huang	NRR/DSS/SBWB
Thomas Scarbrough	NRR/DCI/CPTB
OM Chopra	NRR/DE/EEEB
Ganesh Cheruvenki	NRR/DCI/CPTB
Muhammad Razzaque	NRR/DSS/SBWB
Cheng-Ih (John) Wu	NRO/DE/EMB2
Phill Qualls	NRR
Mohhammad Abid	NRR/DCI/CSGB
Mitzi Young	OGC
PT Kuo	NRR/DLR
Naeem Iqbal	NRR/DRA/AFPB
Pravin Patel	NRR/DE/EGCA
Samir Chakrabarti	NRR/DE/EGCA

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
539TH FULL COMMITTEE MEETING
February 1-3, 2007

NRC STAFF SIGN IN FOR ACRS MEETING

Today's Date: February 1, 2007

Stephen Tingen	NRR/DE/EQVA
Hans Ashar	NRR/DE
Sujit Samadar	NRR/DE
Robert Schaaf	NRR/DLR/RLRA
Dave Wrona	NRR/DLR/DLRC
Noel Dudley	NRR/DCR/RLPD
Shyam Arora	NRR/ADRO/DLR
Donnie Ashley	NRR/DLR/RLRA
Surinder Arora	NRR/ADRO/DLR
Jim Davis	NRR/ADRO/DLR
Linh Tran	NRR/ADRO/DLR
Qi Gan	NRR/ADRO/DLR
John Hufnagel	Exelon
Ken Chang	NRR/DLR
K. Rhsu	NRR/DLR
Roy Matthews	NRR/DLR
Kim Green	DLR/RLRB
Rajan	NRR/DE/EMEB
Allen Hiser	NRR/DCI
R Pettis	NRR/DE
Yoira Diaz	NRR/DLR
Ed Smith	NRR/DSS/SBPB
Mark Rubin	NRR/DRA/NRR
Nancy Salyadi	NRR/DIRS
Mark Rubin	NRRDRA
Glenn Edward Muir	NRR/DORL

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
539TH FULL COMMITTEE MEETING
February 1-3, 2007

NRC STAFF SIGN IN FOR ACRS MEETING

Today's Date: February 1, 2007

George Thomas	NRR/DSSA/SRXB
Dennis Andrukat	NRR/DRA
Bill Koo	NRR/DCI/LPNB
Kamishan Marton	NRR/DIRS/IOLB
Peter Lien	NRR/DSS/SBWB
Greg Cranston	NRR/DSS/SBWB
Maurice Gutierrez	NRR/DORL/LPL II
Ahsam Sallman	NRR/DSS/SCVB
Ganesh Cheruvenki	NRR/DCI
Dan Hoang	NRR/DLR
Rui Li	NRR/DLR
Tommy Le	NRR/DLR
Duc Nguyen	NRR/DLR
Harold Chernoff	NRR/DORL

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
539TH FULL COMMITTEE MEETING
February 1-3, 2007

NRC STAFF SIGN IN FOR ACRS MEETING

Today's Date: February 2, 2007

Paul Clifford	NRR/DSS
Edward D. Throm	NRR/DSS
Bob Radlinksi	NRR/DRA
C. Holden	NRR/DRA
Sunil Weerakody	NRR/DRA
Mark Blumberg	NRR/DRA
Molly Keefe	RES
John Ridgely	RES
Charles Moulton	NRR/DRA
Bob Hardies	RES/DFERR
Edmund Sullivan	NRR/DCI
Tom Martin	NRR/DSS
Bill Bateman	NRR/DCI
Mike Markley	NRR/LPL4
Aladar Sartus	RES
Tim Lupold	NRR/DCI
Steve Long	NRR/DRA
Terence Chan	NRR/DCI
Steve O'Connor	RES/DRASP
Thomas Koshy	RES/ERA
Jim Yerokun	RES
Susan Lane	NRR/DE
John Ma	NRR/DE
JP Leous	NRR/REBB
Kenn P. Miller	NRR/DE
Chris Sydnor	NRR/DCI
Kendra Klump	NRO/DNRL

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
539TH FULL COMMITTEE MEETING
February 1-3, 2007

NRC STAFF SIGN IN FOR ACRS MEETING

Today's Date: February 2, 2007

Andrea Zografos	NRR/DE
Andrey Turilia	NRR/DE
Louise Lund	NRR/DLR
Tim Collins	DSS
Chris Murray	RES
Zena Abdullahi	ACRS
Tony Naleaniski	NRR/DSS

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
539TH FULL COMMITTEE MEETING
Feb 1-3, 2007

OUTSIDE ATTENDEES SIGN IN FOR ACRS MEETING

TODAY'S DATE: February 1, 2007

PLEASE PRINT

NAME	NRC ORGANIZATION
John Hufnagel	Exelon
Richard Chromanksi	Exelon
Gregory Harttraft	Exelon - Oyster Creek
Mike Gallagher	Amergen
Clarence Miller	Amergen
Peter Tamburro	Amergen
Kathryn Sutton	Morgan Lewis
Har Mehta	GE
Martin Mc Allister	Exelon
Thomas Quintenz	AmerGen
Donald Warfel	Exelon
Michael B. Detmare	PPL Susquehanna
Ahmed M. Ouaser	AmerGen
Alex Polonsky	Morgan Lewis
Richard Wese	Rutger Env.
Amir Shahkarami	Exelon
Pam Cowan	Exelon
Jhansi Kandasamy	Exelon
Pat Hiland	NRR/DE
Janis Mullen	Exelon
Dan Pappone	GE
Vincent Andersen	Erin Engineering
Robert L. Phillips	TVA
Craig Beasley	TVA

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
539TH FULL COMMITTEE MEETING
Feb 1-3, 2007

OUTSIDE ATTENDEES SIGN IN FOR ACRS MEETING

TODAY'S DATE: February 1, 2007

Tony Elms	TVA
Greg Storey	TVA
David J. Johnson	ABS Consulting
Bill Mims	TVA
William A. Eberly	TVA
Bob Bryan	TVA
JD Wolcott	TVA
Larry King	GE
Dilip Rao	GE
Burl Till	TVA
Edward J. Vigluica	TVA
Kim E. Hammer	no company
Rich DeLong	TVA
Janie Mullen	PSEG
Ashok Bhatna	TVA
Bill Crouch	TVA
Joe Valenta	TVA
Patricia Campbell	GE
Fran Bolger	GE
Rick Cutsinger	TVA
David Benson	Atlantic City Press
Dave Burrell	TVA
David Langley	TVA
Mike Hessheimer	Sandia Labs
Kevin Muggleston	Exelon
John O'Rourke	Exelon/AmerGen
Richard Skelskey	Exelon/AmerGen

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
539TH FULL COMMITTEE MEETING
Feb 1-3, 2007

OUTSIDE ATTENDEES SIGN IN FOR ACRS MEETING

TODAY'S DATE: February 1, 2007

Dave Kettering	Exelon/AmerGen
Daniel Barnes	Exelon
Fred Polaski	Exelon
Howie Ray	Exelon/AmerGen
John Cavallo	CCC&L, Inc.
Rich Leprone	Exelon/AmerGen
Barry Gordon	Structural Integrit. Assoc.
Shannon Rafferty-Czincilla	Exelon

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
539TH FULL COMMITTEE MEETING
Feb 1-3, 2007

OUTSIDE ATTENDEES SIGN IN FOR ACRS MEETING

TODAY'S DATE: February 2, 2007

Clifford Marks	ISL
Matt Wald	NY Times
April Schilpp	Exelon
Paul Gunter	NIRS
Bill Phoenix	no company

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

539th FULL COMMITTEE MEETING

FEBRUARY 1-3, 2007
Date

February 1, 2007
Today's Date Feb 1

PLEASE PRINT

	NAME	NRC ORGANIZATION
1	MARGARET CHERNOFF	NRR/ADRO/DORL
2	Joe Ashcraft	NRR/DIRS/IPAB
3	ISTAR, ATA	RES
4	Matt Yoder	NRR/DCI/CSGB
5	ANGELO STUBBS	NRR/DSS/SBPB
6	MARILYN STUTZKE	NRR/DRA/APLA
7	Michelle Hart	NRR/DRA/AADB
8	Jim Tatum	NRR/DSS/SBPB
9	Lambros Lois	NRR/DSS/SBWB
10	Theresa Clark	NRR/DRA/APLB
11	Rob Dennig	NRR/DSS/SCVB
12	Matthew A. Mitchell	NRR/DCI/CVIB
13	Tai Huang	NRR/DSS/SBWB
14	Thomas Scarbrough	NRR/DCI/CPTB
15	Om P Chopra	NRR/DE/EEEB
16	Ganesh Cheruvu	NRR/DCI/CVIB
17	Mohammed Razzaque	NRR/DSS/SBWB
18	Cheng-Ih (John) Wu	NRO/DE/EMB2
19	Phil Qualls	RSRC/NRR
20	MOHAMMED ABID	NRR/DCI/CSGB
	MITZI YOUNG	OGC
	PT KUO	NRR/DLR

(OVER)

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

539th FULL COMMITTEE MEETING

FEBRUARY 1-3, 2007
Date

February 1, 2007
Today's Date

PLEASE PRINT

	NAME	NRC ORGANIZATION
	NAEEM IQBAL	NRR/DRA/AFPB
1	John Fair	NRR/DE/EEMB
2	Pravin Patel	NRR/DE/EGCB
3	SAMIR CHAKRABARTI	NRR/DE/EGCA
4	Stephen Tingen	NRR/DE/EQVA
5	Hans Ashar	NRR/DE
	SUJIT SAMADDAR	NRR/DE
	Robert Schaaf	NRR/DLR/RLRA
8	DAVE WRONA	NRR/DLR/RLRC
9	NOEL DUDLEY	NRR/DCR/RLRA
10	SHYAM ARORA	NRR/ADRO/DLR
11	Donnie Ashley	NRR/DLR/RLRA
12	SURINDER ARORA	NRR/ADRO/DLR
13	Jim DAVIS	NRR/ADRO/DLR
14	Linh Tran	NRR/ADRO/DLR
15	Qi Gan	NRR/ADRO/DLR
16	John Hufnagel	Exelon
outside	Richard Choromanski	Exelon
outside	Ken Chang	NRR/DLR
19	K. RHSU	NRR/DLR
20	Roy K MATHEW	NRR/DLR
	Kim Green	DLR/RLRB

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

539th FULL COMMITTEE MEETING

FEBRUARY 1-3, 2007
Date

February 1, 2007
Today's Date

PLEASE PRINT

	NAME	NRC ORGANIZATION
1	Allen Rajan	NRR/DE/EMEB
2	R Dettis	NRR/DE
3	Yoira Diaz	NRR/DLR
4	Ed Smith	NRR/DSS/SRPB
5	Mark Rubin	NRR/DRA/LRR.
6	Nancy Salgado	NRR/DIRS/IOLB
7	GEORGE THOMAS	NRR/DSSA/SRXB
8	Dennis Andrews	NRR/DRA/APPB
9	Bill Koo	NRR/DCI/LPNB
10	Hamishan Marton	NRR/DIRS/IOLB
11	Peter Lien	NRR/DSS/SBWB
12	GREG CRANSTON	NRR/DSS/SBWB
13	~~Mike Hemmer~~	
14	Mauricio Gutierrez	NRR/DORL/LPL II-2
15	AHSAN SALEMAN	NRR/DSS/SCVB.
16	GANESH CHERUVENKI	NRR/DCI/CVIB
17	DAN HANG	NRR/DLR/RLRC
18	Rui LI	NRR/DLR/RLRA
19	Tommy Le	NRR/DLR/LRRB
20	Duc Nguyen	NRR/DLR/LRRC
	Harold Chernoff	NRR/DORL/PGB 1-2

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

539th FULL COMMITTEE MEETING

FEBRUARY 1-3, 2007
Date

February 2, 2007
Today's Date

PLEASE PRINT

	NAME	NRC ORGANIZATION
1	PAUL CLIFFORD	NRR/DSS/SNPB
2	EDWARD D THROM	NRR/DSS/SNPB
3	Bob Radlinski	NRR/DRA/AFPB
4	C. Holden	NRR/DRA
5	Sunil Weerakkody	NRR/DRA.
6	Mark Blumberg	NRR/DRA
7	Molly Keefe	NRC/RES
8	John R. Ridgely	RES
9	Charles Moulton	NRR/DRA/AFPB
10	Bob Hardies	RES/DFERR/ME/CIB
11	Edmund Sullivan	NRR/DCI
12	TOM MARTIN	NRR/DSS
13	Bill Bateman	NRR/DCI
14	Mike Markley	NRR/LPL4
15	Aladar Csontos	NRC/RES
16	Tim Lupold	NRC/NRR/DCI/CPNB
17	Steve Long	NRC/NRR/DRA/APLB
18	TERENCE CHAN	NRC/NRR/DCI/CPNB
19	STEVE O'CONNOR	NRC/RES/DRASP
20	THOMAS KOSITY	NRC/RES/ERA

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

539th FULL COMMITTEE MEETING

FEBRUARY 1-3, 2007
Date

February 2, 2007
Today's Date

PLEASE PRINT

	NAME	NRC ORGANIZATION
1	Jim Yerkun	RES
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
539th FULL COMMITTEE MEETING

FEBRUARY 1-3, 2007

FEBRUARY 1, 2007
TODAY'S DATE: Feb 1

ATTENDEES PLEASE SIGN BELOW

PLEASE PRINT (CLEARLY)

	NAME	ORGANIZATION
1	GREGORY HARTTRAFT	EXELON - OYSTER CREEK
2	MIKE Gallagher	AMERGEN
3	CLARENCE MILLER	AMERGEN
4	Peter Tamburro	AmerGen
5	Kathryn Sutton	Morgan Lewis
6	HAR MEHTA	GE
	MARTIN MALLISTER	EXELON
8	Thomas Quintenz	AmerGen
9	DONALD Warfel	EXELON
10	Michael B. Detamore	PPL Susquehanna
11	Ahmed M. Ouaou	AmerGen
12	Alex Polonsky	Morgan Lewis
13	Richard Webster	Rutgers Env Law Clinic
14	ARUN SHANMUGAM	EXELON
15	Pam Cowan	Exelon
16	JHANSI KANDASAMY	EXELON
17	Pat Hiland	NRR/DE
18	~~JOEL DUDLEY~~	~~NRR/DLR~~
	James Mallon	Exelon
20	GLENN BOWARD	NRR/DORL

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
539th FULL COMMITTEE MEETING

FEBRUARY 1-3, 2007

FEBRUARY 1, 2007
TODAY'S DATE:

ATTENDEES PLEASE SIGN BELOW

PLEASE PRINT (CLEARLY)

	NAME	ORGANIZATION
1	DAN PAPPONE	GE
2	VINCENT ANDERSEN	ERIN ENGINEERING
3	Robert L. Phillips	TVA
4	Craig Beasley	TVA
5	TONY ELMS	TVA
6	GREG STOREY	TVA
	DAVID JOHNSON	ABS Consulting
8	BILL MIMS	TVA
9	William A. EBERLY	TVA
10	Bob Bryan	TVA
11	JD Wolcott	TVA
12	LARRY KING	GE
13	DILIP RAO	GE
14	BURL TILL	TVA
15		
16	Edward J. Vigluicci	TVA
17	Kim E Hammer	SELF
18	RICH DELONG	TVA
	Jamie Mallon	PSEG
20	Ashok Bhatnagar	TVA

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
539th FULL COMMITTEE MEETING

FEBRUARY 1-3, 2007

FEBRUARY 1, 2007
TODAY'S DATE:

ATTENDEES PLEASE SIGN BELOW

PLEASE PRINT (CLEARLY)

	NAME	ORGANIZATION
1	Bill Crouch	TVA
2	Joe Valente	TVA
3	Patricia Campbell	GE
4	Fran Bolger	GE
5	Rick Cutsinger	TVA
6	David Benson	The Press of Atlantic City
	Dave Burrell	TVA
8	DAVID LANGLEY	TVA
9	Mike Hessheimer	Sandia Labs
10	Kevin Muggleston	Exelon
11	JOHN O'ROURKE	EXELON/AMERGEN
12	Richard Skelskey	Exelon/AmerGen
13	Dave Ketterling	Exelon/AmerGen
14	Daniel Barnes	Exelon
15	FRED POLASIK	EXELON
16	Howie Ray	Exelon/AmerGEN
17	JOAN CAVALLO	CCCL INC
18	Rich Lepriore	Exelon/AmerGen
	Barry Gordon	Structural Integrity Associates
20	Shannon Kalkedy-Czincila	Exelon

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
539th FULL COMMITTEE MEETING

FEBRUARY 1-3, 2007

FEBRUARY 2, 2007
TODAY'S DATE:

ATTENDEES PLEASE SIGN BELOW

PLEASE PRINT (CLEARLY)

	NAME	ORGANIZATION
1	Clifford R MARKS	JSL
2	Susan Lane	NRC → NRR/DE
3	John S. Ma	NRC - NRR/DE
4	JP Leous	NRR - REBB
5	Ken A. Miller	NRR-DE-EEEB
6	Chris Sylvor	NRR-DCI-CVIB
	Kendra Klump	NRO/DNRL/NGIF
8	Andrea Zografos	NRR/DE/EICB
9	Andrey Turilin	NRR/DE
10	Matt Wald	NY Times
11	Louise Lund	NRR/DLR
12	April Schilpp	Exelon Nuclear
13	PAUL GUNTER	NIRS
14	Tim Collins	DSS
15	BILL PHOENIX	SELF
16	CHRIS Murray	RES
17	Zena Abdullahi	ACRS
18	Tony Nakanishi	NRR/DSS/SBWB
20		

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
539th FULL COMMITTEE MEETING

FEBRUARY 1-3, 2007

FEBRUARY 2, 2007
TODAY'S DATE:

ATTENDEES PLEASE SIGN BELOW

PLEASE PRINT (CLEARLY)

	NAME	ORGANIZATION
1	GORDON CLEFTON	NEI
2	Rob Sisk	Westinghouse
3	FRAN BOLGER	GE
4	David Mitchell	Westinghouse
5	Nguyen Tuhingu	GNF
6	Mike Billone	ANL
	Masato Ando	Japan Electric Power Information Ctr.
8	Odelli Ozer	EPRI
9	JOHN ALVIS	ANATECH
10	BRANDON JAMAR	NEI
11	J. Alan Beard	GE Nuclear
12	BILL PHOENIX	SCLF
13	Alex Marion	NEI
14	Ken Yoon	AREVA NP
15	Bert Dunn	AREVA NP
16	Glenn White	Dominion Engineering, Inc
17	~~Aldar Cantes~~	
18	Leslie Kass	NEI
	Trunk Gillespie	NRC/ACRS
20		

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
539th FULL COMMITTEE MEETING

FEBRUARY 1-3, 2007

FEBRUARY 2, 2007
TODAY'S DATE:

ATTENDEES PLEASE SIGN BELOW

PLEASE PRINT (CLEARLY)

	NAME	ORGANIZATION
1		
2		
3		
4		
5		
6		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
20		

February 9, 2007

SCHEDULE AND OUTLINE FOR DISCUSSION
540th ACRS MEETING
MARCH 8-10, 2007

THURSDAY, MARCH 8, 2007, CONFERENCE ROOM T-2B3, TWO WHITE FLINT NORTH, ROCKVILLE, MARYLAND

1) 8:30 - 8:35 A.M. Opening Remarks by the ACRS Chairman (Open) (WJS/FPG/SD)
   1.1) Opening statement
   1.2) Items of current interest

2) 8:35 - 10:15 A.M. Technical Basis Associated with the Proposed NRC Staff Action for Dealing with the Dissimilar Metal Weld Issue (Open/Closed) (WJS/CGH)
   2.1) Remarks by the Subcommittee Chairman
   2.2) Briefing by and discussions with representatives of the NRC staff, their contractors, and the Nuclear Energy Institute regarding the technical basis for the proposed regulatory action for dealing with the dissimilar metal weld issue stemming from the Wolf Creek pressurizer weld flaws, as well as the industry activities associated with this matter.

   Members of the public may provide their views, as appropriate.

   [NOTE: A portion of this session may be closed to discuss industry proprietary information applicable to this matter, pursuant to 5 U.S.C. 552b(c)(4).]

10:15 - 10:30 P.M. *****BREAK*****

3) 10:30 - 12:00 Noon Proposed Revisions to Standard Review Plan (SRP) Sections (Open) (SB/RC)
   3.1) Remarks by the Subcommittee Chairman
   3.2) Briefing by and discussions with representatives of the NRC staff regarding SRP Sections 15.0, Accident Analysis - Introduction, and 15.9, BWR Core Stability.

   Representatives of the nuclear industry and members of the public may provide their views, as appropriate.

12:00 - 1:30 P.M. *****LUNCH*****

4) 1:30 - 3:30 P.M. Final Results of the Chemical Effects Head Loss Tests Related to the Resolution of the PWR Sump Performance Issues (Open) (GBW/RC)

4.1) Remarks by the Subcommittee Chairman

4.2) Briefing by and discussions with representatives of the NRC staff regarding final results of the chemical effects head loss tests in a pressurized water reactor (PWR) sump pool environment, and related matters.

Representatives of the nuclear industry and members of the public may provide their views, as appropriate.

3:30 - 3:45 P.M. ***BREAK***

5) 3:45 - 5:15 P.M. Technology Neutral Licensing Framework and Related Matters (Open) (TSK/DCF)

5.1) Remarks by the Subcommittee Chairman

5.2) Briefing by and discussions with representatives of the NRC staff regarding the Technology Neutral Licensing Framework, and the Commission request in the November 8, 2006 Staff Requirements Memorandum that the ACRS provide its views to the Commission with respect to the staff's work on Technology Neutral Licensing Framework with the focus on ensuring the value of such an approach versus the development of a licensing framework for specific designs.

Representatives of the nuclear industry and members of the public may provide their views, as appropriate.

5:15 - 5:30 P.M. ***BREAK***

6) 5:30 - 7:00 P.M. Preparation of ACRS Reports (Open)

Discussion of proposed ACRS reports on:

6.1) Technical Basis Associated with the Proposed NRC staff Action for Dealing with Dissimilar Metal Weld Issue (WJS/CGH)

6.2) Proposed Revisions to SRP Section 15.0, Accident Analysis - Introduction (SB/RC)

6.3) Proposed SRP Section 15.9, BWR Core Stability (SB/RC)

6.4) Chemical Effects Head Loss Tests in a Simulated PWR Sump Pool Environment (GBW/RC/ZA)

6.5) Technology Neutral Licensing Framework (TSK/DCF)

6.6) TRACE Thermal-Hydraulic System Analysis Code (SB/RC/ZA)

FRIDAY, MARCH 9, 2007, CONFERENCE ROOM T-2B3, TWO WHITE FLINT NORTH, ROCKVILLE, MARYLAND

7) 8:30 - 8:35 A.M. Opening Remarks by the ACRS Chairman (Open) (WJS/FPG/SD)

8) 8:35 - 9:00 A.M. Proposed Revisions to Regulatory Guides and SRP Sections in Support of New Reactor Licensing (Open) (OLM/DCF)
Discussion of, and determination on, proposed revisions to regulatory guides and SRP Sections in support of new reactor licensing.

9) 9:00 - 9:45 A.M. Future ACRS Activities/Report of the Planning and Procedures Subcommittee (Open) (WJS/FPG/SD)
9.1) Discussion of the recommendations of the Planning and Procedures Subcommittee regarding items proposed for consideration by the full Committee during future ACRS meetings.
9.2) Report of the Planning and Procedures Subcommittee on matters related to the conduct of ACRS business, including anticipated workload and member assignments.

10) 9:45 - 10:00 A.M. Reconciliation of ACRS Comments and Recommendations (Open) (WJS, et al./SD, et al.)
Discussion of the responses from the NRC Executive Director for Operations to comments and recommendations included in recent ACRS reports and letters.

10:00 - 10:15 A.M. ***BREAK***

11) 10:15 - 12:00 Noon Safeguards and Security Matters **(Closed) (Room T-8E8)** (MVB/EAT)
11.1) Remarks by the Subcommittee Chairman.
11.2) Briefing by and discussions with representatives of the NRC staff regarding the research on mitigating strategies for new reactor designs.

[NOTE: This session will be closed to protect information classified as National Security information as well as safeguards information pursuant to 5 U.S.C. 552b(c)(1) and (3).]

12:00 - 1:30 P.M. ***LUNCH***

12) 1:30 - 6:30 P.M. Preparation of ACRS Reports (Open/Closed)
(3:30-3:45 P.M. BREAK) Discussion of proposed ACRS reports on:

12.1) Technical Basis Associated with the Proposed NRC staff Action for Dealing with Dissimilar Metal Weld Issue (WJS/CGH)
12.2) Proposed Revisions to SRP Section 15.0, Accident Analysis - Introduction (SB/RC)
12.3) Proposed SRP Section 15.9, BWR Core Stability (SB/RC)
12.4) Chemical Effects Head Loss Tests in a Simulated PWR Sump Pool Environment (GBW/RC/ZA)
12.5) Technology Neutral Licensing Framework (TSK/DCF)
12.6) TRACE Thermal-Hydraulic System Analysis Code (SB/RC/ZA)
12.7) Safeguards and Security Matters (Closed) (MVB/EAT)

SATURDAY, MARCH 10, 2007, CONFERENCE ROOM T-2B3, TWO WHITE FLINT NORTH, ROCKVILLE, MARYLAND

13) 8:30 - 12:30 P.M. Preparation of ACRS Reports (Open/Closed)
(10:15-10:30 A.M. BREAK) Continue discussion of proposed ACRS reports listed under Item 12.

14) 12:30 - 1:00 P.M. Miscellaneous (Open) (WJS/FPG)
Discussion of matters related to the conduct of Committee activities and matters and specific issues that were not completed during previous meetings, as time and availability of information permit.

NOTE:

- Presentation time should not exceed 50 percent of the total time allocated for a specific item. The remaining 50 percent of the time is reserved for discussion.
- Thirty-Five (35) hard copies and (1) electronic copy of the presentation materials should be provided to the ACRS.

LIST OF DOCUMENTS PROVIDED TO THE COMMITTEE
539TH ACRS MEETING
February 1-3, 2007

[Note: Some documents listed below may have been provided or prepared for Committee use only. These documents must be reviewed prior to release to the public.]

MEETING HANDOUTS

AGENDA ITEM #	DOCUMENTS/Handouts listed in Order
1.	Opening Remarks by the ACRS Chairman 1. Items of Interest, dated February 1-3, 2007.
2.	Final Review of the Power Uprate Application for the Browns Ferry Nuclear Plant, Unit 1 2. Slides from Eva Brown, NRC/NRR, Summary of NRC Review 3. Slides from Richard Lobel, NRC/NRR, Containment Systems Review 4. Slides from Martin Stuzke, NRC/NRR, Risk Evaluation 5. Memo from Farouk Eltawila (RES/DRASP) to Frank Gillespie, ACRS dated January 31, 2007 titled, "TRACE V5.0 Documentation Support" 6. Slides from Tennessee Valley Authority (TVA), Browns Ferry Nuclear Plant, Unit 1 Power Uprate
3.	Final Review of the License Renewal Application for the Oyster Creek Generating Station 7. Slides from AmerGen, Oyster Creek License Renewal Presentation to ACRS 8. Slides from Donnie Ashley, NRC/NRR, Oyster Creek Generating Station License Renewal Safety Evaluation Report 9. Letter dated January 30, 2007 from AmerGen to NRC, Document Control Desk, Regarding Information for ACRS to Address Public Comments from January 18, 2007 Related to Oyster Creek License Renewal 10. Slides from AmerGen, Oyster Creek Generating Station, License Renewal 11. Table from AmerGen, Summary of Drywell Monitoring Activities During Refueling Outages 12. Slides from Donnie Ashley 13. Letter dated January 31, 2007, from Rutgers Environmental Law Clinic to the ACRS, Regarding Safety Evaluation Report for Oyster Creek Nuclear Power Plant 14. Letter dated January 16, 2007, from the State of New Jersey to Chairman Dale E. Klein, NRC, Regarding Oyster Creek Generating Station application for License Renewal

15. Letter dated January 31, 2007 from the Congress of the United States to the ACRS, Regarding the Safety Evaluation Review of the Oyster Creek Nuclear Generating Station

4. Development of TRACE Thermal-Hydraulic Code
   16. Slides from Stephen Bajorek, NRC/RES, Status of Activities Associated with the Development of the Trace Thermal-Hydraulic Code
   17. Memo dated January 31, 2007, from Farouk Eltawila (NRC/RES/DRASP) to Frank Gillespie (ACRS)

5. Preparation of ACRS Reports
   18. ACRS Meeting Handout, Reconciliation of ACRS Comments and Recommendations

6. Opening Remarks by the ACRS Chairman

7. Proposed Revision to 10 CFR 50.46 LOCA Criteria for Fuel Cladding Materials
   19. Slides from Ralph Myer (NRC/RES), Embrittlement Criteria for Loss-of-Coolant Accidents, 10 CFR 50.46
   20. Slides from Odeli Ozer, EPRI, Industry Position on the Technical Basis for Revision of Embrittlement Criteria in 10 CFR 50.46

8. Draft Final Revision 1 to Regulatory Guide 1.189 (DG-1170), "Fire Protection for Nuclear Power Plants," and SRP Section 9.5.1, "Fire Protection Program"
   21. Slides from Bob Radlinski (NRC/NRR), DG-1170

9. Subcommittee Report

10. Wolf Creek Pressurizer Weld Flaws
    22. Slides from Ted Sullivan (NRC/NRR), Safety Concerns Regarding Potential Pressurizer Weld Cracking
    23. Slides from Mike Robinson, EPRI, Alloy 82/182 Pipe Butt Weld Inspection Industry Position

11. Proposed Revisions to Regulatory Guides and SRP Sections in Support of New Reactor Licensing
    24. Table, Status of ACRS Review of High Priority Standard Review Plan Sections

12. Future ACRS Activities/Report of the Planning and Procedures Subcommittee
    25. Meeting Handout, Planning & Procedures/Future Activities
    26. Revised Committee Meeting List, dated February 1, 2007

MEETING NOTEBOOK CONTENTS

Tab #	DOCUMENTS
2.	Notebook Material for ACRS Related to the Review of Technical Basis Associated with Proposed NRC Staff Actions for Addressing Dissimilar Metal Weld Issues Resulting from Wolf Creek Pressurizer Weld Flaw Inspection Results
3.	Standard Review Plan Section 15.0, "Introduction" Standard Review Plan Section 15.9, "BWR Stability"
4.	GSI-191, "Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized Water Reactors" PWR Sump Research Issues - Final Results of Chemical Effects Tests
5.	Future Plant Designs Subcommittee Report on Technology Neutral Licensing Framework and Related Matters
8.	Proposed Revisions to Regulatory Guides and Standard Review Plan Sections in Support of New Reactor Licensing
11.	Proposed Schedule for Safeguards and Security Matters Meeting of March 9, 2007