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

January 17, 2007

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

Dear Chairman Klein:

SUBJECT: SUMMARY REPORT - 538th MEETING OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS, DECEMBER 7-8, 2006, AND OTHER RELATED ACTIVITIES OF THE COMMITTEE

During its 538th meeting, December 7-8, 2006, the Advisory Committee on Reactor Safeguards (ACRS) discussed several matters and completed the following report, letters, and memoranda:

REPORT

Report to Dale E. Klein, Chairman, NRC, from Graham B. Wallis, Chairman, ACRS:

- Draft Final Regulatory Guide DG-1145, Combined License Applications for Nuclear Power Plants (LWR Edition), dated December 12, 2006

LETTERS

Letters to Luis A. Reyes, Executive Director for Operations, NRC, from Graham B. Wallis, Chairman, ACRS:

- Proposed Revision to Standard Review Plan Section 13.3, "Emergency Planning," dated December 15, 2006

- Draft Final Regulatory Guide 1.207 (DG-1144), "Guidelines for Evaluating Fatigue Analyses Incorporating the Life Reduction of Metal Components Due to the Effects of the Light-Water Reactor Environment for New Reactors," dated December 18, 2006

MEMORANDA

Memoranda to Luis A. Reyes, Executive Director for Operations, NRC, from John T. Larkins, Executive Director, ACRS:

- Proposed Revisions to Standard Review Plan Sections in Support of New Reactor Licensing, dated December 15, 2006

- Anonymous Letter Concerning Changes to 10 CFR Part 52 Rulemaking Package (SECY-06-0220), dated December 8, 2006

HIGHLIGHTS OF KEY ISSUES

1. Draft Final Regulatory Guide, DG-1145, "Combined License Applications for Nuclear Power Plants"

The Committee met with representatives of the NRC staff to discuss DG-1145, "Combined License Applications for Nuclear Power Plants." DG-1145 provides a roadmap to help Combined License (COL) applicants identify the appropriate content of a COL application submitted under 10 CFR Part 52. It is structured to address COL applications that reference an early site permit (ESP), a certified design, neither, or both. DG-1145 is meant to be consistent with proposed final revisions to 10 CFR Part 52 and with the new and revised Regulatory Guides and Standard Review Plan (SRP) Sections being developed in support of new reactor licensing. DG-1145 was based on the guidance previously published in Regulatory Guide 1.70, "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants (LWR Edition)," and was updated based on operating experience (as reflected in NRC Bulletins and Generic Letters), lessons learned from design certification and ESP reviews, and guidance in SECY Papers and related Staff Requirements Memoranda. There was extensive industry involvement in the development of DG-1145. The members and staff held a detailed discussion on the appropriate content of a COL application related to probabilistic risk assessments (PRAs).

Committee Action

The Committee issued a report to the NRC Chairman on this matter dated December 12, 2006, recommending that the final rule, 10 CFR Part 52, retain the requirements that a design-specific PRA be submitted with the design certification application and that a plant-specific PRA be submitted with the COL application. The Committee also recommended that DG-1145 be issued as a final Regulatory Guide after the staff ensures that it is consistent with the final 10 CFR Part 52 rule and with the Regulatory Guides and SRP Sections/Chapters being revised or developed in support of new reactor licensing.

2. Draft Final Regulatory Guide 1.207 (DG-1144), "Guidelines for Evaluating Fatigue Analyses Incorporating the Life Reduction of Metal Components Due to the Effects of the Light-Water Reactor Environment for New Reactors"

The Committee met with representatives of the NRC staff, the American Society of Mechanical Engineers (ASME), and AREVA to discuss the draft final Regulatory Guide 1.207 (DG-1144), "Guidelines for Evaluating Fatigue Analyses Incorporating the Life Reduction of Metal Components Due to the Effects of the Light-Water Reactor Environment for New Reactors." The staff and representatives from Argonne National Laboratory (ANL) described the objective, technical basis, and regulatory positions of Regulatory Guide 1.207. This Guide uses an environmental correction factor, F_{en}, to account for the effects of the light water reactor coolant environment on fatigue life. The technical basis for this Guide is described in NUREG/CR-6909, "Effect of LWR Coolant Environments on the Fatigue Life of Reactor Materials." Regulatory Guide 1.207 also addresses the non-conservatism of the current ASME stainless steel air design curve in the mid-to-high cycle fatigue range by recommending the use of a new stainless steel air design curve in NUREG/CR-6909. Representatives of ASME and AREVA commented that the existing ASME design curves and methodology are adequate, that there is no need for a new regulatory guide, that the new guide will result in more detailed and costly

analysis in the design of new plants, and that the use of the new guide will also result in the need for an excessive number of snubbers and pipe whip restraints.

Committee Action

The Committee issued a letter to the Executive Director for Operations on this matter dated December 18, 2006, recommending that Regulatory Guide 1.207 be issued as final. The Committee suggested that the staff interact with ASME in the development of a Code Case related to reactor coolant environmental effects on fatigue.

3. Proposed Revisions to Standard Review Plan Section 13.3, "Emergency Planning"

The Committee met with representatives of the NRC staff and Nuclear Energy Institute (NEI) to discuss proposed revisions to NUREG-0800, SRP Section 13.3, "Emergency Planning." The staff described the use of emergency planning inspections, tests, analyses, and acceptance criteria (EP-ITAAC) which would address the features of a complete and integrated emergency plan that cannot be described in the required detail at the time of the application. The criteria in the EP-ITAAC need to be met before initial fuel loading. The members noted the benefit of learning from the good practices of Countries with major nuclear programs and the need to develop guidance on planning for severe external events, like a major earthquake, that could eliminate the transportation and communication network. The staff also described its effort to incorporate lessons learned from recent major public evacuation events. Representatives of NEI discussed industry comments on draft SRP Section 13.3 and industry efforts to develop emergency action levels for new advanced light water reactor designs.

Committee Action

The Committee issued a letter to the Executive Director for Operations on this matter dated December 15, 2006, recommending that NUREG-0800, SRP Section 13.3, "Emergency Planning," be issued.

4. State-of-the-Art Reactor Consequence Analysis Project

The Committee met with representatives of the NRC staff to discuss the status of the staff's efforts associated with the state-of-the-art reactor consequence analysis project. The staff briefed the committee on a number of topics related to this project including plans for MELCOR and MACCS code improvement, plant grouping, and selection of scenarios to use for consequence analysis. The staff also briefed the Committee on its plan for a site-specific simulation of offsite emergency response for this project.

Committee Action

This was an information briefing. The Committee plans to continue its review of this project as further progress has been made by the staff.

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

The Committee discussed "high-priority" Regulatory Guides and SRP Sections that are being revised or developed in support of new reactor licensing and decided on the need for ACRS review of these Guides and SRP Sections. The Committee's decision is documented in a memorandum dated December 15, 2006, from John T. Larkins, ACRS Executive Director to Luis A. Reyes, NRC Executive Director for Operations.

Committee Action

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

6. Subcommittee Report on Thermal-Hydraulic Phenomena

The Chairman of the Thermal-Hydraulic Phenomena Subcommittee provided a report to the Committee summarizing the results of the December 5, 2006 meeting with the NRC staff and its contractors concerning the development of the TRACE computer code. Members expressed concern about the state of the code documentation and noted that the staff's progress in establishing the TRACE code as the standard NRC tool for evaluating light water reactor behavior is slow. The staff described its response to an anonymous letter that had been received by the Committee concerning the numerical solution scheme for the code. Members noted that the staff's efforts to address the underlying technical issues raised in the anonymous letter should be improved.

Committee Action

The Committee plans to consider a letter to the Executive Director for Operations on this matter during its February 2007 meeting.

7. Election of ACRS Officers for CY 2007

The Committee elected William J. Shack as ACRS Chairman, John D. Sieber as ACRS Vice Chairman, and Mario V. Bonaca as Member-at-Large for the Planning and Procedures Subcommittee for CY 2007.

RECONCILIATION OF ACRS COMMENTS AND RECOMMENDATIONS/EDO COMMITMENTS

- The Committee considered the EDO's response of November 27, 2006, to comments and recommendations included in the October 25, 2006 ACRS letter on the draft final NUREG-1824, "Verification and Validation of Selected Fire Models for Nuclear Power Plant Applications." The Committee decided that it was satisfied with the EDO's response.

- The Committee considered NRR's response of December 1, 2006, to the November 6, 2006 memorandum from the ACRS Executive Director regarding the Browns Ferry

Supplemental Application. The Committee decided that it was satisfied with the NRR's response.

- The Committee considered the EDO's response of December 6, 2006, to comments and recommendations included in the November 27, 2006 ACRS Report on the Safety Aspects of License Renewal Application for the Palisades Nuclear Plant. The Committee decided that it was satisfied with the EDO's response.

OTHER RELATED ACTIVITIES OF THE COMMITTEE

During the period from November 4, 2006 through December 6, 2006, the following Subcommittee meetings were held:

- Future Plant Designs - November 30, 2006

The Subcommittee reviewed DG-1145, "Combined License Applications for Nuclear Power Plants."

- Thermal-Hydraulic Phenomena - December 5, 2006

The Subcommittee discussed the development of the TRACE computer code.

- Materials, Metallurgy, and Reactor Fuels - December 6, 2006

The Subcommittee reviewed draft final Regulatory Guide 1.207 (DG-1144), "Guidelines for Evaluating Fatigue Analyses Incorporating the Life Reduction of Metal Components Due to the Effects of the Light-Water Reactor Environment for New Reactors."

- Planning and Procedures — December 6, 2006

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 informed of any significant changes made to DG-1145 prior to publishing it in final form.

- 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 December 15, 2006 memorandum from John T. Larkins, 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 would like to be informed of the disposition of the anonymous letter related to changes to 10 CFR Part 52 rulemaking.

- The staff committed to provide the Committee with a description of research activities associated with fatigue degradation mechanisms.

- The Committee plans to continue its review of the State-of-the-Art Reactor Consequence Analysis Project as further progress has been made by the staff.

PROPOSED SCHEDULE FOR THE 539th ACRS MEETING

The Committee agreed to consider the following topics during the 539th ACRS meeting, to be held on February 1-3, 2007:

- Final Review of the Power Uprate Application for the Browns Ferry Nuclear Plant, Unit 1
- Final Review of the License Renewal Application for the Oyster Creek Generating Station
- Development of TRACE Thermal-Hydraulic System Analysis Code
- Proposed Revision to 10 CFR 50.46 LOCA Criteria for Fuel Cladding Materials
- 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"
- Wolf Creek Pressurizer Weld Flaws
- Proposed Revisions to Regulatory Guides and SRP Sections in Support of New Reactor Licensing

Sincerely,

Graham B. Wallis

Graham B. Wallis
Chairman

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Sincerely,

/RA/

Graham B. Wallis
Chairman

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MEl-Zeftawy	EThornsbury	CHammer	LMike

ADAMS Accession Number: ML070080277

OFFICE	ACRS/ACNW	ACRS/ACNW	ACRS/ACNW
NAME	CSantos	MSnodderly	FGillespie
DATE	01/09/07	01/11/07	01/17/07

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Chairman

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MEl-Zeftawy	EThornsbury	CHammer	LMike

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Graham B. Wallis
Chairman

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OFFICE	ACRS/ACNW	ACRS/ACNW	ACRS/ACNW
NAME	CSantos CS	MSnodderly MRS	FGillespie
DATE	1/9/07	1/11/2007	

From: Carol Brown
To: Banerjee, Maitri; Barnard, Ethel; Bates, Andrew; Caruso, Ralph; Champ, Billie; Flack, John; Hammer, Charles; Junge, Michael; McKelvin, Sheila; Mike, Linda; Nourbakhsh, Hossein; Perry , Jamila; RidsAslbpMailCenter; RidsEdoMailCenter; RidsNmssOd; RidsNroOd; RidsNrrOd; RidsOcaaMailCenter; RidsOcaMailCenter; RidsOgcMailCenter; RidsOpaMail; RidsRgn1MailCenter; RidsRgn2MailCenter; RidsRgn3MailCenter; RidsRgn4MailCenter; RidsSecyMailCenter; RidsStpMailCenter; Santos, Cayetano; Sosa, Belkys; Thornsbury, Eric
Date: 01/24/2007 5:00:25 PM
Subject: SUMMARY REPORT - 538th MEETING OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

LETTER TO: The Honorable Dale E. Klein, Chairman

SUBJECT: SUMMARY REPORT - 538th MEETING OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS, DECEMBER 7-8, 2006, AND OTHER RELATED ACTIVITIES OF THE COMMITTEE

DATED: January 17, 2007

ADAMS Accession Number: ML070080277

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

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

March 2, 2007

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

FROM: Graham B. Wallis
ACRS Chairman

SUBJECT: CERTIFIED MINUTES OF THE 538TH MEETING OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS (ACRS), December 7-9, 2006

I certify that based on my review of the minutes from the 538th 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: 03/06/2007 10:40:53 AM
Subject: Re: attached are the Minutes of the 538th Meeting

Carol: The following minutes can be released to the general public:

The certified minutes for the 538th ACRS Full Committee Meeting, dated March 2, 2007.

Thanks,

John

>>> Carol Brown 03/06/2007 10:19 AM >>>
Attached are the Minutes from the 538th Meeting of the ACRS for your SUNSI Review. These Minutes can be found in ADAMS as ML070610606.

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

CERTIFIED

Date Issued: 03/02/07
Date Certified: 03/02/07

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REPORTS:

The following reports to Dale E. Klein, Chairman, NRC, from Graham B. Wallis, Chairman, ACRS:

1. **Draft Final Regulatory Guide DG-1145, Combined License Applications for Nuclear Power Plants (LWR Edition)**, dated December 12, 2006

LETTERS:

The following letters to Luis A. Reyes, Executive Director for Operations, NRC, from Graham B. Wallis, Chairman, ACRS:

1. **Proposed Revision to Standard Review Plan Section 13.3, "Emergency Planning,"** dated December 15, 2006 (ML063520450).

2. **Draft Final Regulatory Guide 1.207 (DG-1144), "Guidelines for Evaluating Fatigue Analyses Incorporating the Life Reduction of Metal Components Due to the Effects of the Light-Water Reactor Environment for New Reactors,"** dated December 18, 2006 (ML063600095).

MEMORANDA:

The following memoranda to Luis A. Reyes, Executive Director for Operations, NRC, from John T. Larkins, Executive Director, ACRS:

1. **Proposed Revisions to Standard Review Plan Sections in Support of New Reactor Licensing**, dated December 15, 2006

2. **Anonymous Letter Concerning Changes to 10 CFR Part 52 Rulemaking Package (SECY-06-0220)**, dated December 8, 2006

APPENDICES

I. *Federal Register Notice*
II. Meeting Schedule and Outline
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MINUTES OF THE 538th MEETING OF THE
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
December 7-9, 2006
ROCKVILLE, MARYLAND

The **538th** meeting of the Advisory Committee on Reactor Safeguards (ACRS) was held in Conference Room 2B3, Two White Flint North Building, Rockville, Maryland, on **December 7-9, 2006**. Notice of this meeting was published in the *Federal Register* on **November 15, 2006** (71 FR **66561**) (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. Graham B. Wallis (Chairman), Dr. William J. Shack (Vice Chairman), Mr. John D. Sieber, (Member-at-Large), Dr. Said Abdel-Khalik (via teleconference), Dr. George E. Apostolakis, Dr. J. Sam Armijo, Dr. Sanjoy Banerjee, Dr. Mario V. Bonaca, 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: Dr. John T. Larkins was the Designated Federal Official for this portion of the meeting.]

Dr. Graham B. Wallis, 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. Wallis 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. Draft Final Regulatory Guide, DG-1145, "Combined License Applications for Nuclear Power Plants" (Open)

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

The Committee met with representatives of the U.S. Nuclear Regulatory Commission staff to discuss DG-1145, "Combined License Applications for Nuclear Power Plants."
Mr. Eric Oesterle, Office of Nuclear Reactor Regulation, said that DG-1145 provides a roadmap to help Combined License (COL) applicants identify the appropriate content of a COL

application submitted under 10 CFR Part 52. He said that while industry initially developed COL application guidance for a "base case" scenario (NEI-04-01), the staff recognized the need for more comprehensive guidance for COL applicants. Consequently, DG-1145 is structured to address COL applications that reference an early site permit (ESP), a certified design (CD), neither, or both. DG-1145 is meant to be consistent with proposed final revisions to 10 CFR Part 52 and with the new and revised Regulatory Guides and Standard Review Plan (SRP) Sections being developed in support of new reactor licensing. DG-1145 was developed based on the guidance previously published in Regulatory Guide 1.70, "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants (LWR Edition)," but was updated based on operating experience (as reflected in NRC Bulletins and Generic Letters), draft industry guidance in NEI-04-01, lessons learned from Design Certification (DC) and ESP reviews, and guidance in advanced reactor SECY Papers and related staff requirements memoranda. There was extensive industry involvement in the development of DG-1145. There were monthly workshops on specific portions of DG-1145 between March and September 2006. Approximately 500 industry comments were received on early drafts of the document. A "work-in-progress" draft of the entire document was made publicly available on the NRC's website by June 30, 2006. DG-1145 was issued for a formal 45-day public comment period on September 7, 2006 (71 FR 52826).

Mr. Oesterle described the format and structure of DG-1145. Section C provides the guidance on the content of COL applications. Part C.I provides guidance for a COL applicant that references neither a CD nor an ESP (consistent with proposed 10 CFR Part 52.79). This Part is further subdivided, by chapters and similar to the way a Final Safety Analysis Report (FSAR) is organized. However, a new introductory subsection and a new subsection on probabilistic risk assessment (PRA) were added. Dr. Apostolakis said that it was not clear from reading DG-1145 when certain information would be available (e.g., certain PRA related information). Part C.II provides additional technical guidance (consistent with proposed 10 CFR Part 52.80). Part CII is further subdivided to address: PRA; Inspection, Tests, Analyses, and Acceptance Criteria (ITAAC); and Environmental Reports. Mr. Oesterle explained that this section will need to be revised to reflect the fact that the latest Part 52 rule no longer requires the submittal of a PRA. Part C.III provides guidance for a COL applicant that references just a CD as well as those that reference both a CD and an ESP. This section also provides guidance related to ITAAC, design acceptance criteria (DAC), and COL Action Items. Part CI.V provides guidance on miscellaneous topics associated with a COL application [e.g., operational programs, limited work authorizations, generic issues, regulatory treatment of non-safety systems (RTNSS)]. Mr. Oesterle said that the information needed to get a COL will generally consist of information provided for the CD, information provided to get an ESP, and remaining information (e.g., plant-specific design information, information on operational programs). Dr. Wallis questioned how much the ACRS would need to be involved with the review of the remaining information. Dr. Powers questioned whether any of the COL applications would be for a "green field" site. Mr. Colaccino, Office of New Reactors (NRO), said that the vast majority of the proposed COL application sites have operating reactors adjoining the sites.

Mr. Oesterle also provided a brief status of the development of DG-1145. He said the public comment period closed on October 23, 2006, and that approximately 700 individual comments were received. The staff is currently working to resolve the public comments. He emphasized that DG-1145 will be revised to comport with the final revision to 10 CFR Part 52 as approved by the Commission. Mr. Oesterle said that there is a process in place to ensure consistency between DG-1145 and the proposed Regulatory Guide and SRP Section updates. The staff

plans to publish DG-1145 as Regulatory Guide 1.206 after incorporation of public comments and final issuance of the Part 52 rule. The staff is considering additional public forums to update external stakeholders on Regulatory Guide 1.206 prior to publication. Dr. Wallis asked if there would be substantive changes to DG-1145 based on public comments. Mr. Oesterle said that the number of substantive changes would be minimal. Mr. Maynard expressed concern that DG-1145 referenced some old NRC generic letters which contained guidance that he said should be more directly incorporated into DG-1145. Dr. Apostolakis said that he wanted to see DG-1145 again before it was issued as a final Regulatory Guide.

Mr. Harrison, NRR, described the guidance contained in DG-1145 related to PRA and severe accident evaluations. He said that the proposed 10 CFR 52 rulemaking included a requirement for COL applicants to submit a plant-specific PRA to the NRC for review. After completion of DG-1145, the NRC position changed to accept the industry comment to delete this requirement. Rather, final 10 CFR Part 52 now requires that the PRA be maintained available for staff inspection at the applicant's office. The requirement to submit the PRA was deleted throughout Part 52, including the existing requirement for design certification applications. Mr. Harrison said that DG-1145 will need to be revised to reflect the change in the NRC position. Specifically, he said that the majority of the guidance currently in Section C.II.1 (PRA) will need to be incorporated into C.I.19 (FSAR Chapter 19). Since FSAR Chapter 19 is a qualitative, summary description of the PRA, results, insights, uses, etc., staff audits will be necessary to fully understand, review, and confirm the bases for the PRA results and insights and adequacy for the PRA uses/applications [e.g., RTNSS, Reliability Assurance Program (RAP)]. Mr. Harrison said that the requirement to submit a design-specific or plant-specific PRA with the DC or COL application is separate and distinct from the requirement to submit PRA updates to the NRC.

Mr. Harrison stated that the basis for the PRA guidance in DG-1145 is taken from the following: NRC Policy Statements, SECY Papers and related SRMs; experience with design certification reviews for CE System 80+, ABWR, AP-600, and AP-1000; and 10 CFR 52.79 PRA/Severe Accident requirements. Dr. Abdel-Khalik asked if the staff could issue a COL without doing an audit of the applicant's PRA. Mr. Rubin, NRR, said that the staff could possibly get the required information via requests for additional information (RAIs). However, Mr. Saltos, NRR, added that staff would have likely already done an audit of the PRA for the referenced certified reactor design. Dr. Kress said that he thought the PRA should be part of the COL applicant's licensing basis.

Mr. Harrison said that the staff intends to use the applicant's PRA and severe accident evaluations to conclude that nine objectives (derived from NRC Policy Statements, SECY Papers, and related SRMs) are met. Several of the objectives are used to identify and assess the balance of preventive and mitigative features (including operator actions) such that the plant design reflects a reduction in risk compared to existing plants (contemporary with the Severe Accident Policy Statement of 1985). Several other objectives are in support of specific uses and applications of the PRA results for programs [e.g., RTNSS, ITAAC, COL and interface requirements]. Mr. Harrison outlined the regulatory guidance provided in DG-1145 to assist COL applicants in the development of Chapter 19 of the FSAR. Dr. Apostolakis asked that the briefing focus more on technical issues, such as using large release frequency (LRF) as a metric as opposed to large early release frequency (LERF) when reviewing a COL applicant's PRA. Dr. Apostolakis asked where LRF was defined and where 10^{-6} per year came from. Mr. Rubin said that LRF and 10^{-6} came from Commission guidance from the 1990's during the

staff's review of evolutionary and advanced reactor designs. He added that the severe accident decision metrics of 10^{-6} per year for LRF (i.e., baseline PRA and not delta change criteria) and conditional containment failure probability of 0.1 are only applied for new reactor licensing and are not living metrics. Dr. Kress noted that the conditional containment failure probability is weighted by the core damage frequency.

Mr. Sieber noted that DG-1145 basically embraces a lot of existing regulatory guidance, codes, and standards, rules, and other documents, and provides a roadmap for applicants with respect to what has to be in a COL application. He said that from that standpoint, there is nothing new in DG-1145.

Dr. Apostolakis asked how the uncertainties associated with a COL applicant's PRA would be addressed. Mr. Harrison said that applicants for design certifications have done fairly extensive sensitivity studies and uncertainty analyses to get an idea of the magnitude of the uncertainties in the calculations. Mr. Saltos clarified that for the design certification reviews, the staff identified areas of uncertainty and then did sensitivity studies to see how the uncertainties could impact the results. They took these sensitivity study results into account in their decision making (e.g., to identify design changes or operational requirements).

Mr. Oesterle summarized several of the more significant public comments on DG-1145. The first major comment was that some of the information requested in DG-1145 would not be available at the time of COL application or even during the COL application review phase. For example, battery characteristic curves will not be available until batteries have been procured which will be after submittal of the COL application and could likely be after issuance of the license. A second major comment was that some of the information requested in DG-1145 was not applicable to passive plant designs. For example, the guidance in Chapter 8 did not provide any specific requirements for offsite AC power systems for passive plant designs that rely on Class 1E batteries for emergency power and non-safety related diesel generators for battery charging. A third major comment was that Sections C.II and C.III of DG-1145 requested design information from the COL applicants in some areas that have already been certified.
For example, the guidance in Chapter 9 of Section C.III requests information that should already have been addressed in a certified design, such as DG support systems. Another major issue related to information that was either not available at the time the COL application was submitted or that required an update to verify that as-built or as-procured information conformed with the certified design. Several public comments suggested that construction inspections rather than ITAAC are the more appropriate verification mechanism.

Mr. Oesterle said that, based on the public comments, the staff is considering having applicants identify those areas where information will be provided later, or will be updated, and having them to propose methods for so doing. The staff is also considering putting additional guidance in DG-1145 for plants that incorporate passive safety systems.

Mr. Maynard expressed concern over some apparent inconsistencies in the level-of-detail of the guidance provided in various sections of DG-1145. He also questioned the staff's need for certain information in the COL application (e.g., organization charts, resumes). Dr. Banerjee questioned the meaning of the word "limiting" in Chapter 15 of DG-1145. He also said that the guidance in this chapter is unclear, particularly for cases where there is not a lot of experience.

Mr. Oesterle agreed to consider individual member comments (provided to the staff in advance of the November 30, 2006 Future Plant Design Subcommittee meeting) in revising DG-1145.

Committee Action

The Committee issued a report to the Chairman on this matter, dated December 12, 2006, recommending that the final rule, 10 CFR Part 52, retain the requirements that a design-specific PRA be submitted with the design certification application and that a plant-specific PRA be submitted with the COL application. The Committee also recommended that DG-1145 be issued as a final Regulatory Guide after the staff ensures that it is consistent with the final rule 10 CFR Part 52 and with the Regulatory Guides and SRP Sections/Chapters being revised or developed in support of new reactor licensing. The Committee asked that it be informed of any significant changes made to this Guide prior to publishing it in final form.

III. Draft Final Regulatory Guide 1.207 (DG-1144), "Guidelines for Evaluating Fatigue Analyses Incorporating the Life Reduction of Metal Components Due to the Effects of the Light-Water Reactor Environment for New Reactors" (Open)

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

The Committee met with representatives of the NRC staff, the American Society of Mechanical Engineers (ASME), and AREVA to discuss the draft final Regulatory Guide 1.207 (DG-1144), "Guidelines for Evaluating Fatigue Analyses Incorporating the Life Reduction of Metal Components Due to the Effects of the Light-Water Reactor Environment for New Reactors." The staff from the Office of Nuclear Regulatory Research (RES) and their contractor, Argonne National Laboratory (ANL), presented the objective, technical basis, and regulatory positions related to Regulatory Guide 1.207. Representatives of ASME and AREVA provided comments related to the need for the regulatory guide and its potential impact on the industry.

The staff of RES and ANL developed Regulatory Guide 1.207 based on an NRR User Need Request 2005-004 to develop guidance for determining fatigue life in the light water reactor (LWR) environments in supporting reviews of applications that the agency expects to receive for new reactors. The staff stated that this regulatory guide was categorized as high priority and needed to be completed by March 2007.

Mr. Hipolito Gonzalez, RES, and Mr. Omesh Chopra, ANL, described the development and technical basis for Regulatory Guide 1.207. The ASME Boiler and Pressure Vessel Code Section III fatigue design curves were developed in the late 1960s and early 1970s and are based on tests conducted in laboratory air environments at ambient temperatures. However, the Code does not explicitly account for potential degradation in the fatigue properties attributable to exposure to LWR coolant environments. Recent fatigue test data and analyses have demonstrated conclusively that LWR environments have a significant impact on the fatigue life of reactor structural materials. To address this effect, the staff has selected an environmental correction factor, F_{en}, to account for LWR environments. By definition, F_{en} is the ratio of fatigue life of the material in a room temperature air environment to its fatigue life in a LWR coolant environment at operating temperature. To incorporate environmental effects into the fatigue evaluation, the fatigue usage is calculated using ASME Section III Code procedures, and the fatigue usage is multiplied by the correction factor. In license renewal applications,

applicants have used this methodology to evaluate the fatigue usage of materials in Class 1 components.

The F_{en} methodology that the staff considers acceptable is described in Regulatory Guide 1.207. NUREG/CR-6909, "Effect of LWR Coolant Environments on the Fatigue Life of Reactor Materials," provides the technical basis for this methodology. In developing the underlying models, ANL researchers analyzed existing data to predict fatigue life as a function of temperature, strain rate, dissolved oxygen level in water, and sulfur content of the steel. A Second issue addressed by Regulatory Guide 1.207 is the non-conservatism of the current ASME stainless steel air design curve. Recent evaluations of stainless steel and nickel alloy fatigue test data demonstrate that the ASME design curve is non-conservative in the mid-to-high cycle fatigue range. NUREG/CR-6909 provides a new stainless steel air design curve and the technical basis for the new curve. In addition, the staff evaluated the incorporation of the F_{en} approach methodology in fatigue analyses for Ni-Cr-Fe alloys and concluded that the new fatigue design curve proposed for austenitic stainless steels also adequately represented the fatigue behavior of these alloys.

There were several comments on Regulatory Guide 1.207 provided by Mr. Bryan Erler, ASME, and Mr. Robert Gurdal, AREVA. These comments were that the existing ASME design curves and methodology are adequate, that there is no need for a new regulatory guide, that the new guide will result in more detailed and costly analysis in the design of new plants, and that the use of the new guide will also result in the need for an excessive number of snubbers and pipe whip restraints.

Committee Action

The Committee issued a letter to the Executive Director for Operations on this matter dated December 18, 2006, recommending that Regulatory Guide 1.207 be issued as final. The Committee suggested that the staff interact with ASME in the development of a Code Case related to reactor coolant environmental effects on fatigue.

IV. Proposed Revisions to Standard Review Plan Section 13.3, "Emergency Planning" (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 and the Nuclear Energy Institute (NEI) to discuss proposed revisions to NUREG-0800, Standard Review Plan, Section 13.3, "Emergency Planning."

The staff developed the proposed revision in cooperation with the Department of Homeland Security (DHS), and the Federal Emergency Management Agency (FEMA) to ensure up-to-date guidance is available to the staff to review new reactor licensing applications. The staff discussed the rationale behind the proposed changes to the SRP, which was issued for public comments.

Mr. Dan Barss, NSIR, began the presentation by describing the process of new reactor licensing embedded in 10 CFR Part 52 that which was the impetus behind a complete rewrite

of the SRP Section. The regulatory standards for the Emergency Preparedness (EP) program remained the same as provisions were made to incorporate the 10 CFR Part 52 process. For the staff to arrive at a reasonable assurance finding before a license could be issued, the staff needs to ensure that adequate measures will be in place following the proposed onsite and offsite EP plans such that upon occurrence of an emergency condition at the reactor site there is reasonable assurance that public will be protected. The staff pointed out that dose reduction --and not complete dose avoidance-- is the goal of the EP regulations and the SRP.

The staff described the elements of the regulatory requirements and guidance contained in Regulatory Guide 1.101 which references the jointly developed NUREG-0654 (FEMA-REP-1) and endorses the industry document NEI 99-01. The SRP Section describes the information that needs to be provided and reviewed by the staff at various stages of the licensing process. The staff described the use of emergency planning inspections, tests, analyses and acceptance criteria (EP-ITAAC) which would address the features of a complete and integrated EP plan that cannot be described in the required detail at the time of the application. The criteria in the EP-ITAAC need to be met before initial fuel loading with a hearing opportunity provided to petitioners contesting it.

The Members questioned how the staff would determine the acceptability of local government's participation in the offsite plan in support of an early site permit application. The staff responded that existing standards and guidance are extended to the new reactor licensing process, even if some local authorities may decline to participate.

Regarding the staff's efforts to learn from other Countries' EP program and activities, the Members noted the benefit of learning from the good practices of Countries with major nuclear programs.

Some Committee ACRS members noted the need to develop guidance on planning for severe external events, like a major earthquake, that wipes out the infrastructure including the transportation and communication network. The staff indicated that planning for such events is not yet considered and it is assumed that the local authorities will use the available infrastructure in protecting people. The staff also mentioned their effort in seeking "lessons learned" from recent major public evacuation events.

Mr. Alan Nelson, NEI, discussed the industry comments on SRP Section 13.3. One of their concerns was that lack of detailed guidance regarding FEMA review of the offsite plan could generate many requests for additional information from the NRC reviewers and delay the application approval process. Mr. Nelson then described the NEI task force on EP of advanced light water reactor designs and the current effort in developing emergency action levels for passive reactors.

Committee Action

The Committee issued a letter to the Executive Director for Operations on this matter dated December 15, 2006, recommending that NUREG-0800, SRP Section 13.3, "Emergency Planning," be issued.

V. State-of-the-Art Reactor Consequence Analysis Project (Open)

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

The Committee met with representatives of the NRC staff to discuss the status of the staff's efforts associated with the state-of-the-art reactor consequence analysis (SOARCA) project. The staff briefed the Committee on a number of topics related to this project including plans for MELCOR and MACCS code improvement, plant grouping, and selection of scenarios to use for consequence analysis. The staff also briefed the Committee on its plan for a site-specific simulation of offsite emergency response for this project.

Mr. Robert Prato, Office of Research (RES), started the presentation by describing the status for MACCS2 code improvements. He stated that only 8 of 10 MACCS 2 code improvements are being implemented. The wet deposition model aerosol size dependency and angular resolution are not being implemented as a part of MACCS 2 code improvements. Mr. Prato continued his presentation by discussing how the staff is evaluating scenarios selection using core damage frequency. He stated that the unavailability of full-scope level-2 PRAs for all plants, limits the staff ability to select scenarios based on release frequency.

Mr. Randolph Sullivan briefed the Committee on site-specific simulation of offsite emergency response for SOARCA project.

The Members had many questions regarding the technical details of this study and how uncertainties will be addressed. The Members agreed that the technical details be discussed in a subcommittee as the process and calculations further develops.

Committee Action

This was an information briefing. The Committee plans to continue its review of this project as further progress is made by the staff.

VI. 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" Regulatory Guides and SRP Sections that which are being revised or developed in support of new reactor licensing. The Committee identified five SRP Sections that it decided not to review (i.e.;, proposed Revision 3 to SRP Section 2.3.3, "Onsite Meteorological Measurements Program"; proposed Revision 2 to SRP Section 3.2.1, "Seismic Classification"; proposed Revision 2 to SRP Section 3.2.2, "System Quality Group Classification"; proposed new SRP Section 3.13, "Threaded Fasteners - ASME Code Class 1, 2, and 3"; and proposed new SRP Section 17.4, "Reliability Assurance Program"). The Committee's decision is documented in a memorandum dated December 15, 2006, from John T. Larkins, ACRS Executive Director to Luis A. Reyes, NRC Executive Director for Operations.

Dr. Corradini recommended that the Committee not review SRP Section 2.3.1, Regional Climatology. However, Dr. Powers expressed concern that looking solely at historical records may not be adequate to predict extremes of weather. Dr. Powers agreed to take a closer look at the proposed revision to SRP Section 2.3.1 to see if it adequately addressed his concern.

The Committee decided to consider whether the ACRS should review several other non-high-priority SRP Sections [e.g.; , SRP Section 3.11, "Environmental Qualification of Mechanical and Electrical Equipment; SRP Section 6.1.2, Protective Coating Systems (Paint) - Organic Materials"; SRP Section 6.2.7, "Fracture Prevention of Containment Pressure Boundary"; and SRP Section 6.5.5, "Pressure Suppression Pool as a Fission Product Cleanup System"]. The Committee noted that it had completed its review and/or consideration of all of the high priority SRP Sections provided by the staff.

Committee Action

The Committee plans to conduct an accelerated review of all Regulatory Guides and SRP Sections that which are determined to warrant ACRS review.

VII. Subcommittee Report on Thermal-Hydraulic Phenomena

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

The Chairman of the Thermal-Hydraulic Phenomena Subcommittee provided a report to the Committee summarizing the results of the December 5, 2006 meeting with the NRC staff and its contractors concerning the development of the TRAC/RELAP5 Analytical Computational Engine (TRACE) computer code. Members expressed concern about the state of the code documentation and noted that the staff's progress in establishing the TRACE code as the standard NRC tool for evaluating light water reactor behavior is slow. The staff described its response to an anonymous letter that had been received by the Committee concerning the numerical solution scheme for the code. Members noted that the staff's efforts to address the underlying technical issues raised in the anonymous letter should be improved

Committee Action

The Committee plans to consider a letter to the Executive Director for Operations on this matter during its February 2007 meeting.

VIII. Election of ACRS Officers for CY 2007

[Note: Mr. John T. Larkins was the Designated Federal Official for this portion of the meeting.]

The Committee elected William J. Shack as ACRS Chairman, John D. Sieber as ACRS Vice Chairman, and Mario V. Bonaca as Member-at-Large for the Planning and Procedures Subcommittee for CY 2007.

IX.. Executive Session (Open)

[Note: Dr. John T. Larkins was the Designated Federal Official for this portion of the meeting.]

A. RECONCILIATION OF ACRS COMMENTS AND RECOMMENDATIONS/EDO COMMITMENTS

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

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 November 27, 2006, to comments and recommendations included in the October 25, 2006 ACRS letter on the draft final NUREG-1824, "Verification and Validation of Selected Fire Models for Nuclear Power Plant Applications." The Committee decided that it was satisfied with the EDO's response.

- The Committee considered NRR's response of December 1, 2006, to the November 6, 2006 memorandum from the ACRS Executive Director regarding the Browns Ferry Nuclear Plant, Unit 1 - Extended Power Uprate Application and Supplemental Application. The Committee decided that it was satisfied with the NRR's response.

- The Committee considered the EDO's response of December 6, 2006, to comments and recommendations included in the November 27, 2006 ACRS Report on the Safety Aspects of License Renewal Application for the Palisades Nuclear Plant. The Committee decided that it was satisfied with the EDO's response.

B. Report on the Meeting of the Planning and Procedures Subcommittee (Open)

The Committee heard a report from the ACRS Chairman and the Executive Director, ACRS, regarding the Planning and Procedures Subcommittee meeting held on December 6, 2006.

The following items were discussed:

Review of the Member Assignments and Priorities for ACRS Reports and Letters for the December ACRS meeting

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

Anticipated Workload for ACRS Members

The anticipated workload for ACRS members through March 2007 was discussed.

The objectives were:

- 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.

Staff Requirements Memorandum

The Committee discussed Staff Requirements Memorandum (SRM) dated November 8, 2006, resulting from the ACRS meeting with the NRC Commissioners on October 20, 2006. It this SRM the Commission stated the following:

1. 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.

2. 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.

3. 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.

4. The ACRS should provide the Commission with its recommendations and basis for areas in which NRC should perform additional long term research.

5. 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.

Global Nuclear Energy Partnership

On February 6, 2006, the Secretary of Energy announced a $250 million FY 2007 budget request to launch the Global Nuclear Energy Partnership (GNEP). GNEP has four main goals: (1) reduce America's dependence on foreign sources of fossil fuels and encourage economic growth; (2) recycle nuclear fuel using new proliferation-resistant technologies to recover more energy and reduce waste; (3) encourage prosperity, growth and clean development around the world; and (4) utilize the latest technologies

to reduce the risk of nuclear proliferation worldwide. As envisioned, GNEP will require NRC involvement in licensing several new facilities including a reprocessing facility, a fast flux liquid metal burner reactor, a fuel fabrication facility, a waste vitrification facility, and interim storage facility.

In SECY-06-0066 dated March 22, 2006, the staff requested that the Commission approve plans to address the regulatory and resource implications associated with GNEP. In an SRM, dated May 16, 2006, the Commission directed the staff to develop a conceptual licensing process for GNEP facilities, including review of the one-step licensing provisions for enrichment facilities and features of nuclear power plant combined licensing under Part 52 (i.e., construction authorization and operating license hearing process, design certification process, and early site permitting process). The Commission also noted in the SRM that the ACRS and ACNW could help in defining the issues most important to licensing, inspecting, and ultimate decommissioning of reprocessing and related fuel-cycle facilities.

The staff has prepared a SECY (currently in inter-Office concurrence) on its conceptual licensing approach for the GNEP facilities. NMSS staff plans to brief the ACNW on the SECY paper during the December 2006 ACNW Full Committee Meeting. Areas of primary interest include:

- Conceptual licensing approach for the Advanced Burner Reactor (ABR). The ABR is expected to be a 1000MWt sodium cooled fast flux reactor designed to burn transuranic waste (TRUs) in order to reduce the amount of radiological waste entering the geological repository. The staff has developed a conceptual approach to licensing the ABR. The approach and associated regulatory infrastructure needed to implement the approach will be of significant interest to the Commission.

- Conceptual licensing approach for the spent nuclear fuel reprocessing facility. Part 50 still remains the current regulatory framework for licensing reprocessing facilities, although it primarily pertain to licensing light water reactors. The NRC has not licensed a reprocessing facility in for over 30 years. A joint letter by ACRS/ACNW, dated January 14, 2002 raised concerns over the use of integrated safety assessment (instead of PRA) for licensing similar facilities under 10 CFR Part 70. Unless the staff moves to PRA to risk-inform the process, the ISA verses PRA issue will also be concern for reprocessing facilities.

FY2006 ACRS Letter Matrix

As required by the Commission, the ACRS/ACNW Office needs to submit a summary matrix of the FY2006 ACRS reports. This will involve summarizing the recommendations included in the ACRS reports and letters. This summary matrix is included as part of the ACRS/ACNW Operating Plan submitted to the Commission annually. In order to avoid violation of the ACRS Bylaws, the Committee should authorize the ACRS Executive Director or his designee to summarize the recommendations in the ACRS reports and letters.

Nuclear Safety Research Forum-2007

As a followup to the recent Quadripartite Meeting, Dr. Wallis received a letter from

Commissioner Soda, NSC, inviting an ACRS member to give a keynote address at the Nuclear Safety Research Forum-2007, scheduled to be held on Friday, March 9, 2007, in Tokyo, Japan. This is a domestic meeting intended for Japanese audience with two keynote speakers, one from ACRS and another from NEA. The focus of this meeting is on research in the field of aging management and material degradation at nuclear power plants.

Dr. J. Sam Armijo is interested in participating in the meeting and would like to expand the trip to include visiting organizations and laboratories in Japan, whose activities are focused on reactor materials degradation research.

Report by Dr. Powers on the ANS Meeting Session on Sump Blockage and GSI-191

Dr. Powers, who attended the 2006 Winter Meeting of the American Nuclear Society (ANS), prepared the attached report on the Session involving the discussion of sump blockage and GSI-191.

List of Research Topics for ACRS Quality Assessment in FY2007

RES has provided a list of eight topics for the ACRS quality assessment in FY2007. These topics are not consistent with the criteria established in 2004. The Committee needs to revisit the process used by RES in identifying topics.

If the Committee is not satisfied with the topics proposed by RES, we can ask RES to provide another list of topics. The Committee normally selects a list of four topics for assessment. However, only two topics were selected for assessment in 2006. In view of the fact that the ACRS will be preparing its biennial report to the Commission on the overall NRC Safety Research Program in 2007, the Committee should consider selecting only two topics for quality assessment in FY2007.

Election of ACRS Officers for CY 2007

The Committee will elect Chairman and Vice-Chairman for the ACRS and Member-at-Large for the Planning and Procedures Subcommittee during the December 7-9, 2006, ACRS meeting. During the November meeting, the members were requested to inform the ACRS Executive Director in writing by November 24, 2006, if they do not wish to be considered for any or all of the Offices. So far, two Members have notified the ACRS Executive Director that they do not wish to be considered for all of the Offices.

Subcommittee Report on TRACE Code

The ACRS Subcommittee on Thermal-Hydraulic Phenomena held a meeting on December 5, 2006 to discuss the activities associated with the development of the TRACE computer code. It would be helpful to the Committee if the Subcommittee Chairman provides a brief report to the Committee summarizing issues and concerns of the Subcommittee and future course of action.

Member Issue

Informal ACRS Meetings with the Staff

In an email dated November 30, 2006, Dr. Powers raised some concerns about the informal meetings between the NRC staff and some ACRS members. The Committee discussed this subject.

C. Future Meeting Agenda

Appendix IV summarizes the proposed items endorsed by the Committee for the **539th** ACRS Meeting, **February 1-3, 2007.**

The **538th** ACRS meeting was adjourned at on **5:15 PM, December 8, 2006.**

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 December 7–9, 2006, 11545 Rockville Pike, Rockville, Maryland. The date of this meeting was previously published in the **Federal Register** on Tuesday, November 22, 2005 (70 FR 70638).

Thursday, December 7, 2006, 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.–10:30 a.m.: Draft Final Regulatory Guide, DG–1145, "Combined License Applications for Nuclear Power Plants" (Open)—The Committee will hear presentations by and hold discussions with representatives of the NRC staff regarding Draft Final Regulatory Guide, DG–1145, "Combined License Applications for Nuclear Power Plants," and resolution of significant public comments.

10:45 a.m.–12:15 p.m.: Draft Final Regulatory Guide, DG–1144, "Guidelines for Evaluating Fatigue Analyses Incorporating the Life Reduction of Metal Components Due to the Effects of the Light-Water Reactor Environment for New Reactors" (Open)—The Committee will hear presentations by and hold discussions with representatives of the NRC staff regarding Draft Final Regulatory Guide DG–1144 and the resolution of public comments.

1:15 p.m.–3:15 p.m.: Proposed Revisions to Standard Review Plan Section 13.3, "Emergency Planning" (Open)—The Committee will hear presentations by and hold discussions with representatives of the NRC staff regarding proposed revisions to Standard Review Plan Section 13.3, "Emergency Planning," and related matters.

3:30 p.m.–5:30 p.m.: State-of-the-Art Reactor Consequence Analysis Project (Open)—The Committee will hear presentations by and hold discussions with representatives of the NRC staff regarding status of the staff's efforts associated with the state-of-the-art reactor consequence analysis project.

5:45 p.m.–7 p.m.: Preparation of ACRS Reports (Open)—The Committee will discuss proposed ACRS reports on matters considered during this meeting.

Friday, December 8, 2006, 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.–9:30 a.m.: Proposed Revisions to Regulatory Guides and Standard Review Plan Sections in Support of New Reactor Licensing (Open)—The Committee will discuss proposed revisions to Regulatory Guides and Standard Review Plan Sections that are being made in support of new reactor licensing.

9:30 a.m.–10:30 a.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.

10:45 a.m.–11 a.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.

11 a.m.–11:30 a.m.: Election of ACRS Officers for CY 2007 (Open)—The Committee will elect Chairman and Vice-Chairman for the ACRS and Member-at-Large for the Planning and Procedures Subcommittee.

1 p.m.–7 p.m.: Preparation of ACRS Reports (Open)—The Committee will discuss proposed ACRS reports.

Saturday, December 9, 2006, Conference Room T–2B3, Two White Flint North, Rockville, Maryland

8:30 a.m.–12 Noon: Preparation of ACRS Reports (Open)—The Committee will continue discussion of proposed ACRS reports.

12 Noon–12:30 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.

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 & ACNW Mtg 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

videoteleconferencing services is not guaranteed.

The ACRS meeting dates for Calendar Year 2007 are provided below.

ACRS meeting No.	Meeting dates
—	January 2007.
539	February 1–3, 2007.
540	March 8–10, 2007.
541	April 5–7, 2007.
542	May 3–5, 2007.
543	June 6–8, 2007.
544	July 11–13, 2007.
—	August [1]
545	September 6–8, 2007.
546	October 4–6, 2007.
547	November 1–3, 2007.
548	December 6–8, 2007.

[1] No ACRS Meeting.

Dated: November 8, 2006.

Andrew L. Bates,

Advisory Committee Management Officer.

[FR Doc. E6–19239 Filed 11–14–06; 8:45 am]

BILLING CODE 7590–01–P

NUCLEAR REGULATORY COMMISSION

Advisory Committee on Reactor Safeguards (ACRS)

Subcommittee Meeting on Materials, Metallurgy, and Reactor Fuels; Notice of Meeting

The ACRS Subcommittee on Materials, Metallurgy, and Reactor Fuels will hold a meeting on December 6, 2006, Room T–2B3, 11545 Rockville Pike, Rockville, Maryland.

The entire meeting will be open to public attendance.

The agenda for the subject meeting shall be as follows:

Wednesday, December 6, 2006—1:30 p.m. until the conclusion of business.

The Subcommittee will review Draft Regulatory Guide DG–1144, "Guidelines for Evaluating Fatigue Analyses Incorporating the Life Reduction of Metal Components Due to the Effects of the Light-Water Reactor Environment for New Reactors." The Subcommittee will gather information, analyze relevant issues and facts, and formulate proposed positions and actions, as appropriate, for deliberation by the full Committee.

Members of the public desiring to provide oral statements and/or written comments should notify the Designated Federal Official, Mr. Charles G. Hammer (telephone 301/415–7363) five days prior to the meeting, if possible, so that appropriate arrangements can be made. Electronic recordings will be permitted.

Further information regarding this meeting can be obtained by contacting the Designated Federal Official between 6:45 a.m. and 3:30 p.m. (ET). Persons planning to attend this meeting are urged to contact the above named individual at least two working days prior to the meeting to be advised of any potential changes to the agenda.

Dated: November 8, 2006.

Antonio F. Dias,

Acting Branch Chief, ACRS/ACNW.

[FR Doc. E6–19241 Filed 11–14–06; 8:45 am]

BILLING CODE 7590–01–P

NUCLEAR REGULATORY COMMISSION

Advisory Committee on Reactor Safeguards (ACRS) Subcommittee Meeting on Thermal-Hydraulic Phenomena; Notice of Meeting

The ACRS Subcommittee on Thermal-Hydraulic Phenomena will hold a meeting on December 5, 2006, 11545 Rockville Pike, Rockville, Maryland in Room T–2B3.

The entire meeting will be open to public attendance.

The agenda for the subject meeting shall be as follows: *Tuesday, December 5, 2006—8:30 a.m. until the conclusion of business.*

The Subcommittee will hear presentations from the NRC staff, their contractors, and other interested persons concerning the progress they have been making in the development of the TRACE T/H system analysis code. The Subcommittee will gather information, analyze relevant issues and facts, and formulate proposed positions and actions, as appropriate, for deliberation by the full Committee.

Members of the public desiring to provide oral statements and/or written comments should notify the Designated Federal Official, Mr. Ralph Caruso (Telephone: 301–415–8065) five days prior to the meeting, if possible, so that appropriate arrangements can be made. Electronic recordings will be permitted only during those portions of the meeting that are open to the public.

Further information regarding this meeting can be obtained by contacting the Designated Federal Official between 7:30 a.m. and 4:15 p.m. (ET). Persons planning to attend this meeting are urged to contact the above named individual at least two working days prior to the meeting to be advised of any potential changes to the agenda.

Dated: November 8, 2006.

Antonio F. Dias,

Acting Branch Chief, ACRS/ACNW.

[FR Doc. E6–19280 Filed 11–14–06; 8:45 am]

BILLING CODE 7590–01–P

NUCLEAR REGULATORY COMMISSION

Notice of Sunshine Act Meetings

AGENCY: Nuclear Regulatory Commission.

DATE: Weeks of November 13, 20, 27, December 4, 11, 18, 2006.

PLACE: Commissioners' Conference Room, 11555 Rockville Pike, Rockville, Maryland.

STATUS: Public and closed.

MATTERS TO BE CONSIDERED:

Week of November 13, 2006

There are no meetings scheduled for the Week of November 13, 2006.

Week of November 20, 2006—Tentative

There are no meetings scheduled for the Week of November 20, 2006.

Week of November 27, 2006—Tentative

Thursday, November 30

12:55 p.m. Affirmation Session (Public Meeting) (Tentative). a. Hydro Resources, Inc. (Crownpoint, NM) Intervenors' Petition for Review of LBP–06–19 (Final Partial Initial Decision—NEPA Issues) (Tentative).

Week of December 4, 2006—Tentative

Thursday, December 7, 2006

9:30 a.m. Discussion of Security Issues (Closed—Ex. 2 & 3).

Week of December 11, 2006—Tentative

Monday, December 11, 2006

1:30 p.m. Briefing on Status of Decommissioning Activities (Public Meeting) (Contact: Keith McConnell, 301–415–7295).

This meeting will be Webcast live at the Web address— *http://www.nrc.gov.*

Tuesday, December 12, 2006

9:30 a.m. Briefing on Threat Environment Assessment (Closed—Ex. 1).

1:30 p.m. Discussion of Security Issues (Closed—Ex. 1 & 3).

Wednesday, December 13, 2006

9:30 a.m. Briefing on Status of Equal Employment Opportunity (EEO) Programs (Public Meeting) (Contact: Barbara Williams, 301–415–7388).

This meeting will be Webcast live at the Web address—*http://www.nrc.gov.*

Thursday, December 14, 2006

9:30 a.m. Meeting with Advisory Committee on Nuclear Waste (ACNW) (Public Meeting) (Contact: John Larkins, 301–415–7360).

This meeting will be Webcast live at the Web address—*http://www.nrc.gov.*

November 20, 2006 (REVISED)

SCHEDULE AND OUTLINE FOR DISCUSSION
538th ACRS MEETING
DECEMBER 7-9, 2006

THURSDAY, DECEMBER 7, 2006, CONFERENCE ROOM T-2B3, TWO WHITE FLINT NORTH, ROCKVILLE, MARYLAND

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

Opening Remarks by the ACRS Chairman (Open) (GBW/JTL/SD)
1.1) Opening statement
1.2) Items of current interest

2) 8:35 - ~~10:30~~ A.M.
10:35

Draft Final Regulatory Guide, DG-1145, "Combined License Applications for Nuclear Power Plants" (Open) (TSK/DCF)
2.1) Remarks by the Subcommittee Chairman
2.2) Briefing by and discussions with representatives of the NRC staff regarding Draft Final Regulatory Guide, DG-1145, "Combined License Applications for Nuclear Power Plants," and resolution of significant public comments.

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

~~10:30 - 10:45~~ A.M.
10:35 - 10:50

*****BREAK*****

3) ~~10:45 - 12:15~~ P.M.
10:50 - 12:30 P.M.

Draft Final Regulatory Guide, DG-1144, "Guidelines for Evaluating Fatigue Analyses Incorporating the Life Reduction of Metal Components Due to the Effects of the Light-Water Reactor Environment for New Reactors" (Open) (JSA/CGH/CS)
3.1) Remarks by the Subcommittee Chairman
3.2) Briefing by and discussions with representatives of the NRC staff regarding Draft Final Regulatory Guide, DG-1144 and the resolution of public comments.

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

~~12:15 - 1:15~~ P.M.
12:30 - 1:30 P.M.

*****LUNCH*****

4) ~~1:15 - 3:15~~ P.M.
1:30 - 3:36

Proposed Revisions to Standard Review Plan Section 13.3, "Emergency Planning" (Open) (MLC/DAP/MB)
4.1) Remarks by the Subcommittee Chairman
4.2) Briefing by and discussions with representatives of the NRC staff regarding proposed revisions to Standard Review Plant Section 13.3, "Emergency Planning," and related matters.

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

~~3:15 - 3:30~~ **P.M.** *****BREAK*****
3:36 - 4:08 P.M.

5) ~~3:30 - 5:30~~ P.M. 4:08 - 6:15 P.M. State-of-the-Art Reactor Consequence Analysis Project (Open) (WJS/HPN)
   5.1) Remarks by the Subcommittee Chairman
   5.2) Briefing by and discussions with representatives of the NRC staff regarding status of the staff's efforts associated with the state-of-the-art reactor consequence analysis project.

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

~~**5:30 - 5:45 P.M.** *****BREAK*****~~ No Break

6) 5:45 - 7:00 P.M. Preparation of ACRS Reports (Open)
   Discussion of proposed ACRS reports on:
   6.1) Draft Final Regulatory Guide, DG-1145, "Combined License Applications for Nuclear Power Plants" (TSK/DCF)
   6.2) Draft Final Regulatory Guide, DG-1144, "Guidelines for Evaluating Fatigue Analyses Incorporating the Life Reduction of Metal Components Due to the Effects of the Light-Water Reactor Environment for New Reactors" (JSA/CGH/CS)
   6.3) Proposed Revisions to Standard Review Plan Section 13.3,"Emergency Planning" (MLC/DAP/MB)
   6.4) State-of-the-Art Reactor Consequence Analysis Project (Tentative) (WJS/HPN)
   6.5) Collaborative Research on Human Reliability Analysis Methods (GEA/EAT)

FRIDAY, DECEMBER 8, 2006, CONFERENCE ROOM T-2B3, TWO WHITE FLINT NORTH, ROCKVILLE, MARYLAND

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

8) 8:35 - 9:30 A.M. Proposed Revisions to Regulatory Guides and Standard Review Plan Sections in Support of New Reactor Licensing (Open) (OLM/DCF)
   8.1) Remarks by the Subcommittee Chairman
   8.2) Discussion of proposed revisions to Regulatory Guides and Standard Review Plan Sections that are being made in support of new reactor licensing.

9) 9:30 - 10:30 A.M. Future ACRS Activities/Report of the Planning and Procedures Subcommittee (Open) (GBW/JTL/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.

~~**10:30 - 10:45 A.M. ***BREAK*****~~ No Break

10) 10:45 - ~~11:00~~ 11:15 A.M. Reconciliation of ACRS Comments and Recommendations (Open) (GBW, 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.

11) ~~11:00~~ - 11:30 A.M. 11:15 Election of ACRS Officers for CY 2007 (Open) (JTL/SD)
Election of Chairman and Vice-Chairman for the ACRS and Member-at-Large for the Planning and Procedures Subcommittee.

11:30 - 1:00 P.M. ***LUNCH***

12) 1:00 - ~~7:00~~ 5:15 P.M. Preparation of ACRS Reports (Open)
Discussion of proposed ACRS reports on:

12.1) Draft Final Regulatory Guide, DG-1145, "Combined License Applications for Nuclear Power Plants" (TSK/DCF)

12.2) Draft Final Regulatory Guide, DG-1144, "Guidelines for Evaluating Fatigue Analyses Incorporating the Life Reduction of Metal Components Due to the Effects of the Light-Water Reactor Environment for New Reactors" (JSA/CGH/CS)

12.3) Proposed Revisions to Standard Review Plan Section 13.3, "Emergency Planning" (MLC/DAP/MB)

12.4) State-of-the-Art Reactor Consequence Analysis Project (Tentative) (WJS/HPN)

12.5) Collaborative Research on Human Reliability Analysis Methods (GEA/EAT)

~~**SATURDAY, DECEMBER 9, 2006, CONFERENCE ROOM T-2B3, TWO WHITE FLINT NORTH, ROCKVILLE, MARYLAND**~~

~~13) 8:30 - 12:00 Noon Preparation of ACRS Reports (Open)~~
~~**(10:15-10:30 A.M. BREAK)** Continue discussion of proposed ACRS reports listed under Item 12~~

~~14) 12:00 - 12:30 P.M. Miscellaneous (Open) (GBW/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.

ACRS	ACRS/ACNW	ACRS/ACNW	Filed: CM-180
SD/bjw	MA	MRS	
11/ /06	11/ /06	11/ /06	

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
538TH FULL COMMITTEE MEETING

December 7-9, 2006
Today's Date: December 7, 2006

NRC STAFF SIGN IN FOR ACRS MEETING

PLEASE PRINT

NAME	NRC ORGANIZATION
Donnie Harrison	NRR/DRA
Jerry Wilson	NRO/DNRL
Eric Oesterle	NRO/DNRL
David Matthews	NRO/DNRL
Gareth Parry	NRR/DRA
Eileen McKenna	NRR/DLR
B.P. Jain	NRC/RES
Lynn Mrowca	NRR/DRA
Joe Colaccino	NRO/DNRL
Dan Barss	NSIR/DPR
Steve Tingen	NRR/DE/EQV
Mark Rubin	NRR/DRA
Nick Saltos	NRR/DRA
Charles Ader	NRO/DSRA
Doug Weaver	NRO/DNRL
Andrea Valentin	RES/DFERR
John N. Ridgely	RES/DRASP
Michael Mayfield	NRO/DE
Mark Hartzman	NRR/DE
Don Dube	NRR/DRA
Ching Hng	NRR/DE
Matthew Mitchell	NRR/DCI
Jerome Bettle	NRR/DSS
Kamal Manoly	NRR/DE/EEMB
Bill Cullen	RES/DFERR/ME/CMB

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
538TH FULL COMMITTEE MEETING

December 7-9, 2006
Today's Date: December 7, 2006

NRC STAFF SIGN IN FOR ACRS MEETING

Hipolito Gonzales	RES/DFERR/ME/CMB
Kathryn Brock	NSIR/DPR/EPD
Edward H. Roach	NSIR/DPR/EPD
Jonathan T. Johnson	NSIR/DPR/EPD
Bruce Musico	NSIR/DPR
Prosanta Chowdhury	NSIR/DPR
Maitri Banerjee	ACRS
R L Sullivan	NSIR
Robert Prato	RES
Yung Hsien J. Chang	RES/DRASP/PRA
John Monninger	NRR/RES/DRASP
Susan B. Cooper	RES/DRASP
Chris Hunter	RES
Jim Yerokun	RES
Jocelyn Mitchell	RES
Doug Coe	OCM/PBZ
Scott Burnell	OPA
Ata Istar	RES/DFERR

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
538TH FULL COMMITTEE MEETING

December 7-9, 2006
Today's Date: 7, 2006

Outside Attendees SIGN IN FOR ACRS MEETING

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NAME	NRC ORGANIZATION
Syros Trafores	
Patricia Campbell	General Electric
Russ Bell	NEI
Gary Becker	Southern Nuclear
Robert Gurdal	AREVA NP
Kevin Ennis	ASME
Alan Levin	AREVA
Bryan Erler	ASME
Alan Nelson	NBI
Martin Hug	NEI
R.H. Wessman	self
Biff Bradley	NEI
Jeff Gabon	ERIN
Jim Fulford	ISL

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
538th FULL COMMITTEE MEETING

December 7-9, 2006

TODAY'S DATE: December 7, 2006

NRC STAFF - PLEASE SIGN BELOW

PLEASE PRINT (CLEARLY)

	NAME	NRC ORGANIZATION
1	Donnie Harrison	NRR/DRA
2	JERRY WILSON	NRO / DNRL
3	ERIC OESTERLE	NRO/DNRL
4	DAVID MATTHEWS	NRO/DNRL
5	GARETH PARRY	NRR/DRA
6	Eileen McKenna	NRC
7	B P Jain	NRC/RES
	Lynn Mrowca	NRC/NRR/DRA
9	JOSEPH COLACCINO	NRC/NRO/DNRL
10	DAN BARSS	NRC/NSIR/OPR
11	Steve Tingen	NRR/DE/EQV
12	Mark Rubin	NRR/DRA
13	Nick Saltos	NRR/DRA
14	Charles Ader	NRC/NRO/DSRA
15	Doug Weaver	NRR/DNRL
16	ANDREA VALENTIN	RES/DFCRR
17	John N. Ridgely	RES/DRASP
18	Michael Mansfield	NRO/DE
19	MARK HARTZMAN	NRR/DE
20	DON DUBE	NRR/DRA

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
538th FULL COMMITTEE MEETING

December 7-9, 2006

TODAY'S DATE: December 7, 2006

NRC STAFF - PLEASE SIGN BELOW

PLEASE PRINT (CLEARLY)

	NAME	NRC ORGANIZATION
1	Ching H Ng	NRR/DE
2	Matthew A. Mitchell	NRR/DCI
3	Jerome Bettle	NRR/DSS
4	KAMAL MANOLY	NRR/DE/EEMB
5	Bill Cullen	RES/DFERR/ME/CMB
6	Hipólito González	RES/DFERR/ME/CMB
7	Kathryn Brock	NSIR/DPR/EPD
8	Edward H. Roach	NSIR/DPR/EPD
9	JONATHAN T. JOHNSON	NSIR/DPR/EPD
10	Bruce Musico	NSIR/DPR
11	PROSANTA CHOWDHURY	NSIR/DPR
12	Maitri Banerjee	ACRS staff
13	RL Sullivan	NSIR
14	R PRATO	RES.
15	Yung Hsien J. Chang	RES/DRASP/PRA/HFRB.
16	John Monninger	NRC/RES/DRASP
17	Susan E. Cooper	RES/DRASP
18	Chris Hunter	RES
19	JIMI YERokun	RES
20	Jocelyn Mitchell	RES

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
538th FULL COMMITTEE MEETING

December 7-9, 2006

TODAY'S DATE: December 7, 2006

NRC STAFF - PLEASE SIGN BELOW

PLEASE PRINT (CLEARLY)

	NAME	NRC ORGANIZATION
1	Doug Coe	OCM/PBZ
2	Scott Burnell	OPA
3	ISTAR, ATA	RES/DFERR
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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
538th FULL COMMITTEE MEETING
December 7-9, 2006

December 7, 2006
Today's Date

ATTENDEES PLEASE SIGN IN BELOW
PLEASE PRINT

	NAME	AFFILIATION
1	SPYROS TRAIFOROS	
2	Patricia Campbell	General Electric
3	Russ Bell	NEI
4	Gary Becker	Southern Nuclear
5	Robert GURDAL	AREVA NP
6	Steve Tingen	
7	KEVIN ENNIS	ASME
8	Alan Levin	AREVA
9	Bryan Erler	ASME
10	Alan Nelson	NEI
11	MARTIN HUG	NEI
12	R. H. Wessman	SLI
13	Biff Bradley	NEI
14	JEFF GABOR	ERIN
15	Jim Fulford	ISL
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Future Agenda

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

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)** 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. ***LUNCH***

3) 12:45 - 3:30 P.M. **(2:00-2:15 BREAK)** 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*****

4) 3:45 - 5:15 P.M. Development of TRACE Thermal-Hydraulic Code (Open) (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*****

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

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 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*****

8) 10:15 - 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) (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. 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. ***LUNCH***

10) 1:00 - 2:00 P.M. 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. 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. ***BREAK***

12) 2:45 - 3:30 P.M. 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. 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.

LIST OF DOCUMENTS PROVIDED TO THE COMMITTEE
538TH ACRS MEETING
December 7-9, 2006

[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
1.	Opening Remarks by the ACRS Chairman 1. Items of Interest, dated December 7-9, 2006
2.	Draft Final Regulatory Guide, DG-1145, "Combined License Applications for Nuclear Power Plants" 2. Proposed Agenda for DG-1145 Discussion 3. Presentation on DG-1145, "Combined License (COL) Applications for Nuclear Power Plants (LWR Edition)," Slides prepared by NRC staff, Eric Oesterley, NRO/DNRL/NGIF
3.	Draft Final Regulatory Guide, DG-1144, "Guidelines for Evaluating Fatigue Analyses Incorporating the Life Reduction of Metal Components Due to the Effects of the Light-Water Reactor Environment for New Reactos" 4. Proposed Schedule 5. RG 1.207 - Guidelines for Evaluating Fatigue Analysis Incorporating the Life Reduction of Metal Components Due to the Effects of the Light-Water Reactor Environment for New Reactors (Slides presented by Hipolito Gonzalez and Omesh Chopra on behalf of NRC staff).
4.	Proposed Revisions to Standard Review Plan 13.3, "Emergency Planning" 6. Proposed Revision to Section 13.3, "Emergency Planning" (EP) of the Standard Review Plan (SRP) & Combined License Application Guidance (DG-1145) [Slides presented by NRC/NSIR, Daniel M. Barss] 7. NUREG-0800 Section 13.3, "Emergency Planning" [Slides presented by Alan Nelson of the Nuclear Energy Institute]
5.	State-of-the-Art Reactor Consequence Analysis Project 8. State-of-the-Art Reactor Consequence Analyses [Slides presented by Robert J. Prato of NRC/RES] 9. Site-Specific Simulation of Offsite Emergency Response for SOARCA [Slides presented by Randolph L. Sullivan, NRC/NSIR] 10. State of the Art Reactor Consequence Analysis Information Request 11. Plant Containment Matrices 12. Mark I BWRs Internal Events Screening 13. Westinghouse 4-Loop, Large Dry PWRs Internal Events Screening

6. Preparation of ACRS Reports

7. Opening Remarks, Friday, December 8, 2006

8. Proposed Revisions to Regulatory Guides and Standard Review Plan Sections in Support of New Reactor Licensing

9. Future ACRS Activities/Report of the Planning and Procedures Subcommittee
   14. P&P Subcommittee Minutes, December 6, 2006
   15. ACRS Review of High Priority Standard Review Plan Sections (Status Report)

10. Reconciliation of ACRS Comments and Recommendations
    16. Handout Containing Prior Letters/Memos

MEETING NOTEBOOK CONTENTS

Tab #	DOCUMENTS
2.	Draft Regulatory Guide DG-1145, "Combined License Applications for Nuclear Power Plants (LWR Edition)" 17. Table of Contents 18. Proposed Agenda 19. Status Report
3.	Review of Regulatory Guide 1.207 (DG-1144), "Guidelines for Evaluating Fatigue Analyis Incorporating the Life Reduction of Metal Components Due to the Effects of the Light-Water Reactor Environment for New Reactors" 20. Proposed Schedule 21. Status Report
4.	Proposed Revisions to Emergency Planning Regulatory Guide and Review Standards 22. Table of Contents 23. Proposed Agenda 24. Status Report
5.	State-of-the-Art Consequences Analysis Project 25. Table of Contents 26. Proposed Schedule 27. Status Report
8.	Proposed Revisions to Regulatory Guides and Standard Review Plan Sections 28. Table of Contents 29. Status Report

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ACRS MEETING HANDOUT

Meeting No.	Agenda Item	Handout No.:
538th	9	9.1

Title: **PLANNING & PROCEDURES/ FUTURE ACTIVITIES**

Authors
John Larkins

Document Attached

P&P Subcommittee Minutes, December 6, 2006

9

Instructions to Preparer	From Staff Person:
1. Paginate Attachments 2. Punch holes 3. Place Copy in file box	Sam Duraiswamy

CERTIFIED:

SUMMARY/MINUTES OF THE
ACRS PLANNING AND PROCEDURES SUBCOMMITTEE MEETING
December 6, 2006

The ACRS Subcommittee on Planning and Procedures held a meeting on December 6, 2006, 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 11:15 am.

ATTENDEES
G. Wallis
W. Shack
J. Sieber

ACRS STAFF
J. T. Larkins
F. Gillespie
S. Duraiswamy
H. Nourbakhsh
R. Caruso
J. Flack
E. Thornsbury
M. Junge
D. Fischer
M. Snodderly
J. Gallo
T. Santos

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

Member assignments and priorities for ACRS reports and letters for the December ACRS meeting are attached (pp. 7). Reports and letters that would benefit from additional consideration at a future ACRS meeting were discussed.

RECOMMENDATION

The Subcommittee recommends that the assignments and priorities for the December ACRS meeting be as shown in the attachment (pp. 7) with the exception of the ACRS report on Human Reliability Models. Dr. Apostolakis should hold a Subcommittee meeting to discuss the Commission request on this matter and submit a revised report for Committee consideration at a future ACRS meeting.

2) Anticipated Workload for ACRS Members

The anticipated workload for ACRS members through March 2007 is attached (pp. 8-9). The objectives were:

- 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 (pp. 10-13).

RECOMMENDATION

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

3) Staff Requirements Memorandum

In a Staff Requirements Memorandum (SRM) dated November 8, 2006, resulting from the ACRS meeting with the NRC Commissioners on October 20, 2006, the Commission stated the following (pp. 14):

1. 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.

2. 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.

3. 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.

4. The ACRS should provide the Commission with its recommendations and basis for areas in which NRC should perform additional long term research.

5. 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.

RECOMMENDATION

The Subcommittee recommends that Dr. Corradini (Item 1), Dr. Powers (Item 4), Mr. Sieber (Item 2), Dr. Kress (Item 3), and Dr. Apostolakis (Item 5) propose a course of action for responding to the issues raised by the Commission.

4) Global Nuclear Energy Partnership

On February 6, 2006, the Secretary of Energy announced a $250 million FY 2007 budget request to launch the Global Nuclear Energy Partnership (GNEP). GNEP has four main goals: (1) reduce America's dependence on foreign sources of fossil fuels and encourage economic growth; (2) recycle nuclear fuel using new proliferation-resistant technologies to recover more energy and reduce waste; (3) encourage prosperity growth and clean development around the world; and (4) utilize the latest technologies to reduce the risk of nuclear proliferation worldwide. As envisioned, GNEP will require NRC involvement in licensing several new facilities including a reprocessing facility, a fast flux liquid metal burner reactor, a fuel fabrication facility, a waste vitrification facility, and interim storage facility.

In SECY-06-0066 dated March 22, 2006, the staff requested that the Commission approve plans to address the regulatory and resource implications associated with GNEP. In an SRM, dated May 16, 2006, the Commission directed the staff to develop a conceptual licensing process for GNEP facilities, including review of the one-step licensing provisions for enrichment facilities and features of nuclear power plant combined licensing under Part 52 (i.e., construction authorization and operating license hearing process, design certification process, and early site permitting process). The Commission also noted in the SRM that the ACRS and ACNW could help in defining the issues most important to licensing, inspecting, and ultimate decommissioning of reprocessing and related fuel-cycle facilities.

The staff has prepared a SECY (currently in inter-Office concurrence) on its conceptual licensing approach for the GNEP facilities. NMSS staff plans to brief the ACNW on the SECY paper during the December 2006 ACNW Full Committee Meeting. Areas of primary interest include:

- Conceptual licensing approach for the Advanced Burner Reactor (ABR). The ABR is expected to be a 1000MWt sodium cooled fast flux reactor designed to burn transuranic waste (TRUs) in order to reduce the amount of radiological waste entering the geological repository. The staff has developed a conceptual approach to licensing the ABR. The approach and associated regulatory infrastructure needed to implement the approach will be of significant interest to the Commission.

- Conceptual licensing approach for the spent nuclear fuel reprocessing facility. Part 50 still remains the current regulatory framework for licensing reprocessing facilities, although it primarily pertain to licensing light water reactors. The NRC has not licensed a reprocessing facility in for over 30 years. A joint letter by ACRS/ACNW, dated January 14, 2002 raised concerns over the use of integrated safety assessment (instead of PRA) for licensing similar facilities under 10 CFR Part 70. Unless the staff moves to PRA to risk-inform the

process, the ISA verses PRA issue will also be concern for reprocessing facilities.

RECOMMENDATION

The Subcommittee recommends that interested members of the ACRS attend the 175th ACNW Full Committee session on GNEP. The ACRS staff should keep the Committee informed as this topic develops further. At the appropriate time the ACRS should discuss with the ACNW how the review of this regulatory activity should be shared between Committees.

5) FY2006 ACRS Letter Matrix

As required by the Commission, the ACRS/ACNW Office needs to submit a summary matrix of the FY2006 ACRS reports. This will involve summarizing the recommendations included in the ACRS reports and letters. This summary matrix is included as part of the ACRS/ACNW Operating Plan submitted to the Commission annually. In order to avoid violation of the ACRS Bylaws, the Committee should authorize the ACRs Executive Director or his designee to summarize the recommendations in the ACRS reports and letters.

RECOMMENDATION

The Subcommittee recommends that the Committee authorize the ACRS Executive Director or his designee to summarize the recommendations in the FY2006 ACRS reports.

6) Nuclear Safety Research Forum-2007

As a followup to the recent Quadripartite Meeting, Dr. Wallis received a letter from Commissioner Soda, NSC, inviting an ACRS member to give a keynote address at the Nuclear Safety Research Forum-2007, scheduled to be held on Friday, March 9, 2007, in Tokyo, Japan (pp. 15-18). This is a domestic meeting intended for Japanese audience with two keynote speakers, one from ACRS and another from NEA. The focus of this meeting is on research in the field of aging management and material degradation at nuclear power plants.

Dr. J. Sam Armijo is interested in participating in the meeting and would like to expand the trip to include visiting organizations and laboratories in Japan, whose activities are focused on reactor materials degradation research.

RECOMMENDATION

The Subcommittee recommends that the Committee send Dr. Armijo to provide a keynote speech at this meeting and visit facilities in Japan which carry out materials research related to nuclear power plants.

7) Report by Dr. Powers on the ANS Meeting Session on Sump Blockage and GSI-191

Dr. Powers, who attended the 2006 Winter Meeting of the American Nuclear Society (ANS), prepared the attached report (pp. 19-21) on the Session involving the discussion of sump blockage and GSI-191.

8) List of Research Topics for ACRS Quality Assessment in FY2007

RES has provided a list of eight topics (pp. 22) for the ACRS quality assessment in FY2007. These topics are not consistent with the criteria established in 2004. The Committee needs to revisit the process used by RES in identifying topics.

If the Committee is not satisfied with the topics proposed by RES, we can ask RES to provide another list of topics. The Committee normally selects a list of four topics for assessment. However, only two topics were selected for assessment in 2006. In view of the fact that the ACRS will be preparing its biennial report to the Commission on the overall NRC Safety Research Program in 2007, the Committee should consider selecting only two topics for quality assessment in FY2007.

RECOMMENDATION

The Subcommittee recommends that Dr. Powers provide his views on the list of topics proposed by RES as well as on the number of topics to be assessed in FY2007. Also, Dr. Powers should propose the topics for quality assessment by the ACRS in FY2007 along with assignments.

9) Election of ACRS Officers for CY 2007

The Committee will elect Chairman and Vice-Chairman for the ACRS and Member-at-Large for the Planning and Procedures Subcommittee during the December 7-9, 2006, ACRS meeting. During the November meeting, the members were requested to inform the ACRS Executive Director in writing by November 24, 2006, if they do not wish to be considered for any or all of the Offices. So far, two Members have notified the ACRS Executive Director that they do not wish to be considered for all of the Offices.

10) Holiday Party

The Holiday Party sponsored by the members is scheduled between 11:30 and 1:00 pm on Friday, December 8, 2006. Some Commissioners and the EDO are expected to attend this party.

11) Subcommittee Report on TRACE Code

The ACRS Subcommittee on Thermal-Hydraulic Phenomena held a meeting on December 5, 2006 to discuss the activities associated with the development of the TRACE computer code. It would be helpful to the Committee if the Subcommittee Chairman provides a brief report to the Committee summarizing issues and concerns of the Subcommittee and future course of action.

RECOMMENDATION

The Subcommittee recommends that Dr. Banerjee, the Thermal-Hydraulic Phenomena Subcommittee Chairman, provide a report to the Committee at the December 2006 ACRS meeting.

12) Member Issue

Informal ACRS Meetings with the Staff

In an email dated November 30, 2006, (pp. 23) Dr. Powers raised some concerns about the informal meetings between the NRC staff and some ACRS members.

RECOMMENDATION

The Subcommittee recommends that informal meetings between the staff and some ACRS members be held, as warranted. The Subcommittee's views on informal meetings are as follows:

- The objective of the informal meetings are to obtain information on the status of staff activities associated with some significant regulatory matters for use in scheduling Subcommittee and full Committee meetings, as needed.
- They are information gathering meetings as allowed by FACA and are intended to identify significant issues of concern to the ACRS members but not to discuss those issues in detail.
- Such meetings will help the new ACRS members to obtain background information on certain topics, which in turn will minimize raising fundamental questions during ACRS meetings.
- These meetings will help the staff to prepare focused presentations for ACRS meetings.
- Any issues discussed at these meetings are always scheduled for detailed discussion during a Subcommittee and/or a full Committee meeting, thereby providing a forum to the public to express their views consistent with FACA requirements.

ANTICIPATED WORKLOAD
December 7-9, 2006

LEAD MEMBER	BACKUP	LEAD ENGINEER/ BACKUP	ISSUE	PRIORITY	BASIS FOR REPORT PRIORITY	AVAIL. OF DRAFTS
Apostolakis	—	Thornsbury	Collaborative Research on Human Reliability Analysis Methods	—	Committee needs to decide whether to send this report	**Draft**
Armijo	—	Santos/Hammer	Proposed Reg. Guide, DG-1144, "Guidelines for Evaluating Fatigue Analysis Incorporating Life Reduction of Metal Components Due to the Effects of the Light Water Reactor Environment for New Reactors"	A+	To support Agency schedule	—
Corradini	Powers	Banerjee	Proposed Revisions to SRP Section 13.3, "Emergency Planning"	A+	To support Agency schedule	**Draft**
Kress	—	Fischer	Proposed Reg. Guide, DG-1145, Combined License Applications for Nuclear Power Plants	A+	To support Agency schedule	**Draft**
Maynard	—	Fischer	Proposed Revisions to Reg. Guides and SRP Sections in Support of New Reactor Licensing	—	—	—
Shack	—	Nourbakhsh	State-of-the-Art Reactor Consequence Analysis **[STATUS REPORT]**	—	—	—

ANTICIPATED WORKLOAD
FEBRUARY 1-3, 2007

LEAD MEMBER	BACKUP	LEAD ENGINEER/ BACKUP	ISSUE	PRIORITY	BASIS FOR REPORT PRIORITY	AVAIL. OF DRAFTS
Bonaca	—	Caruso	5% Power Uprate Application for Browns Ferry Unit 1	A	To support staff schedule	—
Maynard	—	Fischer	Proposed Revisions to Reg. Guides and SRP Sections in support of New Reactor Licensing	—	—	—
		Junge/Banerjee	Final Review of the License Renewal Application and the Final SER for the Oyster Creek Generating Station	A	To support staff schedule	—
Powers	Armijo	Caruso	Revised LOCA Criteria for Fuel Cladding Materials	A	To support staff schedule	—
Shack	Armijo	Banerjee/Hammer	Proposed Revision to 10 CFR 50.61, "Fracture Toughness Requirements for Protection Against Pressurized Thermal Shock Events"	A	To support staff schedule	—
Sieber	—	Junge	Draft Final Revision 1 to Reg. Guide 1.189 (DG-1170), Fire Protection for Nuclear Power Plants and SRP Section 9.5.1, Fire Protection Program	A+	To support agency schedule	—

ANTICIPATED WORKLOAD
MARCH 8-10, 2007

LEAD MEMBER	BACKUP	LEAD ENGINEER/ BACKUP	ISSUE	PRIORITY	BASIS FOR REPORT PRIORITY	AVAIL. OF DRAFTS
Apostolakis	—	Thornsbury	Response to Commission SRM on Human Reliability Models	A	To respond to Commission SRM	—
	Sieber	Junge	Risk Management Technical Specification Initiative 4b. Risk-Informed Completion Times	A	To support staff schedule	—
Bonaca	—	Thornsbury	Research on Mitigating Strategies for New Reactor Designs **[CLOSED]**	A	To support staff schedule	—
Kress	Corradini	Fischer	Response to the Commission SRM regarding the Development of Framework Document for Future Plant Licensing	A	To respond to Commission SRM	—
Maynard	—	Fischer	Proposed Revisions to Reg. Guides and SRP Sections in Support of Future Plant Licensing	—	—	—
Sieber	—	Junge	Response to Commission SRM Related to Digital I&C Matters **[TENTATIVE]**	A	To respond to Commission SRM	—
Shack	—	Nourbakhsh	State-of-the-Art Reactor Consequence Analysis	Report as needed	—	—
Wallis	Banerjee	Caruso	Final Results of Chemical Effects Head Loss Tests in a Simulated PWR Sump Pool Environment	A	To support the staff schedule	—

ACRS Items Requiring Committee Action

1 **SRP 3.12, ASME Code Class 1, 2, and 3 Piping Systems and Associated Supports Design** (Open)

Member: Sam Armijo **Engineer:** Cayetano Santos

Estimated Time:

Purpose: Determine a Course of Action

Priority: High

Requested by: NRR

The NRC staff has identified this standard review plan (SRP) section as needing revision in support of new reactor licensing. The Commission directed the staff to complete the development/revision of "high priority" RGs and SRP sections by March 2007.

The Planning and Procedures Subcommittee agrees with Dr. Armijo's recommendation not to review SRP Section 3.12.

2 **SRP Section 17.4,, Rev. 0, "Reliability Assurance Program"** (Open)

Member: George Apostolakis **Engineer:** Eric Thornsbury

Estimated Time:

Purpose: Determine a Course of Action

Priority: High

Requested by: NRR P. Prescott, -3026

The NRC staff has identified this standard review plan (SRP) section as needing development in support of new reactor licensing. The Commission directed the staff to complete the development/revision of "high priority" RGs and SRP sections by March 2007. While this SRP is not on the "high priority" list, it is a new SRP section relevant to new reactors.

This new SRP Section was forwarded to the ACRS for possible review by memo from P. Hiland, NRR to J. Larkins, ACRS on 10/31/06.

The Planning and Procedures Subcommittee agrees with Dr. Apostolakis' recommendation not to review SRP Section 17.4

10

3 **Proposed Revision 2 to Standard Review Plan Section 3.2.1, "Seismic Classification"** (Open)

Member: George Apostolakis **Engineer:** Hossein Nourbakhsh

Estimated Time:

Purpose: Determine a Course of Action

Priority: High

Requested by: NRR

The NRC staff has identified this standard review plan (SRP) section as needing revision in support of new reactor licensing. The Commission directed the staff to complete the development/revision of "high priority" RGs and SRP sections by March 2007.

The Planning and Procedures Subcommittee requests that Dr. Apostolakis be prepared to make a recommendation at the December Full Committee Meeting on whether or not the Committee should review this revision.

4 **Proposed New Standard Review Plan Section 3.13, "Threaded Fasteners - ASME Code Class 1, 2, and 3"** (Open)

Member: William Shack **Engineer:** Maitri Banerjee

Estimated Time:

Purpose: Determine a Course of Action

Priority: High

Requested by: NRR

The NRC staff has identified this standard review plan (SRP) section as needing revision in support of new reactor licensing. The Commission directed the staff to complete the development/revision of "high priority" RGs and SRP sections by March 2007.

The Planning and Procedures Subcommittee agrees with Dr. Shack's recommendation not to review SRP Section 3.13.

5 **Proposed Revision 2 to Standard Review Plan Section 3.2.2, "System Quality Group Classification"** (Open)

Member: Sam Armijo **Engineer:** Maitri Banerjee

Estimated Time:

Purpose: Determine a Course of Action

Priority: High

Requested by: NRR

The NRC staff has identified this standard review plan (SRP) section as needing revision in support of new reactor licensing. The Commission directed the staff to complete the development/revision of "high priority" RGs and SRP sections by March 2007.

The Planning and Procedures Subcommittee agrees with Dr. Armijo's recommendation not to review SRP Section 3.2.2.

6 **SRP 5.4.8, Reactor Water Cleanup System (BWR)** (Open)

Member: John Sieber **Engineer:** Michael Junge

Estimated Time:

Purpose: Determine a Course of Action

Priority: High

Requested by: NRR

The NRC staff has identified this standard review plan (SRP) section as needing revision in support of new reactor licensing. The Commission directed the staff to complete the development/revision of "high priority" RGs and SRP sections by March 2007.

The Planning and Procedures Subcommittee agrees with Mr. Sieber's recommendation that the Committee not review this SRP Section.

(12)

7 **GSI-191 PWR Sump Performance - Regulatory Information Conference March 2007**

Member: Graham Wallis **Engineer:** Ralph Caruso

Estimated Time:

Purpose:

Priority:

Requested by: NRR M. Scott

The NRR Staff has invited the Committee to make a presentation on GSI-191 "PWR Sump Performance" at the 2007 Regulatory Information Conference on March 13, 2007. The P&P requests that Dr. Wallis recommend a course of action, regarding whether a Committee member should participate, who that member should be, and what should be presented.

(13)

IN RESPONSE, PLEASE
REFER TO: M061020

November 8, 2006

MEMORANDUM TO: John T. Larkins
Executive Director, ACRS

FROM: Annette L. Vietti-Cook, Secretary ***/RA/***

SUBJECT: STAFF REQUIREMENTS - MEETING WITH ADVISORY COMMITTEE ON REACTOR SAFEGUARDS, 2:30 P.M., FRIDAY, OCTOBER 20, 2006, COMMISSIONERS' CONFERENCE ROOM, ONE WHITE FLINT NORTH, ROCKVILLE, MARYLAND (OPEN TO PUBLIC ATTENDANCE)

The Commission met with the Advisory Committee on Reactor Safeguards (ACRS) to discuss the Committee's activities and current focus.

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.

The Committee should provide its views to the Commission on staff's effort related to digital instrumentation and controls. The Committee should consider potential means for providing reasonable backup, if appropriate.

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.

The ACRS should provide the Commission with its recommendations and basis for areas in which NRC should perform additional long term research.

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 to be used in specific circumstances.

cc: Chairman Klein
Commissioner McGaffigan
Commissioner Merrifield
Commissioner Jaczko
Commissioner Lyons
OGC

(14)

Nuclear Safety Commission
3-1-1 Kasumigaseki,Chiyoda-ku, Tokyo, Japan 100-8970
Phone: +81-3-3581-3470, FAX: +81-3-3581-3475,
E-mail: kunihisa.soda@cao.go.jp

Dr. G. B. Wallis
Chairman, Advisory Committee on Reactor Safeguards
US Nuclear Regulatory Commission
Washington, DC 20555
U.S.A.

November 17, 2006

Dear Dr. Wallis,

I would like to thank you again for all arrangement made for us at the 2006 Quadripartite meeting in Washington, D.C. The meeting was well organized and successful. It was also very informative and valuable in exchanging information and view on issues of safety significance among the participating advisory groups. I truly appreciate all members of ACRS and their staff on behalf of NSC.

Regarding the summary of the meeting, I made a short comment on the slides you presented at the meeting. It was well prepared and effort of your staff was appreciated. I did mention briefly some comments and corrections to be made in the slide at my summary speech. Since I received a request from Ms. Mugeh for us to send comments to the slides, comments have been prepared as attached and sent to Ms. Mugeh. I appreciate if comments from us are taken into consideration for the summary.

As for the future meeting of the Quadripartite meeting, all participating advisory groups indicated that correspondence and information exchange should be continued and meeting should be held more frequently. Suggested are such as an annual meeting or working group meeting on specific topic selected. I do support this idea and I would like to keep in touch with you to further discuss this matter. NSC is ready to host such meeting in Tokyo if requested.

I would like to inform you that NSC jointly with NISA and MEXT plans to hold "Nuclear Safety Research Forum -2007" with focus on research in the field of ageing management and materials degradation at nuclear power plants. The Forum scheduled on March 9, Friday, 2007, in Tokyo, is a domestic meeting intended for Japanese audience with two key note speakers, one from ACRS and one from NEA. I would like to know if you as the Chairman of ACRS or other member of ACRS are available and can accept our invitation. If acceptable, NSC will formally invite you or other designated member to the meeting. Please note that trip expense is borne by NSC for one person and Mr. Echavarri of NEA has already accepted our invitation.

Sincerely,

Kunihisa Soda

Kunihisa Soda
Commissioner

Attachment: Comments to the Summary, Text and PPT

NSC Comments on Summary

Please note that NSC comments are indicated by ***the Italic*** in below.

Slide 3

NOTE: Wording is corrected to take into consideration of the current practice as below:

Safety Trends in Member Countries

•Growing use of PRA/PSA in regulation in all countries
•Use of a risk-informed, rather than a risk-based, approach in all countries
•Developing standards and/or guidance for acceptable PRA/PSA approaches in all countries
•Two countries have quantitative safety goals
•Two countries believe safety goals are unnecessary, but use PRA results to draw insights
•Regulator should not try to regulate safety culture.
•Regulator should be able to perform assessments of safety culture
–Regulator should do audits, interview plant personnel, attend meetings to get a feel for the safety culture
•Top management is responsible for safety management of the plant and fostering safety culture
•The corrective action program and backlog can be examined as indicators of safety culture

Slide 9

NOTE: wording is corrected by taking the current practice as of October 19, 2006, into writing as below:

Seismic Design Guidelines

•Japan has a new examination guideline for seismic safety design which is applied to all new nuclear facilities.
–Licensees have been requested by the regulators to re-evaluate seismic safety of existing nuclear facilities based on the new guideline.
•RSK is developing a new guideline which may be implemented in 2-3 years.
•The US has developed a performance-based seismic hazard analysis methodology that may be used in future early site permits and combined license applications

Slide 14

NOTE: wording is corrected to appropriate terminology as below.

Response to Significant Operating Events

•The number of significant events in the past several years is decreasing

•Human performance, organizational factors, and loss of electrical power identified as contributors to significant events

•Material degradation issues are difficult to predict and can result in serious hazards

–Flow accelerated corrosion***/erosion*** in stainless steel

–Boric acid corrosion in low alloy steel

Slide 15

NOTE: wording is corrected to take into consideration of the existing practice in Japan as below:

Plant Aging, Life Extension, and Periodic Safety Reviews

•In Japan a long term maintenance program ***along with ageing evaluation*** should be executed as part of the periodic safety review prior to 30 years of operation

•US regulations for extending the 40-year license are focused on aging management of long-lived passive components

•GPR reviewed EDF's aging management programs and concluded that it is well adapted to the goal of maintaining safety provisions (defense in depth and confinement barriers)

•RSK considers that systematic aging management at plants is necessary and assumes that utilities will establish and follow effective aging management plans

Safety Trends in Member Countries

- Growing use of PRA/PSA in regulation in all countries
- Use of a risk-informed, rather than a risk-based, approach in all countries
- Developing standards and/or guidance for acceptable PRA/PSA approaches in all countries
- Two countries have quantitative safety goals
- Two countries believe safety goals are unnecessary, but use PRA results to draw insights
- Regulator should not try to regulate safety culture.
- Regulator should be able to perform assessments of safety culture
  - Regulator should do audits, interview plant personnel, attend meetings to get a feel for the safety culture
- *Top management is responsible for safety management of the plant and fostering safety culture*
- The corrective action program and backlog can be examined as indicators of safety culture

Seismic Design Guidelines

- *Japan has a new examination guideline for seismic safety design which is applied to all new nuclear facilities.*
  - *Licensees have been requested by the regulators to re-evaluate seismic safety of existing nuclear facilities based on the new guideline.*
- RSK is developing a new guideline which may be implemented in 2-3 years.
- The US has developed a performance-based seismic hazard analysis methodology that may be used in future early site permits and combined license applications

Response to Significant Operating Events

- The number of significant events in the past several years is decreasing
- Human performance, organizational factors, and loss of electrical power identified as contributors to significant events
- Material degradation issues are difficult to predict and can result in serious hazards
  - Flow accelerated corrosion/*erosion* in stainless steel
  - Boric acid corrosion in low alloy steel

Plant Aging, Life Extension, and Periodic Safety Reviews

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- GPR reviewed EDF's aging management programs and concluded that it is well adapted to the goal of maintaining safety provisions (defense in depth and confinement barriers)
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To: Planning and Procedures Subcommittee

From: Dana A. Powers

Subject: **ANS Meeting Session on Sump Blockage and GSI-191**

At the 2006 Winter Meeting of the American Nuclear Society, the Nuclear Installations Safety Division sponsored a terrific session on GSI-191 and the sump blockage issue. NRC unveiled the substantial body of work they were doing and had completed. Technical reports on this work will soon be on the NRC website.

The session began with a very nice introductory and overview presentation by Mike Scott. The presentation provided the history of the issue which for pressurized water reactors began in the 1970's. Scott indicated that there were 9 people in his organization working full time on the resolution of the issue. He noted the problematic materials: fibrous and particulate insulation, coatings, latent debris including tags, labels and trash, aluminum corrosion products and the buffering agent used to control pH in the sump. He noted the importance of chemical effects and that this issue had been raised by the ACRS. He discussed the issues of downstream effects should debris penetrate strainers and enter the reactor coolant system. Scott noted that several licensees were struggling to meet the December 31, 2007 deadline for providing reasonable assurance of strainer operability. A variety of more or less dramatic measures are being taken by licensees to meet their obligations including materials changeouts. Extensions to March 2008 are being granted with cause. NRC is auditing progress. Three such audits have been done and 9 more are planned or underway.

Industry is arguing that visual inspections of coatings is adequate for assessing their potential contribution to the sump burden. NRC has questioned this and experiments are being planned.

Industry remains concerned that new issues may arise and undo resolutions that previously appeared acceptable.

Rob Tregoning presented 4 papers on experimental studies sponsored by NRC. The first dealt with coating transport in a 30 foot flume at the Naval Surface Warfare Center. They have looked at paint chips 1/64" to 2" in size. Paints examined include:

- single coat alkyd (least dense)
- zinc primer/epoxy topcoat (most dense)
- two coat epoxy
- 6 coat epoxy
- three part epoxy used on concrete

The flume was monitored with a laser system so that they could track individual paint chips. They monitor the water velocities where chips first begin to move and water velocities where 80% of the chips are entrained in the flow. The range of velocities is appropriate for the current strainers (nominally 0.05 to 1.0 ft/s). The velocities may not be appropriate for the much larger

(A)

strainers that licensees are now considering. Incipient velocities are lowest for the least dense paint chips. There is not much of a chip size effect. More important is whether the chip is curled so that it is easier to entrain. All the tests are done in pure water so that any surface effects that augment or inhibit entrainment of paint chips are not addressed. Tregoning thinks, however, that the more important omission in the testing is paint chip disintegration.

Tregoning's second presentation dealt with the chemical effects testing that they have done. A test matrix is shown below:

Temp (°C)	pH control agent	pH	boron (ppm)	debris
60	NaOH	10	2800	100% fiberglass
60	Trisodium phosphate	7	2800	100% fiberglass
60	Trisodium phosphate	7	2800	20% fiberglass 80% Cal-sil
60	NaOH	10	2800	80% Cal-Sil
60	Sodium Tetraborate	8-8.5	2400	100% fiberglass

In some of the tests they have included coupons of corroding metals like aluminum so they also get the corrosion products. They distinctly do get chemical effects. The effects are somewhat complicated and involve occlusion of surfaces that reduce problems with strainers. They, unlike the folks working on license renewal, do get calcium phosphate to precipitate from solution.

Tregonings third presentation dealt with smaller scale chemical effects tests they are doing with fiberglass and Cal-Sil insulations. They find with aluminum present rather small effects (small swings in temperature or pH) can trigger very large changes in head loss through the filter system they use. All is evidence of reaching solubility limits for various things in complex mixtures.

Tregonings final presentation dealt with the use of aqueous chemistry codes to model systems. The codes they use are basically thermodynamic speciation codes. They use corrosion kinetics to get time dependence in the computed results. They have examined several codes but seem to have concentrated on EQ3/6, PHREEQC and OLI Stream Analyzer. Tregonings presentation was focused on results obtained with PHREEQC. The codes do something well. The code predictions are very dependent on the thermodynamic data used in the code. It appears to me that the phosphate data base in PHREEQC may be in error. CODATA has blessed data for most of the simple species of interest for the tests.

Some testing is underway also at the Pacific Northwest National Laboratory. They are working with fiber glass and paint particles (Dimetcote 6 zinc primer, Americoat 90 epoxy topcoat, and Amercoat 5450 alkyd). They have a sophisticated way to monitor bed height. They find that the

least pressure drop occurs when particles and fibers are premixed. The worst case is to have particles circulating and then add fibers. They do see some bed restructuring with particles moving down among the fibers. They can form complete beds with fibers alone. They cannot form complete beds with Cal-Sil particles alone. Particle beds always have some holes that allow water passage.

NRC is attempting to model the bed formation using a modified version of the Ergun equation. They find guidance from the LANL research on modeling the bed not very useful. The new model can consider the bed a single volume or multiple volumes. The model does account for flow compression of the debris bed on the strainers. There is a non-recoverable height loss and an elastic height loss term in the model. The single volume model seems to underpredict headloss. The two volume model bounds head loss in all but three of the about 40 experiments that have been analyzed. The NRC does plan further work on the modeling.

Altogether, the session was very informative. The work is being documented and the reports will soon be on NRC's website. People who are doing the work have labeled themselves as "sumpologists". Apparently, Shack and I are considered "sumpologists". I don't know whether Graham has earned his sumpology degree yet or not. I bet he does once we start reviewing this issue again.

#8

From: Hossein Nourbakhsh
To: [redacted]
Date: 12/04/2006 12:08:33 PM
Subject: Candidate Projects for ACRS Quality Asessment-FY 2007

Dana,

RES has proposed the following projects as candidates for the ACRS Quality Assessment for FY 2007.

1. NUREG-1842, "Evaluation of Human Reliability Analysis Methods Against Good Practices"

2. Development of probabilistic risk assessment (PRA) Quality Standards and Incorporation into Reg. Guide 1.200, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk Informed Activities

3. Fire Model verification and validation project, National Institute of Standards and Technology (NIST) contact under JCN 6309, "Program to Evaluate and Improve Computer Fire Models."

4. "Associated Circuits Bin 2 Fire Testing," JCN N6125 at Sandia National Laboratories (SNL), ---- also known as Able Response tO Live FIRE, or "CAROLFIRE"

5. Proactive Materials Degradation Assessment

6. Pressurized Thermal Shock Reevaluation Technical Basis

7. Fatigue Crack Flaw Tolerance in Nuclear Power Plant Piping - A Basis for Improvements to ASME Code Section XI Appendix L

8. NUREG/CR - 6895 "Technical Review of On-Line Monitoring Techniques for Performance Assessment: Volume 1: State-of-the-Art," published in January 2006

Many of these projects are the same as those RES proposed last year. As you may recall, the Committee raised some concerns last year about the candiadate projects since many of them were either among projects that the Committee had previously reviewed or the project was more about a process rather than a specific research.

Hossein

CC: Cayetano Santos; Frank Gillespie; John Larkins; Michael Snodderly; Sam Duraiswamy

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#11

From: "Dana Powers" <[redacted]
To: "sxd1" <sxd1@nrc.gov>
Date: 11/30/2006 9:29:37 PM
Subject: Informal Meetings with the Staff on Various Subjects

To: Planning and Procedures Subcommittee
From: Dana Powers

Subject: Proliferation of "informal" Meetings with Staff

I see a proliferation of "informal" meetings with the NRC staff. It is not apparent to me that this is all consistent with ACRS conducting its business in full view of the public. I also worry that not all members will have access to the information passed on in these meeting scheduled when travel arrangements can not be altered to attend.

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