



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

December 31, 2009

MEMORANDUM TO: ACRS Members

FROM: Sherry Meador **/RA/**
 Technical Secretary, ACRS

SUBJECT: CERTIFICATION OF THE MEETING MINUTES FROM
 THE ADVISORY COMMITTEE ON REACTOR
 SAFEGUARDS 567th FULL COMMITTEE MEETING
 HELD ON NOVEMBER 5-7, 2009 IN ROCKVILLE, MARYLAND

The minutes of the subject meeting were certified on November 23, 2009 as the official record of the proceedings of that meeting. A copy of the certified minutes is attached.

Attachment:
As stated



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

November 23, 2009

MEMORANDUM TO: Sherry Meador, Technical Secretary
Advisory Committee on Reactor Safeguards

FROM: Cayetano Santos, Chief */RA/*
Reactor Safety Branch
Advisory Committee on Reactor Safeguards

SUBJECT: MINUTES OF THE 567th MEETING OF THE ADVISORY
COMMITTEE ON REACTOR SAFEGUARDS (ACRS),
NOVEMBER 5-7, 2009

I certify that based on my review of the minutes from the 567th 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.

| | | |
|---------------|------------|-------------|
| OFFICE | ACRS | ACRS:RSB |
| NAME | SMeador | CSantos/sam |
| DATE | 11/23/2009 | 11/23/2009 |

OFFICIAL RECORD COPY

CERTIFIED

Date Certified: 11/23/2009

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During its 567th meeting, November 5-7, 2009, the Advisory Committee on Reactor Safeguards (ACRS) discussed several matters and completed the following reports and memorandum:

REPORTS

Reports to Gregory B. Jaczko, Chairman, NRC, from Mario V. Bonaca, Chairman, ACRS:

- Draft Final Regulatory Guide 5.71, "Cyber Security Programs for Nuclear Facilities," dated November 12, 2009
- Westinghouse AP1000 Design Certification Amendment: Status of ACRS Review, dated November 13, 2009

MEMORANDUM

Memorandum to R. W. Borchardt, Executive Director for Operations, NRC, from Edwin M. Hackett, Executive Director, ACRS:

- Proposed Revisions to Regulatory Guides 1.82 and 4.11, dated November 6, 2009

MINUTES OF THE 567th MEETING OF THE
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

ROCKVILLE, MARYLAND

The 567th meeting of the Advisory Committee on Reactor Safeguards (ACRS) was held in Conference Room 2B3, Two White Flint North Building, Rockville, Maryland, on November 5-7, 2009. Notice of this meeting was published in the *Federal Register* on October 22, 2009 (72 FR 54595-54597). The purpose of this meeting was to discuss and take appropriate action on the items listed in the meeting agenda. 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. Mario Bonaca (Chairman), Dr. Said Abdel-Khalik (Vice-Chairman), Mr. J. Sam Armijo (Member-at-Large), Dr. George E. Apostolakis, Dr. Sanjoy Banerjee, Dr. Dennis Bley, Mr. Charles Brown, Dr. Michael Corradini, Mr. Otto L. Maynard, Dr. Dana A. Powers, Mr. Harold Ray, Dr. Michael Ryan, Dr. William Shack, Mr. John Sieber, and Mr. John Stetkar.

I. Chairman's Report (Open)

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

Dr. Mario Bonaca, Committee Chairman, convened the meeting at 8:30 a.m. In his opening remarks he announced that the meeting was being conducted in accordance with the provisions of the Federal Advisory Committee Act. He reviewed the agenda items for discussion and noted that no written comments or requests for time to make oral statements from members of the public had been received. Dr. Bonaca 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.

HIGHLIGHTS OF KEY ISSUES

II. Amendments to the AP1000 Design Control Document

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

The Committee met with representatives of the NRC staff to discuss the NRC staff's review of the amendments to the AP1000 Design Control Document (DCD). The staff described the status of its review of the AP1000 DCD and the Reference Combined License Application (RCOLA). Since the certification of the AP1000 in 2006, Westinghouse has submitted two revisions to the DCD. These revisions include design and hardware changes such as a change in pressurizer shape, addition of a reactor vessel flow skirt and neutron panels, change in the reactor vessel diameter, increase in Class 1E voltage from 125v to 250v, change in design of turbine generator, expansion of existing liquid radioactive waste storage capacity, and an increase in the number of gray control rods. The staff is currently reviewing these changes and has issued several chapters of its draft Safety Evaluation Report (SER) with Open Items. Approximately 30 of the 130 open items have been closed, and about 50 requests for additional information (RAIs) are outstanding. Over 100 Technical Reports (TRs) have been submitted in support of the DCD amendment. In addition to the ongoing chapter-by-chapter review of draft SER chapters, the Committee expects to review selected TRs as well.

The staff stated that the transition from Bellefonte to Vogtle as the AP1000 RCOLA is nearly complete. The staff plans to discuss the advanced final SER for Vogtle with the Committee in the fall of 2010.

The Committee issued a report to the NRC Chairman on this matter, dated November 13, 2009, concluding that its review of the AP1000 DCD amendment is keeping pace with the availability of draft SER chapters. Also, the Committee has not identified any items of potential concern in addition to those which have been previously identified by the NRC staff and remain under staff review.

III. Draft Final Regulatory Guide 5.71, "Cyber Security Programs for Nuclear Facilities"

[Note: Mrs. Christina Antonescu was the Designated Federal Official for this portion of the meeting]

The Committee met with representatives of the NRC staff to discuss draft final Regulatory Guide (RG) 5.71, "Cyber Security Programs for Nuclear Facilities." The staff presented an overview of RG 5.71 and described the major changes to this Guide since March 2009. These changes addressed ACRS comments in a March 19, 2009, letter and included expanded guidance on how to establish, implement, and maintain a cyber security program. The NRC staff described the new detailed guidance for the selection of critical systems and critical digital assets (CDA). RG 5.71 employs 3 defense-in-depth protective strategies: (1) incorporate protective security boundaries for timely detection and response to a cyber attack (2) apply security controls to

detect, deter, respond, and recover from a cyber attack, and (3) maintain a cyber security program. The selection of security controls incorporates an acceptable method for addressing cyber vulnerabilities. The security controls were adapted from the National Institute of Standards and Technology (NIST) cyber security standards as well as guidance from the U.S. Department of Homeland Security (DHS). The guide also addresses the management of potential vulnerabilities, weaknesses, and cyber risks introduced by changes in the system, network, environment, or emerging threats.

In addition, the regulatory guide includes a generic cyber security plan template that describes how CDAs are identified, how security controls are applied, and how the cyber security program will be maintained.

The Committee issued a report to the NRC Chairman on this matter, dated November 12, 2009, recommending that RG 5.71 be issued. The Committee noted that RG 5.71 adapts the NIST Standards for the development of plans but does not provide guidance to evaluate their adequacy. The Committee recommended that after the initial implementation of the cyber security plans, RG 5.71 be revised to include the resulting insights and provide guidance regarding the adequacy of cyber security plans and policies. In addition, longer-term research projects should be initiated by the NRC staff in the following areas: exploration of the use of Probabilistic Risk Assessment insights in cyber security; development of better guidance on the interaction between cyber security and safety; and investigation of supply chain attacks.

IV. Overview of the Advanced Boiling Water Reactor (ABWR) Design as Applied to the South Texas Project (STP) Combined License Application (COL) and NRC Staff's Plan for the STP COLA Review

[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 STP Nuclear Operating Company (STPNOC) to discuss the previously certified ABWR design as applied to the STP Units 3 & 4. STPNOC submitted a COL in 2007. STPNOC representatives discussed the significant changes from the certified ABWR design. STPNOC representatives also discussed implementation of the new aircraft impact rule. STPNOC has submitted a DCD amendment to address the rule requirements.

The NRC staff also provided an overview of the alternate vendor qualification process. STPNOC selected Toshiba as the primary vendor supplying the ABWR design. However, the ABWR design was sponsored by General Electric Company who obtained the design certification. Hence, as required by the NRC regulations, the staff performed an alternate vendor review to demonstrate that Toshiba was capable of providing the previously certified ABWR for STP Units 3 & 4. This was an information briefing. No Committee action was necessary.

V. Draft ACRS Report on the NRC Safety Research Program

The ACRS provides the Commission a biennial report presenting the Committee's observations and recommendations concerning the overall NRC Safety Research Program. During the November meeting, the Committee discussed its draft 2010 report to the Commission on the NRC Safety Research Program.

VI. Subcommittee Reports

Significant Operating Experience

The Chairman of the Plant Operations and Fire Protection Subcommittee provided a report to the Committee summarizing the results of the Significant Operating Experience Report to Congress by the NRC Commissioners. Several events reported as abnormal occurrences were described. No abnormal events were identified at nuclear power plants, material licensees, or transportation licensees. Nuclear power plants initiating events and safety systems availability trends are low and continue to trend downward. The Industry Trend Program, the Accident Sequence Program, and the Reactor Oversight Program appear to be effective. The introduction of new technologies (like digital I&C) will likely cause new failure modes and new initiating events. However, the incidence of digital I&C events is currently low. This was an information briefing. No Committee action was necessary.

Economic Simplified Boiling Water Reactor (ESBWR) Subcommittee Report:

The Chairman of the ESBWR Subcommittee provided a report to the Committee summarizing the results of the October 20-22, 2009, meeting with representatives of the NRC staff and GE-Hitachi Nuclear Energy (GEH) to review the resolution of open items associated with the ESBWR Design Certification application. The discussion topics included dynamic loads on heat exchangers using passive-cooling; high-energy line break analyses; steam dryer loads; noncondensable gas in the Gravity Driven Cooling System (GDCCS) pipelines; design of GDCCS check valves; core design; and the applicability of the Critical Power Ratio (CPR) correlation to ESBWR fuel. The Committee plans to continue its review of the ESBWR Design Certification application during its future meetings.

Radiation Protection and Nuclear Materials Subcommittee Report

The Chairman of the Radiation Protection and Nuclear Materials Subcommittee provided a report to the Committee summarizing the results of the November 4, 2009, meeting with representatives of the NRC staff to review draft Revision 1 to NUREG-1520, "Standard Review Plan [SRP] for the Review of a License Application for a Fuel Cycle Facility." The Subcommittee reviewed significant changes to the SRP with emphasis on Integrated Safety Analysis (ISA), and regulatory treatment of chemical safety, radiation safety, criticality safety, fire safety, and environmental protection. Changes to the SRP were made primarily to increase clarity and to add guidance based on previous reviews and lessons learned. The enhanced guidance subsumed a number of Interim Staff Guidance documents (ISGs) that had been used as supplemental information during staff reviews of license applications. The staff explained the motivation for integrating ISGs and other changes into the revised SRP. The Committee plans to continue its discussion of the revised NUREG-1520 document during its February 2010 meeting.

Evolutionary Power Reactor (EPR) Subcommittee Report

The Chairman of the EPR Subcommittee provided a report to the Committee summarizing the results of the November 3, 2009, meeting with representatives of the NRC staff and AREVA, NP, to review Chapters 2 and 8 of the EPR Design Certification application. AREVA, NP, presented information from Chapter 2, "Site Characteristics," and Chapter 8, "Electric Power," of the Final Safety Analysis Report (FSAR) for the US EPR DCD. The NRC staff presented information resulting from the review of these two FSAR Chapters and documented in the SER with Open Items. Chapter 2 has several open items concerning meteorology and hydrology that were discussed. The staff review of Chapter 8 did not result in any open items. The Committee plans to continue its review of the EPR Design Certification application during its future meetings.

VI. Executive Session

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

A. Reconciliation of ACRS Comments and Recommendations/EDO Commitments

- The Committee considered the EDO's response of October 21, 2009, to comments and recommendations included in the September 23, 2009, ACRS report on the Safety Aspects of the License Renewal Application for the Indian Point Nuclear Generating Units 2 and 3. The Committee decided that it was satisfied with the EDO's response.
- The Committee considered the EDO's response of October 21, 2009, to comments and recommendations included in the September 28, 2009, ACRS report on the Safety Aspects of the License Renewal Application for the Three Mile Island Nuclear Station, Unit 1. The Committee decided that it was satisfied with the EDO's response.

B. Report of the Planning and Procedures Subcommittee Meeting

Review of the Member Assignments and Priorities for ACRS Reports and Letters for the November ACRS Meeting

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

Anticipated Workload for ACRS Members

The anticipated workload for the ACRS members through March 2010 was discussed and the objectives were to:

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

Webstreaming of the ACRS Meetings

During its October 2009 meeting, the Committee was provided with the following options proposed by the Panel that was established by the Committee in May 2009 to discuss the pros and cons of participating in the Webstreaming Program and provide recommendations for use by the Committee in making a decision:

- Do nothing and not change from the status-quo.
- Allow for webcasting of the audio portion of the full Committee meetings when presentations are made to the Committee with simultaneous posting of the slides presented to the Committee.
- Allow for webcasting of the video and audio of the full Committee meetings when presentations are made to the Committee with simultaneous posting of the slides presented to the Committee.
- Allow for webcasting of the audio portion of the ACRS Subcommittee meetings when presentations are made to the Subcommittee with simultaneous posting of the slides presented to the Subcommittee.
- Allow for webcasting of the video and audio of the ACRS Subcommittee meetings when presentations are made to the Subcommittee with simultaneous posting of the slides presented to the Subcommittee.

ACRS Meeting With the Commission

The ACRS is scheduled to meet with the Commission between 9:30 and 11:30 a.m. on Friday, December 4, 2009. Topics proposed by the Committee and approved by the Commission are as follows:

- Overview (Bonaca)
Major Accomplishments
Future Plant Design Activities
Containment Accident Pressure Credit Issue
Major Areas of Ongoing and Future ACRS Activities
- Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC)/Design Acceptance Criteria (DAC) Closure Process (Bley)
- Amendment to the AP1000 Design Control Document (Ray)
- Three-Dimensional Finite Element Analysis of the Oyster Creek Drywell Shell (Shack)
- Beaver Valley Containment Liner Corrosion (Armijo)
- Cyber Security Programs for Nuclear Power Plants (Apostolakis)

Copies of draft slides will be distributed to the Committee during the November meeting. The Committee needs to approve a set of slides during the November meeting.

Election of Officers for CY 2010

During its December 2009 meeting, the Committee will elect Chairman and Vice Chairman for the ACRS and Member-at-Large for the Planning and Procedures Subcommittee. Section 8.4 of the ACRS Bylaws state the following:

A member may withdraw his name from consideration by written notice to the ACRS Executive Director, no later than two weeks before the election.

Accordingly, those members who do not wish to be considered for all or any of the Offices should inform the ACRS Executive Director in writing by November 20, 2009.

Quality Assessment of Research Projects in FY 2010

A list of research projects proposed by RES for ACRS quality assessment in FY 2010 was discussed. Dr. Powers needs to propose two projects and Panels for assessing the selected projects.

In addition, RES proposes the following enhancements to the ACRS quality assessment process.

After familiarizing with the research projects selected for quality assessment, cognizant ACRS Subcommittee hold a Subcommittee meeting with the research Project Manager and representatives of the User Office to obtain an overview of the project and the User Office's insights on the expectations for the project with regard to their needs.

In addition, an informal meeting be held with the Project Manager to answer additional Subcommittee questions and to provide clarification of information prior to completing the quality assessment.

Dr. Powers proposed the following research projects and Panels for quality assessment in FY 2010:

Modeling a Digital Feedwater Control System Using Traditional Probabilistic Risk Assessment Methods

Panel: Stetkar (Chair), Ray, Sieber

Human Factors Consideration with Respect to Emerging Technology in Nuclear Power Plants (NUREG/CR-6947)

Panel: Bley (Chair), Ryan, Abdel-Khalik

Update on H1N1 (Swine) Flu Vaccine

The NRC announced an update on the status of the availability of the H1N1 vaccine for NRC employees. NRC has received an initial delivery of H1N1 vaccine in Headquarters. NRC will follow the CDC recommendations for prioritizing H1N1 vaccination. In accordance with the CDC recommendations, priority will be given to employees who are:

- Pregnant
- Who live with or care for children younger than 6 months of age
- Who are health care and emergency medical services personnel with direct patient care
- Who are from 6 months through 24 years of age, or
- Who are between 25 and 64 years of age and have health conditions associated with higher risk medical complications from influenza

Those who meet one of the above categories and are interested in H1N1 vaccine should visit the Health Center, One White Flint North, between 2-4 p.m.

Vaccination to everyone from ages 25 through 64 years will be offered once the demand for the above priority groups has been met. Vaccination to people 65 and over will be offered after all other demands have been met.

Regulatory Guides (EMH)

a) Draft Regulatory Guide

The staff plans to issue the following Draft Final Regulatory Guide and would like to know whether the Committee wants to review this Guide prior to being issued final.

Draft Final Regulatory Guide 1.141, "Containment Isolation Provisions for Fluid Systems"

Regulatory Guide 1.141 was issued in 1978. The Proposed Revision 1 to this Guide was issued as DG-1213 for public comment on June 30, 2009. The proposed revision incorporates operating experience from the past three decades. Significantly, this revision includes improved regulatory guidance as a result of the staff's review of the lessons learned from the accident at Three Mile Island Nuclear Generating Station, Unit 2. It also updates the NRC guidance on acceptable design, testing, and maintenance requirements that licensees may use to comply with their plant-specific design criteria for the isolation of fluid systems that penetrate the primary containment of light-water-cooled reactors. No comments have been received; therefore no changes have been made from the DG-1213.

Based on his review of this Regulatory Guide, Mr. Ray recommends that the Committee not review this Guide.

b) Proposed Regulatory Guides

The staff plans to issue the following Proposed Regulatory Guides for public comment and would like to know whether the Committee wants to review these Guides prior to being issued for public comment.

Proposed Revision 4 to Regulatory Guide 1.82 (DG-1234), "Water Sources for Long-Term Recirculation Cooling Following a Loss-of-Coolant Accident"

DG-1234 incorporates insights gained from the work being performed to resolve GSI-191, "Assessment of Debris Accumulation on PWR Sump Performance," and Generic Letter 2004-02, "Potential Impact of Debris Blockage on Emergency Recirculation during Design Basis Accidents at Pressurized-Water Reactors." The appropriate GSI-191 lessons learned for PWRs has been applied to BWRs. The regulatory positions of the Guide were revised to make them consistent with staff positions described in safety evaluations on industry guidance documents and several industry topical reports that are associated with GSI-191 and NRC Generic Letter 2004-02. DG-1234 also incorporates staff review guidance in the areas of chemical effects, coating, and head loss testing.

Based on his review of this Proposed Regulatory Guide, Dr. Banerjee recommends that the Committee review the draft final revision to this Guide after reconciliation of public comments.

Proposed Revision 2 to Regulatory Guide 4.11 (DG-4016), "Terrestrial Environmental Studies for Nuclear Power Plants"

Regulatory Guide 4.11 was first issued in July 1976 and last revised in August 1977. Throughout the United States, some terrestrial ecological procedures have become standardized, new ecological mapping have been developed, and new technologies, such as the Geographic Information System (GIS), haven been developed and widely applied. The proposed revision to this Guide addresses procedures and technical resources presently in use and directs users to technical information sources containing relevant updated data.

Based on his review of this Proposed Regulatory Guide, Dr. Ryan recommends that the Committee review the draft final revision to this Guide after reconciliation of public comments.

Quadripartite Group Meetings

ACRS Members Dr. Powers and Mr. Brown; and Ms. Antonescu of ACRS staff attended the third Quadripartite Working Group (WG) Meeting hosted by Japan's Nuclear Safety Commission (NSC) in Tokyo on October 13-15, 2009. The NSC letter of appreciation for ACRS' participation in this meeting was discussed.

The next Plenary Quadripartite Meeting will be hosted by France's Groupe Permanent D'experts Pour Les Réacteurs Nucléaires (GPR) in spring of 2011. Topics of interest for the subsequent working group meetings will be collected at the Plenary meeting.

Christmas Party

The Christmas Party sponsored by the members is scheduled for Friday, December 4, following the meeting with the Commission.

The meeting was adjourned at 7:00 pm on November 6, 2009.