



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

April 22, 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 561st MEETING OF THE ADVISORY
COMMITTEE ON REACTOR SAFEGUARDS (ACRS),
APRIL 2-4, 2009

I certify that based on my review of the minutes from the 561st 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	04/ 22 /09	04/22/09

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CERTIFIED

Date Certified: 04/22/2009

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During its 561st meeting, April 2-4, 2009, the Advisory Committee on Reactor Safeguards (ACRS) discussed several matters and completed the following reports, letters, and memoranda:

REPORTS

Reports to Dale E. Klein, Chairman, NRC, from Mario V. Bonaca, Chairman, ACRS:

- Report on the Safety Aspects of the License Renewal Application for the Vogtle Electric Generating Plant, Units 1 and 2, dated April 10, 2009
- Digital I&C Interim Staff Guidances 5, "Highly-Integrated Control Room-Human Factors Issues," and 6, "Licensing Process," dated April 21, 2009

LETTERS

Letters to R. W. Borchardt, Executive Director for Operations, NRC, from Mario V. Bonaca, Chairman, ACRS:

- Draft Final Regulatory Guide 1.211, "Qualification of Safety-Related Cables and Field Splices for Nuclear Power Plants," dated April 21, 2009
- Draft Final Revision 2 to Regulatory Guide 1.200, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," dated April 9, 2009

MEMORANDA

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

- Proposed Revision 1 to Regulatory Guide 1.65 (DG-1211), "Materials and Inspections for Reactor Vessel Closure Studs," dated April 9, 2009
- Draft Final Regulatory Guides 3.16, 1.93, and 1.213, dated April 9, 2009

MINUTES OF THE 561st MEETING OF THE
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

ROCKVILLE, MARYLAND

The 561st meeting of the Advisory Committee on Reactor Safeguards (ACRS) was held in Conference Room 2B3, Two White Flint North Building, Rockville, Maryland, on April 2-4, 2009. Notice of this meeting was published in the *Federal Register* on March 16, 2009 (72 FR 11139-11140). 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. Other attendees can be found at the sign-in sheets.

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.

II. License Renewal Application and Final Safety Evaluation Report (SER) for the Vogtle Nuclear Plant

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

The Committee met with representatives of the NRC staff and Southern Nuclear Operating Company Inc. (SNC), the applicant, to discuss the Final Safety Evaluation Report (SER) related to the license renewal application for the Vogtle Electric Generating Plant (VEGP), Units 1 and 2.

The applicant discussed the Boric Acid Corrosion Control Program. During the Region II site inspection, a deposit was identified in containment. The applicant stated that the deposit was not boric acid corrosion but it could potentially mask boric acid corrosion. Aggressive inspection, cleaning, and repainting have been performed, and measures are being taken to eliminate the cause of the residue. The applicant discussed water in underground cable pull boxes (manholes). The cables are routed in manholes located below ground water level and submerged in water. Since the cables are not qualified for continuous wetting and drying cycles, water could induce cable failure. Inspections are conducted more frequently and pull boxes will be equipped with sump pumps in the near future. The applicant also discussed the degradation (blisters) of Boral. The applicant stated that industry operating experience has not shown any evidence of reduced neutron absorption efficacy in Boral that has blistered. However, SNC has committed to perform a baseline and a follow-up inspection to confirm the neutron-absorbing capacity of Boral panels.

The NRC staff provided an overview of the VEGP license renewal review and the license renewal audit and inspection. The scoping and screening review, aging management review, and time-limited aging analyses were discussed. The staff also discussed flooding within the medium voltage non-safety related cable manholes. The staff has identified this as a generic current operating plant issue and will address it through the Reactor Oversight Process. The staff is also preparing a Regulatory Guide to further address this issue. The material condition inside of containment and Boral blistering were also discussed.

The VEGP final SER contained no open or confirmatory items. Based on its review, the staff concluded that the requirements 10 CFR 54.29(a) have been met.

The Committee issued a report to the NRC Chairman on this matter, dated April 10, 2009, recommending that the SNC application for renewal of the operating licenses of VEGP, Units 1 and 2 be approved.

III. Digital Instrumentation and Control (I&C) Interim Staff Guidances (ISGs)

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

The Committee met with representatives of the NRC staff to discuss DI&C-ISG-05, "Highly-Integrated Control Room–Human Factors Issues," and draft DI&C-ISG-06, "Licensing Process."

DI&C-ISG-05 provides guidance on how to demonstrate through suitable human factors engineering (HFE) analysis that manual operator actions that can be performed inside the control room are acceptable in lieu of automated backup functions. Also, this guidance can be used to demonstrate the acceptability of operator actions required in less than thirty minutes. Specifically, a new Section 3 of this ISG was developed to provide an alternative process to the thirty-minute criterion to determine the conditions under which operator actions can be credited.

DI&C-ISG-06 clarifies the licensing criteria that the staff will use for nuclear plant license amendments in confirming that a proposed design meets applicable requirements. Specifically, the industry and vendors have requested clarification regarding what documents need to be provided to the staff for each phase of its review, which documents need to be on the docket, and which documents do not need to be docketed but should be available for staff review during the audit. The draft DI&C-ISG-06 incorporates the lessons learned from the Oconee and Wolf Creek DI&C system upgrades. Specifically, the staff has incorporated several issues in the ISG, including the need to: 1) interface early with the licensee on key technical issues such as defense-in-depth and diversity; 2) provide for more frequent feedback on the progress of the review; and 3) provide for a phased approach to the submittal of important documents for staff review.

The Committee issued a report to the NRC Chairman on this matter, dated April 21, 2009, recommending that DI&C-ISG-05, Section 3, "Crediting Manual Operator Actions in Diversity and Defense-in-Depth (D3) Analyses," be revised to incorporate additional guidance on the estimation methods of the time required for operator action. The Committee also recommended that draft DI&C-ISG-06 not be issued until Sections C and Section D are revised to require sufficient design detail to ensure deterministic behavior and independence of each DI&C safety train.

IV. License Renewal Application and Final Safety Evaluation Report for the National Institute of Standards and Technology (NIST) Reactor

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

The Committee met with representatives of the NRC staff and NIST to discuss the license renewal application for the National Bureau of Standards Reactor (NBSR) and the associated NRC staff's final SER.

The staff and NIST addressed several questions raised during the Subcommittee meeting on February 4, 2009, including: monitoring of groundwater for tritium releases, adequacy of seismic analyses, relaxation of surveillance requirements, review process for in-core experiments, adequacy of natural circulation, void and moderator temperature coefficients, Class B and C wastes, single failure criterion to the accident analyses, spent fuel pool safety calculation, and Confinement Building wind and snow loads. On March 30, 2009, NIST self-identified an error in the flow coastdown data used to benchmark the RELAP5 model used to analyze a loss-of-coolant-flow accident. During the meeting, NIST explained the error in the data and outlined a plan to update the accident analysis. The staff will review the updated analysis, revise the final SER, if needed, and present its findings on this newly identified open item to the ACRS during a future meeting.

The Committee plans to review the revised final SER, which includes the resolution of the issue identified by NIST, during its June 2009 meeting.

V. Draft Final Regulatory Guide 1.211, "Qualification of Safety-Related Cables and Field Splices for Nuclear Power Plants"

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

The Committee met with representatives of the NRC staff and industry to discuss Draft Final Regulatory Guide 1.211, "Qualification of Safety-Related Cables and Field Splices for Nuclear Power Plants."

The staff stated that this Regulatory Guide endorses the Institute of Electrical and Electronics Engineers, Inc., Standard 383-2003 with some minor clarifications and/or exceptions. One of the key regulatory positions taken by the staff in this Guide is the need for programs that monitor the environment and condition of safety-related power, instrument, and control cables. Periodic monitoring of parameters such as temperature, radiation, and other key environmental parameters is important to ensure that the environment is consistent with that used as the basis for qualification. Condition monitoring of the cables includes the use of one or more techniques to assess the actual condition of the cable.

The industry questioned the need for condition monitoring of the cables. They argued that the current methods available to monitor the condition of cables provide marginal information and benefit. They further stated that industry experience did not support the need for condition monitoring. The staff believes that industry experience justifies condition monitoring and that techniques are available to provide meaningful data for use in assessing the condition of the cables.

The Committee agrees with the staff that condition monitoring is needed and is useful as long as it can detect unexpected degradation that may require further evaluation. However, there may be situations in which condition monitoring may not provide meaningful data. For these cases, the staff should approve exceptions where reasonable testing techniques would not provide useful information or would be detrimental to the cable or other equipment. In addition, Draft Final Regulatory Guide 1.211 states that condition monitoring may be limited to safety-related cables within the scope of the Maintenance Rule. The staff agreed to revise the Guide to clarify that the scope is for safety-related cables and remove the reference to the Maintenance Rule.

The Committee issued a letter to the Executive Director for Operations on this matter, dated April 21, 2009, recommending that the staff issue Regulatory Guide 1.211 after clarifying the scope for condition monitoring. The Committee encouraged the staff to remain cognizant of advances in condition monitoring techniques and industry experience so it can refine future guidance in this area.

VI. Risk Metrics for New Light-Water Reactor Risk-Informed Applications

[Note: Dr. Hossein Nourbakhsh 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 risk metrics for new light-water reactor risk-informed applications. The existing risk goals for new reactors are a core damage frequency (CDF) $< 10^{-4}$ /year, a large release frequency (LRF) $< 10^{-6}$ /year, and a conditional containment failure probability < 0.1 . These numeric goals are not completely consistent with each other. Moreover, LRF has never been explicitly defined and differs from the large early release frequency (LERF) parameter used in risk metrics for current operating reactors. The current basis is that increases should be limited to small increments.

The new reactor designs pose the following questions because the risk estimates for these designs are much lower than those of the current operating plants:

- (1) Should the principle of a “small” increase in Δ CDF, Δ LERF, or Δ LRF be based on its absolute value or as a certain fraction of the unit’s overall CDF, LERF, or LRF?
- (2) Should there be an alternate or additional Δ LRF guideline (in contrast to the existing Δ LERF guideline) for new reactors?

The staff described 6 options it is considering to address these questions.

Representatives of NEI provided an industry perspective on the various options. They stated that new risk metrics would penalize new plants and the Commission has been consistent in maintaining that new reactors would not be measured against a more stringent risk requirement. NEI also discussed the relationship of the LRF and LERF parameters. LERF is defined as any large unscrubbed release of radionuclide inventory. Although LRF has never been explicitly defined by the agency, the early uses of LRF were based on a release of radionuclides large enough to cause an offsite fatality. By this definition, “LRF” is a frequency of events resulting in a fatality, not a frequency of large releases. NEI examined the accident sequences in the 5 NUREG-1150 probabilistic risk assessments (PRAs) and showed that, using these definitions, a radioactive release large enough to be counted in LERF would often not be large enough to be counted in LRF. NEI also found in these PRAs that the LERF was more than a factor of 10 greater than LRF. This is counter-intuitive in that the normal expectation would be that the LERF would be a subset of LRF. The reason is that, according to NEI, the two parameters use different definitions of “large.” This was an information briefing. No Committee action was necessary.

VII. Subcommittee Reports

Plant License Renewal Subcommittee Report (Three Mile Island (TMI) Nuclear Station, Unit 1 License Renewal Application)

The Chairman of the Plant License Renewal Subcommittee provided a report to the Committee summarizing the results of the April 1, 2009, meeting, with the NRC staff and representatives of

Exelon Generation Group, LLC, (EGC) and the Committee on Health Aspects & Management of Nuclear Power, to review the draft SER related to license renewal application for the TMI Nuclear Station Unit 1. The NRC staff's draft SER, issued in March 2009, contained no open items. EGC submitted an application to the NRC in January 2008 to extend the TMI Unit 1 license by 20 years.

During the meeting, EGC representatives described the operating history, the license renewal review methodology, and the aging management programs. In addition, one confirmatory item was discussed by the applicant concerning the bounding assumption of less than 0.050 ppm for reactor coolant dissolved oxygen used in fatigue calculations. The Boral Surveillance Program, reactor building liner, and medium voltage cables were also discussed by both the staff and applicant. The Chairman of the Subcommittee noted that EGC takes credit for an Electric Power Research Institute report (Non-Class 1 Mechanical Implementation Guideline and Mechanical Tools) as a surrogate for a review of plant-specific operating experience. The representative of the Committee on Health Aspects & Management of Nuclear Power provided comments concerning environmental and health issues relating to the renewal of the TMI, Unit 1 license. The Committee plans to review the final SER related to the license renewal application for the TMI, Unit 1 in September 2009.

Plant License Renewal Subcommittee Report (Susquehanna Steam Electric Station License Renewal Application)

The Chairman of the Plant License Renewal Subcommittee provided a report to the Committee summarizing the results of the April 1, 2009, meeting with representatives of the NRC staff and PPL Susquehanna, LLC (PPL) to review the draft SER with Open Items related to the license renewal application for the Susquehanna Steam Electric Station (SSES), Units 1 and 2.

The current operating licenses for the two SSES units expire on July 17, 2022, and March 23, 2024, respectively. The staff's draft SER, issued in March 2009, contained no open items. During the meeting, PPL described the plant, its operating history, the license renewal review methodology, the aging management programs, and its commitment tracking system. The staff discussed its review and inspection results, which include scoping and screening, license renewal inspections, aging management programs, and time-limited aging analyses. The staff informed the Subcommittee that it is still working with the applicant on two emerging issues: Boral surveillance and cycle counting in the fatigue monitoring program. The Committee plans to review the final SER related to the license renewal application for the SSES, Units 1 and 2 in October, 2009.

Reliability and PRA Subcommittee Report (NUREG-1855 Appendix A)

The Chairman of the Reliability and PRA Subcommittee provided a report to the Committee summarizing the results of the March 27, 2009, Subcommittee meeting with representative of the NRC staff, the Electric Power Research Institute, Brookhaven National Laboratory, Sandia National Laboratories, and ERIN Engineering to review the staff's revisions to NUREG-1855 Appendix A, "Example Implementation of the Process for the Treatment of PRA Uncertainty in a Risk-Informed Regulatory Application." The Committee had previously issued a letter approving the publication of NUREG-1855, "Guidance on the Treatment of Uncertainties Associated with PRA in Risk-Informed Decisionmaking." However, the Committee had recommended that Appendix A to this NUREG not be published until it is revised. The staff has added numerous footnotes, explanatory text, and additional discussion to address the Committee's concerns. Moreover, the staff plans to hold a workshop with representatives of the industry and other interested stakeholders in May 2009. The Subcommittee plans to meet with the staff again to discuss the results of the workshop and any further modifications to the Appendix.

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 February 13, 2009, to comments and recommendations included in the December 22, 2008, ACRS letter on Chapters 7 and 14 of the NRC staff's SER with Open items related to the certification of the ESBWR design. The Committee decided that it was satisfied with the EDO's response.
- The Committee considered the EDO's response of March 19, 2009, to comments and recommendations included in the February 18, 2009, letter on SECY-08-0917, "Review of Options to Revise Radiation Protection Regulations and Guidance with Respect to the 2007 Recommendations of the International Commission on Radiological Protection." The Committee decided that it was satisfied with the EDO's response.
- The Committee considered the EDO's response of March 25, 2009, to comments and recommendations included in the February 18, 2009, ACRS letter on the Draft Final Regulatory Guide DG-5021, "Managing the Safety/Security Interface." 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 April ACRS Meeting

Member assignments and priorities for ACRS reports and letters for the April 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 ACRS members through June 2009 were 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

Annual Visit to a Nuclear Plant and Meeting with the Regional Administrator

During the March 2009 ACRS meeting, the members decided to tour Watts Bar and meet with the Regional Administrator in Region II. Subsequent to the March meeting, Dr. Cecil Parks, ORNL, contacted the ACRS Executive Director to extend an invitation to the ACRS members to visit selected ORNL facilities. In addition, a representative of INPO agreed to accommodate the members' visit to INPO. ORNL has recommended a list of facilities for the members' tour and ORNL is preparing a list of discussion topics for the visit. This list will be provided to the members during the May meeting.

Software PRA Workshop

The Office of Nuclear Regulatory Research (RES) has invited the ACRS members to observe a 2-day workshop scheduled for May 5-6, 2009, at the Brookhaven National Laboratory to discuss issues related to addressing software failures in a nuclear plant PRA. This Workshop will address issues of likely interest to the ACRS Subcommittees on Digital I&C Systems and on Reliability and PRA. The primary purpose of this Workshop is to establish and document a philosophical basis to including software failures in a PRA in terms of failure rates or failure probabilities.

Draft Final Regulatory Guides

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

- Draft Final Revision 1 to Regulatory Guide 3.16, "General Fire Protection Guide for Plutonium Processing and Fuel Fabrication Plants"

Revision 1 to Regulatory Guide 3.16 endorses the guidance in Chapter 7, "Fire Protection" of NUREG-1718, "Standard Review Plan for the Review of an Application for Mixed Oxide (MOX) Fuel Fabrication Facility," as a process acceptable to the staff for reviewing the fire protection portion of a licensing application for MOX or plutonium processing facilities. This version of this Guide reflects incorporation of public comments. No significant changes have been made as a result of public comments.

Based on his review of this Guide, Dr. Powers recommends that the Committee not review this Guide.

- Draft Final Regulatory Guide 1.213, “Qualification of Motor Control Centers for Nuclear Power Plants”

Regulatory Guide 1.213 endorses, with some modifications, the qualification guidelines of the Institute of Electrical and Electronic Engineers (IEEE) Standard 649-2006 , “IEEE Standard for Qualifying Class 1E Motor Control Centers for Nuclear Power Generating Stations,” as an acceptable method of demonstrating that the motor control centers are capable of performing their required safety functions with no failure mechanisms that could lead to common mode failures under the postulated conditions stated in the equipment specifications. This version of this Guide reflects incorporation of public comments. No significant changes have been made as a result of public comments.

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

- Draft Final Revision 1 to Regulatory Guide 1.93, “Availability of Electric Power Sources”

Revision 1 of Regulatory Guide 1.93 describes the operating procedures and restrictions the staff believes should be implemented if the number of available electric power sources is less than the limiting conditions for operation in the nuclear plant’s technical specifications. This version of this Guide reflects incorporation of public comments. No significant changes have been made as a result of public comments.

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

Proposed Regulatory Guide

The staff plans to issue the following proposed Regulatory Guide (DG) for public comment and would like to know whether the Committee wants to review this document prior of being issued for public comment.

- Proposed Revision 1 to Regulatory Guide 1.65 (DG-1211), “Materials and Inspections for Reactor Vessel Closure Studs”

The staff issued the initial RG 1.65 in October 1973. Changes have been made to DG-1211, first to add a staff position previously established for license renewal and provided in NUREG/CR-1801, “Generic Aging Lessons Learned,” regarding the design conservatism exercised in determining the sizing of the reactor vessel closure studs. The staff position is that the measured ultimate tensile strength should not reach a level that would make the studs susceptible to stress corrosion cracking. Second, the updated guidance reflects provisions in NUREG-0800, “Standard Review Plan,” Section 3.13, “Threaded Fasteners – ASME Code Classes 1, 2, and 3”, addressing the operating experience regarding the types of lubricant that are acceptable and those that have been found to be detrimental.

Webstreaming of ACRS Meetings

In a March 6, 2009 Staff Requirements Memorandum (SRM) related to Webstreaming of ASLBP Adjudicatory proceedings, the Commission stated the following:

If the ACRS decides that it wishes to pursue webstreaming of ACRS meetings, the ACRS should prepare a proposed plan reflecting their interests, in consultation with the Office of Administration. An ACRS plan could include the results of any further discussions between the ACRS staff and the ASLBP, and should be submitted to the Office of Administration, with a copy to the Commission.

Third Quadripartite Working Group Meeting

Japan's Nuclear Safety Commission (NSC) will host the third Quadripartite Working Group (WG) Meeting in Tokyo either the week of October 5, 2009 or the week of October 12, 2009 on the general topic of "Digital Instrumentation & Control" (Digital I&C). A tentative agenda was discussed.

NRC Budget for FY-2009

NRC's FY-2009 budget was approved on March 11, 2009 at \$1.04 billion. This represents an increase of \$28.5 million over that originally requested by the NRC and 13% more than the FY-2008 funding level. Approval of the NRC budget eliminates the restrictions imposed when operating under the Continuing Resolution.

Miscellaneous

- ACRS letters dating back to 1985 and ACNW&M letters from 1988 are now available on the ACRS website.
- Demolition of the ACRS Subcommittee room is expected to begin next week.
- Construction of the new conference room is expected to be completed in September 2009.

The meeting was adjourned at 7:00 p.m. on April 3, 2009.

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
561st FULL COMMITTEE MEETING

April 2-4, 2009

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TODAY'S DATE: April 2, 2009

	<u>NAME</u>	<u>NRC ORGANIZATION</u>
1	Donnie J. Ashley	NRR/DLR1
2	John Daily	NRR/DLR
3	EDWARD SMITH	NRR/DSS
4	Seung Min	NRR/DLR
5	SAMSON LEE	NRR/DLR
6	Bill Rogers	NRR/DLR
7	Jim Davis	NRR/DLR
8	DAN AILEY	NRR/DLR
9	Duc Nguyen	NRR/DLR
10	Emma Wong	NRR/DCI/CSGB
11	Jim HANA	NRR/DLR/REG2
12	Roy MATHEW	NRR/DE
13	STELLA RAY	NRR/DE
14	Glen Meyer	NRC Region I
15	JAMES MEDOFF	NRC NRR/DEK
16	ALBAT WONG	NRC NRR/DLR
17	Terry Dozier	NRC NRR/DLR/REG1
18	Raj Anudek	NRR/NRR/DLR
19	CLIFF DOVIT	NRC/NRR/DLR/REG2
20	Andrew Johnson	NRR/DCI/CSGB
21	Chuangyeh Yang	NRC NRR/DLR
22	Edward Andrzejewicz	NRC/NRR/DCI
23	JAY COLLINS	NRC/NRR/DCI
24	Matthew A. McLeell	NRR/DCI
25	ANDREW PRINARIS	NRR/DLR
26	Jim Shaffner	ASME/PMCP
27	Bennett Bray	NRR/DLR
28	BRIAN HOLIAN	NRR/DLR

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
561st FULL COMMITTEE MEETING

April 2-4, 2009

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TODAY'S DATE: April 2, 2009

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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
561st FULL COMMITTEE MEETING

April 2-4, 2009

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TODAY'S DATE: April 2, 2009

<u>NAME</u>	<u>AFFILIATION</u>
1 JACK STRINGFELLOW	SOUTHERN NUCLEAR
2 Cary Martin	Southern Nuclear
3 TOM TYNAN	SOUTHERN NUCLEAR
4 Tom Youngblood	SOUTHERN NUCLEAR
5 Jon Hornbuckle	Southern Nuclear
6 Mark Ajluni	Southern Nuclear
7 Lee Mansfield	Southern Nuclear
8 Louis Bohn	Southern Nuclear
9 Greg Halton	First Energy
10 CHRIS WILSON	EXELON
11 Joe Ruether	Xcel Energy
12 MIKE GALLACHER	EXELON
13 STAFFORD M. MISHCO	Savannah River Nat'l Laboratory
14 Syron Treeford	LINK
15 Gordon CLETON	NEI
16 Melanie Way	NRC
17 Ed Milon	NRC
18 Jim Riley	NEI
19 David Desautels	
20 Glenn Tracy	NRC
21 Dan Hughes	NIST CNR
22 J.M. ROWE	NIST
23 DAVID BROWN	NIST
24 DANIEL FLYNN	NIST
25 Sy Weiss	NIST
26 John Crosby	Envirotest Sensors, Inc
27 Paul BRAND	NIST
28 Robert Williams	NIST

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
561st FULL COMMITTEE MEETING

April 2-4, 2009

PLEASE PRINT

TODAY'S DATE: April 2, 2009

	<u>NAME</u>	<u>AFFILIATION</u>
1	George Wilson	MC
2		
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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
561st FULL COMMITTEE MEETING

April 2-4, 2009

PLEASE PRINT

TODAY'S DATE: April 3, 2009

	<u>NAME</u>	<u>NRC ORGANIZATION</u>
1	DONALD DUBE	NRO/DSRA
2	GARETH PARRY	NRR/DRA
3	MARY DOOLIN	NRE/RES
4	BOB TJADER	NRC/NRO/CTSB
5	Lynn Mrowca	NRO/SPLA
6	Jeff Cicco	NRO/DMRL
7	HEN LE	NRO/ACIP
8	Jocelyn Mitchell	RES/DIA
9	Theresa Clark	NRO/DSRA/SPLA
10	John Manning	NRO/DSRA
11	Charles Adler	NRO/DSRA
12	Jim C	
13	Teesuk Hwang	NRR (foreign assignee)
14	Hash Phoa	NRO/DSRA
15	DON HELTON	RES/DRA
16	John Lai	NRO/DSRA
17	KRISTY BUCHOLTZ	NRR/DIRS/ITSB
18	Tina Ghosh	NRR/DRA
19	Paul Ballan	NRO/NMIP
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<u>NAME</u>	<u>AFFILIATION</u>
SPYROS TRAFOROS	LINK
Patricia Campbell	GE Hitachi
Keiko Chitose	MNES
JOSEPH TAPIA	MNES
Russell Bywater	MNES
Richard Barabec	LUMINANT
Bill Mc CONAGHY	TOSHIBA/TANE
Futoshi Tanaka	MHI
Eugene Hughes	ETRANCO
C. Keith Paulson	MNES
Andrew Johnson	MNES
Shinji Otani	MNES
BOB LUTZ	WESTINGHOUSE
Don Woodlan	Luminant
STANLEY LEWIS	AREVA NP
DOUG WALTERS	NEI
CHRIS WILSON	EXELON
Riff Bradley	NEI
Hesslein Hainzke	NRC/NRO
CAREY BICKETT	NRC/NRO
Steve FRANK	MWB
Etsuro Saji	MWB
Jim Chapman	Scientech
Vesna DIMITRIJEVIC	AREVA NP
Russ Bell	NEI
Patrick O'Regan	EPRI