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

March 26, 2010

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 568th MEETING OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS (ACRS), DECEMBER 3-5, 2009

I certify that based on my review of the minutes from the 568th 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	03/ 26 /10	03/26/10

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CERTIFIED Date Certified: 3/26/2010

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During its 568th meeting, December 3-5, 2009, the Advisory Committee on Reactor Safeguards (ACRS) discussed several matters and completed the following reports, letter, and memoranda:

REPORTS

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

- Draft Final Regulatory Guide 1.205, Revision 1, "Risk-Informed, Performance-Based Fire Protection for Existing Light-Water Nuclear Power Plants," and Draft Final Standard Review Plan (SRP) Section 9.5.1.2, "Risk-Informed, Performance-Based Fire Protection Program," dated December 15, 2009

- Report on the Safety Aspects of the License Renewal Application for the Prairie Island Nuclear Generating Plant, Units 1 and 2, dated December 10, 2009

LETTER

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

- Draft Final Revision 1 of Regulatory Guide 1.151, "Instrument Sensing Lines," dated December 10, 2009

MEMORANDA

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

- Draft Interim Staff Guidance Document 2 (ISG-2) Rev.1, "Fuel Retrievability," dated December 15, 2009

- Draft Final Regulatory Guide 1.40, dated December 15, 2009

- Proposed Revision 1 to Regulatory Guide 1.93 (DG-1244), dated December 15, 2009

MINUTES OF THE 568th MEETING OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

ROCKVILLE, MARYLAND

The 568th meeting of the Advisory Committee on Reactor Safeguards (ACRS) was held in Conference Room 2B3, Two White Flint North Building, Rockville, Maryland, on December 3-5, 2009. Notice of this meeting was published in the *Federal Register* on November 17, 2009 (72 FR 59270-59271). 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.

The Committee held its yearly Election of ACRS Officers for CY 2010. The officers elected were Dr. Said Abdel-Khalik as ACRS Chairman, Dr. J. Sam Armijo as ACRS Vice Chairman, and Mr. John Stetkar as Member-at-Large for the Planning and Procedures Subcommittee.

HIGHLIGHTS OF KEY ISSUES

I. License Renewal Application for the Prairie Island Nuclear Generating Plant, Units 1 and 2

[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 Northern States Power Company, (NSPM or applicant) to discuss the staff's final Safety Evaluation Report (SER) related to the license renewal application for the Prairie Island Nuclear Generating Plant (PINGP), Units 1 and 2.

NSPM discussed its general site information and operating experience. NSPM made 37 regulatory commitments for its license renewal program. NSPM also discussed the following Subcommittee follow-up items: refueling cavity leakage, condensate storage tank inspections, and underground medium voltage cable manhole inspections. The applicant concluded that it will manage aging in the period of extended operation.

The NRC staff discussed the staff's SER overview and regional inspection results. The staff provided additional information regarding its review of the PINGP's refueling cavity leakage issue. The staff concluded that the applicant's inspections, evaluations, and commitments are adequate to close this open item. The staff also provided a brief discussion of its independent inspection of the medium voltage cable manhole. No signs of water intrusion were found.

The PINGP, Units 1 and 2, license renewal final SER contained no open items. Based on its review, the staff concluded that the requirements of 10 CFR 54.29(a) have been met. The Committee issued a report to the NRC Chairman on this matter, dated December 10, 2009, recommending that the NSPM application for renewal of the operating licenses of PINGP, Units 1 and 2 be approved.

III. Draft Final Regulatory Guide 1.205, "Risk-Informed, Performance-Based Fire Protection for Existing Light-Water Nuclear Power Plants," and Draft Final Standard Review Plan (SRP) Section 9.5.1.2, "Risk-Informed, Performance-Based Fire Protection"

[Note: Mr. Girija Shukla was the Designated Federal Office for this portion of the meeting.]

The Committee met with representatives of the NRC staff to discuss draft final Revision 1 to Regulatory Guide 1.205, "Risk-Informed Performance-Based Fire Protection for Existing Light-Water Nuclear Power Plants," and the associated draft final SRP Section 9.5.1.2, "Risk-Informed, Performance-Based Fire Protection."

The NRC staff described the revisions to Regulatory Guide 1.205 including the incorporation of the public comments in the areas of Fire Probabilistic Risk Assessment (PRA), cumulative risk, sample license condition, risk of previously-approved recovery actions, and primary control station. The staff also addressed the rationale for not incorporating some of the public comments.

The staff then discussed changes to the Guide based on comments made by the ACRS Members during previous subcommittee meetings. The revised Regulatory Guide now includes a flow chart to clarify the risk of previously-approved recovery actions, a simplification of the definition of primary control station, and several changes to clarify the intent of the guidance. The Committee issued a report to the NRC Chairman on this matter, dated December 15, 2009, recommending that Regulatory Guide 1.205 Revision 1 and the associated SRP Section 9.5.1.2 be issued.

VI. Long-Term Core Cooling Approach for the Economic Simplified Boiling Water Reactor (ESBWR) Design

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

The Committee met with representatives of the NRC staff to discuss the design basis ESBWR containment long-term pressure analysis. In a Staff Requirements Memorandum (SRM) dated May 8, 2008, the Commission directed that "the ACRS should advise the staff and Commission on the adequacy of the design basis long-term core cooling approach for each new reactor design based, as appropriate, on either its review of the design certification or the first license application referencing the reactor design."

The staff discussed the regulatory criteria contained in 10 CFR 50.46(b)(5) for long-term cooling and GDC 38 for containment heat removal. The staff described the MELCOR ESBWR plant model and design basis analysis for long-term containment cooling. A graphical profile showing the containment pressure for a main steam line break was discussed. The staff and its contractor used MELCOR to generate the profile. The drywell pressure from MELCOR was compared to that from TRACG. The maximum MELCOR containment pressure at end of passive period compared well with GEH's TRACG code. The MELCOR predicted pressure during the late intervention period (30 days) was flat with ~ 24% margin. The staff concluded that from 72 to 720 hours the MELCOR and TRACG pressure trends are similar when design/operation parameters are similarly modeled.

The Committee decided that no report is warranted at this time. The Committee plans to continue its review of this matter during a future meeting.

V. Draft Final Revision 1 to Regulatory Guide 1.151 (DG-1178), "Instrument Sensing Lines"

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

The Committee met with representatives of the NRC staff to discuss draft final Revision 1 to Regulatory Guide 1.151, "Instrument Sensing Lines." This Regulatory Guide was originally issued in 1983. NRC staff issued a revised Draft Regulatory Guide (DG1178) for public comment in December 2008.

The NRC staff described the significant regulatory position changes in Revision 1 to RG 1.151 relative to the original 1983 version; discussed some of the public comments that have been incorporated into the Guide; and proposed new changes to Regulatory Position 4. The changes to Regulatory Position 4 were from a December 1, 2009, Regulatory Policies and Practices Subcommittee Meeting.

During that briefing, several ACRS Members commented that Regulatory Position 4 did not provide sufficient guidance to stakeholders about the impact of evolved or noncondensable gasses on the accuracy of the safety-related instrument sensing lines. The Members suggested the staff verify if the endorsed *ANSI/ISA-S67.02.01-1999* Standard compensates for the lack of specificity in the proposed Guide. During the December 3, 2009, Full Committee meeting, the staff presented its proposed changes to Regulatory Position 4, after confirming that the endorsed ANSI Standard did not provide adequate guidance.

The Committee issued a letter to the Executive Director for Operations on this matter, dated December 10, 2009, recommending that Regulatory Guide 1.151 not be issued until the following issues are resolved: (1) the scope of the Guide should be reviewed to determine whether it should include non-safety-related systems categorized under the provisions of Regulatory Treatment of Non-Safety Systems (RTNSS) and (2) the staff should determine whether the potential for flashing should be included as a mechanism affecting instrument accuracy.

VI. Subcommittee Reports

Reliability and PRA Subcommittee Report

The Chairman of the Reliability and PRA Subcommittee provided a report regarding the matters discussed at its November 12, 2009, meeting. In that meeting, the Subcommittee was briefed by representatives from the NRC, DOE, NEI, and a member of the public (David Collins). John Wreathall participated as an invited expert. The Subcommittee reviewed and discussed the following material: (1) proposed Commission policy statement on safety culture; (2) experience, issues, and lessons learned from treatment of safety culture in the reactor oversight process (ROP); (3) Industry initiatives on safety culture; and (4) expert and stakeholder perspectives. The proposed policy statement was released for a 90-day public comment period ending February 4, 2010. Additionally, Industry presented guidelines on how to foster a strong safety culture at nuclear power plants. Four pilot plant studies are currently underway that may be of interest to the ACRS. The Committee plans to review the proposed safety culture policy statement and other NRC initiatives during a future meeting.

AP1000 Subcommittee Report

The Chairman for the AP1000 Subcommittee provided a report regarding the discussions on November 19-20, 2009. Four topics were discussed: (1) Design Control Document (DCD) Chapter 7, “Instrumentation and Controls,” (2) DCD Chapter 9, “Auxiliary Controls,” (3) Westinghouse plans to address Generic Safety Issue 191 and the assessment of debris accumulation on PWR sump pumps, and (4) the impact of a change in pressurizer geometry on the AP1000 pressurizer drain (chugging) phenomena and small-brake loss-of-coolant-accident performance. The Committee plans to continue its review of the AP1000 DCD amendment.

ESBWR Subcommittee Report

The Chairman of the ESBWR Subcommittee provided a report regarding matters discussed at the November 17-18, 2009, meeting. The Subcommittee was briefed by representatives of the NRC staff and GE-Hitachi on specific open items related to containment, control room habitability, human factors engineering, and PRA for the ESBWR. The main topics discussed included TRACG modeling of the containment and comparisons with MELCOR, noncondensable gases in containment, and performance of the Passive Containment Cooling System (PCCS). The likelihood of hydrogen combustion in the PCCS due to efficient condensation is still considered an open issue. Also discussed were, HVAC performance for the control room was also discussed and the results of the staff's audit of the ESBWR design PRA. The Committee plans to continue its review of the ESBWR 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 November 18, 2009, to comments and recommendations included in the October 23, 2009 ACRS report on NRC staff's SER with Open Items Regarding the North Anna, Unit 3 Combined License Application. The Committee decided that it was satisfied with the EDO's response.

- The Committee considered the EDO's response of November 19, 2009, to comments and recommendations included in the October 23, 2009, ACRS report on the Safety Aspects of the License Renewal Application for the Susquehanna Steam Electric Station, Units 1 and 2. The Committee decided that it was satisfied with the EDO's response.

- The Committee considered the EDO's response of November 17, 2009, to comments and recommendations included in the October 2, 2009, ACRS report on the Draft Digital System Research Plan for FY 2010-2014. The Committee decided that it was satisfied with the EDO's response.

- The Committee considered the EDO's response of November 17, 2009, to comments and recommendations included in the October 16, 2009, ACRS report on the 3-Dimensional Finite Element Analysis of the Oyster Creek Nuclear Generating Station Drywell Shell. The Committee decided that it was satisfied with the EDO's response.

- The Committee considered the EDO's response of October 29, 2009, to comments and recommendations included in the September 16, 2009, ACRS report on the Safety Aspects of the License Renewal Application for the Beaver Valley Power Station, Units 1 and 2. The Committee decided that it was satisfied with the EDO's response.

- The Committee considered the EDO's response of October 6, 2009, to comments and recommendations included in the July 29, 2009, ACRS report on the Applicability of the TRACE Thermal-Hydraulic System Analysis Code to Evaluate the ESBWR Design and Related Matters. The Committee decided that it was satisfied with the EDO's response.

- The Committee considered the EDO's response of November 16, 2009, to comments and recommendations included in the October 20, 2009, ACRS report on Draft Final Revision 2 to Regulatory Guide 1.189 (DG-1214), "Fire Protection For Nuclear Power Plants." 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 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 also discussed.

Anticipated Workload for ACRS Members

The anticipated workload for ACRS members through April 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

Election of Officers for CY 2010

During the December 2009 meeting, the Committee will elect a Chairman, a Vice Chairman for the ACRS, and a Member-at-Large for the Planning and Procedures Subcommittee.
Section 8.4 of the ACRS Bylaws states 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, during the November ACRS meeting it was requested that those members who do not wish to be considered for all or any of the Officers should inform the ACRS Executive Director in writing by November 20, 2009.

Changes to the Subcommittee Chairmanship

The following changes have been made to the ACRS Subcommittee Chairmanship with the approval of the ACRS Chairman:

US-APWR – John Stetkar will become the Chairman of this Subcommittee. The current Chairman, Otto Maynard, will retire in January 2010.

Naval Reactors – Dennis Bley will become the Chairman of this Subcommittee.

Reliability and PRA – John Stetkar will become the Chairman of this Subcommittee.

Regulatory Guides

Interim Staff Guidance

The staff revised the following Interim Staff Guidance (ISG) after receiving public comments.

– Draft Interim Staff Guidance Document 2 (ISG 2) Revision 1, "Fuel Retrievability"

Revision 1 of ISG-2 clarifies the terminology regarding "normal means" of handling spent nuclear fuel and provides guidance to the staff on determining if spent fuel can be considered retrievable from interim storage.

Based on his review, Dr. Armijo recommends that the Committee not review this ISG.

Draft Final Regulatory Guide

The staff plans to issue the following Draft Final Regulatory Guide. The Committee should decide if a review ought to be done prior to issuing the final guide.

Draft Final Revision to Regulatory Guide 1.40, "Qualification of Continuous Duty Safety-Related Motors for Nuclear Power Plants"

Proposed Revision to Regulatory Guide (RG) 1.40 was issued as DG-1150 for public comment on September 3, 2009. The public comment period closed on October 30, 2009. Comments were received and RG1.40 was revised accordingly. Revision 1 endorses in its entirety the

current Institute of Electrical and Electronic Engineers (IEEE) Standard 334-2006 in lieu of the previous IEEE-334 1971. The IEEE 334-2006 is a more detailed, state-of-the-art industry guide for qualification.

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

Draft Regulatory Guide

The staff plans to issue the following Draft Regulatory Guide. The Committee should decide if a review ought to be done prior to issuing the final guide.

- Proposed Revision 1 to Regulatory Guide 1.93 (DG-1244), Availability of Electric Power Sources"

  DG-1195 was a proposed Revision 1 to Regulatory Guide 1.93. As RG 1.93, Revision 1, was about to be published, the Technical Specifications Branch in the Office of Nuclear Reactor Regulation identified several instances where the text in this Guide was contrary to text in the standardized Technical Specifications. Because of the extensive changes, the proposed Revision 1 of RG 1.93 is being reissued for public comment as DG-1244.

  Based on his review, Mr. Sieber recommends that the Committee review the draft final revision to Regulatory Guide 1.93 after reconciliation of public comments.

The meeting was adjourned at 7:00 pm on Friday December 4, 2009.

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
568th FULL COMMITTEE MEETING

December 3-5, 2009

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TODAY'S DATE: December 3, 2009

	NAME	NRC ORGANIZATION
1	JAMES MEDOFF	NRR/DLR
2	DAN HOANG	NRR/DLR
3	~~CHRIS~~	
4	SAMSON LEE	NRR/DLR
5	BRIAN HOLIAN	↓
6	Bryce Lehman	NRR/DLR
7	Rick Plasse	NRR/DLR
8	Bill Rogers	NRR/DLR
9	CLIFF DOUTT	NRR/DLR
10	DAVID WRONA	NRR/DLR
11	DUC NGUYEN	NRR/DLR
12	Kent Howard	NRR/DLR
13	JAY ROBINSON	NRR/DLR
14	Ann Marie Stone	Region III/DRS
15	Don BRITTAIN	NRR/DLR
16	Andrew Prinaris	NRR/DLR
17	Allen Hiser	NRR/DLR
18	Chuang-yeh Yang	NRR/DLR
19	Rachel Vaucher	NRR/DLR
20	Robert Sun	NRR/DLR
21	Mita Sircar	NRR/DLR
22	WILKINS SMITH	NRR/DLR
23	STEVEN A. LAUR	NRR/DRA
24	Margaret Stambaugh	NRR/DRA
25	Harry Barrett	NRR/DRA
26	PAUL LAIN	NRR/DRA
27	Tim Pakkford	NRR/DRA
28	David Stroup	RES/DRA/ERB

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
568th FULL COMMITTEE MEETING

December 3-5, 2009

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TODAY'S DATE: December 3, 2009

	NAME	NRC ORGANIZATION
1	Charles Moulton	NRR/DRA/AFPB
2	John N. Ridsely	RES/DE/RGDB
3	Ray Gallucci	NRR/DRA (ARLA)
4	Alex Klein	NRR/DRA/AFPB
5	Mark Lombard	NRO/DSRA
6	John McKirgan	NRO/DSRA/SBCV
7	Hossein Esmaili	RES/DSA/ESTB
8	Allen Notafrancesco	RES/DSA/ESTD
9	Henry Wagage	NRO/DSRA/SBCV
10	Amy Cubbage	NRO/DNRL/NGET
11	Don DUBE	NRO/DSRA
12	Charles Ader	NRO/DSRA
13	KHOI NGUYEN	RES/DE/DICB
14	Russell Sydnor	RES/DE/DICB
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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
568th FULL COMMITTEE MEETING

December 3-5, 2009

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TODAY'S DATE: December 3, 2009

NAME	AFFILIATION
Eugene Eckholt	Xcel Energy
Paul Bemis	PGE
Gabe Salamon	Xcel Energy
Jeff Gorman	Dominion Engineering
Mark Schimmel	Xcel Energy
Scott McCall	Xcel Energy
David Wootten	Dominion Resources
Joseph Ruether	Xcel Energy
Philip Lindberg	Xcel Energy
Richard Pedersen	Xcel Energy
Mark Rinckel	AREVA NP
Chris Grimes	NRC
Dan Naus	ORNL
Ken Albrecht	Xcel Energy
Scott Marty	Xcel Energy
Wayne Marquino	GE-Hitachi
Rick Wachowiak	GEH
Davis Piepmeier	GE Hitachi Nuclear
Patricia Campbell	GEH