



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

February 1, 2012

MEMORANDUM TO: ACRS Members

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

SUBJECT: CERTIFICATION OF THE MEETING MINUTES FROM
THE ADVISORY COMMITTEE ON REACTOR
SAFEGUARDS 569th FULL COMMITTEE MEETING
HELD ON FEBRUARY 4, 2010 IN ROCKVILLE, MARYLAND

The minutes of the subject meeting were certified on April 8, 2010 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**

October 25, 2011

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

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

SUBJECT: MINUTES OF THE 587th MEETING OF THE ADVISORY
COMMITTEE ON REACTOR SAFEGUARDS (ACRS),
OCTOBER 6-8, 2011

I hereby certify, to the best of my knowledge and belief, that the minutes of the subject meeting are an accurate record of the proceedings for that meeting.

OFFICE	ACRS	ACRS:RSB/Sunsi
NAME	SMeador	CSantos/sam
DATE	10/ 25 /11	10/ 25 /11

OFFICIAL RECORD COPY

MINUTES OF THE 587TH MEETING OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

ROCKVILLE, MARYLAND

The 587th meeting of the Advisory Committee on Reactor Safeguards (ACRS) was held in Conference Room T2B1, Two White Flint North Building, 11545 Rockville Pike, Rockville, Maryland, on October 6-8, 2011. A copy of the meeting agenda is attached.

The summary report from the ACRS Chairman to the NRC Chairman contains the following information for this meeting: (1) an accurate description of each matter discussed and (2) a list of all the documents issued or approved by the Committee. A copy of the summary report is attached. The documents received by the Committee are listed in the references of each committee letter associated with this meeting.

A transcript of selected portions of the meeting is available in the NRC's public document room (pdr.resource@nrc.gov or 1-800-397-4209), or from the Publicly Available Records System (PARS) component of NRC's document system (ADAMS), or at <http://www.nrc.gov/reading-rm/doc-collections/acrs/agenda/>. The presentation slides and handouts used during the meeting are attached to these transcripts.

ATTENDEES

ACRS Members

Dr. Said Abdel-Khalik (Chairman), Dr. J. Sam Armijo (Vice-Chairman), Mr. John Stetkar (Member-at-Large), Dr. Sanjoy Banerjee, Dr. Dennis Bley, Mr. Charles Brown, Dr. Michael Corradini, Dr. Dana A. Powers, Mr. Harold Ray, Mrs. Joy Rempe, Dr. Michael Ryan, Dr. William Shack, and Mr. John Sieber.

ACRS Staff

E. Hackett
C. Santos
Ilka Berrios
Derek Widmayer
Hosseini Nourbakhsh
Antonio Dias

A list of other attendees is attached.



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

**AGENDA
587th ACRS MEETING
October 6-8, 2011**

**THURSDAY, OCTOBER 6, 2011, CONFERENCE ROOM T-2B1, 11545 ROCKVILLE PIKE,
ROCKVILLE, MD**

- | | |
|------------------------|--|
| 1) 8:30 AM - 8:35 AM | <u>Opening Remarks by the ACRS Chairman</u> (Open) (SAK/EMH)
1.1) Opening Statement
1.2) Items of Current Interest |
| 2) 8:35 AM - 10:00 AM | <u>Draft Final Revision 4 to Regulatory Guide (RG) 1.82, "Water Sources for Long-Term Recirculation Cooling Following a Loss-of-Coolant Accident</u> (Open) (SB/ITB)
2.1) Remarks by the Subcommittee Chairman
2.2) Briefing by and discussions with representatives of the NRC staff regarding Draft Final Revision 4 to RG 1.82. |
| 10:00 AM - 10:15 AM | *** BREAK *** |
| 3) 10:15 AM – 11:45 AM | <u>Fuel Cycle Oversight Process (FCOP)</u> (Open) (MTR/DAW)
3.1) Remarks by the Subcommittee Chairman
3.2) Briefing by and discussions with representatives of the NRC staff regarding staff's findings, conclusions, and recommendations regarding risk-informing the FCOP. |
| 11:45 AM – 12:45 PM | *** LUNCH *** |
| 4) 12:45 PM – 2:15 PM | <u>Future ACRS Activities/Report of the Planning and Procedures Subcommittee</u> (Open/Closed) (SAK/EMH)
4.1) Discussion of the recommendations of the Planning and Procedures Subcommittee regarding items proposed for consideration by the Full Committee during future ACRS meetings.
4.2) Report of the Planning and Procedures Subcommittee on matters related to the conduct of ACRS business, including anticipated workload and member assignments. |

[NOTE: A portion of this meeting may be closed pursuant to 5 U.S.C. 552b (c) (2) and (6) to discuss organizational and personnel matters that relate solely to internal personnel rules and practices of ACRS, and information the release of which would constitute a clearly unwarranted invasion of personal privacy.]

- 5) 2:15 AM – 2:30 PM Reconciliation of ACRS Comments and Recommendations
(Open) (SAK/CS/YDS)
Discussion of the responses from the NRC Executive Director for Operations to comments and recommendations included in recent ACRS reports and letters.
- 2:30 PM – 2:45 PM ***** BREAK *****
- 6) 2:45 PM – 3:15 PM Draft Report on the Biennial ACRS Review of the NRC Safety Research Program (Open) (MLC/HPN)
6.1) Remarks by the Subcommittee Chairman
6.2) Discussion on the draft report on the biennial ACRS review of the NRC Safety Research Program.
- 7) 3:15 PM - 7:00 PM Preparation of ACRS Reports (Open)
7.1) Draft Final Revision 4 to RG 1.82, "Water Sources for Long-Term Recirculation Cooling Following a Loss-of-Coolant Accident (SB/ITB)
7.2) Fuel Cycle Oversight Process (FCOP) (MTR/DAW)

FRIDAY, OCTOBER 7, 2011, CONFERENCE ROOM T-2B1, 11545 ROCKVILLE PIKE, ROCKVILLE, MD

- 8) 8:30 AM - 8:35 AM Opening Remarks by the ACRS Chairman (Open) (SAK/EMH)
8.1) Opening Statement
8.2) Items of Current Interest
- 9) 8:35 AM – 10:00 AM NRC Staff Recommendations on the Near-Term Task Force Report Regarding the Events at the Fukushima Dai-ichi Site in Japan (Open) (SAK/AFD)
9.1) Remarks by the Subcommittee Chairman
9.2) Briefing by and discussions with representatives of the NRC staff regarding the staff's recommendations on the Near-Term Task Force Report regarding the events at the Fukushima Dai-ichi site in Japan.

10) 10:00 AM – 11:30 AM Development of Draft Fire Human Reliability Analysis (HRA) Guidelines – NUREG 1921 (Open) (JWS/JCL)
10.1) Remarks by the Subcommittee Chairman
10.2) Briefing by and discussions with representatives of the NRC staff regarding fire HRA guidelines in NUREG 1921.

10:00 AM - 10:15 AM *** **BREAK** ***

11) 10:15 AM – 7:00 PM Preparation of ACRS Reports (Open)
11.1) Draft Final Revision 4 to RG 1.82, "Water Sources for Long-Term Recirculation Cooling Following a Loss-of-Coolant Accident (SB/ITB)
11.2) Fuel Cycle Oversight Process (FCOP) (MTR/DAW)
11.3) NRC Staff Recommendations on the Near-Term Task Force Report Regarding the Events at the Fukushima Dai-ichi Site in Japan (SAK/AFD)
11.4) Development of draft Fire Human Reliability Analysis (HRA) Guidelines – NUREG 1921 (JWS/JCL)

There will be a lunch break between 12:00 PM – 1:00 PM during this activity

SATURDAY, OCTOBER 8, 2011, CONFERENCE ROOM T-2B1, 11545 ROCKVILLE PIKE, ROCKVILLE, MD

13) 8:30 AM - 1:00 PM Preparation of ACRS Reports (Open)
Continue discussion of the proposed ACRS reports listed under Item 12. There may be a 15 break at some point during this activity.

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

NOTES:

- When appropriate, members of the public and representatives of the nuclear industry may provide their views during the briefings.
- During the meeting, phone number 301-415-7360 should be used in order to contact anyone in the ACRS Office.
- Presentation time should not exceed 50 percent of the total time allocated for a given item. The remaining 50 percent of the time is reserved for discussion.
- Thirty five (35) hard copies and one (1) electronic copy of the presentation materials should be provided to the ACRS in advance of the briefing.
- One (1) electronic copy of each presentation should be emailed to the Designated Federal Official 1 day before the meeting. If an electronic copy cannot be provided within this timeframe, presenters should provide the Designated Federal Official with a CD containing each presentation at least 30 minutes before the meeting.



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

November 7, 2011

The Honorable Gregory B. Jaczko
Chairman
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

SUBJECT: SUMMARY REPORT – 587th MEETING OF THE ADVISORY COMMITTEE ON
REACTOR SAFEGUARDS, OCTOBER 6-8, 2011

Dear Chairman Jaczko:

During its 587th meeting, October 6-8, 2011, the Advisory Committee on Reactor Safeguards (ACRS) discussed several matters and completed the following reports, letter, and memorandum:

REPORTS

Reports to Gregory B. Jaczko, Chairman, NRC, from Said Abdel-Khalik, Chairman, ACRS:

- Initial ACRS Review of: (1) the NRC Near-Term Task Force Report on Fukushima and (2) Staff's Recommended Actions to be Taken Without Delay, dated October 13, 2011
- Enhancing the Fuel Cycle Oversight Process, dated October 17, 2011

LETTER

Letter to R. W. Borchardt, Executive Director for Operations, NRC, from Said Abdel-Khalik, Chairman, ACRS:

- Draft Final Regulatory Guide (RG) 1.82, "Water Sources for Long-Term Recirculation Cooling Following a Loss-of-Coolant Accident," Revision 4, dated October 17, 2011

MEMORANDUM

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

- Proposed Closeout – Generic Issue 186, "Potential Risk and Consequences of Heavy Load Drops in Nuclear Power Plants," dated October 12, 2011

HIGHLIGHTS OF KEY ISSUES

1. Draft Final Regulatory Guide (RG) 1.82, "Water Sources for Long-Term Recirculation Cooling Following a Loss-of-Coolant Accident," Revision 4

The Committee met with representatives of the NRC staff to discuss the Draft Final RG 1.82, "Water Sources for Long-Term Recirculation Cooling Following a Loss-of-Coolant Accident," Revision 4. The objectives of this revision were to improve readability and to include updated staff guidance based on information from research conducted by both the NRC and industry related to Generic Safety Issue (GSI) – 191, "Assessment of Debris Accumulation on PWR Sump Performance," in the last several years. The updated guidance included in this revision was related to determination of strainer head loss, chemical effects, downstream effects, protective coatings, latent debris, vortexing, and air ingestion. Development of guidance on other issues was deferred to a future revision of the Guide, and included containment accident pressure impacts on net positive suction head, downstream in-vessel effects, and GSI-191 resolution closure options that were recently approved by the Commission. The staff also discussed some of the public comments that were received.

Committee Action

The Committee issued a letter to the Executive Director for Operations on this matter dated October 12, 2011, recommending that Revision 4 to RG 1.82 not be issued until revisions are made to address comments from the Committee.

2. Fuel Cycle Oversight Process (FCOP)

The Committee met with representatives of the NRC staff to discuss the Fuel Cycle Oversight Process. The staff presented proposed enhancements to the process including a revised risk-informed and performance-based framework, cornerstones to monitor licensee performance, a significance determination process (SDP) to assess inspection findings, and incentives to establish effective licensee corrective action programs. The staff's proposed fuel cycle facility cornerstones aligned well with those used in the reactor oversight process, except for the barrier performance cornerstone which was integrated into a cornerstone on "safety controls." The staff also presented three types of significance determination processes: (1) qualitative, (2) case-by-case, and (3) PRA-based. The staff recommended the qualitative type for significance determination. In closing, the staff recommended further development of the hazards analysis-based cornerstones, a qualitative type SDP, an action matrix with consideration of cross-cutting issues, and a supplemental inspection program based on licensee performance.

Committee Action

The Committee issued a letter to the NRC Chairman on this matter dated October 17, 2011, concluding that the proposed FCOP framework is a substantial improvement over the traditional process and that it is ready to go to the next stage of development. The Committee recommended that during the pilot process, the staff consider a separate cornerstone that explicitly reflects barrier performance. The Committee also recommended that the development of a quantitative SDP process be pursued for the evaluation of more significant events.

3. NRC Staff Recommendations on the Near-Term Task Force Report Regarding the Events at the Fukushima Dai-ichi Site in Japan

The Committee met with representatives of the NRC's Senior Management to discuss the Notation Vote Paper prepared by the staff of the prioritization of actions to be taken in response to Fukushima lessons learned, as requested in the SRM to SECY-11-0093, dated August 19, 2011. The Notation Vote Paper, issued on October 3, 2011, provides the staff's proposed prioritization of the Fukushima Near-Term Task Force (NTTF) recommendations to (1) reflect regulatory actions to be taken by the staff in response to the Fukushima lessons learned; (2) identify implementation challenges; (3) include the technical and regulatory bases for the prioritization; (4) identify additional recommendations, if any; and (5) include a schedule and milestones with recommendations for appropriate stakeholder engagement and involvement of the ACRS.

Committee Action

The Committee issued a letter to the NRC Chairman on October 13, 2011 regarding two previous documents related to the Fukushima event: the NRC Near-Term Task Force Report on Fukushima and the Notation Vote Paper with the Staff's Recommended Actions to be Taken Without Delay. In general the Committee agreed with the two documents prepared by the staff; however, several recommendations were offered beyond those proposed by the staff. The Committee also recommended that licensing actions requiring the granting of containment accident pressure credit be suspended until the implications of post-Fukushima containment pressure control measures are understood.

4. Draft Report on the Biennial ACRS Review of the NRC Safety Research Program

The Committee discussed the draft 2012 ACRS biennial report to the Commission on its review and evaluation of the NRC safety research program.

Committee Action

The Committee will continue its discussion of this report during its November 3-5, 2011, meeting.

5. Proposed Closeout of Generic Issue -186, "Potential Risk and Consequences of Heavy Load Drops in Nuclear Power Plants"

The Committee considered the proposed closeout of Generic Issue -186, "Potential Risk and Consequences of Heavy Load Drops in Nuclear Power Plants," and decided not to review it. The Committee has no objection to the staff's proposal to close this generic issue.

SCHEDULED TOPICS FOR THE 588th ACRS MEETING

The following topics are scheduled for the 588th ACRS meeting, to be held on November 3-5, 2011:

- Prioritization of the Near-Term Task Force Recommendations for Agency Actions Following the Events in Japan
- Nine Mile Point Unit 2 Extended Power Uprate
- Branch Technical Position 7-19, "Guidance for Evaluation of Diversity and Defense-in-Depth in Digital Computer-Based Instrumentation and Control Systems"
- Draft Report on the Biennial ACRS Review of the NRC Safety Research Program
- Preparation for Meeting with the Commission

Sincerely,

/RA/

Said Abdel-Khalik
Chairman

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

587th Full Committee Meeting

October 7, 2011

Date

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	<u>NAME</u>	<u>AFFILIATION</u>
1	Tim Collins	NKA/OSS
2	See Meng Wong	NRR/DRA
3	Rachel Wamben	NRO
4	Don Marksberry	RES
5	Naman HURTZ	Worley Parsons
6	Thomas Hafee	Worley Parsons
7	Neil Haggerty	NuStart
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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

587th Full Committee Meeting

October 6, 2011

Date

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	<u>NAME</u>	<u>NRC ORGANIZATION</u>
1	PAUL KLEIN	NRR / DE
2	GARY WANG	RES / DE
3	STUART RICHARDS	RES / DE
4	Rick Tervyn	RES / DE
5	Steve Smith	NRR / DSS
6	J. Lehnig	" "
7	C. Ashley	NRO / DSRA
8	Stewart Bailey	NRR / DSS
9	Jonathan DeJesus	NMSS / FCSS
10	Bruce Lin	RES / DE
11	Marjie Kotzalas	NMSS / FCSS
12	Manuel Crespo	RII / DFFI
13	Jonathan Marciano	NMSS / FCSS
14	Andrea Kock	NRC / OCM / WCO
15	Marissa Bailey	NRC / NMSS
16	Sabrina Atack	NRC / NMSS
17	Dennis Dama	NRC / NMSS
18	LARRY Campbell	NRC / NMSS / FCSS
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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

587th Full Committee Meeting

October 6, 2011

Date

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NAME

AFFILIATION

1 Jana Bergman
2 ~~Janet Schluter~~
3 Janet Schluter

Scientech, CWFC

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