



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

February 6, 2017

NOTE TO: FILE

FROM: Sherry Meador, Technical Secretary */RA/*
Advisory Committee on Reactor Safeguards

The minutes of the subject meeting were certified on December 23, 2016, as the official record of the proceedings of that meeting.



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

December 23, 2016

MEMORANDUM TO: ACRS Members

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

SUBJECT: CERTIFICATION OF THE MEETING MINUTES FROM
THE ADVISORY COMMITTEE ON REACTOR
SAFEGUARDS 639th FULL COMMITTEE MEETING
HELD ON NOVEMBER 30-DECEMBER 2, 2016, IN ROCKVILLE,
MARYLAND

The minutes of the subject meeting were certified on December 23, 2016, 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**

December 16, 2016

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

FROM: Dennis C. Bley */RA/*
ACRS Chairman

SUBJECT: MINUTES OF THE 639th MEETING OF THE ADVISORY
COMMITTEE ON REACTOR SAFEGUARDS (ACRS),
NOVEMBER 30-December 2, 2016

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/SUNSI Review
NAME	SMeador	SMeador
DATE	12/16/2016	12/16/2016

OFFICIAL RECORD COPY

MINUTES OF THE 639th MEETING OF THE
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

ROCKVILLE, MARYLAND

The 639th 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 November 30-December 2, 2016. A copy of the meeting agenda is attached.

The summary report [ML17033A033] 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. Dennis Bley (Chairman), Dr. Michael Corradini (Vice-Chairman), Dr. Pete Riccardella (Member-at-Large), Dr. Ronald Bellinger, Mr. Charles Brown, Dr. Margaret Chu, Dr. Walter Kirchner, Dr. Jose March-Leuba, Dr. Dana A. Powers, Mr. Harold Ray, Dr. Joy Rempe, Mr. Gordon Skillman, Mr. John Stetkar, and Mr. Matthew Sunseri

ACRS Staff

A. Valentin
M. Banks
M. Snodderly

A list of other attendees is attached.



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

**AGENDA
639th ACRS MEETING
NOVEMBER 30 – DECEMBER 2, 2016
11545 ROCKVILLE PIKE, ROCKVILLE, MD**

WEDNESDAY, NOVEMBER 30, 2016, CONFERENCE ROOM T-2B1

- | | |
|--------------------------|---|
| 1) 1:00 PM – 1:05 PM | <u>Opening Remarks by the ACRS Chairman</u> (Open) (DCB/ADV)
1.1) Opening Statement
1.2) Items of Current Interest |
| 2) 1:05 PM – 3:00 PM | <u>Draft Final Rulemaking Package for Mitigation of Beyond-Design-Basis Events</u> (Open) (JWS/MRS)
2.1) Remarks by the Subcommittee Chairman
2.2) Briefings by and discussion with representatives of the NRC staff regarding the subject rulemaking package |
| 3:00 PM - 3:15 PM | *** BREAK *** |
| 3) 3:15 PM – 5:00 PM | <u>Fukushima Recommendations Related to 1) Evaluation of Natural Hazards Other Than Seismic and Flooding, 2) Periodic Confirmation of Natural Hazards, and 3) Real-Time Radiation Monitoring</u> (Open) (JWS/KDW)
3.1) Remarks by the Subcommittee Chairman
3.2) Briefings by and discussion with representatives of the NRC staff regarding the subject Fukushima Tier 2 recommendations |
| 4) 5:00 PM – 6:00 PM | <u>Preparation of ACRS Reports</u> (Open)
4.1) Draft Final Rulemaking Package for Mitigation of Beyond-Design Basis Events (JWS/MRS)
4.2) Fukushima Recommendations Related to 1) Evaluation of Natural Hazards Other Than Seismic and Flooding, 2) Periodic Confirmation of Natural Hazards, and 3) Real-Time Radiation Monitoring (JWS/KDW) |

THURSDAY, DECEMBER 1, 2016, CONFERENCE ROOM T-2B1

- 5) 8:30 AM – 6:00 PM Preparation of ACRS Reports (Open)
5.1) Continue discussion of the proposed ACRS reports listed under Item 4

FRIDAY, DECEMBER 2, 2016, CONFERENCE ROOM T-2B1

- 6) 8:30 AM – 10:00 AM Future ACRS Activities/Report of the Planning and Procedures Subcommittee (Open/Closed) (DCB/ADV)
6.1) Discussion of the recommendations of the Planning and Procedures Subcommittee regarding items proposed for consideration by the Full Committee during future ACRS meetings
6.2) 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 the ACRS, and information the release of which would constitute a clearly unwarranted invasion of personal privacy.]

- 7) 10:00 AM – 10:15 AM Reconciliation of ACRS Comments and Recommendations (Open) (DCB/ADV/MLB)
7.1) Discussion of the responses from the NRC Executive Director for Operations to comments and recommendations included in recent ACRS reports and letters

10:15 AM - 10:30 AM * BREAK *****

- 8) 10:30 AM – 5:30 PM Preparation of ACRS Reports (Open)
8.1) Continue discussion of the proposed ACRS reports listed under Item 4

- 9) 5:30 PM – 6:00 PM Miscellaneous (Open) (DCB/ADV)
9.1) 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, 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**

February 2, 2017

The Honorable Kristine L. Svinicki
Chairman
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

SUBJECT: SUMMARY REPORT – 639th MEETING OF THE ADVISORY COMMITTEE ON
REACTOR SAFEGUARDS, NOVEMBER 30 - DECEMBER 2, 2016

Dear Chairman Svinicki:

During its 639th meeting, November 30 - December 2, 2016, the Advisory Committee on Reactor Safeguards (ACRS) discussed several matters and completed the following reports and memoranda:

REPORTS

Reports to Stephen G. Burns, Chairman, NRC, from Dennis C. Bley, Chairman, ACRS:

- “Draft Final Rule 10 CFR 50.155, ‘Mitigation of Beyond-Design-Basis Events’ and Associated Regulatory Guidance,” dated December 6, 2016
- “Closure of Fukushima Recommendations Related to Evaluation of Natural Hazards other than Seismic and Flooding, Periodic Confirmation of Natural Hazards, and Real-Time Radiation Monitoring,” dated December 13, 2016

MEMORANDA

Memoranda to Victor M. McCree, Executive Director for Operations, NRC, from Andrea D. Veil, Executive Director, ACRS:

- “Regulatory Guides,” dated December 5, 2016

- DG-3046, “Standard Format and Content for License Applications for Uranium Hexafluoride Source Material Facilities”
- DG-2004, “Emergency Planning for Research and Test Reactors and Other Non-Power Production and Utilization Facilities”
- RG 5.36, “Recommended Practice for Dealing with Outlying Observations” (Withdrawal)
- “Documentation of Receipt of Applicable Official NRC Notices to the Advisory Committee on Reactor Safeguards for December 2016,” dated December 5, 2016

HIGHLIGHTS OF KEY ISSUES

1. Draft Final Rulemaking Package for Mitigation of Beyond-Design-Basis Events

The Committee met with representatives of the NRC staff and the Nuclear Energy Institute (NEI) to discuss the draft final rulemaking package for 10 CFR 50.155, “Mitigation of Beyond-Design-Basis Events.” The staff discussed the draft final Mitigation of Beyond-Design-Basis Events rule including changes that had occurred from the proposed rule to the draft final rule, and related regulatory guidance. The staff also presented information regarding a staff non-concurrence related to proposed guidance for the rule. NEI suggested that clarification was needed to clearly state that revising the reevaluated hazard included both strategies and equipment.

Committee Action

The Committee issued a letter report to the NRC Chairman on this matter, dated December 6, 2016, with the following recommendations:

- 1) Draft final rule 10 CFR 50.155 should be issued after consideration of the following recommendation: To ensure the rule consolidates and integrates requirements for equipment and strategies that licensees will use to mitigate the effects from a wide range of severe hazards, the equipment capability requirements in paragraph (c)(4) should apply for all of the strategies in paragraphs (b)(1) through (b)(3).
- 2) Draft final Regulatory Guide 1.226 should be revised to omit the overall seismic risk screening criteria that are recommended in Section H.4.5.3 of NEI 12-06, Revision 3.
- 3) It is important that Interim Staff Guidance JLD-ISG-2012-01, Revision 2 and Regulatory Guide 1.226 contain guidance that is functionally equivalent and applied consistently for all licensees. Draft Final Regulatory Guide 1.226 should not be issued until it is reconciled with the final guidance in JLD-ISG-2012-01, Revision 2.

- 4) Draft final Regulatory Guides 1.227 and 1.228 should be issued.
 - 5) The staff should review the mitigating strategies and the baseline FLEX Support Guidelines to ensure that they appropriately integrate contingency actions for loss of direct current power supplies, associated instrumentation requirements, and equipment operating practices.
2. Fukushima Recommendations Related to 1) Evaluation of Natural Hazards Other Than Seismic and Flooding, 2) Periodic Confirmation of Natural Hazards, and 3) Real-Time Radiation Monitoring

The Committee met with representatives of the NRC staff to discuss the resolution and closure of Fukushima Near-Term Task Force recommendations related to the evaluation of natural hazards other than seismic and flooding, periodic confirmation of natural hazards, and real-time radiation monitoring. The staff presented information on the effects of high winds (hurricane and tornadic), snow loading, low water conditions due to a seiche or tsunami, ultimate heat sink water quality, volcanic ash, and downstream dam failure. The staff also explained its plans to enhance existing NRC processes to provide ongoing assessment of natural hazards and briefed the Committee on the findings of its preliminary assessment on real-time radiation monitoring.

Committee Action

The Committee issued a letter report to the NRC Chairman on this matter, dated December 13, 2016, with the following conclusions and recommendations:

- 1) Additional regulatory actions related to high winds and wind-driven missiles, snow and ice loads, failures of downstream dams, low water conditions due to a seiche or tsunami, and other conditions that result in degraded intake water quality or air quality cannot be justified.
- 2) The staff should ensure that the integrated procedures and guidelines for implementation of plant-specific diverse and flexible (FLEX) strategies contain adequate guidance for actions to trip affected operating equipment and reduce major heat loads if the plant experiences a loss of all cooling water with continued availability of AC power.
- 3) At sites which are vulnerable to conditions that may adversely affect the plant cooling water quality, the staff should review the plant-specific FLEX strategies to ensure that alternative sources of clean water are readily available, or the FLEX equipment has adequate filtration capabilities.
- 4) At sites which are vulnerable to conditions that may adversely affect the plant intake air quality for an extended time, the staff should review the plant-specific FLEX strategies to ensure that needed ventilation will remain available, and emergency generators or FLEX generators have adequate filtration capabilities.

- 5) The staff's proposed resolution of Fukushima Near-Term Task Force Recommendation 2.2 should be modified as follows:
- The scope of external hazards to be assessed by the External Hazards Center of Expertise should be expanded to include man-made hazards, except for intentional acts.
 - The assessment process should contain a requirement for periodic reporting of the staff's state of knowledge about all external hazards.
- 6) Regulatory requirements for real-time radiation monitoring capability using fixed-station onsite and within the Emergency Planning Zone at each site are not warranted. Decisions regarding augmentation of current offsite radiation monitoring capabilities are best left to the licensees, local, and state authorities who are most directly involved with implementing the emergency response plans.

RECONCILIATION OF ACRS COMMENTS AND RECOMMENDATIONS

- The Committee considered the Executive Director for Operations' response of November 4, 2016, to the September 16, 2016 ACRS letter, "Report on the Safety Aspects of the Florida Power & Light Company's Combined License Application for Turkey Point Units 6 and 7." The Committee was satisfied with the Executive Director for Operations' response.
- The Committee considered the Executive Director for Operations' response of August 30, 2016, to the July 19, 2016 ACRS letter, "Topical Report WCAP-16996-P, Volumes I, II, and III, Revision 1, 'Realistic Loss-of-Coolant Accident Evaluation Methodology Applied to the Full Spectrum of Break Sizes'." The Committee was satisfied with the Executive Director for Operations' responses.
- The Committee considered the Executive Director for Operations' response of October 19, 2016, to the September 16, 2016 ACRS letter, "Report on the Safety Aspects of the License Renewal Application of the Fermi 2 Nuclear Power Plant." The Committee was satisfied with the Executive Director for Operations' response.
- The Committee considered the Executive Director for Operations' response of November 8, 2016, to the October 14, 2016 ACRS letter, "Report on the Safety Aspects of the License Renewal Application of the Grand Gulf Nuclear Station, Unit 1." The Committee was satisfied with the Executive Director for Operations' response.

- The Committee considered the Executive Director for Operations' response of August 30, 2016, to the July 18, 2016 ACRS letter, "Draft Final Regulatory Guide 1.230, 'Regulatory Guidance on the Alternative Pressurized Thermal Shock Rule,' and Draft Final Report NUREG-2163, 'Technical Basis for Regulatory Guidance on the Alternative Pressurized Thermal Shock Rule'." The Committee was satisfied with the Executive Director for Operations' response.
- The Committee considered the Executive Director for Operations' response of October 11, 2016, to the September 22, 2016 ACRS letter, "Pacific Gas and Electric Diablo Canyon Units 1 and 2 Digital Process Protection System Upgrade License Amendment Request." The Committee was satisfied with the Executive Director for Operations' response.

SCHEDULED TOPICS FOR THE 640th ACRS MEETING

The following topics are scheduled for the 640th ACRS meeting, to be held on February 9-11, 2017:

- Interim Review of APR 1400 Design Certification Safety Evaluation Report and Selected Topical Reports
- Review of Draft Final Regulatory Guide 1.207, "Guidelines for Evaluating the Effects of Light-Water Reactor Water Environments in Fatigue Analyses of Metal Components"
- Generic Quality Assurance Lessons Learned – New Reactors

Sincerely,

/RA/

Dennis C. Bley
Chairman

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
639th FULL COMMITTEE MEETING

November 30 – December 2, 2016

PLEASE PRINT

TODAY'S DATE: November 30, 2016

	<u>NAME</u>	<u>AFFILIATION</u>
1	Mike Tsumtz	NEI
2	Jana Bergman	CURTISS-WRIGHT.
3	Jim Riley	NEI
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		



ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
639th FULL COMMITTEE MEETING
November 30 – December 2, 2016

PLEASE PRINT

U.S. Nuclear Regulatory Commission Staff

TODAY'S DATE: November 30, 2016

	<u>NAME</u>	<u>NRC ORGANIZATION</u>
1	Charles Murray	NSIR-DPR
2	Kean Miller	RES-DE-ICEEB
3	ERIC BOWMAN	NER/JLD
4	TIM REED	NRR/OPR
5	Kenneth Thomas	NSIR/DPR.
6	THOMAS KOSITY	RES/DE
7	TODD SMITH	NSIR/DPR
8	Robert Kisek	COM/JMB
9	Sara Lyons	NRR/DRA
10	Joe Jedrosky	NRR/JLD
11	Ian Jung	RES/DE
12	Roy Mathew	NRR/DE
13	Tania Martinez Navedo	NRR/DE
14	Nanette Valliere	COMM/OCM
15	William ORDERS	NER/JLD
16	Kevin Coyne	RES/DRA
17	Niles h Chokshi	NRO/DSEA
18	Brittan Hu	NRO/DSEA
19	GREG KOLCUM	OCM
20	Shana Helton	NRO/DSEA
21	Stanley Gardocki	
22		
23		
24		
25		
26		
27		
28		