



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

January 26, 2017

NOTE TO: FILE

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

The minutes of the subject meeting were certified on July 22, 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**

July 22, 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 635th FULL COMMITTEE MEETING
HELD ON July 6-8, 2016, IN ROCKVILLE, MARYLAND

The minutes of the subject meeting were certified on July 22, 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**

July 15, 2016

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

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

SUBJECT: MINUTES OF THE 635th MEETING OF THE ADVISORY
COMMITTEE ON REACTOR SAFEGUARDS (ACRS),
JULY 6-8, 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	07/15/2016	07/15/2016

OFFICIAL RECORD COPY

MINUTES OF THE 635th MEETING OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

ROCKVILLE, MARYLAND

The 635th 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 July 6-8, 2016. A copy of the meeting agenda is attached.

The summary report [ML16217A063] 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. Dana A. Powers, Mr. Harold Ray, Dr. Joy Rempe, Mr. Gordon Skillman, and Mr. John Stetkar.

New Members: Dr. Margaret Chu, Dr. Walter Kirchner, Dr. Jose March-Leuba, and Mr. Matthew Sunseri

ACRS Staff

A. Valentin
M. Banks
K. Howard
D. Widmayer
Z. Abdullahi

A list of other attendees is attached.



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

**AGENDA
635th ACRS MEETING
JULY 6-8, 2016
11545 ROCKVILLE PIKE, ROCKVILLE, MD**

WEDNESDAY, JULY 6, 2016, CONFERENCE ROOM T-2B1

- 1) 1:00 PM – 1:05 PM Opening Remarks by the ACRS Chairman (Open) (DCB/ADV)
 - 1.1) Opening Statement
 - 1.2) Items of Current Interest

- 2) 1:05 PM – 4:00 PM LaSalle License Renewal (Open) (GRS/KH)
 - 2.1) Remarks by the Subcommittee Chairman
 - 2.2) Briefings by and discussions with representatives of the NRC staff and Exelon regarding the safety evaluation related to the LaSalle license renewal application

- 3) 4:00 PM – 5:00 PM Preparation for October Meeting with Commission (Open) (DCB/ADV)
 - 3.1) Discussion and selection of topics of mutual interest between the ACRS and the Commission

- 4) 5:00 PM – 6:00 PM Preparation of ACRS Reports (Open)
 - 4.1) LaSalle License Renewal (GRS/KH)

THURSDAY, JULY 7, 2016, CONFERENCE ROOM T-2B1

- 5) 8:30 AM – 8:35 AM Opening Remarks by the ACRS Chairman (Open) (DCB/ADV)
 - 5.1) Opening Statement

- 6) 8:35 AM – 10:30 AM Review of Draft Final Regulatory Guide RG 1.230 and Draft NUREG-2163 (Open) (RB/DAW)
 - 6.1) Remarks by the Subcommittee Chairman
 - 6.2) Briefings by and discussions with representatives of the NRC staff regarding RG 1.230, "Regulatory Guidance on the Alternate Pressurized Thermal Shock Rule" and Draft NUREG-2163, "Technical Basis for Regulatory Guidance on the Alternate Pressurized Thermal Shock Rule"

10:30 AM - 10:45 AM

***** BREAK *****

7) 10:45 AM – 12:00 PM

Preparation of ACRS Reports (Open)

- 7.1) LaSalle License Renewal (GRS/KH)
- 7.2) Review of Draft Final Regulatory Guide RG 1.230 and Draft NUREG-2163 (RB/DAW)

12:00 PM - 1:00 PM

***** LUNCH *****

8) 1:00 PM – 4:00 PM

Review of WCAP-16996P, “Realistic LOCA Evaluation Methodology Applied to the Full Spectrum of Break Sizes (FULL SPECTRUM LOCA METHODOLOGY)” (Open/Closed) (MLC/ZA)

- 8.1) Remarks by the Subcommittee Chairman
- 8.2) Briefings by and discussions with representatives of the NRC staff and Westinghouse regarding best estimate full spectrum loss of coolant accident (LOCA) methodology

[NOTE: A portion of this meeting may be closed in order to discuss and protect information designated as proprietary, pursuant to 5 U.S.C. 552b(c)(4).]

9) 4:00 PM – 6:00 PM

Preparation of ACRS Reports (Open/Closed)

- 9.1) LaSalle License Renewal (GRS/KH)
- 9.2) Review of Draft Regulatory Guide RG 1.230 and Draft NUREG-2163 (RB/DAW)
- 9.3) Full Spectrum LOCA Topical Report WCAP-16996P (MLC/ZA)

[NOTE: A portion of this meeting may be closed in order to discuss and protect information designated as proprietary, pursuant to 5 U.S.C. 552b(c)(4).]

FRIDAY JULY 8, 2016, CONFERENCE ROOM T-2B1

10) 8:30 AM – 10:00 AM

Future ACRS Activities/Report of the Planning and Procedures Subcommittee (Open/Closed) (DCB/ADV)

- 10.1) Discussion of the recommendations of the Planning and Procedures Subcommittee regarding items proposed for consideration by the Full Committee during future ACRS meetings
- 10.2) 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.]

- 11) 10:00 AM – 10:15 AM Reconciliation of ACRS Comments and Recommendations
(Open) (DCB/ADV/MLB)
11.1) 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 *****

- 12) 10:30 AM – 5:30 PM Preparation of ACRS Reports (Open/Closed)
12.1) Continue discussion of the proposed ACRS reports listed under Item 9

[NOTE: A portion of this meeting may be closed in order to discuss and protect information designated as proprietary, pursuant to 5 U.S.C. 552b(c)(4).]

- 13) 5:30 PM – 6:00 PM Miscellaneous (Open) (DCB/ADV)
13.1) 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**

August 5, 2016

The Honorable Stephen G. Burns
Chairman
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

SUBJECT: SUMMARY REPORT – 635th MEETING OF THE ADVISORY COMMITTEE ON
REACTOR SAFEGUARDS, JULY 6-8, 2016

Dear Chairman Burns:

During its 635th meeting, July 6-8, 2016, the Advisory Committee on Reactor Safeguards (ACRS) discussed several matters and completed the following report, letters, and memoranda:

REPORT

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

- “Report on the Safety Aspects of the License Renewal Application of the LaSalle County Station, Units 1 and 2,” dated July 18, 2016

LETTERS

Letters to Victor M. McCree, Executive Director for Operations, NRC, from Dennis C. Bley, Chairman, ACRS:

- “Draft Final Regulatory Guide 1.230, ‘Regulatory Guidance on the Alternate Pressurized Thermal Shock Rule,’ and Draft Final Report NUREG- 2163, ‘Technical Basis for Regulatory Guidance on the Alternate Pressurized Thermal Shock Rule’,” dated July 18, 2016
- “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’,” dated July 19, 2016

MEMORANDA

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

- “Draft Regulatory Guide (DG-1334),” dated July 19, 2016
 - Draft Regulatory Guide 1334, “Guidance for Implementation of 10 CFR 50.59, ‘Changes, Test, and Experiments’”
- “Draft Regulatory Guides,” dated July 19, 2016
 - Draft Final Regulatory Guide 1.140, Revision 3, “Design, Inspection, and Testing Criteria for Air Filtration and Adsorption Units of Normal Atmosphere Cleanup Systems in Light Water Cooled Nuclear Power Plants”
 - Draft Final Regulatory Guide 1.219, Revision 1, “Guidance on Making Changes to Emergency Plans for Nuclear Power Reactors”
 - Draft Final Regulatory Guide 1.29, Revision 5, “Seismic Design Classification for Nuclear Power Plants”
 - Draft Final Regulatory Guide 4.24, “Aquatic Environmental Studies for Nuclear Power Stations”
 - Draft Final Regulatory Guide 8.10, Revision 2, “Operating Philosophy for Maintaining Occupational Radiation Exposures as Low as is Reasonably Achievable”
- “Withdrawal of Regulatory Guide,” dated July 19, 2016
 - Regulatory Guide 1.86, “Termination of Operating Licenses for Nuclear Reactors”
- “Documentation of Receipt of Applicable Official NRC Notices to the Advisory Committee on Reactor Safeguards for July 2016,” dated July 19, 2016

HIGHLIGHTS OF KEY ISSUES

1. License Renewal Application of the LaSalle County Station, Units 1 and 2

The Committee met with representatives of the NRC staff and Exelon Generation Company (Exelon) to discuss the LaSalle County Station, Units 1 and 2 (LaSalle) license renewal application and the associated final safety evaluation report (SER). Exelon’s presentation provided an overview of the plant, and described their aging management programs and license

renewal commitments. The staff's presentation described closure of two open items identified in the draft SER: 1) the EVT-1 Examination Coverage for Boiling Water Reactor Vessel Identification Attachment Welds Aging Management Program and 2) the Limited Volumetric Examination Coverage for Boiling Water Reactor Stress Corrosion Cracking Aging Management Program. The staff concluded that Exelon had adequately addressed their concerns and closed the open items. The staff also concluded that the requirements of 10 CFR 54.29(a)(1) and (a)(2) were met for license renewal of LaSalle.

Committee Action

The Committee issued a letter report to the NRC Chairman on this matter, dated July 18, 2016, with the following conclusion and recommendation: 1) The programs established and committed to by Exelon to manage age-related degradation provide reasonable assurance that LaSalle can be operated in accordance with their current licensing bases for the period of extended operation without undue risk to the health and safety of the public and 2) Exelon's application for renewal of the operating license for La Salle should be approved.

2. Draft Final Regulatory Guide 1.230, "Regulatory Guidance on the Alternate Pressurized Thermal Shock Rule," and Draft Final Report NUREG-2163, "Technical Basis for Regulatory Guidance on the Alternate Pressurized Thermal Shock Rule"

The Committee met with representatives of the NRC staff to discuss Draft Final Regulatory Guide 1.230, "Regulatory Guidance on the Alternate Pressurized Thermal Shock Rule," and the supporting technical basis report Draft Final NUREG-2163, "Technical Basis for Regulatory Guidance on the Alternative Pressurized Thermal Shock Rule." The staff discussed the revisions to the regulatory guide and NUREG as a result of resolving public comments submitted on the draft versions of the two documents.

Committee Action

The Committee issued a letter to the Executive Director for Operations on this matter, dated July 18, 2016, with the recommendation that Regulatory Guide 1.230 and NUREG-2163 provide thorough guidance and a strong technical basis for licensees to use the Alternate Pressurized Thermal Shock Rule, 10 CFR 50.61a, and should be issued.

3. Review of WCAP-16996-P, "Realistic LOCA Evaluation Methodology Applied for the Full Spectrum of Break Sizes (FULL SPECTRUM LOCA METHODOLOGY)"

The Committee met with representatives of the NRC staff and Westinghouse Electric Corporation (Westinghouse) to discuss the Westinghouse licensing 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" and the associated staff final SER. Westinghouse described the WCAP-16996-P methodology to perform best estimate loss of coolant accident (LOCA) analyses for the full spectrum of LOCA break sizes (large-break, intermediate-break, and small-break). Previously, Westinghouse's Evaluation Model was approved only for large-break LOCAs. The staff discussed its review and the limitations and conditions stipulated in the SER.

Committee Action

The Committee issued a letter to the Executive Director for Operations on this matter, dated July 19, 2016, with the following conclusion and recommendations: 1) The Westinghouse methodology described in WCAP-16996-P is acceptable for meeting the regulatory requirements of 10 CFR 50.46, provided the methodology adheres to the staff's limitations and conditions in the draft final SER and the additional constraint discussed below, and 2) The draft final SER limitations and conditions need to be updated to identify clearly all the parameters and assumptions that need to be reviewed in future submittals. These limitations and conditions need to be referenced to the appropriate sections of WCAP-16996-P, Volumes I, II, and III, Revision 1 and the corresponding Westinghouse licensing letters.

RECONCILIATION OF ACRS COMMENTS AND RECOMMENDATIONS

- The Committee considered the Executive Director for Operations' response of March 16, 2016, to the February 23, 2016 ACRS letter, "Draft Final Rule 10 CFR 50.46c, 'Emergency Core Cooling System Performance during Loss-of-Coolant Accidents (LOCA)' and Associated Regulatory Guides." The Committee was satisfied with the Executive Director for Operations' response.
- The Committee considered the Executive Director for Operations' response of May 27, 2016, to the April 20, 2016 ACRS letter, "NUREG- 1927, Rev. 1, 'Standard Review Plan for Renewal of Specific Licenses and Certificates of Compliance for Dry Storage of Spent Nuclear Fuel'." The Committee was satisfied with the Executive Director for Operations' response.
- The Committee considered the Executive Director for Operations' response of May 22, 2016, to the April 18, 2016 ACRS letter, "Exemptions to the AP1000 Certified Design Included in the Levy Nuclear Power Plant Units 1 and 2 Combined License Application." The Committee was satisfied with the Executive Director for Operations' response.
- The Committee considered the Executive Director for Operations' response of June 3, 2016, to the April 19, 2016 ACRS letter, "Regulatory Guide 1.229, 'Risk-Informed Approach for Addressing the Effects of Debris on Post-Accident Long-Term Core Cooling'." The Committee was generally satisfied with the response and noted that the staff intends to add clarifications to address ACRS recommendations in the next revision planned for the near future. The Committee plans to review the next revision of this regulatory guide.
- The Committee considered the Executive Director for Operations' response of April 21, 2016, to the March 15, 2016 ACRS letter, "Closure of Fukushima Tier 3 Recommendations Related to Containment Vents, Hydrogen Control, and Enhanced Instrumentation." The Committee was satisfied with the Executive Director for Operations' response.

SCHEDULED TOPICS FOR THE 636th ACRS MEETING

The following topics are scheduled for the 636th ACRS meeting, to be held on September 8-10, 2016:

- Preparation for October Commission Meeting
- Review of Safety Evaluation Associated with Diablo Canyon Power Plant Units 1 and 2 Digital Replacement of Process Protection System
- Turkey Point Units 6 and 7 COLA Review
- Fermi Unit 2 License Renewal Application
- Review of Guidance for Closure Plan for Reevaluation of Flooding and Seismic Hazards for Operating Nuclear Power Plants (COMSECY-15-0019)

Sincerely,

/RA/

Dennis C. Bley
Chairman

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
SUBCOMMITTEE MEETING ON FUTURE PLANT DESIGNS

July 6, 2016
Date

NRC STAFF SIGN IN FOR ACRS MEETING

PLEASE PRINT

<u>NAME</u>	<u>NRC ORGANIZATION</u>
1 William Holzman	NRR/DLR/RARB
2 Lois James	NRR/DLR/RPB1
3 Seung MIN	NRC/NRR/DLR/RARB
4 James Medoff	NRC/NRR/DLR/RARB
5 Vinh Hoang	NRC /OGC /OR
6 Yaira Diaz	NRC/NRR/DLR
7 Bart Fu	DLR
8 Ben Beasley	NRC/NRR/DLR
9 Roger Kalikian	NRC/NRR
10 Allen Hiser	NRR/DLR
11 Bill Rogers	NRR/DLR
12 George Thomas	NRC/NRR/DLR
13 Brian Wittick	NRC/NRA/DLR
14 Mohammad Sadollah	NRC/NRR/DLR
15 Angela Buford	NRC/NRR/DLR
16 ALBERT WONG	NRC/NRR/DLR
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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
SUBCOMMITTEE MEETING ON FUTURE PLANT DESIGNS

July 6, 2016

Date

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	<u>NAME</u>	<u>AFFILIATION</u>
1	Lynne Goodman	DTE Energy
2	Donald Ferraro	Exelon Generation
3	Mary Kowalski	Exelon
4	Bob Varzel	EXELON
5	Peter Tansilano	Exelon
6	David Clohery	Exelon
7	Mark Miller	Exelon
8	JOHN J. KOWALSKI	EXELON
9	Paul Weyhmueller	EXXCOJ
10	William Tratten	Exelon
11	GUY FORD	Exelon
12	MARK ZICKERTSC	EXELON
13	GARY BECKWELL	EXELON
14	Andrew Schierer	Exelon
15	Ames Jordan	Exelon.
16	David Anthony	EXELON
17	Jereme Greenblatt	Exelon
18	Scott KAUFFMAN	EXELON
19	DEB SPAMER	EXELON
20	John Hufnagel	Exelon
21	MIKE GUTHRIE	EXELON
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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
635th FULL COMMITTEE MEETING
July 6-8, 2016

PLEASE PRINT

TODAY'S DATE: July 7, 2016

NAME

NRC ORGANIZATION

David Redland

KATE LENNING

Werner A. Sahlemay

Robert Taylor

JOSE BORRERO

Markus Panicker

Jeremy Dean

Paul Clifford

REED ANZALONE

Joshua S. Kizer

J. Lehning

H Scott

RES/DE

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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
635th FULL COMMITTEE MEETING

July 6-8, 2016

PLEASE PRINT

TODAY'S DATE: July 7, 2016

NAME

AFFILIATION

	<u>NAME</u>	<u>AFFILIATION</u>
1	Michael Shackling	WESTINGHOUSE
2	Jeffrey Kobelak	Westinghouse
3	KATS OHKAWA	WESTINGHOUSE
4	VESSELIN PALAZOV	ISL, Inc.
5	Thomas Rodach	RCS
6	Arny Colussy	Westinghouse
7	Ryan Lendrin	Westinghouse
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