



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

January 6, 2014

NOTE TO: FILE

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

The minutes of the subject meeting were certified on February 22, 2013 as the official record of the proceedings of that meeting.



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

February 25, 2013

MEMORANDUM TO: ACRS Members

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

SUBJECT: CERTIFICATION OF THE MEETING MINUTES FROM  
THE ADVISORY COMMITTEE ON REACTOR  
SAFEGUARDS 601<sup>st</sup> FULL COMMITTEE MEETING  
HELD ON FEBRUARY 7-8, 2013, IN ROCKVILLE, MARYLAND

The minutes of the subject meeting were certified on February 22, 2013 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**

February 22, 2013

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

FROM: J. Sam Armijo */RA/*  
ACRS Chairman

SUBJECT: MINUTES OF THE 601<sup>st</sup> MEETING OF THE ADVISORY  
COMMITTEE ON REACTOR SAFEGUARDS (ACRS),  
FEBRUARY 7-8, 2013

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	02/22/13	02/22/13

**OFFICIAL RECORD COPY**

# MINUTES OF THE 601<sup>st</sup> MEETING OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

## ROCKVILLE, MARYLAND

The 601<sup>st</sup> 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 February 7-8, 2013. A copy of the meeting agenda is attached.

The summary report ML13057A692 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](mailto: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. J. Sam Armijo (Chairman), Mr. John Stetkar (Vice-Chairman), Mr. Harold Ray (Member-at-Large), Dr. Sanjoy Banerjee, Dr. Dennis Bley, Mr. Charles Brown, Dr. Michael Corradini, Dr. Dana A. Powers, Dr. Joy Rempe, Dr. Michael Ryan, Dr. Stephen Schultz, Mr. Gordon Skillman, and Dr. William Shack.

#### ACRS Staff

E. Hackett  
C. Santos  
P. Wen  
C. Brown

A list of other attendees is attached.



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

**AGENDA  
601<sup>st</sup> ACRS MEETING  
February 7-8, 2013**

**THURSDAY, FEBRUARY 7, 2013, 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) (JSA/EMH)<br>1.1) Opening Statement<br>1.2) Items of Current Interest  |
| 2) 8:35 AM - 10:30 AM      | <u>Final Safety Evaluation Report Associated with the License<br/>Renewal Application for the Limerick Generating Station, Units 1<br/>and 2</u> (Open) (WJS/PW)<br>2.1) Remarks by the Subcommittee Chairman<br>2.2) Briefing by and discussions with representatives of the<br>NRC staff and Exelon Corporation regarding the final<br>safety evaluation report associated with the license<br>renewal application for the Limerick Generating Station,<br>Units 1 and 2. |
| <b>10:30 AM - 10:45 AM</b> | <b>*** BREAK ***</b>  |
| 3) 10:45 AM - 12:15 PM     | <u>Component Fabrication and Inspection of a Large Nuclear Steam<br/>Supply System</u> (Open) (JSA/CLB)<br>3.1) Remarks by the Subcommittee Chairman<br>3.2) Briefing by and discussions with representatives of the<br>NRC staff regarding the staff's approach for component<br>fabrication and inspection of a large Nuclear Steam Supply<br>System (NSSS).  |
| <b>12:15 PM - 1:15 PM</b>  | <b>*** LUNCH ***</b>  |

- 4) 1:15 PM - 3:15 PM      Revised Construction Reactor Oversight Process Assessment Program (Open) (GRS/GSS)
- 4.1)    Remarks by the Subcommittee Chairman
  - 4.2)    Briefing by and discussions with representatives of the NRC staff regarding the new Construction Reactor Oversight Process (cROP) pilot program plan applicable to oversight of new plants being constructed under the 10 CFR 50 process.

**3:15 PM - 3:30 PM      \*\*\* BREAK \*\*\***

- 5) 3:30 PM - 7:00 PM      Preparation of ACRS Reports (Open)
- 5.1)    Final Safety Evaluation Report Associated with the License Renewal Application for the Limerick Generating Station, Units 1 and 2 (WJS/PW)
  - 5.2)    Revised Construction Reactor Oversight Process Assessment Program (GRS/GSS)

**FRIDAY, FEBRUARY 8, 2013, CONFERENCE ROOM T-2B1, 11545 ROCKVILLE PIKE, ROCKVILLE, MD**

- 6) 8:30 AM - 8:35 AM      Opening Remarks by the ACRS Chairman (Open) (JSA/EMH)
- 6.1)    Opening Statement
  - 6.2)    Items of Current Interest
- 7) 8:35 AM - 10:00 AM      Future ACRS Activities/Report of the Planning and Procedures Subcommittee (Open/Closed) (JSA/EMH)
- 7.1)    Discussion of the recommendations of the Planning and Procedures Subcommittee regarding items proposed for consideration by the Full Committee during future ACRS meetings.
  - 7.2)    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.]**

8) 10:00 AM - 10:15 AM      Reconciliation of ACRS Comments and Recommendations  
(Open) (JSA/EMH/CS)  
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 \*\*\***

9) 10:30 AM - 12:00 PM      Preparation of ACRS Reports (Open)  
Continue discussion of the proposed ACRS reports listed under Item 5.

**12:00 PM - 1:00 PM      \*\*\* LUNCH \*\*\***

10) 1:00 PM - 7:00 PM      Preparation of ACRS Reports (Open)  
Continue discussion of the proposed ACRS reports listed under Item 5. There may be 15-minute breaks at some points during this activity.

**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**

February 28, 2013

The Honorable Allison M. Macfarlane  
Chairman  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

SUBJECT: SUMMARY REPORT - 601<sup>st</sup> MEETING OF THE ADVISORY COMMITTEE ON  
REACTOR SAFEGUARDS, FEBRUARY 7-8, 2013

Dear Chairman Macfarlane:

During its 601<sup>st</sup> meeting, February 7-8, 2013, the Advisory Committee on Reactor Safeguards (ACRS) discussed several matters and completed the following reports, letter, and memoranda:

**REPORTS**

Reports to Allison M. Macfarlane, Chairman, NRC, from J. Sam Armijo, Chairman, ACRS:

- Report on the Safety Aspects of the License Renewal Application for Limerick Generating Station, Units 1 and 2, dated February 14, 2013
- Construction Reactor Oversight Process (cROP) Program and the cROP Pilot Program Results, dated February 26, 2013

**LETTER**

Letter to R. W. Borchardt, Executive Director for Operations, NRC, from J. Sam Armijo, Chairman, ACRS:

- Draft NUREG-2125, "Spent Fuel Transportation Risk Assessment," dated February 14, 2013



## MEMORANDA

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

- Final Interim Staff Guidances 013 and 014, dated February 12, 2013
- Withdrawal of Regulatory Guide 4.4, dated February 12, 2013

## HIGHLIGHTS OF KEY ISSUES

### 1. Final Safety Evaluation Report Associated with the License Renewal Application for the Limerick Generating Station, Units 1 and 2

The Committee met with representatives of the NRC staff and the applicant, Exelon Generation Company, LLC to discuss the license renewal application for the Limerick Generating Station (LGS), Units 1 and 2 and the final Safety Evaluation Report (SER), dated January 2013, prepared by the NRC staff. The presentations of the applicant and the NRC staff centered on efforts to resolve two open items identified in the draft SER, dated July 2012. These open items were related to aging management of the suppression pool and the implementation schedule of operating experience for aging management programs. The NRC staff concluded that the applicant's aging management programs and commitments were adequate to close these open items. This is the first license renewal application that was prepared based on Revision 2 of the Generic Aging Lessons Learned Report. The applicant and the staff agree that the new guidance improved the efficiency of the review. Overall, the staff concluded that there are no issues related to the matters described in 10 CFR 54.29(a)(1) and (a)(2) that preclude renewal of the operating licenses for LGS.

### Committee Action

The Committee issued a report to the NRC Chairman on this matter, dated February 14, 2013, concluding that the programs established and committed to by the applicant to manage age-related degradation provide reasonable assurance that LGS Units 1 and 2 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. The Committee recommended that the Exelon Generation Company, LLC application for renewal of the operating licenses for LGS Units 1 and 2 be approved.

### 2. Component Fabrication and Inspection of Large Nuclear Steam Supply System Components

The Committee met with representatives of the staff to discuss the large component fabrication and vendor inspection program. The staff indicated that they conduct inspections to verify the effective implementation of vendor quality assurance programs in order to assure the quality of materials, equipment, and services supplied to the commercial nuclear industry. Fabricated

components that have been inspected by the staff include: reactor vessels; vessel heads; steam generators; passive residual heat removal exchangers; reactor vessel components; and squib valves. During the briefing, the staff discussed recent inspection findings and trends. Additionally, they discussed their interactions with industry, external stakeholders, and international organizations.

#### Committee Action

This was an information briefing. No Committee action was necessary.

### 3. Revised Construction Reactor Oversight Process Assessment Program

The Committee met with representatives of the NRC staff to review the new Construction Reactor Oversight Process (cROP) Program and the cROP Pilot Program Results. The NRC staff provided a summary of the cROP Program to the Committee. The staff also presented the results of the cROP Pilot Program conducted at Vogtle Electric Generating Plant, Units 3 and 4; and Virgil C. Summer, Units 2 and 3. The effectiveness of the cROP depends upon the effectiveness of each licensee's Corrective Action Program (CAP). Corrective Action Program inspections have been conducted at Vogtle and Summer. The findings at both sites were evaluated under the cROP significance determination process (SDP) to be of very low safety significance. The staff stated that based on the assessments to date, the CAPs at each site appear to be effective.

#### Committee Action

The Committee issued a report to the NRC Chairman on this matter, dated February 26, 2013. It concluded that the new cROP Pilot Program is a meaningful first step in assessing construction performance under Part 50 and Part 52 licenses, and that the objectives outlined in the Staff Requirements Memorandum (SRM) to SECY-10-0140, dated March 21, 2011, are being adequately addressed.

### 4. Final Interim Staff Guidances 013 and 014

The Committee considered the following final Interim Staff Guidance documents and decided not to review them.

- Interim Staff Guidance DC/COL/ISG-013, "Assessing the Radiological Consequences of Accidental Releases of Radioactive Materials from Liquid Waste Tanks for Combined License Applications"
- Interim Staff Guidance DC/COL/ISG-014, "Assessing the Radiological Consequences of Accidental Releases of Radioactive Materials from Liquid Waste Tanks in Ground and Surface Waters for Combined License Applications"

5. Withdrawal of Regulatory Guide 4.4

The Committee considered the staff's basis for withdrawing Regulatory Guide 4.4, "Reporting Procedure for Mathematical Models Selected to Predict Heated Effluent Dispersion in Natural Water Bodies," and decided not to review it. The Committee has no objection to the staff's proposal to withdraw this Regulatory Guide.

RECONCILIATION OF ACRS COMMENTS AND RECOMMENDATIONS

- The Committee considered the EDO's response of December 7, 2012, to comments and recommendations included in the November 13, 2012 ACRS report on SECY-12-0110, "Consideration of Economic Consequences within the U.S. Nuclear Regulatory Commission's Regulatory Framework." The Committee was not satisfied with the EDO's response because it did not address specific conclusions and recommendations made in the ACRS letter. The Committee will wait for Commission direction on SECY-12-0110 and will review and comment on specific staff products, as appropriate.
- The Committee considered the EDO's response of November 13, 2012, to comments and recommendations included in the October 16, 2012 ACRS report on SECY-12-0064, "Recommendations for Policy and Technical Direction to Revise Radiation Protection Regulations and Guidance." The Committee decided that it was satisfied with the EDO's response.
- The Committee considered the EDO's response of December 11, 2012, to comments and recommendations included in the November 8, 2012 ACRS letter on SECY-12-0157, "Consideration of Additional Requirements for Containment Venting Systems for Boiling Water Reactors with Mark I and Mark II Containment Designs." The Committee decided that it was satisfied with the EDO's response.
- The Committee considered the EDO's response of December 13, 2012, to comments and recommendations included in the November 7, 2012 ACRS letter on the Draft Interim Staff Guidance Documents in Support of Tier 1 Orders. The Committee decided that it was satisfied with the EDO's response.
- The Committee considered the EDO's response of December 7, 2012, to comments and recommendations included in the November 7, 2012 ACRS letter on the long-term core cooling approach for the South Texas Project Advanced Boiling Water Reactor combined license application. The Committee decided that it was satisfied with the EDO's response.
- The Committee considered the EDO's response of January 28, 2013, to comments and recommendations included in the December 19, 2012 ACRS letter on technical information needs affecting potential regulation of extended storage and transportation of spent nuclear fuel. The Committee decided that it was satisfied with the EDO's response.

SCHEDULED TOPIC FOR THE 602<sup>nd</sup> ACRS MEETING

The following topic is scheduled for the 602<sup>nd</sup> ACRS meeting, to be held on March 7, 2013:

- Draft Final Revision 1 to Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program"

Sincerely,

***/RA/***

J. Sam Armijo  
Chairman

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

601<sup>st</sup> Full Committee Meeting

February 7, 2013

Date

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	<u>NAME</u>	<u>NRC ORGANIZATION</u>
1	Marlayna Voreler	NRC/DCIP
2	Jim Frye	NRC/DCIP
3	Phil O'Bryan	NRC/DCIP
4	Jose G. Jimenez	NRC/DCIP
5	<del>CHAS EATLES</del>	<del>NRC</del>
6	<del>GARRETT SANDERS</del>	<del>SCANA</del>
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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

601<sup>st</sup> Full Committee Meeting

February 7, 2013

Date

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	<u>NAME</u>	<u>OUTSIDE ORGANIZATION</u>
1	CHRIS WILSON	EXELON
2	DAN DOEN	Exelon
3	Mary Kowalski	Exelon
4	DIL FUSKO	EXELON
5	Barry Gordon	Structural Integrity Associates
6	Gene Kelly	Exelon
7	Shannon Rafferty-Cancila	Exelon
8	Mark Miller	Exelon
9	Greg Sprisslen	Exelon
10	Dave Clohocy	Exelon
11	Ken Slough	Exelon
12	Bob Dickinson	Exelon
13	Wayne Chodmanski	Exelon
14	James Jordan	Exelon
15	BRANDON SHULTZ	EXELON
16	Mark Madaris	Underwater Constr. Corp.
17	Jon C. Hawkins	EXELON
18	Alex Palonsky	Morgan Lewis & Bockius LLP
19	MIKE GALLAHAN	Exelon
20	Christine Kinkaid	Exelon
21	Christina Pratt	Exelon
22	Chris Murrice	EXELON
23	DEB SPAMER	EXELON
24	BRIAN TRACY	EXELON
25	Michelle Karasek	Exelon
26	Michael Guthrie	EXELON
27	Michelle Yun	Exelon
28	Don Ferraro	Exelon

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

601<sup>st</sup> Full Committee Meeting

February 7, 2013

Date

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	<u>NAME</u>	<u>OUTSIDE ORGANIZATION</u>
1	<del>Martina Vander</del>	
2	HOWARD MAHAN	Southern Company
3	GARRETT SANDERS	SCANA
4	CHARLIE EMMIS	NEI
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