

***IEEE SUBCOMMITTEE ON QUALIFICATION  
IEEE/NPEC/SC-2 Meeting 08-02  
Minutes of Meeting SC2-08-2  
Marriott Tucson***

***November 11-12, 2008***

Members Attending: [See Table 2](#)

Members Absent: [See Table 2](#)

Table 1 Guests:

Melanie Brown	Southern Company
Jake Chilek	Rotork Controls, Inc
Jonathan Cornelius	Raychem GmbH
Milton Concepcion	Nuclear Regulatory Commission
Robert Enis	TVA
Sean Foley	AFL Telecommunications
Toshihiko Fukuyama	JAPEIC
Monica B. Jansen Ferreiro	Electronuclear Angra
Christopher Gleason	GEH
Kazushige Gotoh	Mitsubishi Heavy Industries ltd
Hideki Hanami	Hitachi, Ltd.
Charles Hills	General Cable
Mattias Hansson	Forsmark
Ken Kettle	Ontario Power Generation
Frank Kloer	Invensys Triconex
Robert Konnik	RSCC Group
Jeffery Loprete	ASCo Valve
Bob Minadeo	Areva
Kazufuiu Nagashima	Kansai Electric Power Co. Inc
Marie Nemier	Curtiss-Wright
Arnold Offner	Phoenix Contact
Nitin Patel	NRC
Chris Pegge	Stran Technologies
Kenneth Skoglund	Ringhals
Rick Pierce	Rosemount Nuclear
Sven-Olef Palm	Forsmark
Jasmina Vucetic	Canadian Nuclear Safety Commission
Paul Waterloo	Applied Energy Services
Larry Witt	Weed Instrument

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Dennis Wong  
Jackie Wright

Rosemount Nuclear  
Enercon

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## **1.0 Call to Order**

The SC-2 Chairman, Nissen Burstein, opened the meeting on Tuesday November 11, 2008 at 8:00 am and welcomed everyone in attendance. This meeting was scheduled for 1 ½ days and concluding Wednesday November 12, 2008. A role call was taken and it was determined that a quorum was available, with 33 of 44 SC-2 members present.

Jim Parello, Vice Chairman, discussed the IEEE-SA Standards Board Bylaws on Patents in Standards and the Inappropriate Topics for IEEE WG Meetings (Attachment 1).

## **2.0 Introduction of Members and Guests**

Open introduction

## **3.0 General Remarks, Review and Approval of Agenda**

The meeting agenda (Attachment 2) was reviewed and no changes were requested. A motion was made by James Dean to approve the meeting agenda. Robert Queenan seconded the motion and the SC-2 members approved the agenda unanimously.

The Chairman announced that the nominating committee had nominated the following for officers of SC-2 for 2009-2010: James Parello, Chairman; James Gleason, Vice Chairman; John White: Secretary. A motion was made by Tom Hency to accept the nominating committee recommendations, Suresh Channarasappa seconded the motion and the motion was unanimously accepted.

New plant design presentations will be given at each meeting to keep membership informed.

NPEC 09-01 will be Wednesday, January 28, 2009 at Hilton Hotel in Cocoa Beach, FL; NPEC 09-02 meeting will be held in Salt Lake City, UT on July 22, 2009.

The new NPEC officers were shown in Attachment 3.

The Chairman identified that appointments to SC-2 and Working Groups have changed to last only one year. (Previous appointment and reappointment to SC-2 were on a bi-annual basis). Membership will be renewed at the beginning of the fiscal year. If a member wishes to not continue his/her membership then the member is requested to inform the SC-2 Chair, SC-2 Secretary, and associated Working Group. Recommendations are solicited for SC membership for 2009 from individual WGs.

Members are encouraged to bring guests to attend SC-2 and Working Group meetings to promote a better understand of the SC-2 organizations. All SC-2 members are encouraged to become a member of a Working Group. Membership to SC-2 is a reward for accomplishments on working groups. Recommendation to be elevated to NPEC and above is based on a person's accomplishments and participation.

The bylaws require attendance of at least one meeting per year.

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No voting proxies are allowed for SC-2 members. Members are allowed to have an alternate at the SC-2 meetings provided the alternate is not an SC-2 committee member. Membership can only have one vote. Therefore, proxies will no longer be allowed for voting or meeting attendance requirements.

Working Groups are allowed to have less than ten members. The ten member minimum requirement previously identified only applies to the sponsoring committee (such as NPEC) in order for them to conduct business, and does not apply to the SCs.

### **4.0 Review and Approval of Meeting Minutes (08-1)**

The minutes of the previous SC-2 meeting 08-1 were discussed and no changes were made. Ames Dean made motion to approve the minutes, which was seconded by Robert Queenan and the minutes were approved unanimously.

### **5.0 SC-2 Chairman's Report**

The Chairman discussed the alligator fund and stated that after Meeting 08-01, the balance was \$256.24.

A contribution of \$50 was requested from each of the members for this meeting to cover the meeting room costs. Of the 33 members physically present at the meeting, 33 contributed the requested \$50. The Chairman, SC-2, holds these funds. SC-2 does not plan to complete the IEEE income report, because the SC has no reportable income.

The Chairman identified the SC-2 Liaisons:

- A. ASME, Glen Schinzel
- B. EPRI, Chris Abernathy
- C. IEC, Jim Gleason
- D. ISA, Bob Queenan
- E. NEI, Gordon Clefton
- F. NRC, Tom Koshy
- G. ASME NQA-1, Nissen Burstein

### **5.1 Vice Chairman's Report**

New IEEE Styling Manual 2007 has been issued. Working Groups with near term document revisions are requested to perform a review of the manual for updates, which may impact their document.

### **6.0 SC-2 Secretary's Report**

The Secretary reviewed the SC-2 List of Action Items. See Section 10.

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## **7.0 Discussions and Updates**

### **7.1 Update on NPEC Activities**

The SC-2 Chairman provided an update on NPEC activities. SC-2 members were all encouraged to become involved and with one of the ten active SC-2 WGs. Active membership is necessary to be considered for membership at the NPEC level.

### **7.2 Development of Joint IEEE/IEC Standards.**

IEC has initiated a work project for revision of IEC 60780. Richard Wood has been selected to lead the revision to IEC 60780. They have asked for IEEE to open a PAR to harmonize with IEEE 323. SC 2.1 Chair (Jim Gleason) will work with IEEE to investigate how to proceed and if necessary, will proceed to open a PAR.

Kjell Späng has commenced IEC Project 62582 for condition monitoring, which is a new topic for which neither IEEE nor IEC standards exist. This is the first joint project for IEC and IEEE. SC 2.1 has agreed to participate. Kjell has authority from IEC and has commenced work. See Attachment 8.

Jim Gleason will proceed to open a PAR.

The CM International Standard specifies standard methods for condition monitoring of electrical equipment of safety system for nuclear power plants. It includes monitoring methods using mechanical, dielectric and chemical condition indicators. The methods specified in this standard are applicable to electrical equipment containing polymeric and organic materials. It is proposed that this standard will address the most commonly used condition monitoring methods (mechanical, dielectric and chemical indicators) and performance measurements to insure accuracy and repeatability of results. The document will contain a general section to be applicable to all methods and a separate part for each condition monitoring indicator. The three condition monitoring indicators being considered at this time are:

- 1) Indenter modulus
- 2) Elongation at break, and
- 3) Oxidation Induction Temperature (OIT).

An aggressive schedule has been developed, which includes 2008 and 2009 meetings of the joint IEC-IEEE technical experts to review drafts of the elements for Indenter modulus, Elongation at break, and Oxidation Induction Temperature and completion in April 2009.

SC 2.1 Chair (Jim Gleason) is one of technical expert from the US, which will work on the development of the joint IEEE/IEC condition monitoring standard. Jim will be the formal IEEE NPEC interface for this program. See Attachment 8.

### **7.3 Westinghouse AP1000 EQ Program**

Jim Parello noted that AP1000 has submitted a DCD change and has provided NRC with information on the Seismic High Frequency issue. NRC has recently performed a review at W on valve and actuator qualification. W is expanding at the Cranberry site, and will be expanding in San Jose and Charlotte in 2009. COL's have been submitted to NRC for TVA's Bellefonte site near Scottsboro in Jackson County,

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Alabama; Progress Energy's Harris sites near New Hill in Wake County, North Carolina; SCE&G sites near Fairfield County, South Carolina; Southern Nuclear Operating Company 's Vogtle Site near Augusta in Burke County, Georgia; and Duke Energy's Lee site near Charlotte in Cherokee County, South Carolina.

#### **7.4 GEH ABWR and ESBWR EQ Programs**

Ed Mohtashemi and Jim Gleason presented the GEH ABWR and ESBWR EQ Program updates. ESBWR submitted DCD Revision 5. Ed Mohtashemi noted that the GEH ABWR project office is open in San Jose, California.

#### **7.5 Areva US EPR EQ Program**

Nissen Burstein presented an update on the Areva US EPR EQ Program. UniStar Nuclear and Constellation COL has been submitted to NRC for AREVA U.S. Evolutionary Power Reactor (EPR) for the Calvert Cliffs Nuclear Power Plant Unit 3. See Attachment 6.

#### **8.0 NRC Liaison Report**

Tom Koshy presented the NRC report. See Attachment 4. Some highlights are:

- Westinghouse submits final amendment to AP1000 design
- NRC Expands Rules On Reactor Safeguards Against Plane Attacks
- BWR Owners Group announces plan to assess, remedy strainer issues
- TVA asks NRC to reinstate Bellefonte-1 and -2 construction permits
- Construction Experience With Concrete Placement IN2008-17
- A status of Regulatory Guide 1.89 was provided. The contractor is finishing work on the alternate source term. A new draft is expected in 5 to 8 months.
- MOC Regulatory Guide in still in house.
- Regulatory Guide 1.40 on motors is still in house.
- No action on a Regulatory Guide on connectors

#### **Regulatory Guides Out For Comment**

Task Number	Title	Publish Date
DG-1132 (ML071440445)	Qualification of Safety-Related Cables and Field Splices for Nuclear Power Plants	06/2007
DG-1138	(Proposed Appendix C to Regulatory Guide 1.200) NRC Staff Regulatory Position on ANS External Hazards PRA Standard (ML042430314)	09/2004
DG-1149 (ML072760149)	Qualification of Safety-Related Motor Control Centers for Nuclear Power Plants	07/2008
DG-1175	Seismic Qualification of Electric and Active Mechanical Equipment and Functional Qualification of Active Mechanical Equipment for Nuclear Power Plants (ML072620346)	05/2008
DG-1183	Sizing of Large Lead-Acid Storage Batteries (ML080650493)	07/2008
DG-1186	Measuring, Evaluating, and Reporting Radioactive Materials in Liquid and Gaseous Effluents and Solid Wastes (ML080660617)	10/2008
DG-1195	Availability of Electric Power Sources (ML080570075)	05/2008

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DG-1198 Physical Models for Design and Operation of Hydraulic Structures and Systems for Nuclear Power Plants (ML081080301) 07/2008

DG-1200 An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities (ML081200566) 06/2008

DG-1205 Bypassed and Inoperable Status Indication for Nuclear Power Plant Safety Systems (ML082140114)

Tom Koshy also discussed Invitation to Participate in International Cable Database For Aging Management, Attachment 5.

## **9.0 Working Group Reports**

### **9.1 IEEE Standard 323 (SC-2.1 - WG on Environmental Qualification)**

Jim Gleason stated that reaffirmation was completed for IEEE Std 323, and thanked all for their participation. Jim presented an update on battery qualification and how the new plant requirements affect qualification. IEEE Std 535 is the battery standard and is the responsibility of the Stationary Battery Committee. Jim will be liaison to SBC. See Attachment 11.

There has also been significant interaction with IEEE Std 7-4.3.2 Computers, as issues were discussed about confusion between qualification and dedication. It was emphasized that dedication is a supplement for QA programs that do not meet Appendix B. Dedication does not change qualification. This was missed in the current revision of 7-4.3.2-2003, which confuses qualification and dedication. SC-2 has to review all standards to ensure resolution of conflicts, such as those that arose in 7-4.3.2. SC 2.1 invited its member, Milton Concepcion, NRC, to present additional information on dedication and qualification. SC 2.1 and NRC are in agreement that dedication supplements lacking QA programs and does not change or supplement any EQ requirements. The phrase that one can qualify or dedicate an item is completely wrong.

Equipment that requires qualification has to meet IEEE Std 323.

### **9.2 IEEE Standard 334 (SC-2.2 - WG on Motors)**

Co-chairman James Dean reported that IEEE Std 334 has been issued and they were planning the next changes.

### **9.3 IEEE Standard 382 (SC 2.3 - WG on Valve Operators)**

Ed Mohtashemi is the chairman and IEEE Std 382 has been issued in 2007. They are looking for new members.

### **9.4 IEEE Standard 383 (SC 2.4 - WG on Cables)**

John White noted that IEEE Std 383 reaffirmation has been accomplished in 2008. There are discussions with NRC on CM for risk significant cables as there is ACRS and NRC staff disagreement. The new cable RG is going to be 1.211.



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**9.5 IEEE Standard 344 (SC 2.5 - WG on Seismic Qualification)**

Jim Parelo, the WG Chairman, informed SC-2 that, there would be a meeting with NRC in December to further discuss comments to DG-1175. See Attachment 12.

**9.6 IEEE Standard P627 (SC 2.10 - WG on Design Qual)**

There was no report, but ballot is expected by end of 2008.

**9.7 IEEE Standard 572 (SC 2.11 - WG on Connectors)**

There was no report. IEEE 572 was published in 2006.

**9.8 IEEE Standard 650 (SC 2.13 - WG on Battery Chargers)**

Dennis Dellinger, the WG Chairman, reported that the revised standard was published in 2006.

**9.9 IEEE Standard 649 (SC 2.14 - WG on Motor Control Centers)**

Robert Francis said that the standard was published in 2006.

**9.10 IEEE Standard P-1682 (SC 2.15 - WG on Fiber Optic Cable)**

The Chairman of the WG, Jan Pirrong, said that progress is being made and a full draft is expected for SC-2 09-1.

**9.11 IEEE Standard C37.98 (SC 2.15 - WG on Relays)**

The Chairman of the WG, Marie Nemier provided an update, Attachment 13.

**9.11 ASME Liaison Report**

Glen Schnitzel discussed the ASME Liaison Report, Attachment 12.

Glen suggested the following areas of potential interest:

- Risk managed Technical Specification
- Risk informed surveillance test intervals

**9.12 NEI Liaison Report**

NEI was not present.

**10.0 Action Item Status**

Action items from previous SC-2 meetings were reviewed at this meeting. Table 3 provides a listing and the status of action items from past meetings, along with new action items identified at this meeting.

**Table 3 - List of Action Items**

Item No.	Description	Responsible	Status
<i>Action Items from Meeting 07-2</i>			
AI-07-2-2	A PAR extension is being considered for P1682 (Fiber Optic Cables, Connectors, Splices).	Jan Pirrong	Open
AI-07-2-3	Invite local IEEE chapter of the town in which we are meeting to an evening speech at the next meeting.	Nissen Burstein	Closed
AI—07-2-5	Check situation regarding joint logos and report back to SC and NPEC.	Nissen Burstein	Open
AI-07-2-6	Verify ballot process w/NPEC, particularly regarding P-627 and P-1682	Nissen Burstein	Open
<i>Action Items from Meeting 08-1</i>			
AI-08-01	Review P627 by 4-23-08 and send comments to Dave Horvath	All	Closed
AI-08-02	Preview P1682 at SC-2 08-02	Jan Pirrong	Open
AI-08-03	Prepare revision to SC-2 O&P manual	SC-2 Vice-Chairman	Open
<i>Action Items from Meeting 08-2</i>			
AI-08-03	Evaluate CM for Joint IEC/IEEE and Prepare PAR	Jim Gleason	Open
AI-08-03	Evaluate EQ for Joint IEC/IEEE and Prepare PAR	Jim Gleason	Open

**11. New Items and Presentations**

**11.1 Commercial Grade Dedication and NQA-1**

Milton Concepcion, NRC, Quality and Vendor Inspection Branch, made this presentation. The NRC staff had identified issues during a side-by-side evaluation of the 1994 and 2004 editions of the NQA-1 standards. Two outstanding issues that needed resolution:

- Commercial-Grade Dedication (Requirement VII of NQA-1). Commercial-Grade Dedication Process Changes: From a regulatory perspective.....NONE!!!!
  - Inspection Procedure 43004, “Inspection of Commercial-Grade Dedication Programs,” published in October 2007.
  - Procedure combined guidance contained in EPRI-5652, GL 89-02, GL-91-05, IP 38703, and related guidance.
- Software Verification & Validation (V&V) (Subpart 2.7). Software V&V issues involved lack of consistency with existing regulatory guidance (e.g., RG 1.152 and RG 1.168).

Dedication supplements QA programs not meeting NQA-1 and Appendix B. Dedication is different from qualification. Qualification requirements are not changed by dedication. See Attachment 6.

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## **11.2 Japanese Electric Utilities' Action to Meet Environmental Qualification (EQ)**

Kazushige Gotoh, MHI made this presentation. This project focus is on qualification of cables and addressing cable life. See Attachment 6.

## **11.3 "Din-Rail in the Electrical Control Cabinet and Junction Box"**

Arnold Offner, Phoenix Contact Inc., presented "Din-Rail in the Electrical Control Cabinet and Junction Box." Mr. Offner described the history and use of the electrical device assembly rail, better known in the electrical industry as DIN-Rail. See Attachment 10.

## **12.0 Next Meeting**

The SC-2 Meeting 09-1, April 6-8, 2009, Knoxville, TN, in conjunction with the ANS I&C Meeting. Monday, April 6th is set aside for SC-2 Working Groups and ADCOM meetings. The SC-2 (09-1) meetings will be Tuesday, April 7th (8:00 AM to 5:00 PM) and April 8th (8:00 AM to Noon). For the SC-2 (09-1) meeting, the theme of presentations will be cabling/connector.

IEEE/NPEC/SC-2 Meeting 09 -2, November 2009, Florida in conjunction with the EQ Technical Meeting.

## **12.1 Future Issues**

Does the group want to suggest to NPEC that software V&V guidance needs to be provided for imbedded software?

## **13.0 Adjournment**

At approximately 12 PM on November 12, 2008 a motion was made to adjourn and meeting SC2-08-02 was adjourned.

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Minutes Prepared by:  
James Gleason  
Secretary, IEEE/SC-2

Attachments: All attachments can be found at the IEEE.org Working Group web site [NPEC Subcommittee and Working Group Areas](#).

## **14.0 Attachment List**

Attachment 1	IEEE-SA Standards Board Bylaws on Patents in Standards and the Inappropriate Topics for IEEE WG Meetings
Attachment 2	SC-2- Agenda 08-02
Attachment 3	NPEC Officers 2009/10

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Attachment 4	T. Koshy, NRC Liaison Report
Attachment 5	T. Koshy, Invitation To Participate in International Cable Database For Aging Management
Attachment 6	N. Burstein, US EPR EQ Program Update
Attachment 7	M. Concepcion, Commercial Grade Dedication and NQA-1
Attachment 8	Kjell Spång, IEC Project 62582
Attachment 9	Arnold Offner, Din-Rail in the Electrical Control Cabinet and Junction Box
Attachment 10	Kazushige Gotoh, Japanese Electric Utilities' Action to Meet Environmental Qualification (EQ) Requirements for Electric and I&C Equipment Including Cables according to Latest Knowledge
Attachment 11	J. Gleason, IEEE Std 535 and Safety-Related Batteries 101
Attachment 12	Glen Schinzel ASME Liaison Report

**15.0 Table 2. SC-2 Member Attendee List 2008-02**

	Name/Company	Address	11/1 1	11/1 2
1	Abernathy, Chris Duke Energy Co. Tel: 704-875-4486 Email: <a href="mailto:cdabernathy@duke-energy.com">cdabernathy@duke-energy.com</a>	McGuire Nuclear Station M/C: MG05EE 12700 Hagers Ferry RD Hntersville, NC 28078	X	X
2	Akhtar, Saleem KCI Consultants Tel : 630-515-2650 x 20 Fax : 630-515-2654 Email: s.akhtar@comcast.net <a href="mailto:saleemakhtar@kciconsultants.com">saleemakhtar@kciconsultants.com</a>	1401 Branding Lane Suite 255 Downers Grove, IL 60515	X	X
3	Benson, D. Steven RCM Technologies, Engr Services Tel : 289-290-3647 Fax : 905-821-1613 Email: <a href="mailto:steve.benson@rcmt.com">steve.benson@rcmt.com</a>	6620 Kitimat Road, Unit 4 Mississauga, Ontario L5N 2B8 Canada	X	X
4	Brewington, T. (Tom) Wyle Laboratories Tel. (256) 716-4512 Fax (256) 837-3363 Email: <a href="mailto:tom.brewington@wyle.com">tom.brewington@wyle.com</a>	7800 Highway 20 West Huntsville, AL 35806	X	X
5	Burstein, N. M. (Nissen) – Chairman SC-2 AREVA NP, Inc. Tel. (434) 832-2501 Fax (434) 832-2683 Email: <a href="mailto:nmb@icee.org">nmb@icee.org</a>	3315 Old Forest Rd. M/C OF54 Lynchburg, VA 24506-0935	X	X
6	Casadevall, S. (Steve) ASCO Valve Inc. Tel. (973) 966-2512 Fax (973) 966-2624 Email: <a href="mailto:scasadevall@asco.com">scasadevall@asco.com</a>	50 Hanour Road Florham Park, NJ 07932	X	X
7	Channarasappa, S. (Suresh) Westinghouse Electric Co. Tel. (724)-733-6587 Email: <a href="mailto:channas@westinghouse.com">channas@westinghouse.com</a>	1760 Golden Mile Hwy. Monroeville, PA 15746	X	X

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	Name/Company	Address	11/1 1	11/1 2
8	Chung, Choon-Hoon KOPEC Tel. 82-31-289-3843 Fax 82-31-289-4272 Email: <a href="mailto:chchung@kopec.co.kr">chchung@kopec.co.kr</a>	Electrical Department, 360-9 Mabuk-ri Guseong-eup Yonginsi, Gyeonggi-do, 449- 713, Republic of Kor		
9	Dean, J. M. (James) SC 2.2 - 334 (co w/Newell) Applied Energy Services, Inc. Tel. (203) 888-1536 Fax (203) 888-1538 Email: <a href="mailto:jamesdean@aesnuclear.com">jamesdean@aesnuclear.com</a>	66 Chestnut Tree Hill Rd Oxford, CT 06478	X	X
1 0	Dellinger, D. E. (Dennis) SC 2.13 - 650 Solidstate Controls, Inc. Tel. (614) 846-7500 Fax (614) 885-3990 Email: <a href="mailto:dennis.dellinger@Ametek.com">dennis.dellinger@Ametek.com</a>	875 Dearborn Drive Columbus, OH 43085	X	X
1 1	Dougherty, M. (Mike) Rosemount Nuclear Emerson Process Tel: 208-865-1112 Fax: 208-865-1115 Email: <a href="mailto:mike.dougherty@emersonprocess.com">mike.dougherty@emersonprocess.com</a>	502 Fourth of July Creek Rd North Fork, ID 83466	X	X
1 2	Drumm, F. (Frank) Tyco Electronics Tel. +49-89-6089-567 Fax +49-89-6089-445 Email: <a href="mailto:fdrumm@tycoelectronics.com">fdrumm@tycoelectronics.com</a>	Tyco Electronics Raychem GmbH Finsinger Feld 1 85521 Ottobrunn, Germany	X	X
1 3	Emerson, Walter Shaw Stone & Webster Tel. (617) 589-2686 Fax (617) 589-5501 Email: <a href="mailto:walter.emerson@shawgrp.com">walter.emerson@shawgrp.com</a>	100 Technology Center Dr Stoughton, MA 02072		
1 4	Fargo, W. D. (Wells) Southern California Edison Co. Tel. (949) 368-9552 Fax (949) 368-9552 Email: <a href="mailto:wells.fargo@sce.com">wells.fargo@sce.com</a>	3214 Legendario San Clemente, CA 92673- 3811	X	X

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	Name/Company	Address	11/1 1	11/1 2
1 5	Faya, A. J. (Artur) Canadian Nuclear Safety Commission Tel. (613) 996-0023 Fax (613) 943-1292 Email: <a href="mailto:artur.faya@cnsccsn.gc.ca">artur.faya@cnsccsn.gc.ca</a>	280 Slater Road Ottawa, Ontario K1C 5S9 Canada		
1 6	Francis, R. L. (Robert) SC 2.14 - 649 Wyle Laboratories Tel. (256) 716-4315 Fax (256) 837-3363 Email: <a href="mailto:robert.francis@wyle.com">robert.francis@wyle.com</a>	7800 Highway 20 West Huntsville, AL 35806	X	X
1 7	Gleason, J. (Jim) SC 2.1-323/Sec'y SC-2 General Electric Hitachi Nuclear energy Tel. (910) 819-4786 Fax NA Email: <a href="mailto:james.gleason@ge.com">james.gleason@ge.com</a>	3901 Castle Hayne Rd, Wilmington, NC 28401	X	
1 8	Gove, P. (Patrick) Black & Veatch Tel. (913) 458-7834 Fax. (913) 458-2491 Email: <a href="mailto:Govepa@bv.com">Govepa@bv.com</a>	11401 Lamar Overland Park, KS 66213	X	X
1 9	Hadovski, W. L. (William) SC 2.11 - 572 Westinghouse Electric Co. Tel. (860) 731-6258 Fax (860) 731-6256 Email: <a href="mailto:william.l.hadovski@us.westinghouse.com">william.l.hadovski@us.westinghouse.com</a>	2000 Day Hill Road Windsor, CT 06095		
2 0	Hencey III, T. (Tom) Scientech, division of Curtiss-Wright Tel. (727) 669-3047 Fax (727) 669-3100 Email: <a href="mailto:thencey@curtisswright.com">thencey@curtisswright.com</a>	1393 Indian Trail N. Palm Harbor, FL 34683	X	X
2 1	Hopp, Dirk C. Areva NP NLEC-G Tel. 49-9131-900-2766  Email: <a href="mailto:dirk.hopp@areva.com">dirk.hopp@areva.com</a>	Paul-Gossen-SHA00 Erlangen, 91052 Germany	X	X
2	Horvath, D. (Dave) SC 2.10 – P627	P.O. Box 555		

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	Name/Company	Address	11/1 1	11/1 2
2	Advent Engineering Tel. (734) 930-7500 Fax (734) 327-7501 Email: <a href="mailto:dah@adventengineering.com">dah@adventengineering.com</a>	24 Frank Lloyd Wright Blvd., Lobby C Ann Arbor, MI 48106		
2 3	Krause, Serena Trentec, Division Curtiss-Wright Tel. (513) 528-7900 x 121 Fax (513) 528-9292 Email: <a href="mailto:skrause@curtisswright.com">skrause@curtisswright.com</a>	4600 East Tech Drive Cincinnati, OH 45245	X	X
2 4	Koshy, Thomas U.S. Nuclear Regulatory Commission Tel. 301-415-5828 Fax: 301-415-5074 Email: <a href="mailto:Thomas.koshy@nrc.gov">Thomas.koshy@nrc.gov</a>	USNRC Office of Research MS T-10M05 Washington, DC 20555	X	X
2 5	Lory, B. M. (Bruce) Stevenson & Associates Tel (847) 795-0500	4350 DiPaolo Center Suite H Glenview, IL 60025	X	X
2 6	Mohiuddin, A. (Asif) Sargent & Lundy Tel. (312) 269-2752 Fax (312) 269-7041 Email: <a href="mailto:asif.mohiuddin@sargentlundy.com">asif.mohiuddin@sargentlundy.com</a>	55E. Monroe 23C41 Chicago, IL 60603	X	X
2 7	Mohtashemi, E. (Edward) GE Nuclear Energy Tel. (408) 925-1844  Email: <a href="mailto:edward.mohtashemi@ge.com">edward.mohtashemi@ge.com</a>	175 Curter Avenue M/C 788 San Jose, CA 95125	X	X
2 8	Mohr, Charles (Chuck) Enercon Tel. (678) 354-8354 Fax: Email: <a href="mailto:cmohr@enercon.com">cmohr@enercon.com</a>	1345 Ridgeland Pkwy Suite 130 Alpharetta, GA 30004		
2 9	Newell, W. (Bill) SC 2.2 – 334 (co w/Dean) Electric Motor & Contracting Tel. (757) 487-2121 Fax (757) 487-5983 Email: <a href="mailto:wnewell@att.net">wnewell@att.net</a>	3703 Cook Blvd. Chesapeake, VA 23323		



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	Name/Company	Address	11/1 1	11/1 2
3 0	Parello, J. (James) SC 2.5 – 344/Vice-Chair SC-2 Westinghouse Electric Co., LLC Tel. (724) 722-5545 Fax (724) 722-5497 Email: <a href="mailto:parellj@westinghouse.com">parellj@westinghouse.com</a>	1000 Westinghouse Drive New Stanton, PA 15672- 9606	X	X
3 1	Pavsek, J. (Janez) Siemens Slovenija, I&S Tel. 044-39-746-221 Fax 044-1-474-6106 Email: <a href="mailto:janez.pavsek@siemens.com">janez.pavsek@siemens.com</a>	Bratislavaska 5 S1-1000 Ljubijana, Slovenia		
3 2	Pirrong, Jan S. SC 2.15 – P 1682 CableLAN Tel. (617)-803-0489 Fax (508)- 384-7811 Email: <a href="mailto:jpirrong@cablean.com">jpirrong@cablean.com</a>	8 Sherwood Drive PO Box 196 Norfolk, MA	X	
3 3	Queenan, Robert Scientech Tel. (208) 524-9311 Fax (208) 524-9238 Email: <a href="mailto:rqueenan@curtisswright.com">rqueenan@curtisswright.com</a>	200 S Woodruff Ave Idaho Falls, ID 83401	X	X
3 4	Roy, F. (Fred) Parker Hannifin Corporation Tel. 256-885-3811  Email: fred.roy@parker.com	Instrumentation Products Division 1005 A Cleaner Way Huntsville, AL 35805		
3 5	Sandberg, S. (Steve) Rockbestos-Surprenant W&C Tel. (860) 653-8360 Fax (860) 653-8412 Email: <a href="mailto:steve.sandberg@r-scc.com">steve.sandberg@r-scc.com</a>	20 Bradley Park Road East Granby, CT 06026	X	X
3 6	Schinzel, G. E. (Glen) South Texas Project Tel. (361) 972-7854 Fax (361) 972-7073 Email: <a href="mailto:geschinzel@stpegs.com">geschinzel@stpegs.com</a>	P.O. Box289 Wadsworth TX 77483	X	X

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3 7	Spång, K. (Kjell) KS Miltek Tel. +46-31-298573 Fax +46-31-694594 Email: <a href="mailto:kjell.spang@swipnet.se">kjell.spang@swipnet.se</a>	Strandskarsvagen 9 SE-42658 Vastra Frolunda, Sweden	X	X
3 8	Tengler, M. (Marek) Stevenson & Associates Tel.+420 377-350 233 Fax +420 377-350 230 Email: <a href="mailto:tengler@stevenson.cz">tengler@stevenson.cz</a>	VEJPRNICKA 56 Pilsen 34800	X	X
3 9	Van Uffelen, M. (Marco) Tel. +32 14-33-2638 Fax +32-14-31-1993 Email: <a href="mailto:mvuffele@sckcen.be">mvuffele@sckcen.be</a>	Boertang 200 ANS-ARI Building BR3 B-2400, Mol, Belgium	X	X
4 0	Weber, C. E. (Carl) Pacific Gas & Electric Co. Tel. (805) 545-4084 Fax (805) 545-6928 Email: <a href="mailto:cew2@pge.com">cew2@pge.com</a>	Diablo Canyon Power Plant P.O. Box 56 Avila Beach, CA 93424	X	X
4 1	Wheless, J. (John) Southern Nuclear Operating Company Tel. (205) 992-6898 Fax (205) 992-0391 Email: <a href="mailto:jmwheles@southernco.com">jmwheles@southernco.com</a>	40 Inverness Center Pkwy. Bin BO57 Birmingham, AL 35242		
4 2	White, J. (John) SC 2.4 - 383 TXU, CPSES Tel. 254-897-6674 Fax 254-897-0530 Email: <a href="mailto:j.l.white@ieee.org">j.l.white@ieee.org</a>	PO box 1002 Glen Rose, TX 76043	X	X
4 3	Wood, R. T. (Richard) Oak Ridge National Laboratory Tel. (865) 574-5578 Fax (865) 576-8380 Email: <a href="mailto:woodrt@ornl.gov">woodrt@ornl.gov</a>	Bethel Valley Road P.O. Box 2008 Bldg. 3500, MS 6010 Oak Ridge, TN 37831-6010		
4 4	Yamamoto, T. (Toshio) JNES Tel. +81-3-4511-1743	Business Court Shin-3-17-1 Toranomom, Minato-ku, Tokyo, 105-001 Japan	X	X

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	Fax +81-3-4511-1897 Email: <a href="mailto:yamamoto-toshio@jnes.go.jp">yamamoto-toshio@jnes.go.jp</a>			

X = Attended