

**IEEE SUBCOMMITTEE ON QUALIFICATION**  
**IEEE/NPEC/SC-2 Meeting 07-02**  
**Minutes of Meeting SC2-07-2**  
**Sheraton Sand Key Resort**  
**1160 Gulf Blvd**  
**Clearwater Beach, FL 33767**  
**Ph: 727-595-1611**  
**November 5-6, 2007**

Members Attending: [See Table 2](#)

Members Absent: [See Table 2](#)

Table 1 Guests:	Ed Bradley	TVA
	Jonathan Cornelius	Raychem GmbH
	Milton Concepcion	Nuclear Regulatory Commission
	Sean Foley	Afc Telecommunications
	Toshihiko Fukuyama	JAPEIC
	Hamid Heidarisaifa	AEP
	Charles Hills	General Cable
	Kevin Iepson	ICE
	Frank Kloer	Invensys Triconex
	Nitin Patel	Nuclear Regulatory Commission
	Rebecca Steinman	Advent Engineering Services
	Bob Minadeo	Areva
	Darren Martin	Vibration Research Corp
	Dan Masakowski	Rockbestos Surprenant
	Sven-Olof Palm	Forsmark
	Jon Pirrong	CableLan
	Janez Pozar	Krisko
	Chris Pegge	Stran Technologies
	Michael Schaepkens	Rosemount Nuclear
	Larry Witt	Weed Instrument

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## **1.0 Call to Order**

The SC-2 Chairman, Nissen Burstein, opened the meeting on Monday November 5, 2007 at 1:00 pm and welcomed everyone in attendance. This meeting was scheduled for 1 ½ days and concluding Tuesday November 6, 2007. A role call was taken and it was determined that a quorum was available, with 47 of 51 SC-2 members present, or represented by proxy.

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

Open introduction

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

The meeting agenda (Attachment 1) was reviewed and no changes were requested. A motion was made by Jim Gleason to approve the meeting agenda. Tom Koshy seconded the motion and the SC-2 members approved the agenda unanimously.

The Chairman summarized topics (Attachment 2) discussed in AdCom the day prior including membership, meeting schedule, and other topics to be discussed.

The Chairman discussed the NPEC Goals for 2007-2008 (Attachment 3).

The Chairman discussed that Awards are solicited for technical working groups (Attachment 4).

The process for review of NRC Draft Regulatory Guides is that the Chairman of the Working Group of a standard, for which a draft Regulatory Guide has been issued, is responsible for collection of comments from the working group and SC2, consolidation of the comments, draft of the comment letter, and forward the draft comment letter to the Chairman of NPEC, who will review, generate the comment letter with IEEE NPEC letterhead, and transmit to NRC.

The Chairman discussed that the membership for 2007-2008 had been finalized. The bylaws require attendance at one meeting per year.

The Chairman discussed NPECs desire that SC-2 meet in conjunction with NPEC. See discussion in 7.1.

The Chairman discussed the meeting logistics, which for this meeting were mainly handled with the 2007 EQ Technical Meeting, and has requested a volunteer to handle future meeting logistics.

The Chairman discussed that we need to foster interest in IEEE and nuclear. After a discussion, it was decided that the SC wants to consider inviting local IEEE chapter of the town in which we are meeting to an evening speech and to see how process works.

Rebecca Steinman has updated the subcommittee's website. It can be reached by [www.ieee.org](http://www.ieee.org)

Search for NPEC. NPEC's home page is <http://grouper.ieee.org/groups/npec/index.html>

Go to:

## [NPEC Subcommittee and Working Group Areas](#)

User: npec  
Password: npec99

All Attachments are on the SC-2 Website. [NPEC Subcommittee and Working Group Areas](#)

### **4.0 Review and Approval of Meeting Minutes (07-1)**

The minutes of the previous SC-2 meeting 07-1 were discussed and no changes were made. Jim Parello made motion to approve the minutes, which was seconded by Tom Hency and the minutes were approved unanimously.

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

The Chairman discussed the alligator fund and stated that after Meeting 07-01, the balance was \$140.70.

A contribution of \$40 was requested from each of the members for this meeting. Of the 37 members physically present at the meeting, 36 contributed the requested \$40. In addition, 4 guests contributed \$40. A total of \$1640 was collected. The Chairman, SC-2, holds these funds.

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

SC-2 membership was informed that the IEEE SC-2 web-site has been updated to incorporate the following information: SC-2 Bio Book, SC-2 Officer contact information, WG member rosters, WG meeting minutes, submissions to NPEC and announcements.

It was noted that the SC-2 has a balanced membership from the six segments: A/E (Consultants) (17%), NSSS (17%), Regulators (14%), Test Labs (18%), Utilities (16%), and OEMs (18%).

The Secretary reviewed the SC-2 List of Action Items, discussing the following status:

- AI-04-1-1: A booklet of biographical data on SC-2 members was has been completed by Fred Roy. After receiving a well deserved round of applause, Fred was volunteered by the Chairman for the permanent post of Biographical Committee Manager, and after unanimous consent, he accepted. The Biographical Book has been issued for membership use. Members were remained that the information should be used for IEEE business only and not shared with others. **This action is closed.**
- AI-05-1-1: SC-2.1 is preparing a statement of QA requirements for the next IEEE-323 revision and **this item is closed.**
- AI-07-1-1: NPEC will be provided an option for SC-2 to meet at least once per year with NPEC. **This is still in work and remains open.**
- AI-07-1-2: A letter will be prepared to NPEC to consolidate qualification standards for 535, 317, 628 and C3798 under SC-2. Only 535 and C3798 will be further considered for SC-2. **This is still in work and remains open.**
- AI-07-1-3: Develop scope for EQ QA AdHoc committee. The EQ QA AdHoc has completed its work, see 7.5 and **this item is closed.**
- AI-07-1-4: SC 2.10 (627) will consider adding the QA statement developed by SC 2.1. SC 2.10 (P627) now will consider adding the QA statement. **This action is closed.**
- AI-07-1-5: SC 2.10 (627) will consider incorporating the safety term information developed by SC 2.1. The consensus was that this is valuable information and SC 2.10 (627) should consider adding it

to an appendix. There is strong opposition from NPEC members from changing the title of IEEE NPEC standards away from “safety-related” and away from “Class 1E.” Additionally, the next generation nuclear plants have already committed to the terms “safety-related” and “Class 1E.” **This action is closed.**

## **7.0 Discussions and Updates**

### **7.1 Combining Meetings with NPEC**

Discussions were held with membership to meet at least once per year in conjunction with IEEE NPEC or the EQ Technical Meeting. A request had been sent out by the SC-2 Chairman (N. Burstein) to solicit input from the SC-2 membership. The general opinion was to meet with the EQ Technical Meeting and not with IEEE NPEC. There was also a concern noted that more time should be allotted to Working Group (WG) meeting if we were to meet again with the EQ Technical Meeting. Additionally, the combining of SC 2 working group meetings and SC2 meetings in the same week with NPEC would require a full week of meetings. The benefits of interaction with other NPEC committees and working groups, as well as the potential for visibility for future promotion to NPEC were discussed. The Chairman would like consideration to continue the dialog and see if accommodations can be made.

### **7.2 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.

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

IEEE 323 and IEC 60780 cannot be a joint logo standard because of the IEEE/IEC agreement addressed new standards only.

IEC has initiated a work project for revision of IEC 60780. Richard Wood has been selected to lead the revision to IEC 60780. They will consider IEEE 323-2003 and work with SC 2.1. Richard Wood is on both IEC and SC-2. See Attachment 5.

Kjell Spang is developing a new work product for condition monitoring, which is a new topic for which neither IEEE nor IEC standards exist. This is the first joint project. SC 2.1 has agreed to participate and NPEC sent a letter to IEC committing SC-2 and WG 2.1's support. Kjell is likely to get authority to commence work this fall. See Attachment 6.

### **7.4 Discussion of DG-1148 (IEEE Std 650)**

Dennis Dellinger discussed that comments were received, consolidated and sent out by NPEC. DG-1148 is attachment 13.

### **7.5 EQ QA AdHoc**

Dennis Dellinger discussed that the committee had ascertained that NRC Commission had issued SECY 03-0117 "APPROACHES FOR ADOPTING MORE WIDELY ACCEPTED INTERNATIONAL

QUALITY STANDARDS, which notes the comparison of 10 CFR Part 50 Appendix B framework and ISO 9001-2000, "Quality Management System (QMS). It explains that NRC has done a complete review, including IAEA, IEC, RCC-M, ISO, Canada, France, Westinghouse, Framatome ANP and Appendix B. NRC requires 10 CFR Appendix B for safety-related products and services. Therefore, there is no further action for the group and the group will be disbanded. See Attachment 21.

## **7.6 Risk-based Report**

Jim Gleason discussed that SC-2.1 was proposing to consider adding a reliability factor to IEEE Std 323 in a future revision. This appeared to be the best choice for SC-2.1 to add a significant contribution to the risk-informed process. Jim has talked with ASME about where IEEE SC-2.1 may interface. Currently the interface with ASME is Glen Schinzel. Jim has talked with ASME about where IEEE SC-2.1 may have an additional interface.

Jim noted that all of the new plants utilize risk informed processes to identify both safety-related and Regulatory Treatment of Nonsafety Systems (RTNSS) equipment. Art Faya has provided to SC-2 IAEA-TECDOC-1436 "Risk informed regulation of nuclear facilities: Overview of the current status" (Attachment 16). This task is on going and will be updated as progress is made on the reliability factor.

## **7.7 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. [See section 11.2.](#)

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

Ed Mohtashemi and Jim Gleason presented the GEH ABWR and ESBWR EQ Program updates. Jim noted that W, Areva, and GEH have been participating in the Seismic High Frequency issue resolution with NEI and other industry experts. ESBWR DCD Revision 4 was recently submitted. STP's COL has been submitted.

## **7.9 Areva US EPR EQ Program**

Nissen Burstein presented the Areva US EPR EQ Program, Attachment 15. Unless there is a compelling negative reason, the latest version of regulatory guides and IEEE standards will be utilized. The EQ program includes NSSS, BOP, Electrical, I&C, Seismic Sequence Methodology and Mechanical components. Planned use is 80% US qualified equipment. DCD Rev 0 submittal planned for early December, 2007."

## **8.0 NRC Liaison Report**

Tom Koshy presented the NRC report (see attachments 10, 11, 12, 13, and 14). Some highlights are:

- STP is the first company to step forward in decades seeking new reactor license and submitted their application on September 24, 2007.
- TVA Opts For AP1000 Design Instead Of Completing Partially Finished Existing Reactors at Bellefonte
- NRC is preparing to receive applications for 30 new reactors by the end of 2008.
- A recently aired CNN video shows a cyber attack demonstration by the Idaho National

Laboratory in which a large electric generator shook violently, sprayed metal parts, and spewed smoke before grinding to a stop.

- Generic Letter 2007-01: Inaccessible or underground power cable failures that disable accident mitigation systems or cause plant transients
- Information Notice 2007-28: Potential Common Cause Vulnerabilities in Essential Service Water Systems Due to Inadequate Chemistry Controls
- Information Notice 2007-27: Recurring Events Involving Emergency Diesel Generator Operability
- Information Notice 2007-18: Operating Experience Regarding Entrainment of Gas or Debris into Auxiliary Feedwater Systems
- Information Notice 2007-14: Loss of Offsite Power and Dual-unit Trip at Catawba Nuclear Generating Station
- Information Notice 2007-09: Equipment Operability under Degraded Voltage Conditions
- RIS-07-24: NRC Staff Position on Use of the Westinghouse Crossflow Ultrasonic Flow Meter for Power Uprate or Power Recovery

Tom also discussed industry interactions on RG 1.209, including qualification testing should ensure that the verified software is operating at the time of testing, test data may be manufacturer's data and not an independent test, and qualification documentation must be accessible to support audits. Modern technology has changed the need for a physical file at the licensee.

Tom discussed RG 1.89 and stated that Sandia has been added to assist on the new source term element. He expects no surprises when RG 1.89 is sent out in draft form in about 6 months.

## **9.0 Working Group Reports**

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

Jim Gleason indicated that a PAR would be prepared for reaffirmation of IEEE Std 323. The WG will be working with IEC on both the revision to IEC 60780 and the new CM work product. The WG continues to discuss an EQ reliability index for future revision.

### **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 new chairman and IEEE Std 382 has been issued

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

John White reported that IEEE Std 383 would seek re-affirmation in 2008. This is being done because there were no significant issues from the last ballot and he wants to see the outcome of DG-1132. A PAR has been started and Bob Konick of Rockbestos will serve as vice-chairman.

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

Jim Parelo, the WG Chairman, informed SC-2 that, while there was no new activity on this standard, they expect NRC to issue a revision to RG 1.100 in December 2008 (Attachment 8). The Seismic High Frequency Issue continues to be worked by NEI and the vendors. Currently there are no changes to IEEE 344 anticipated by the Seismic High Frequency Issue.

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

The Chairman of the WG, Dave Horvath, said that they are proceeding with P627 (Attachment 7). They have 18 members. He expects to preview P627 at the next SC-2 meeting, at NPEC in July, and ballot 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)**

Tom Brewington spoke for Chairman of the WG, Robert Francis, and 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 may be available for SC-2 sometime in 2008.

**9.11 ASME Liaison Report**

Glen Schnitzel presented the ASME Liaison Report (Attachment 9).

**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**

<b>Item No.</b>	<b>Description</b>	<b>Responsible</b>	<b>Status</b>
<b><i>Action Items from Meeting 04-1</i></b>			
AI-04-1-1	Provide biographical data for SC-2 member's book. (All who have not responded will be identified, guidance provided and input collected by 6/1/2006.)	All delinquent SC-2 members	Closed
<b><i>Action Items from Meeting 07-1</i></b>			



<b>Item No.</b>	<b>Description</b>	<b>Responsible</b>	<b>Status</b>
AI-07-1-1	NPEC will be provided an option for SC-2 to meet at least once per year with NPEC.	Nissen Burstein	Open
AI-07-1-2	A letter will be prepared to NPEC to consolidate qualification standards for 535, 317, 628 and C3798 under SC-2	Nissen Burstein	Closed
AI-07-1-3	Develop scope for EQ QA AdHoc committee	Serena Jagtiani-Krause	Closed
AI-07-1-4	SC 2.10 (627) will consider adding the QA statement developed by SC 2.1.	Dave Horvath	Closed
AI-07-1-5	SC 2.10 (627) will consider incorporating the safety term information developed by SC 2.1.	Dave Horvath	Closed
<b><i>Action Items from Meeting 07-2</i></b>			
AI-07-2-1	A PAR is being pursued for reaffirmation of IEEE 323.	Jim Gleason	Open
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.	Jim Gleason	Open
AI-07-2-4	Need to determine status of 628 and 535 relative to moving over to SC-2	Nissen Burstein	Open
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
AI-07-2-7	SC-2 is seeking a volunteer to provide meeting logistics.	Nissen Burstein	Open

## **11. New Items and Presentations**

### **11.1 EQ of Form/Random Wound Motor Insulation Systems, James Dean (Attachment 17)**

### **11.2 NEI High Frequency Seismic White Paper, Update, James Parello (Attachment 20)**

James Parello discussed that previously the seismic ground motion was developed per RG 1.60. EPRI and LLNL hazard studies have identified that the Central and Eastern US Uniform Hazard Spectra has less low frequency content and more high frequency content than the RG 1.60 developed spectra. This may impact new plants at hard rock sites. GI 199 "Implications of Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States" has been issued. An NEI/EPRI task group has prepared a white paper on a screening methodology.

Westinghouse has submitted additional information to NRC. Jim Parello presented “AP1000 Evaluation and Screening Process for High Frequency Sensitive Equipment.”

**11.3 Cable Materials and Design Issues for Nuclear Reactors in the 21st Century, Dan Masakowski (Attachment 18).**

**11.4 EQ Materials and Data Sources, Tom Hency**

Tom Hency provided a C-PAD demonstration on cable polymer aging data that is now available.

**11.5 Differences in Test Control systems and Data Reduction Practices used in the Performance of Seismic Test Programs to Determine ZPA, Darrin Martin (Attachment 19).**

**12.0 Next Meeting**

The SC 2.1 08-1 meeting will be held at Myrtle Beach, SC, during April 2008. Exact date TBD.

**13.0 Adjournment**

At approximately 4 PM on Tuesday November 6, 2007 a motion was made to adjourn and meeting SC2-07-02 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	SC-2- Agenda 07-02
Attachment 2	SC-2- AdCom Agenda 07-02
Attachment 3	NPEC Goals 07-08
Attachment 4	Award Form
Attachment 5	R. Woods IEC 60780
Attachment 6	K. Spang CM Work Product
Attachment 7	D. Horvath P627 Status
Attachment 8	J. Parello IEEE 344 <sup>TM</sup> Project Status Report
Attachment 9	G. Schnizel ASME Liaison Report
Attachment 10	T. Koshy NRC Liaison Report
Attachment 11	Draft DG-1138
Attachment 12	Draft DG-1132
Attachment 13	Draft DG-1148
Attachment 14	Draft DG-1173

Attachment 15	N. Burstein “US EPR EQ Program Update”
Attachment 16	IAEA-TECDOC-1436
Attachment 17	J. Dean “EQ Motor Insulation Systems”
Attachment 18	D. Masakowski “Cable Materials and Design Issues for Nuclear Plants in the 21st Century”
Attachment 19	D. Martin “Earthquake Simulation”
Attachment 20	J. Parelo “AP1000 Evaluation and Screening Process for High Frequency Sensitive Equipment”

15.0 Table 2. SC-2 Member and Proxy Attendee List 2007-02

	Name/Company	Address	Proxy	11/5	11/6
1	Abernathy, Chris Duke Energy Co. Tel: 704-875-4486 Email: <a href="mailto:cdabernathy@duke-energy.com">cdabernathy@duke-energy.com</a>			X	X
2	Akhtar, Saleem KCI Consultants Tel : 630-515-2650 x 20 Fax : 630-515-2654 Email: <a href="mailto:s.akhtar@comcast.net">s.akhtar@comcast.net</a> <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 : 905-821-1616 x 245 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	Bharteey, Brij Tel. (518) 382-0056 Fax (518) 382-0283 Email: <a href="mailto:bbharteey@argoturbo.com">bbharteey@argoturbo.com</a>	112 Erie Blvd. Suite 3 Schnectady, NY 12305			
5	Brewington, T. (Tom) Wyle Laboratories Tel. (256) 837-4411, ext. 512 Fax (256) 837-3363 Email: <a href="mailto:tom.brewington@wylelabs.com">tom.brewington@wylelabs.com</a>	7800 Highway 20 West Huntsville, AL 35806  (Proxy: Robert Francis)		X	X
6	Burstein, N. M. (Nissen) – Chairman SC-2 AREVA NP, Inc. Tel. (434) 832-2501 Fax (434) 832-2683 Email: <a href="mailto:nmb@ieee.org">nmb@ieee.org</a>	3315 Old Forest Rd. M/C OF54 Lynchburg, VA 24506-0935		X	X
7	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

	Name/Company	Address	Proxy	11/5	11/6
8	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
9	Chapman, G. V. (Garry) Trentec, Inc. Tel. (513) 528-7900 Fax (513) 528-9292 Email: <a href="mailto:gchapman@trentec.com">gchapman@trentec.com</a>	4600 East Tech Drive Cincinnati, OH 45245			
10	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		X	X
11	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
12	Delcea, L. N. (Liviu Nicolae) CNE Prod Tel. +40-241-80-1658 Fax +40-723-111-627 Email: <a href="mailto:ldelcea@cne.ro">ldelcea@cne.ro</a>	Medgidiei St. No. 1 C.P. 42, Cernavoda 08625 Constanta, Romania			
13	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
14	Di Benedetto, P. (Philip) Tel. (978) 686-3561 (h) (617) 589-2671 (w) Cell (978) 660-7662 Email: <a href="mailto:pdibenedetto@comcast.net">pdibenedetto@comcast.net</a>	123 French Farm Road North Andover, MA 01845		X	X
15	Dougherty, M. (Mike) Emerson Process Tel: 208-865-1112	502 Fourth of July Creek Rd		X	X

	Name/Company	Address	Proxy	11/5	11/6
	Fax: 208-865-1115 Email: <a href="mailto:mike.dougherty@emersonprocess.com">mike.dougherty@emersonprocess.com</a>	North Fork, ID 83466			
1 6	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>	Raychem GmbH Finsinger Feld 1 85 Ottobrunn, Germany		X	X
1 7	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		X	X
1 8	Fargo, W. D. (Wells) Southern California Edison Co. Tel. (949) 368-2525 Fax (949) 368-9552 Email: <a href="mailto:fargowd@songs.sce.com">fargowd@songs.sce.com</a> Proxy: Carl Weber	3214 Legendario San Clemente, CA 92673-3811	Carl Webber		
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X = Attended

P = Attended by Proxy