

**IEEE Nuclear Power Engineering Committee  
Subcommittee SC-2, Qualification**

**Minutes of Meeting SC2-05-1  
Held April 20-21, 2005  
San Diego, California**

Members Attending: See Table 3

Members Absent: See Table 3

Guests: Ken Caldwell, Duke Power  
D. Steve Benson, RCMT  
Christina Antonescu, NRC  
Choon-Hoon Chung, KOPEC  
Ting Chow, INER/AEC  
William Sadowski, Wyle Labs  
Hideo Harada, Hitachi  
Hirotsgo Suzuki, Hitachi  
Jeffrey LoPrete, ASCO  
Arudt Lindner, ISTec

**1.0 Introduction**

The SC-2 Chairman, Satish Aggarwal, opened the meeting on Wednesday April 20, 2005 at 8:00 am and welcomed everyone in attendance. This meeting was scheduled for 1½ days; concluding Thursday April 21. A role call was taken and it was determined that a quorum was available, with 47 of 71 SC-2 members present, or represented by proxy.

**1.1 General Remarks, Review and Approval of Agenda**

The Chairman indicated the next meeting (05-2) would be held in either Fort Lauderdale, FL or Miami, FL and the 06-1 meeting would be held in Atlanta, GA. There were no objections or comments noted on either location. Furthermore, the chairman indicated that SC 2 meetings would continue to be held separate from the NPEC meetings due to the logistics of coordinating the meetings.

The Chairman reiterated his goal to have all SC 2 standards approved by the end of 2006.

The Chairman announced that a courtesy suite would be sponsored by the following organizations for members and their guests the evening of April 20:

ASCO  
Tyco

Westinghouse  
Rotork

Advent Engineering  
Black & Veatch  
Ametek Solidstate Controls  
Applied Energy Services  
Spectrum Technologies

Nuclear Logistics  
Schulz Electric  
Trentec  
Wyle Laboratories

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

## **2.0 Review and Approval of Previous Meeting Minutes**

The minutes of the previous SC-2 meeting 04-2 were opened for comment by the members. Hearing none, a motion was made to approve the minutes by Nissen Burstein, seconded by Jim Gleason and the minutes were approved unanimously.

### **2.1 Alligator Fund**

The alligator fund is made up of voluntary contributions from SC-2 members to defray the cost of meeting rooms, refreshments, and other meeting expenses. The balance prior to meeting 04-2 was \$1400. An amount of \$220 was paid by working Group SC2.1 for the 4-02 meeting in Las Vegas, bringing the total to \$1620. Expenses for 04-02 were \$1056 (paid to the Flamingo Hotel, Las Vegas-see financial summary in Attachment 2 as audited by Nissen Burstein). The total charges billed by the San Diego Marriott for the 05-01 meeting were \$1297.26 (\$873.53 for April 20, 2005 and \$423.73 for April 21, 2005).

The Chairman, SC-2 provided the following additional accounting of expenses from the fund up to the time these minutes were completed:

- Meeting 04-1 (New Orleans)
  - Gratuities to hotel staff \$ 20
- Meeting 04-2 (Las Vegas)
  - Gratuities to hotel staff \$ 30
  - Postage, internet and fax fees \$ 20

The balance after expenses as of Jan 2005 was \$494.

A contribution of \$30.00 was requested from each of the members for this meeting. Of the 36 members physically present at the meeting, 36 contributed the requested \$30. In addition, 5 member's proxy contributed \$30 for the absent members, and 3 guests contributed \$30. A total of \$1,320 was collected bringing the total fund to \$1814. These funds are held by the Chairman, SC-2.

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

### **3.1 SC-2 Activities**

The Chairman then reviewed the goal of issuing a joint IEEE/IEC logo standard in the next 18 months and requested that SC 2.1 continue to work towards this goal. It was suggested that the difference between the two standards might be addressed in an annex to the standard or by listing the requirements separately within the body of the standard. The Chairman also noted that IEEE 344 would be the next

joint logo project.

The following Vice-Chairman had no comments.

### 3.2 SC-2 Member's Biographical Data Booklet

Preparation of a booklet of biographical data on SC-2 members was discussed. The Chairman noted that a proposed format for the biographical data was distributed to all SC-2 members via e-mail and comments were received from several members. Based on the comments received, a form has been developed that can be used to collect the necessary biographical data from each member. A volunteer was requested to assemble the directory and Fred Roy accepted the task. The final form will be transmitted by Fred Roy to each of the members for inclusion into the directory. All members are requested to complete this form and submit it to the prior to the next meeting [AI-04-1-1]. A digital photo can be provided, if desired by the member.

### 3.3 SC-2 Working Groups

The currently active working groups under SC-2, along with their chairmen, are shown in the following table:

SC-2 Working Groups and Chairman

Working Group Title*	Standard	Chairman
Working Group on Equipment Qualification (SC 2.1)	IEEE-323	Jim Gleason
Working Group on Qualification of Motors (SC 2.2)	IEEE-334	Bill Newell
Working Group on Valve Operators (SC 2.3)	IEEE-382	Pat McQuillan
Working Group on Cables (SC 2.4)	IEEE-383	John White
Working Group on Seismic Qualification (SC 2.5)	IEEE-344	Jim Parello
Working Group on Connectors and Connections (SC 2.11)	IEEE-572	Bill Hadovski
Working Group on Battery Chargers/Inverters (SC 2.13)	IEEE-650	Dennis Dellinger
Working Group on Motor Control Centers (SC 2.14)	IEEE-649	Robert Francis

\* Working groups 2.6 to 2.10 and 2.12 are no longer active.

No changes were made at this meeting.

### 3.3 NPEC Activities

No report was provided on NPEC activities.

### 4.0 Preview of Revisions to IEEE 650

The chairman of WG 2.13, Dennis Dellinger, provided a draft copy of IEEE 650 for discussion. The PAR for IEEE 650 expires December 2005. A redlined copy of the standard highlighting the proposed revisions had already been distributed to the SC 2 membership in February 2005 for comment and no comments were received. There were comments in the meeting on various subjects including, but not limited to, mild environment component qualification, referencing EPRI documents within the standard and assumed activation energies.

A motion was made by the WG SC 2.13 that subcommittee SC 2 approve submission of IEEE 650 to NPEC for seeking its permission to ballot. The motion was approved unanimously by a vote of the SC 2

membership. The SC 2 Chairman requested that SC 2 members provide comments to the WG 2.13 Chairman by May 15, 2005 for incorporation into the NPEC submittal and advised member to participate in the balloting process if additional comments are warranted.

### **5.0 Experience in Digital I&C**

Hideo Harada and Hirotsugu Suzuki, Hitachi, gave a presentation titled "Experience in Digital I&C". A copy of the presentation is included as Attachment 3.

### **6.0 Status Report on Special Working Group on ISO-9000**

The chairman of the special working group on ISO 9000, Tom Hency, reported on the group's recommendations related to the use of ISO standards in lieu of 10CFR50 Appendix B. The group recommended that the differences between the various quality standards be addressed by QA personnel and that SC 2 remain silent in this area.

The SC 2 chairman rejected this recommendation and initiated an action item [AI-05-1-1] for WG 2.1 to address the use of 10CFR50 Appendix B or alternative quality standards in the next revision to IEEE 323. The chairman clarified that the intent is to address the use of alternate quality standards, but not necessarily in a prescriptive manner.

### **7.0 Issues with Current Qualification Practices**

Nissen Burstein presented this topic dealing with the differences between qualified life and service life as defined in IEEE 323. A copy of his presentation is included as Attachment 4. The SC 2 chairman requested that a revision to IEEE 323 be considered to provide clarification as necessary to address this issue.

### **8.0 Status of IEEE 572 Boundaries; Mild versus Harsh Environment**

Bill Hadovski presented this topic and requested guidance from the committee relative to daughter standards content. The SC 2 Chairman indicated the daughter standards should be stand alone documents and provide supplemental guidance, which does not conflict with other daughter standards. A copy of his presentation is included as Attachment 8.

The working group has an approved PAR with 12-13 members in the working group. The WG chairman feels that he has a good mix of utility, manufacturing and consultants in the working group, but will accept up to three additional members if others are interested. The WG plans on meeting in June and expects to put the finishing touches on the document by October 2005.

### **9.0 How to Secure Nuclear Assets – Perimeter and IT Physical Security**

Tony Cardo of Fiber SenSys presented this topic. A copy of this presentation is included as Attachment 5.

### **10.0 Status Report on the Special Working Group on Qualification of Fiber Optic Cables**

Jan Pirrong reported that among the ad hoc group established to determine the need for a fiber optic cable qualification standard, there were 8 members in favor of a new standard and one dissenting member. He indicated he has sufficient interest from manufactures for development of a new standard and appealed to the SC 2 membership for greater interest in the development of this standard.

Mr. Pirrong motioned that a new standard be prepared for the qualification of fiber optic cable and the SC 2 memberships voted as follows:

-33 in favor  
-10 in favor for proxies  
-1 opposed  
-2 opposed for proxies

The Chairman, SC-2 had instructed the special working group to prepare a draft PAR and submit it to SC-2 for review by October 2005. [Revised AI-04-2-7]

#### **Thursday, April 21, 2005**

### **11.0 PWR Containment Sump Active Strainers**

Ed Mohtashemi of GE presented this topic. A copy of his presentation is included as Attachment 6.

### **12.0 NRC Report**

The Chairman, SC-2 provided an NRC liaison report, which is included as Attachment 7.

### **13.0 Working Group Reports**

#### **13.1 Working Group 2.2 on Motors (IEEE Standard 334)**

The Assistant Chairman of this working group, James Dean, provided the following status report:

The revised IEEE 334 standard will more closely align it with IEEE 323 and be more explicit. A draft of the revised standard will be ready for presentation to SC 2 by October 2005.

A preview to NPEC of the revised standard is planned for January 2006. [AI-04-2-3] The Chairman, SC-2 will arrange this.

A PAR is approved and is valid until 2006.

#### **13.2 Working Group 2.3 on Motor Operated Valves (IEEE Standard 382)**

The Chairman of the working group, Pat McQuillan, provided the following status of Standard 382: A request for a new PAR was prepared and submitted. IEEE did not approve the PAR and returned the request with comments. The WG Chairman indicated the comments are editorial in nature and should be resolved by the end of the month. The WG goal is to have a draft ready for review by December 2005, and ready for balloting by the September 2006 meeting [AI-04-2-4].

The WG Chairmen expects to have a draft revision prepared by the SC 2 05-2 meeting.

#### **13.3 Working Group 2.14 on Motor Control Centers (IEEE Standard 649)**

The Chairman of this working group, Robert Francis, provided the following status of this standard:

The standard was reaffirmed in September 2004. A new PAR has been approved to revise the standard to address changes in 323. The group will also investigate the possibility of addressing newer technologies which are available in newer MCC designs (e.g. communications interfaces, etc). The WG expects to present a draft revision to IEEE 334 by the 06-01 meeting.

#### **13.4 Working Group 2.1 on Qualification (IEEE Standard 323)**

The Chairman of the working group, Jim Gleason, indicated the working group is currently discussing the next revision to standard 323. The WG Chairman gave a presentation on the gaps between IEEE and ASME standards. This presentation is included as Attachment 15.

The SC 2 Chairman requested that WG 2.1 continue to pursue the development of a joint IEEE/IEC logo standard embracing IEEE and IEC best practices and indicated that he will attempt to get IEC representation at the next WG meeting. The SC 2 Chairman requested that Working Group 2.1 have a draft dual logo standard by April 06.

#### 14.0 Overview of GT-MHR Reactor

Mr. Arkal Shenoy of GTA presented this topic. A copy of his presentation is included as Attachment 9.

#### 15.0 Software Qualification of Digital I&C Systems in Nuclear Power Plants

Mr. Arndt Linder of Institute for Safety Technology (ISTec) presented this topic. A copy of his presentation is included as Attachment 10.

#### 16.0 Action Item Status

Action items from previous SC-2 meetings were reviewed at this meeting. Table 1 provides a listing and the status of action items from past meetings, along with new action items identified at this meeting.

**List of Action Items**

Item No.	Description	Responsible	Status
<b><i>Action Items from Meeting 02-1</i></b>			
AI-02-1-13	Identify an author to prepare a booklet containing biographical data of SC-2 members.	Satish Aggarwal	CLOSED
<b><i>Action Items from Meeting 03-2</i></b>			
AI-03-2-2	Send statement of position on 100-hour minimum aging requirement in IEEE Standard 323 to Jim Gleason.	Kjell Spang	CLOSED
AI-03-2-3	Submit IEEE Standard 344 for publication in 2004.	Jim Parello	CLOSED
<b><i>Action Items from Meeting 04-1</i></b>			
AI-04-1-1	Provide biographical data for SC-2 member's book.	All SC-2 members	OPEN
AI-04-1-2	Provide comments on the SC-2 procedures manual.	All SC-2 members	CLOSED
AI-04-1-3	Prepare new PAR for Standard 382 on MOVs.	Pat McQuillan	CLOSED
AI-04-1-4	Prepare new PAR for Standard 649 on MCCs.	Robert Francis	CLOSED

<b>Item No.</b>	<b>Description</b>	<b>Responsible</b>	<b>Status</b>
AI-04-1-5	Submit draft Standard 650 to SC-2 for review by December 1, 2004.	Dennis Dellinger	CLOSED
AI-04-1-6	Send letter with SC-2 comments on the proposed 10 CFR 50.69 Rule to NRC by May 21, 2004.	Nissen Burstein	CLOSED
<b><i>Action Items from Meeting 04-2</i></b>			
AI-04-2-1	Prepare Standard 344-D27 package for recirculation ballot.	Jim Parello	CLOSED
AI-04-2-2	Request 6-month extension for Standard 344 PAR.	Satish Aggarwal	CLOSED
AI-04-2-3	Prepare for a preview of Standard 334 to NPEC at the July 2005 meeting.	Bill Newel	OPEN
AI-04-2-4	Prepare a draft of the next revision to Standard 382 by December 2005.	Pat McQuillan	OPEN
AI-04-2-5	Prepare a draft of the next revision to Standard 572 for SC-2 review by October 2005.	Bill Hadovski	OPEN
AI-04-2-6	Obtain an electronic copy of all SC-2 Standards.	Satish Aggarwal	CLOSED
AI-04-2-7	Prepare a draft PAR to develop a new IEEE standard for qualifying fiber optic cables and submit it to SC-2 for review by October(revised) 2005.	Jan Pirrong	OPEN
AI-04-2-8	Prepare and submit to IEC a request for a work item to develop a joint IEEE/IEC standard.	Kjell Spang	CLOSED
AI-04-2-9	Provide a list of IEC delegates from foreign countries.	Kjell Spang	OPEN
<b><i>Action Items from Meeting 05-1</i></b>			
AI-05-1-1	WG 2.1 to address the use of 10CFR50 Appendix B and alternative quality standards in the next revision to IEEE 323	Jim Gleason	OPEN

## **17.0 Adjournment**

In conclusion the SC 2 Chairman requested that each presenter send an electronic copy of their presentation to the SC 2 Secretary at least 1 week prior to the scheduled meetings. The secretary will transmit the advance copies to the SC 2 membership so that members could print and follow the presentations as they are made.

At approximately 11:45 pm on Thursday April 21, 2005 a motion was made to adjourn and meeting SC2-

05-01 was adjourned.

---

Minutes Prepared by:  
Patrick Gove  
Assistant Secretary, IEEE/SC-2

List of Attachments:

1. SC-2 Meeting 05-1 Agenda
2. Financial Summary
3. Presentation by Hideo Harada and Hirotsugu Suzuki on “Experience in Digital I&C” (Not provided)
4. Presentation by N. Burstein on Issues with Current Qualification Practices
5. Presentation by Tony Cardo of Fiber SenSys presented on Perimeter and IT Physical Security
6. Presentation by Ed Mohtashemi on PWR Containment Sump Active Strainers
7. NRC Liaison Report
8. Presentation by Bill Hadovski on Status of IEEE 572 Boundaries; Mild versus Harsh Environment
9. Presentation by A. Shenoy on Overview of GT-MHR Reactor
10. Presentation by A. Linder on Software Qualification of Digital I&C Systems in Nuclear Power Plants
11. Presentation by D. Dellinger on IEEE 650 Status
12. IEEE 650-2005 D6 master
13. Presentation by J. Parello on IEEE 344 Status
14. Presentation by J. Pirrong on Qualification of Fiber Optic Cables for Nuclear Power Plants



**Table 3 Attendees of SC-2 Meeting 05-1 April 20-21 in San Diego, CA**

Name/Company	Address	Dates Attended	
		4/20	4/21
<b>Aggarwal, S. K. (Satish) – Chairman SC-2</b> U.S. Nuclear Regulatory Commission Tel. (301) 415-6005 Fax (301) 415-5074	Washington, DC 20555	<b>X</b>	<b>X</b>
<b>Alonso, Javier</b>  Tel. +34-91-659-8696 Fax +34-91-659-8677 (Proxy: Bohumil Bartonicek)	Avda. Montes de Oca 28709 San Sebastian de los Reyes Madrid, Spain	<b>P</b>	<b>P</b>
<b>Bartonicek, B. (Bohumil)</b> Nuclear Research Institute Rez plc Tel. +420-266-173579 Fax +420-266-173580	250 68 Husinec Rez 130 Czech Republic	<b>P</b>	<b>P</b>
<b>Baughman, P. D. (Paul)</b> ABS Consulting/EQE Tel. (603) 778-1144 Fax (603) 778-7495	118 Portsmouth Avenue Suite B302 Stratham, VA 03885		
<b>Bharteey, Brij</b>  Tel. (518) 382-0056 Fax (518) 382-0283	112 Erie Blvd. Suite 3 Schnectady, NY 12305	<b>X</b>	<b>X</b>
<b>Behera, A. K. (Anup)</b> Kiran Consultants, Inc. Tel. (630) 515-2650, ext. 17 Fax. (630) 515-2654	1401 Branding Lane Suite 255 Downers Grove, IL 60515		

**Table 3 Attendees of SC-2 Meeting 05-1 April 20-21, 2005 in San Diego, CA (continued)**

Name/Company	Address	Dates Attended	
		4/20	4/21
<b>Brewington, T. (Tom)</b> Wyle Laboratories Tel. (256) 837-4411, ext. 512 Fax (256) 837-3363 (Proxy: Robert Francis)	7800 Highway 20 West Huntsville, AL 35806	X	X
<b>Burstein,, N. M. (Nissen) – Vice Chairman SC-2</b> Framatome ANP Tel. (434) 832-2501 Fax (434) 832-2683	3315 Old Forest Rd. M/C OF54 Lynchburg, VA 24506-0935	X	X
<b>Butcher, C. (Craig)</b> Tennessee Valley Authority Tel. (423) 751-8250 Fax (423) 751-8247	1101 Market Street LP 4H Chattanooga, TN 37402-2801	X	X
<b>Casadevall, S. (Steve)</b> ASCO Valve Inc. Tel. (973) 966-2512 Fax (973) 966-2624	50 Hanour Road Floham Park, NJ 07932	X	X
<b>Chapman, G. V. (Garry)</b> Trentec, Inc. Tel. (513) 528-7900 Fax (513) 528-9292	4600 East Tech Drive Cincinnati, OH 45245	X	X
<b>Channarasappa, S. (Suresh)</b> Westinghouse Electric Co. Tel. (724)-733-6587 Fax	1760 Golden Mile Hwy. Monroeville, PA 15746	X	X
<b>Chipkin M. (Marty)</b> Nine Mile Point Nuclear Station Tel. (315) 349-2825 Fax (315) 349-1579	P.O. Box 63 Lycoming, NY 13093		

**Table 3 Attendees of SC-2 Meeting 05-1 April 20-21, 2005 in San Diego, CA (continued)**

Name/Company	Address	Dates Attended	
		4/20	4/21
<b>Chivers, J. (Jeff)</b> Rosemount Nuclear Tel. (952) 949-5377 Fax (952) 949-5147	8200 Market Blvd. Chanhassen, MN 55317	P	P
<b>Choi, S. Y. (Sun Yeong)</b> Korea Atomic Energy Research Institute Tel. +82-(42) 868-8372 Fax +82-(42) 868-8256	Box 105, Yuseong Daejeon, 305-600 Korea		
<b>Dean, J. M. (James)</b> Applied Energy Services, Inc. Tel. (203) 730-0587 Fax (203) 744-5192	14 Eagle Rock Hill Rd. Bethel, CT 06801	X	X
<b>Delcea, L. N. (Liviu Nicolae)</b>  Tel. +40-241-80-1658 Fax +40-723-111-627	Medgidiei St. No. 1 C.P. 42, Cernavoda 08625 Constanta, Romania	X	X
<b>Dellinger, D. E. (Dennis)</b> Solidstate Controls, Inc. Tel. (614) 846-7500 Fax (614) 885-3990	875 Dearborn Drive Columbus, OH 43085	X	X
<b>Di Benedetto, P. (Philip)</b>  Tel. (978) 686-3561 Cell (978) 660-7662 (Proxy: Anup Behera)	123 French Farm Road North Andover, MA 01845		
<b>Duong, Q. H. (Quang)</b> DTE Energy Tel. (734) 586-1813 Fax (734) 586-4911	6400 N. Dixie Hwy 125 EF2-TAC Newport, MI 48166	X	X

**Table 3 Attendees of SC-2 Meeting 05-1 April 20-21, 2005 in San Diego, CA (continued)**

Name/Company	Address	Dates Attended	
		4/20	4/21
<b>Drumm, F. (Frank)</b> Tyco Electronics Tel. +49-89-6089-567 Fax +49-89-6089-445	Raychem GmbH Finsinger Feld 1 85 Ottobrunn, Germany	X	X
<b>Euguchi, Yasutaka</b>		X	X
<b>Fargo, W. D. (Wells)</b> Southern California Edison Co. Tel. (949) 368-2525 Fax (949) 368-2122	3214 Legendario San Clemente, CA 92673-3811	X	X
<b>Faya, A. J. (Artur)</b> Canadian Nuclear Safety Commission Tel. (613) 996-0023 Fax (613) 943-1292	280 Slater Road Ottawa, Ontario K1C 5S9 Canada	X	X
<b>Francis, R. L. (Robert)</b> Wyle Laboratories Tel. (256) 837-4411 ext. 315 Fax (256) 837-3363	7800 Highway 20 West Huntsville, AL 35807	X	X
<b>Gleason, J. (Jim)</b> Bechtel Scientific Co. Tel. (702) 295-4561 Fax	1180 Town Center Drive Las Vegas, NV 89149	X	X
<b>Gove, P. (Patrick) – Assistant Secretary SC-2</b> Black & Veatch Tel. (913) 458-7834 Fax. (913) 458-2491	11401 Lamar Overland Park, KS 66213	X	X

**Table 3 Attendees of SC-2 Meeting 05-1 April 20-21, 2005 in San Diego, CA (continued)**

Name/Company	Address	Dates Attended	
		4/20	4/21
<b>Hadovski, W. L. (William)</b> Westinghouse Electric Co. Tel. (860) 731-6258 Fax (860) 731-6256	2000 Day Hill Road Windsor, CT 06095	X	X
<b>Helander, P. (Peter)</b> Tel. +46-18-51-1836 Fax +46-18-51-1894	Dag Hammarskjolds vag 13 752 37 Uppsala, Sweden		
<b>Hencey III, T. (Tom)</b> Scientech, Inc. Tel. (727) 669-3047 Fax (727) 669-3100	1393 Indian Trail N. Palm Harbor, FL 34683	X	X
<b>Henley, J. C. (Jerrell)</b> Tel. (256) 379-2920 Fax. (256) 379-2920	1359 Old Winchester Road New Market, AL 35761		
<b>Hopp, Dirk C.</b>		X	X
<b>Horvath, D. (Dave)</b> Advent Engineering Tel. (734) 930-7500 Fax (734) 327-7501	P.O. Box 555 24 Frank Lloyd Wright Blvd. Lobby C Ann Arbor, MI 48106	P	P
<b>Hsu, Yoa-Tung</b>		X	X

**Table 3 Attendees of SC-2 Meeting 05-1 April 20-21, 2005 in San Diego, CA (continued)**

Name/Company	Address	Dates Attended	
		4/20	4/21
<b>Hwang, In-Koo</b>			
<b>Irish, C. S. (Craig)</b> Nuclear Logistics, Inc. Tel. (978) 250-1684 Fax (978) 250-0245	27 Linwood Street Chelmsford, MA 01824	<b>P</b>	<b>P</b>
<b>Jagtiani-Krause, S. A. (Serena)</b> Trentec Inc. Tel. (513) 528-7900 ext. 121 Fax (513) 528-9292 (Proxy: Garry Chapman)	4600 East Tech Dr. Cincinnati, OH 45245	<b>P</b>	<b>P</b>
<b>Kapur, S. (Sushant)</b> Bechtel Power Corp. Tel. (301) 228-6057 Fax (301) 631-0841	5275 Westview Drive Frederick, MD 21703-8306	<b>X</b>	<b>X</b>
<b>Khan, M. R. (Mohsin)</b> ARES Corp. Tel. (510) 645-5960 Fax (510) 656-5961	2101 Webster St. Suite 1650 Oakland, CA 94612		
<b>Leung, H. (Henry)</b>  Tel. (905) 567-3332 Fax	4556 Credit Pointe Dr. Mississauga, Ontario Canada L5M 3L9		
<b>Lofaro, R. J. (Bob) – Secretary SC-2</b> Brookhaven National Laboratory Tel. (631) 344-7191 Fax (631) 344-5569	P.O. Box 5000 Building 130 Upton, NY 11973-5000	<b>P</b>	<b>P</b>

**Table 3 Attendees of SC-2 Meeting 05-1 April 20-21, 2005 in San Diego, CA (continued)**

Name/Company	Address	Dates Attended	
		4/20	4/21
<b>Lory, B. M. (Bruce)</b> Engineering & Management Specialists, Inc. Tel. (312) 327-0920, ext. 119 Fax (312) 327-0925	123 West Madison Street, Suite 1300 Chicago, IL 60602	<b>X</b>	<b>X</b>
<b>Martin, D. R. (Darin)</b> Southern Testing Services, Inc. Tel. (865) 966-5330 Fax.(865) 675-5399	10627 Lexington Drive Knoxville, TN 37932		
<b>McQuillan, P. (Pat)</b> Limatorque Tel. (434) 845-9714 Fax (434) 845-9736	5114 Woodall Road Lynchburg, VA 24502	<b>X</b>	<b>X</b>
<b>Mikow, D (Daniel)</b> Framatome, ANP Tel. (724) 779-9800 ext. 1314 Fax (724) 779-9844 (Proxy: Nissen Burstein)	200 West Kensinger Drive Suite 600 Cranberry Township, PA 16066	<b>P</b>	<b>P</b>
<b>Mitton, T. (Todd)</b> RCM Technologies Tel. (905) 821-1616 Fax (905) 821-1613	6620 Kitimat Road, Unit 4 Mississauga, Ontario L5N 2B8 Canada	<b>X</b>	<b>X</b>
<b>Mohiuddikn, A. (Asif)</b> Sargent & Lundy Tel. (312) 269-2752 Fax (312) 269-7041	%%E. Monroe 23C41 Chicago, IL 60603	<b>P</b>	<b>P</b>
<b>Mohtashemi, E. (Edward)</b> GE Nuclear Energy Tel. (408) 925-1844 Fax (408) 925-6261	175 Curter Avenue M/C 788 San Jose, CA 95125	<b>X</b>	<b>X</b>

**Table 3 Attendees of SC-2 Meeting 05-1 April 20-21, 2005 in San Diego, CA (continued)**

Name/Company	Address	Dates Attended	
		4/20	4/21
<b>Monchy-Leroy, C. (Carole)</b> EDF Research and Development Tel. +33-1-60-73-6773 Fax +33-1-60-73-7407 (Proxy: Marc Kuntz)	Electrical Equipment Lab Les Renadieres 77818 Moret sur Loing Cedex-France		
<b>Newell, W. (Bill)</b> Schulz Electric Company Tel. (203) 562-5811 Fax (203) 562-1082	30 Gando Drive New Haven, CT 06513	P	P
<b>Parello, J. (James)</b> Westinghouse Electric Co., LLC Tel. (724) 722-5545 Fax (724) 722-5497	1000 Westinghouse Drive New Stanton, PA 15672-9606	X	X
<b>Pavsek, J. (Janez)</b> Milan Vidmar Electroinstitute Tel. +386-31-809-322 Fax +386-1-252-1359 (Proxy: Marek Tengler)	SI-1000 Ljubljana Hajdrihova 2, Slovenia	P	P
<b>Pirrong, Jan S.</b> Cablelan		X	X
<b>Pomerening, D. J. (Daniel)</b> Southwest Research Institute Tel. (210) 522-2318 Fax (210) 522-4506	6220 Culebra Road San Antonio, TX 78238-5166	X	X
<b>Robert Queenan</b> Scientech Tel. (208) 524-9311 Fax (208) 524-9238	220 South Woodruff Ave. Idaho Falls, ID 83401	P	P



**Table 3 Attendees of SC-2 Meeting 05-1 April 20-21, 2005 in San Diego, CA (continued)**

Name/Company	Address	Dates Attended	
		4/20	4/21
<b>Richards, J. M. (John)</b> Duke Energy Co. Tel. (704) 382-3916 Fax (704) 382-3993	Mail Stop EC09H P.O. Box 1006 Charlotte, NC 28201-1006	X	X
<b>Roy, F. (Fred)</b> Scientech Tel. (256) 722-8500 Fax (256)722-8533	125 West Part Loop Huntsville, AL	X	X
<b>Sandberg, S. (Steve)</b> Rockbestos-Surprenant W&C Tel. (860) 653-8360 Fax (860) 653-8412	20 Bradley Park Road East Granby, CT 06026		
<b>Schinzel, G. E. (Glen)</b> South Texas Project Tel. (361) 972-7854 Fax (361)972-7073	P.O. Box289 Wadsworth TX 77483	X	X
<b>Simms, R. (Roderick)</b>  Tel. (269) 465-5901 ext. 3583 Fax (269) 466-3454	One Cook Place Bridgman, MI 49106		
<b>Spang, K. (Kjell)</b>  Tel. +46-31-298573 Fax +46-31-694594	KS Miltek Strandskarsvagen 9 SE-42658 Vastra Frolunda, Sweden	X	X
<b>Starck, R. (Richard)</b> MPR Associates Tel. (703) 519-0511 Fax (703) 519-0224	320 King Street Alexandria, VA 22314		

**Table 3 Attendees of SC-2 Meeting 05-1 April 20-21, 2005 in San Diego, CA (continued)**

Name/Company	Address	Dates Attended	
		4/20	4/21
<b>Tengler, M. (Marek)</b> Tel.+42-0377-386961 Fax +42-0377-386961	Labhova 8/34 Pilsen 31806	X	X
<b>Van Uffelen, M. (Marco)</b> Tel. +32 14-33-2638 Fax +32-14-31-1993	Boertang 200 Dept. Instrumentation Building BR3 B-2400, Mol, Belgium	X	X
<b>Varga, L. (Laszlo)</b> VEIKI-VNL, Ltd. Tel. +36-1-417-3157 Fax +36-1-417-3163	Vasgolyo u. 2-4. H-1158 Budapest, Hungary		
<b>Weber, C. E. (Carl)</b> Pacific Gas & Electric Co. Tel. (805) 545-4084 Fax (805) 545-6928	Diablo Canyon Power Plant P.O. Box 56 Avila Beach, CA 93424	X	X
<b>Wheless, J. (John)</b> Southern Company Tel. (205) 992-6898 Fax (205) 992-0391	40 Inverness Center Pkwy. Bin BO57 Birmingham, AL 35242		
<b>White, J. (John)</b> TXU CPSES Tel. (254) 897-6674 Fax (254) 897-0530	P.O. Box 1002 Glen Rose, TX 76043		
<b>Toni Wittamore</b> Rotork Controls, Inc Tel. (585)-328-1550, ext. 252 Fax (585) 328-5848	575 Mile Crossing Blvd. Rocchester, NY 14624	X	X

**Table 3 Attendees of SC-2 Meeting 05-1 April 20-21, 2005 in San Diego, CA (continued)**

Name/Company	Address	Dates Attended	
		4/20	4/21
<b>Wood, R. T. (Richard)</b> Oak Ridge National Laboratory Tel. (865) 574-5578 Fax (865) 576-8380	Bethel Valley Road P.O. Box 2008 Bldg. 3500, MS 6010 Oak Ridge, TN 37831-6010	<b>P</b>	<b>P</b>
<b>Yamamoto, T. (Toshio)</b> JAPEIC Tel. +81-47-380-8554 Fax +81-47-380-8556	Business Court Shin-Urayasu Bldg. 9-2 Mihama 1-Chome Urayasu-shi, Chiba 279-0011 Japan		

X = Attended  
 P = Attended by Proxy