

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

**Minutes of Meeting SC2-06-2
Held November 7-8, 2006
Newport Beach, CA**

Members Attending: See Table 2

Members Absent: See Table 2

Guests:	Chris Abernathy	Duke-Energy
	Ralph Conner	ASCo
	Nick Dwer	General Cable
	Paolo Fantoni	HRP
	Sean Foley	Afl Telecommunications
	Jeng Jonghyo	KOPEC
	Frank Kloer	Triconex
	Thomas Koshy	Nuclear Regulatory Commission
	Ted Leonard	Optical Cable Corp
	Gary Liskom	General Cable
	Eric Novcek	Rosemount Nuclear
	Ales Presern	Siemens

Tuesday, November 7, 2006

1.0 Call to Order

The SC-2 Chairman, Satish Aggarwal, opened the meeting on Tuesday November 7, 2006 at 8:00 am and welcomed everyone in attendance. This meeting was scheduled for 1½ days; concluding Wednesday November 8, 2006. A role call was taken and it was determined that a quorum was available, with 47 of 77 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. Nissen Burstein seconded the motion and the SC-2 members approved the agenda unanimously.

The Chairman stated that he has accepted the Secretary of NPEC position in 2007.

The Chairman introduced and welcomed the new SC-2 leadership (Chairman – Nissen Burstein; Vice Chairman – Jim Parello; Secretary – Jim Gleason) starting in 2007. He also recognized the Working Groups and their members for their achievement of having all standards updated by the completion of his term.

Mr. Thomas Koshy will be the Nuclear Regulatory Commission representative on SC-2. Anup Behera will no longer be on SC-2 and Saleem Akhtar will be taking his place.

Nissen Burstein stated that invitations for membership will be going out by the end of the year. A requirement is that missing 4 meetings in a row, without a good excuse, will terminate membership. He also noted that it was a practice that all SC-2 members serve on a subcommittee and that members of subcommittees are recommended for service on SC-2.

4.0 Review and Approval of Meeting Minutes (06-1)

The minutes of the previous SC-2 meeting 06-1 were opened for comment by the members. Jim Gleason made motion to approve the minutes, which was seconded by Nissen Burstein and the minutes were approved unanimously.

5.0 SC-2 Chairman's Report

The Chairman announced that all eight standards for which SC-2 is responsible are up to date. He thanked all who participated in revising these standards. Additionally, SC-2 identified the need for a new standard and that the work was progressing on the Fiber Optic Cable Standard.

He noted that there was strong support for continuation of the Multinational Design Evaluation Program, but said every country would likely keep its own regulations while trying to harmonize top-level requirements for new designs. Among other things, this means that the US will not adopt IAEA standards as a licensing basis and will continue to use codes and standards established under US law. The Chairman noted that all IEEE standards need to remove reference to NRC requirements. Standards should have an international approach.

He also noted that all IEEE standards need to consider Quality Assurance statements. An adhoc committee has been established to provide a recommendation to SC-2 for Quality Assurance statements. The members of the Adhoc QA committee are Nissen Burstein, James Gleason, Tom Hencey, James Parello, James Dean, and Phil DiBenedetto.

6.0 SC-2 Secretary's Report

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 has been prepared for the majority of the SC-2 Members. Fred Roy is collecting this information and those who have not contributed are requested to respond to Fred.
- AI-05-1-1: SC-2.1 is preparing a statement of QA requirements for the next IEEE Std 323 revision and this item is closed.
- AI-06-1-1: The Assistant Chairman of SC-2.2 will issue a revised draft of IEEE Std 382 is closed since IEEE Std 382 has completed ballot.
- AI-06-1-2: The Chairman of SC-2 agreed to seek NPEC guidance on the revision or re-affirmation of IEEE Std 627 is open.

7.0 Life Extension Testing of Cables from an Operating Plant

Catherine Clarke, RCM Technologies made this presentation about FRPVC/ FRPVC, FRXLPE/ FRPVC, XLPE/ CSPE, XLPE/XLPO cables, Attachment 2.

8.0 Development of Joint IEEE/IEC Standards

Kjell Spång made this presentation on behalf of himself and Richard Woods, Attachment 3. Because the agreement for joint logo standards only applies to new rather than existing standards, there has been no progress on a joint logo for IEEE 323 and IEC 60780. However, there is the recognition that IEEE 323 and IEC 60780 need to be harmonized. Therefore, the standards boards are planning to authorize a revision of IEC 60780 and include personnel connected to IEEE 323. Richard Woods has been selected to manage this effort.

Additionally, a new work scope has been discussed by Sweden to create joint logo new standard on Condition Monitoring (CM). This has received favorable response and will be presented by Sweden for consideration at the next IEC meeting. Mr. Spång noted that this had been discussed at SC 2.1 and Jim Gleason presented that since CM was introduced in IEEE Std 323-2003 and CM is associated with qualified life, SC 2.1 has voted to recommend to SC-2 that it assist in development of the standard.

Satish Aggarwal noted that when it is appropriate, SC 2.1 should prepare a PAR.

9.0 Status Report on Special Working Group on Qualification of Fiber Optic Cables

Jan Pirrong discussed the activities of the Special Working Group (SWG), which includes both IEEE and ICC members. The approved PAR 1082 expires in 2009. The group has held three meetings and is meeting again this week. Kofi Korsah, Oak Ridge National Laboratory, has become the vice chairman of the working group. It is anticipated to have a working draft near the end of 2007 or early 2008.

10.0 Radiation Testing of Fibers

Rob Gilberti, Draka Comteq, discussed Optical Fiber Behavior in Radioactive Environments, Attachment 4. He discussed the Advantages of Fiber Optic Systems, Improvement of Fiber Properties, and performance of Fibers in radiation environments.

11.0 Condition Monitoring of Cables Using Line Resonance Analysis (LIRA)

Paolo Fantoni, IFE-OECD Halden Project, Norway presented using LIRA as a Condition Indicator, Attachment 5. The effort utilizes evaluations for EPRI (2005 – 2006), Norsk Hydro (2005), NKS, Ringhals, Barseback (2005 2006), PETROMAKS (NFR, Hydro, Shell, 2006-2008), and NEXANS, 2006. The EPRI Tests included: preliminary feasibility tests on Okonite and Rockbestos specimens in September 2005, evaluations to detect cuts and gouges in EPR and XLPE, local and bulk degradation and wet vs. dry effects.

12.0 Use of Advanced Digital Controls in Nuclear Power Plant Applications

John Stevens, HF Controls Corp, presented how Korea Hydro & Nuclear Power Co. Ltd. (KHNP) has been in the forefront of use of digital controls throughout its fleet since 1990, Attachment 6. KHNP directs the process through standardization with all plants being derivatives of reference in layout including look, feel, and operation. KOPEC carries out this mandate for standardization in the I & C area

by writing system specifications in conjunction with plant design basis, qualifying vendors and reviews proposals for technical compliance. The Plant Control System (BOP) for Ulchin Units 5 & 6 (2 x 1000 MW) is the basis of the case study. Control switch modules were used initially with soft controls being added for radioactive waste with the Shin Kori 1 & 2 and Shin Wolsung 1 & 2 (now under construction) plants. The future Shin Kori 3 & 4 (to be built starting 2010) will have total soft control in NSSS and BOP. The Ulchin 5 & 6 experience has been reduced engineering man hours for project and on-going maintenance by nearly 2/3, provides system change management and documentation, and provided key links in V & V trail from design to end result during functional acceptance tests and audits.

13.0 Aging Management in Switzerland

Kurt Thoma discussed the aging management process in the Switzerland nuclear power plants. In 1992 the Swiss Utility Working Group was formed, which established the aim, requirements, methods and interfaces for the Ageing Management Programme (AMP). In 1993, three sub-working groups were formed: Electrical-Engineers, Mechanical-Engineers, and Civil-Engineers. The subgroup is responsible for guidelines for interfacing, cataloging aging mechanisms, diagnostic methods for equipment families, procedures for qualification, ageing-calculation, and specifications for new nuclear qualified equipment. The objective of the AMP is to ensure that significant ageing mechanisms and their effect are detected and mitigated in a timely manner to ensure continued safe and reliable operation of the equipment and systems, which are important for plant safety. Considered are material ageing, technology ageing, personnel ageing and documentation ageing. The result is that all electrical and I&C equipment items have basic information for maintenance, lifecycle management and the necessary investment in the future. This process has resulted in many benefits for managing aging and was recently presented to the China nuclear power plant personnel through Mr. Thoma as a consultant to IAEA.

14.0 New Nuclear Generation

John Wheless presented the case on what is driving the need for new Nuclear Generation, which are economics, environment, growth and demand, Attachment 7. For economics, the national average generation costs are

- Nuclear: 1.72 Cents/kWh
- Coal: 2.21 Cents/kWh
- Gas: 7.51 Cents/kWh
- Oil: 8.09 Cents/kWh

For the environment, Svante Arrhenius, Swedish Chemist, for which the Arrhenius Equation is named, lived in Sweden from 1859 – 1927 and predicted Global Warming in 1898. He also recognized the need to reduce greenhouse gasses.

For growth and demand, DOE has forecast residential, industrial and commercial growth of 50% in the Southeast and 75% in Florida. NEI has forecast that 50,000 Mwt of new generation is needed by 2020.

To meet this demand, over 28 nuclear plants have been proposed for the general area of the southeast United States. Four early site permits have been submitted with safety evaluation reports issued for 3 out of 4 already. Eleven sites have plans for combined operating license submittals between 3rd quarter 2007 and 2008. The schedule in the USA is expected to take between 8 to 10 years from license application to operation. Modular construction, standardized designs, and a standardized licensing process will help the schedule.

15.0 NRC Report

Tom Koshy has been nominated as the NRC representative to replace Satish Aggarwal and he provided the NRC liaison report. The details of his presentation, which covered a number of topics of interest to the SC-2 members, are included as Attachment 8.

16.0 Seismic Qualification of a Krohne Variable Area Electronic Flowmeter & Associated Relay for a Candu Reactor

Catherine Clarke, RCM Technologies made this presentation about a Krohne Variable Area Flowmeter, Model No H250/RR/M9/K1, Attachment 9. Three anomalies occurred during testing, none of which affected the qualification. The anomalies were: darkened glass indication cover after radiation aging, performance deterioration after thermal aging, and deflection of needle indicator during seismic testing.

17.0 Risk-Informed Performance Based Regulations, Models, Issues, and Implications for Qualification Standards to Existing Plants and Future Plants

Jim Gleason made this presentation about the need for IEEE Standards committees to become more involved in the risk informed performance based process, Attachment 10. Jim discussed the proposed Framework for Development of a Risk-informed, Performance-based, Technology-neutral Alternative to 10 CFR PART 50. Jim presented that the document highlights reliability as the process to address common mode failures instead of the traditional approach of using equipment qualification of addressing common mode failure. An action item was created for SC-2 members to review the “Framework” and send comments to Jim Gleason 2 jim@glseq.com by 11/24/06.

18.0 Use of Safety Terms in the Standards & Regulations: Recommendations

John Wheless presented the results of this effort, which included the regulations and standards and their use of safety terms, Attachment 11.

19.0 Working Group Reports

19.1 IEEE Standard 323 (SC-2.1 - WG on Environmental Qualification)

Jim Gleason indicated that the WG is looking into several areas to improve the standard for the next revision, namely: (a) providing clarification of the safety terms used, such as important to safety, safety significant, RISC-3, etc.; (b) adding a QA clause that includes the functional requirements of 10 CFR Part 21 and personal liability; and, (c) including EQ “tribal knowledge” for a number of key areas, (d) Risk-informing IEEE-Std 323, (e) consideration of Framework for Risk Informed 10 CFR Part 50, and (f) DG-1142.

19.2 IEEE Standard 334 (SC-2.2 - WG on Motors)

James Dean is now co-chairman with Bill Newall. IEEE Std 334 has passed and is being processed.

19.3 IEEE Standard 382 (SC 2.3 - WG on Valve Operators)

Tom Brewington gave the update that IEEE Std 382 has passed ballot and is being processed.

19.4 IEEE Standard 383 (SC 2.4 - WG on Cables)

John White, the WG Chairman, said that there would be no action until the NRC commented on the standard.

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

Jim Parelo, the WG Chairman, informed SC-2 that, while there was no activity on this standard, they are obtaining recommendations from their membership for additional considerations. They do not intend any changes until the NRC has reviewed the current version.

19.6 IEEE Standard 572 (SC 2.11 - WG on Connectors)

Fred Roy, working group member, noted that the revised standard is with the IEEE editors and should be issued shortly.

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

Dennis Dellinger was unable to attend.

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

Tom Brewington, speaking for the Chairman of the WG, Robert Francis, said that the standard has passed and is being processed.

20.0 Brain Storming Session

Everyone present was asked to speak on the groups future, suggestions, improvements, where we should be going and/ or new issues. The new chairman listened intently and stated that this provided much information to assist in the group's future.

21.0 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.

Table 1 - List of Action Items

Item No.	Description	Responsible	Status
<i>Action Items from Meeting 04-1</i>			
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	OPEN
<i>Action Items from Meeting 04-2</i>			
AI-04-2-9	Provide a list of IEC delegates from foreign countries.	Kjell Spang	CLOSED Distribution not allowed
<i>Action Items from Meeting 05-1</i>			
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
<i>Action Items from Meeting 06-1</i>			
AI-06-1-1	The Assistant Chairman of SC-2.2 will issue a revised draft of IEEE 382 incorporating the changes approved by SC-2 by 4/24/2006, which the SC-2 Chairman would distribute to the members who would complete their review by 5/15/2006.	Bill Sadowski	Closed
AI-06-1-2	The SC-2 Chairman agreed to seek NPEC guidance on the revision or re-affirmation of IEEE-627	Satish Aggarwal	OPEN
<i>Action Items from Meeting 06-2</i>			
AI-06-2-1	Ad hoc QA Committee to provide recommended QA Statements at 07-01 Meeting.	James Gleason	OPEN
AI-06-2-2	Review DG-1142 and provide comments to James Gleason prior to 11/24/06. James Gleason to submit comments to NPEC.	All / James Gleason	OPEN
AI-06-2-1	Review Format for Risk Informed 10 CFR 50 and provide comments to James Gleason prior to 11/24/06. James Gleason to submit comments to NPEC.	All / James Gleason	OPEN

22.0 Handing over the gavel

The exiting Chairman, Satish Aggarwal, officially turned over the gavel to the incoming Chairman Nissen Burstein. Nissen gladly accepted the Chairmanship and said he has been looking forward to this assignment. He vowed to continue the fine work of the committee, which had become very active through the efforts of Satish Aggarwal. He noted that Satish was commended the night before for his efforts to

revised all of the standards under SC-2 and brought new life into SC-2.

23.0 Adjournment

At approximately noon on Wednesday November 8, 2006 a motion was made to adjourn and meeting SC2-06-02 was adjourned.

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

List of Attachments:

1. SC-2 Meeting 06-02 Agenda
2. Life Extension Testing of Cables
3. Joint IEEE/IEC Standards
4. Optical Fiber Behavior in Radioactive Environments
5. Cable Aging Assessment and Condition Monitoring with LIRA
6. Digital Controls in Nuclear Power Plant Applications
7. New Nuclear Generation
8. NRC Liaison Report dated November 2006
9. Seismic Qualification of Krohne Flowmeter
10. Risk-Informed Performance Based Regulations, Models, Issues, and Implications for Qualification Standards to Existing Plants and Future Plants
11. SC-2 Subcommittee Safety Terms Group Report

Table 2 Attendees of SC-2 Meeting 06-2 November 7-8 in Newport Beach, CA

	Name/Company	Address	Dates Attended	
			11/7	11/8
1	Aggarwal, S. K. (Satish) – Chairman SC-2 U.S. Nuclear Regulatory Commission Tel. (301) 415-6005 Fax (301) 415-5074 Email: sa@ieee.org	Washington, DC 20555	X	X
2	Bartonicek, B. (Bohumil) Nuclear Research Institute Rez plc Tel. +420-266-173579 Fax +420-266-173580 Email: bob@ujv.cz	250 68 Husinec Rez 130 Czech Republic		
3	Baughman, P. D. (Paul) ABS Consulting/EQE Tel. (603) 778-1144 Fax (603) 778-7495 Email: pbaughman@absconsulting.com Proxy: M. Tengler	118 Portsmouth Avenue Suite B302 Stratham, VA 03885	P	P
4	Bharteey, Brij Tel. (518) 382-0056 Fax (518) 382-0283 Email: bbharteey@argoturbo.com	112 Erie Blvd. Suite 3 Schnectady, NY 12305		X
5	Behera, A. K. (Anup) Kiran Consultants, Inc. Tel. (630) 515-2650, ext. 17 Fax. (630) 515-2654 Email: Proxy: Saleem Akhtar	1401 Branding Lane Suite 255 Downers Grove, IL 60515	P	P
6	Benson, D. Steven RCM Technologies, Engineering Services Tel. (905) 821-1616 ext 245 Fax. (905) 821-1613 Email: stev.benson@rcmt.com	6620 Kitimat Rd. Mississoga, Ontario, Canada L5N2B8	X	X

Table 2 Attendees of SC-2 Meeting 06-2 November 7-8 in Newport Beach, CA

	Name/Company	Address	Dates Attended	
			11/7	11/8
7	Brewington, T. (Tom) Wyle Laboratories Tel. (256) 837-4411, ext. 512 Fax (256) 837-3363 (Proxy: Robert Francis) Email: tom.brewington@wylelabs.com	7800 Highway 20 West Huntsville, AL 35806	X	X
8	Burstein, N. M. (Nissen) – Vice Chairman SC-2 AREVA Tel. (434) 832-2501 Fax (434) 832-2683 Email: Nissen.burstein@areva.com nmf@ieee.org	3315 Old Forest Rd. M/C OF54 Lynchburg, VA 24506-0935	X	X
9	Casadevall, S. (Steve) ASCO Valve Inc. Tel. (973) 966-2512 Fax (973) 966-2624 Email: scasadevall@asco.com	50 Hanour Road Florham Park, NJ 07932	X	X
10	Channarasappa, S. (Suresh) Westinghouse Electric Co. Tel. (724)-733-6587 Email: channas@westinghouse.com	1760 Golden Mile Hwy. Monroeville, PA 15746	X	
11	Chapman, G. V. (Garry) Trentec, Inc. Tel. (513) 528-7900 Fax (513) 528-9292 Email: gchapman@trentec.com	4600 East Tech Drive Cincinnati, OH 45245		
12	Chicote, Javier Alonso Tecnatom Tel. +34-91-659-8696 Fax +34-91-659-8677 Email: jalonso@tecnatom.es Proxy: Ales Presern	Avda. Montes de Oca 28709 San Sebastián de los Reyes Madrid, Spain	P	P
13	Choi, S. Y. (Sun Yeong) Korea Atomic Energy Research Institute Tel. +82-(42) 868-8372 Fax +82-(42) 868-8256 Email: sychoi@kaeri.re.kr	Box 105, Yuseong Daejeon, 305-600 Korea	X	X

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	Name/Company	Address	Dates Attended	
			11/7	11/8
14	Chung, Choon-Hoon KOPEC Tel. 82-31-289-3843 Fax 82-31-289-4272 Email: chchung@kopec.co.kr	Electrical Department, 360-9 Mabuk-ri Guseong-eup Yonginsi, Gyeonggi-do, 449-713, Republic of Korea	X	X
15	Dean, J. M. (James) Applied Energy Services, Inc. Tel. (203) 888-1536 Fax (203) 888-1538 Email: jamesdean@aesnuclear.com	66 Chestnut Tree Hill Rd Oxford, CT 06478	X	X
16	Delcea, L. N. (Liviu Nicolae) CNE Prod Tel. +40-241-80-1658 Fax +40-723-111-627 Email: ldelcea@cne.ro	Medgidiei St. No. 1 C.P. 42, Cernavoda 08625 Constanta, Romania		
17	Dellinger, D. E. (Dennis) Solidstate Controls, Inc. Tel. (614) 846-7500 Fax (614) 885-3990 Email: dennis.dellinger@Ameteksci.com,	875 Dearborn Drive Columbus, OH 43085		
18	Di Benedetto, P. (Philip) Tel. (978) 686-3561 (h) (617) 589-2671 (w) Cell (978) 660-7662 Email: pdibenedetto@attbi.com	123 French Farm Road North Andover, MA 01845	X	X
19	Dougherty, M. (Mike) Emerson Process Tel. 208-865-1112 Fax. 208-865-1115 E-mail: mike.Dougherty@emersonprocess.com	502 Fourth of July Creek Rd North Fork, ID 83466	X	X
20	Duong, Q. H. (Quang) DTE Energy Tel. (734) 586-1813 Fax (734) 586-4911 Email:	6400 N. Dixie Hwy 125 EF2-TAC Newport, MI 48166		

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			11/7	11/8
21	Drumm, F. (Frank) Tyco Electronics Tel. +49-89-6089-567 Fax +49-89-6089-445 Email: fdrumm@tycoelectronics.com	Raychem GmbH Finsinger Feld 1 85 Ottobrunn, Germany	X	X
22	Eguchi, Yasutaka Tel. Fax Email: Proxy: Toshihiko Fukuyama		P	P
23	Emerson, Walter Shaw Stone & Webster Tel. (617) 589-2686 Fax (617) 589-5501 Email: walter.emerson@shawgrp.com	100 Technology Center Dr Stoughton, MA 02072	X	X
24	Fargo, W. D. (Wells) Southern California Edison Co. Tel. (949) 368-2525 Fax (949) 368-9552 Email: fargowd@songs.sce.com Proxy: Carl Weber	3214 Legendario San Clemente, CA 92673-3811	P	
25	Faya, A. J. (Artur) Canadian Nuclear Safety Commission Tel. (613) 996-0023 Fax (613) 943-1292 Email: artur.faya@cnsccsn.gc.ca	280 Slater Road Ottawa, Ontario K1C 5S9 Canada	X	X
26	Francis, R. L. (Robert) Wyle Laboratories Tel. (256) 837-4411 ext. 315 Fax (256) 837-3363 Email: robert.francis@wylelabs.com Proxy: Tom Brewington	7800 Highway 20 West Huntsville, AL 35807	P	P
27	Gleason, J. (Jim) Bechtel SAIC Co., LLC Tel. (702) 821-7788 Fax NA Email: jim.gleason@glseq.com	10386 Premia PL Las Vegas, NV 89135	X	X

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	Name/Company	Address	Dates Attended	
			11/7	11/8
28	Gove, P. (Patrick) Black & Veatch Tel. (913) 458-7834 Fax. (913) 458-2491 Email: Govepa@bv.com	11401 Lamar Overland Park, KS 66213	X	X
29	Hadovski, W. L. (William) Westinghouse Electric Co. Tel. (860) 731-6258 Fax (860) 731-6256 Email: william.l.hadovski@westinghouse.com Proxy: Fred Roy	2000 Day Hill Road Windsor, CT 06095	P	P
30	Harada, Hideo Tel. Fax Email:			
31	Helander, P. (Peter) Tel. +46-18-51-1836 Fax +46-18-51-1894 Email: Peter.helander@habia.se	Dag Hammarskjolds vag 13 752 37 Uppsala, Sweden		
32	Hencey III, T. (Tom) Scientech, Inc. Tel. (727) 669-3047 Fax (727) 669-3100 Email: thencey@scientech.com Proxy: Fred Roy	1393 Indian Trail N. Palm Harbor, FL 34683	X	P
33	Hopp, Dirk C. Areva NP NLE-G Tel. 49-9131-189-5034 Fax 49-9131-189-136052 Email: dirk.hopp@areva.com	Freyeslebenstrasse 1 91058 Erlangen, Germany	X	X
34	Horvath, D. (Dave) Advent Engineering Tel. (734) 930-7500 Fax (734) 327-7501 Email: dah@adventengineering.com	P.O. Box 555 24 Frank Lloyd Wright Blvd., Lobby C Ann Arbor, MI 48106	X	X

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			11/7	11/8
35	Hsu, Yoa-Tung Tel. Fax Email:			
36	Hwang, In-Koo Tel. Fax Email:			
37	Irish, C. S. (Craig) Nuclear Logistics, Inc. Tel. (978) 250-1684 Fax (978) 250-0245 Email: cirish@nuclearlogistics.com	27 Linwood Street Chelmsford, MA 01824		
38	Jagtiani-Krause, S. A. (Serena) Trentec Inc. Tel. (513) 528-7900 ext. 121 Fax (513) 528-9292 Email: skrause@trentec.com (Proxy: Garry Chapman)	4600 East Tech Dr. Cincinnati, OH 45245		
39	Kapur, S. (Sushant) Bechtel Power Corp. Tel. (301) 228-6057 Fax (301) 631-0841 Email: sxkapur@bechtel.com	5275 Westview Drive Frederick, MD 21703-8306		
40	Khan, M. R. (Mohsin) ARES Corp. Tel. (510) 645-5960 Fax (510) 656-5961 Email: mkhan@arescorporation.com	2101 Webster St. Suite 1650 Oakland, CA 94612		
41	Korsah, K. (Kofi) Oak Ridge National Laboratory Tel. Fax Email: korsahk@ornl.gov	Bethel Valley Road P.O. Box 2008 Bldg. 3500, MS 6010 Oak Ridge, TN 37831-6010	X	

Table 2 Attendees of SC-2 Meeting 06-2 November 7-8 in Newport Beach, CA

	Name/Company	Address	Dates Attended	
			11/7	11/8
42	Koshi, Thomas U.S. Nuclear Regulatory Commission Tel. 301-415-1176 Fax Email: txk@nrc.gov	Washington, DC 20555	X	X
43	Leung, H. (Henry) Tel. (905) 567-3332 Fax Email: leungcw@sympatico.ca	4556 Credit Pointe Dr. Mississauga, Ontario Canada L5M 3L9		
44	Lofaro, R. J. (Bob) Brookhaven National Laboratory Tel. (631) 344-7191 Fax (631) 344-5569 Email: lofaro@bnl.gov	P.O. Box 5000 Building 130 Upton, NY 11973-5000		
45	Lory, B. M. (Bruce) Engineering & Management Specialists, Inc. Tel. (312) 327-0920, ext. 119 Fax (312) 327-0925 Email: bruce@emsexcel.com	123 West Madison Street, Suite 1300 Chicago, IL 60602		
46	Martin, D. R. (Darin) Southern Testing Services, Inc. Tel. (865) 966-5330 Fax.(865) 675-5399 Email: sts@sts-testing.com	10627 Lexington Drive Knoxville, TN 37932		
47	McQuillan, P. (Pat) Limitorque Tel. (434) 845-9714 Fax (434) 845-9736 Email: PMcQuillan@Flowserve.com	5114 Woodall Road Lynchburg, VA 24502		
48	Mikow, D (Daniel) Framatome, ANP Tel. (724) 779-9800 ext. 1314 Fax (724) 779-9844 Email: (Proxy: Nissen Burstein)	200 West Kensinger Drive Suite 600 Cranberry Township, PA 16066	X	X

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			11/7	11/8
49	Mitton, T. (Todd) RCM Technologies Tel. (905) 821-1616 Fax (905) 821-1613 Email: todd.mitton@rcmt.com	6620 Kitimat Road, Unit 4 Mississauga, Ontario L5N 2B8 Canada		
50	Mohiuddin, A. (Asif) Sargent & Lundy Tel. (312) 269-2752 Fax (312) 269-7041 Email:	55E. Monroe 23C41 Chicago, IL 60603	X	X
51	Mohtashemi, E. (Edward) GE Nuclear Energy Tel. (408) 925-1844 Fax (408) 925-6261 Email: edward.mohtashemi@gene.ge.com	175 Curter Avenue M/C 788 San Jose, CA 95125	X	X
52	Monchy-Leroy, C. (Carole) EDF Research and Development Tel. +33-1-60-73-6773 Fax +33-1-60-73-7407 Email: carole.monchy-leroy@edf.fr (Proxy: Marc Kuntz)	Electrical Equipment Lab Les Renardières 77818 Moret sur Loing Cedex-France		
53	Newell, W. (Bill) Tel. (203) 562-5811 Fax (203) 562-1082 Email: wgnewell@worldnet.att.net Proxy: James Dean	30 Gando Drive New Haven, CT 06513	P	P
54	Parello, J. (James) Westinghouse Electric Co., LLC Tel. (724) 722-5545 Fax (724) 722-5497 Email: parellj@westinghouse.com	1000 Westinghouse Drive New Stanton, PA 15672-9606	X	X

Table 2 Attendees of SC-2 Meeting 06-2 November 7-8 in Newport Beach, CA

	Name/Company	Address	Dates Attended	
			11/7	11/8
55	Pavsek, J. (Janez) Siemens Slovenija, I&S Tel. 044-39-746-221 Fax 044-1-474-6106 Email: janez.pavsek@siemens.com	Bratislavskas 5 S1-1000 Ljubijana, Slovenia	X	X
56	Pirrong, Jan S. Cablelan Tel. (617)-803-0489 Fax (508)- 384-7811 Email: jpirrong@cablean.com	8 Sherwood Drive PO Box 196 Norfolk, MA	X	
57	Pomerening, D. J. (Daniel) Southwest Research Institute Tel. (210) 522-2318 Fax (210) 522-4506 Email: dpomerening@swri.org	6220 Culebra Road San Antonio, TX 78238- 5166		
58	Queenan, Robert Scientech Tel. (208) 524-9311 Fax (208) 524-9238 Email: Proxy: Fred Roy	220 South Woodruff Ave. Idaho Falls, ID 83401	P	P
59	Quinn, Edward (Ted) L. Tel. Fax Email:			
60	Richards, J. M. (John) Duke Energy Co. Tel. (704) 382-3916 Fax (704) 382-3993 Email:	Mail Stop EC09H P.O. Box 1006 Charlotte, NC 28201-1006		
61	Roy, F. (Fred) Scientech Tel. (256) 722-8500 Fax (256) 722-8533 Email: froy@scientech.com,	125 West Part Loop Huntsville, AL	X	X

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			11/7	11/8
62	Sadowski, William (Bill) Wyle Laboratories Tel. (256) 837-4411 ext. 315 Fax (256) 837-3363 Email: william.sadowski@wylelabs.com Proxy: Tom Brewington	7800 Highway 20 West Huntsville, AL 35807	P	P
63	Sandberg, S. (Steve) Rockbestos-Surprenant W&C Tel. (860) 653-8360 Fax (860) 653-8412 Email: steve.sandberg@r-scc.com	20 Bradley Park Road East Granby, CT 06026	X	X
64	Schinzel, G. E. (Glen) South Texas Project Tel. (361) 972-7854 Fax (361) 972-7073 Email: geschinzel@stpegs.com	P.O. Box 289 Wadsworth TX 77483		
65	Simms, R. (Roderick) Tel. (269) 465-5901 ext. 3583 Fax (269) 466-3454 Email: rsimms@aep.com	One Cook Place Bridgman, MI 49106		
66	Späng, K. (Kjell) KS Miltek Tel. +46-31-298573 Fax +46-31-694594 Email: kjell.spang@swipnet.se	Strandskarsvagen 9 SE-42658 Vastra Frolunda, Sweden	X	X
67	Starck, R. (Richard) MPR Associates Tel. (703) 519-0511 Fax (703) 519-0224 Email: rstarck@mpr.com	320 King Street Alexandria, VA 22314		
68	Suzuki, Hirotsugu Tel. Fax Email:			

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			11/7	11/8
69	Tengler, M. (Marek) Tel.+42-0377-386961 Fax +42-0377-386961 Email: tengler@stevenson.cz	Labhova 8/34 Pilsen 31806	X	
70	Van Uffelen, M. (Marco) Tel. +32 14-33-2638 Fax +32-14-31-1993 Email: mvuffele@sckcen.be	Boertang 200 Dept. Instrumentation Building BR3 B-2400, Mol, Belgium		
71	Varga, L. (Laszlo) VEIKI-VNL, Ltd. Tel. +36-1-417-3157 Fax +36-1-417-3163 Email: varga@vnl.hu	Vaszgolyo u. 2-4. H-1158 Budapest, Hungary		
72	Weber, C. E. (Carl) Pacific Gas & Electric Co. Tel. (805) 545-4084 Fax (805) 545-6928 Email: cew2@pge.com	Diablo Canyon Power Plant P.O. Box 56 Avila Beach, CA 93424	X	
73	Wheless, J. (John) Southern Nuclear Operating Company Tel. (205) 992-6898 Fax (205) 992-0391 Email: jmwehes@southernco.com	40 Inverness Center Pkwy. Bin BO57 Birmingham, AL 35242	X	X
74	White, J. (John) TXU, CPSES Tel. 254-897-6674 Fax 254-897-0530 Email: j.l.white@ieee.org,	PO box 1002 Glen Rose, TX 76043	X	X
75	Wittamore, Toni Rotork Controls, Inc Tel. (585)-328-1550, ext. 252 Fax (585) 328-5848 Email:	575 Mile Crossing Blvd. Rochester, NY 14624	X	X

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	Name/Company	Address	Dates Attended	
			11/7	11/8
76	Wood, R. T. (Richard) Oak Ridge National Laboratory Tel. (865) 574-5578 Fax (865) 576-8380 Email: woodrt@ornl.gov	Bethel Valley Road P.O. Box 2008 Bldg. 3500, MS 6010 Oak Ridge, TN 37831-6010	X	
77	Yamamoto, T. (Toshio) JAPEIC Tel. +81-47-380-8554 Fax +81-47-380-8556 Email: yamamoto-toshio@japeic.or.jp	Business Court Shin-Urayasu Bldg. 9-2 Mihama 1-Chome Urayasu-shi, Chiba 279-0011 Japan	X	X

X = Attended

P = Attended by Proxy