



IEEE SUBCOMMITTEE ON QUALIFICATION

IEEE/NPEC/SC 2 Meeting 11-2

November 7-9, 2011

Doubletree Orlando

- 1 Meeting was called to order by Jim Gleason at 08:36 AM
- 2 Introductions, Approval of Agenda
 - 2.1 Roll call by Walt Emerson, acting for Tom Koshy - quorum reached members in attendance from nine countries
 - 2.2 Identification of guests – see list
 - 2.3 Approval of Agenda – Motion by Ed Mohtashemi and second by Carl Webber
 - 2.4 Theme – Fukushima presentations
- 3 Secretaries Report
 - 3.1 Approval of previous meeting notes - Accepted – Suresh Channarasappa made the motion and Melanie Brown second – unanimous approval
 - 3.2 Status of Action Items – no items from previous meeting
 - 3.3 Status of SC-2 Membership is 57
 - 3.4 Report of Alligator Fund – currently at \$2399.62 (mtg in Sweden at no cost to group)
- 4 Chairman's Report
 - 4.1 Summary of ADCOM meeting.

The reaffirmation process is being deleted. All standards will have a ten (10) year life. Those older than 2007 must be revised but reaffirmations can be made through 2012.
 - 4.2 SC-2 and ASME – preliminary discussion meeting in August with NRC to discuss actions by ASME resulting from Fukushima. This meeting concluded that IEEE SC-2 and ASME must work closely together. Another meeting is scheduled early next year.
 - 4.3 Joint Standard in development for Small Modular Reactors (SMRs), looking at cable qualification standards – Jim Gleason, John White, Robert Konnick and Jan Pirrong.
 - 4.4 NPEC Meeting (N11-2) The SC Operating procedure update was presented by Nissen Burstein, who presented the differences in the 2009 version and new 2010 versions. See attached. A motion was made by John Corneilius and seconded by Walt Emerson to approve the updated procedure. The members unanimously accepted.



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5. Vice Chairman's Report

5.1 Meeting schedule 2012: San Diego, July 23-25 at the Sheraton Hotel – selected at the Gothenburg meeting.

5.2 Meeting schedule 2012: A discussion was led by John White on possible venues for additional 2012 meetings.

Carl Weber made suggestion to align with NUGEQ since 30% attended the last combined meeting. The reason for the larger attendance was that both meetings were in Florida approximately one week apart. Consideration was given to having three meetings because the July San Diego meeting would not afford enough time for all of the scope of the committee work. It was pointed out that one of the main problems with meetings with other groups, such as NPEC or NUGEQ is that the IEEE SC 2 Working groups and SC2 will be short changed in time, without sufficient time to accomplish our work.

It was decided to work toward the following meetings, if possible:

- April/May 2012 in Las Vegas
- July with NPEC in San Diego
- Fall meeting potentially with NUGEQ

NPEC Meeting – Satish Agraral mentioned that the PES meeting in San Diego is at the same timeframe as ours – 4000 people will attend. Attendance at NPEC meetings is increasing, so making reservations early is suggested. Topic is “Future of Nuclear Power depends on updating the standards to include lessons learned.”

5.3 Future meetings:

Jim Gleason introduced the potential for a 2013 meeting in China. SC 2 now has three members from China and a fourth is anticipated. SNERDI has offered to host a meeting in



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China for 2013. A motion to have one of the 2013 meetings in China (Shanghai) was proposed by Bob Konnick, seconded by Walt Emerson, and approved.

Evening Entertainment: Blue Man Group at Universal Studios

6. Working Group and Liaison Reports

1. SC 2.1: IEEE Std. 323 (Electric Equip EQ) *J. Gleason*
2. SC 2.2: IEEE Std. 334 (Motors) *J. Dean, B. Newell: to be reaffirmed.*
3. SC 2.3: IEEE Std. 382 (Valve Operators) *E. Mohtashemi: to be reaffirmed.*
4. SC 2.4: IEEE Std. 383 (Cables) *J. White*
5. SC 2.5 IEEE Std. 344 (Seismic) *J. Parello preview for SC2 2012-1*
6. SC 2.6: C37.98 (Relays Seismic Qual) *S. Channarasappa, M. Nemier preview for SC2 2012-1*
7. SC 2.10: IEEE 627 (Overall EQ) *D. Horvath*
8. SC 2.11: IEEE Std. 572 (Connectors) *F. Roy*
9. SC 2.13: IEEE Std. 650 (Battery Chargers) *D. Dellinger*
10. SC 2.14: IEEE Std 649 (Motor Control Centers) *R. Francis*
11. SC 2.15: IEEE 1682 (FO Cable Qual) *J. Pirrong*
12. EPRI Liaison Report not presented
13. ASME Liaison Report not presented
14. NRC Liaison Report *M. McConnell*
15. IEEE/ASME NQA-1 Liaison Report *N. Burstein*

7. Updates and Presentation

1. K. Spang – Three Condition Monitoring Standards have been approved 62582-1, -2, and 4. Elongation at Break 62582-3 has been approved by IEEE and is being reviewed by IEC. 62582-5 is in draft.
2. Jim Gleason – Status of IEEE Std 323 and IEC 60780 Joint Logo. The initial ten differences between IEEE 323 and IEC 60780, identified by IEEE WG 2.1 in the Seattle meeting, has grown. IEEE provided a draft prior to the Gothenborg meeting. IEC has proposed changes to the IEEE provided draft after the Gothenborg meeting which has slowed down the process because they caused over 160 comments and changes. Many changes are decidedly different from IEEE EQ positions and



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procedures. Five of the major differences were discussed at the WG 2.1 meeting and IEEE WG 2.1 unanimously voted to maintain the IEEE position and reject the IEC positions. Additional meetings are planned to address all of the comments. Attached is a copy of the WG 2.1 meeting minutes.

3. Mitsubishi – US APWR presentation– Yasutaka Eguchi
4. USEPR EQ Program update – Nissen Burstein
5. Westinghouse AP1000 Update – Suresh Channarasappa
6. GEH ESBWR – Ed Motashemi
7. Presentation – Clyde Union Pumps – Ranold Patrick
8. Risk Informed Regulations – John Wheless

FUKUSHIMA Theme Presentations

9. Fukushima Actions in Japan – Yasutaka Eguchi
10. Post-Fukushima Actions in Germany – Dirk Hopp
11. Post-Fukushima Actions in China – Yikang Doe, SNERDI– Jim Gleason made presentation
12. Slovenian actions after Fukushima – SIEMENS SLOVENIJA, JANEZ PAVŠEK
13. Post-Fukushima Actions in Czech Republic- Marek Tengler
14. Post-Fukushima Actions in – Kjell Spang, Sven-Olof Palm
15. NRC Fukushim – Mat Mc Connell, Shila Ray, NRC
16. Lessons Learned Post-Fukushima, Jim Gleason

Summary

Based on review of Fukushima Lessons Learned up until now, it appears that some standards should have further discussions:

- IEEE 323 consider enhancements for all natural phenomenon hazards, Station Black Out, severe accident conditions, pressure margins, fragility qualification methods, coordinated containment interfaces, and Class 1E applicability.
- IEEE 317
- IEEE 387



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- IEEE 535
- IEEE 344

8. Action items

Number	Action	Responsible
11-1	Work with Yikang Doe, SNERDI to schedule a meeting in 2013 in China	John White



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Attendance

First Name	Last Name	Attendance 2011-2
Chris	Abernathy	No
Saleem	Akhtar	Yes
Steve	Benson	Yes
Tom	Brewington	Yes
Nissen	Burstein	Yes
Steve	Casadevall	Yes
Suresh	Channarasappa	Yes
Garry	Chapman	Yes
Jake	Chilek	Yes
Jonathan	Cornelius	Yes
James	Dean	No
Dennis	Dellinger	Yes
Phil	DiBenedetto	No
Yikang	Dou	No
Mike	Dougherty	Yes
Frank	Drumm	Yes
Yasutaka	Eguchi	Yes
Walter	Emerson	Yes
Wells	Fargo	No
Sean	Foley	Yes
Robert	Francis	Yes
James	Gleason	Yes
Patrick	Gove	Yes
William	Hadovski	No
Jang	Hong-Seok	No
Dirk-Christian	Hopp	Yes
Dave	Horvath	Yes
Ken	Kettle	Yes



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First Name	Last Name	Attendance 2011-2
Kofi	Korsah	Yes
Thomas	Koshy	No
Serena	Krause	Yes
Bruce	Lory	Yes
Huaxing	Lu	No
Tania	Marinez-Navedo	No
Matthew	McConnell	Yes
Daniel	Mikow	Yes
Asif	Mohiuddin	Yes
Charles	Mohr	Yes
Ed	Mohtashemi	Yes
Marie	Nemier	Yes
William	Newell	No
James	Parello	Yes
Janez	Pavsek	Yes
Chris	Pegge	Yes
Jan	Pirrong	Yes
Robert	Queenan	Yes
Sheila	Ray	Yes
Fred	Roy	Yes
Steve	Sandberg	Yes
Glen	Schinzal	No
Kjell	Spang	Yes
Rebecca	Steinman	Yes
Marek	Tengler	Yes
Ying	Wang	No
Carl	Weber	Yes
John	Wheless	Yes
John	White	Yes
Richard	Wood	Yes

IEEE SC-2

8 Nov 11

Guests - ONLY

<u>NAME</u>	<u>Company</u>	<u>EMAIL</u>
CHAD DUPILL Stephen Terney	DUPILL GROUP / CLARK TESTING clark testing	cdupill@clarktesting.com sterney@clarktesting.com
SVEN-OLOF PALM Michael Burke	VATTEN FAN (FORSMARKS) General Cable	Su Card mburke@generalcable.com
Gerald R Liskom Rie NAKAMURA	General Cable Japan NUS	gliskom@generalcable.com rie@janus.co.jp
Michiaki Akiyama	Japan Nuclear Technology Institute	Akiyama, michiaki @ sengikyo.jp
Hiroshi Shoji Ipppei Veyama	Hitachi GE Nuclear Energy The Kansai Electric Power Company	hiroshi.shoji.kv@hitachi.com veyama.ipppei@b4. kepco.co.jp
Takayuki Akahane	Chubu Electric Power CO. Inc	AKAHANE, TAKAYUKI @chuden.co.jp
Takehiro Mizuno	Toshiba	takehiro.mizuno@ toshiba.co.jp
Kenji Yoneyama	Japan Atomic Power Company	kenji-yoneyama @japc.co.jp

Comparison between IEEE-SA Standard WG Operating Procedures, from 2009 and Dec 2010.

Section	change class *	2010 version approved by Standards Board	2009 version approved by NPEC/SC-2	Recommended Actions, subject to change class
Title		IEEE Standards Association (IEEE-SA) Baseline Policies and Procedures for IEEE Standards Working Groups - Individual Method	IEEE NPEC/SC-2 Standard Working Group Operating Procedures	Change to match 2010 version
before Preface		The IEEE-SA requires that these Policies and Procedures be adopted intact, with modifications of some clauses allowed as indicated. All clauses shall be included. If a specific clause does not apply, the clause number shall be retained with a notation of Not Applicable. Modifications for additional unique Working Group details may be proposed, which may be audited for appropriateness by the IEEE-SA Standards Board Audit Committee, once approved by the Sponsor.		add to match 2010 version
1. Preface	1	both versions the same		no action
2. Modifications to these procedures	2	1st sentence; These policies and procedures outline,....	1st sentence; These operating procedures outline,...	Change to match 2010 version
3. Hierarchy	1	both versions the same		no action
4. Fundamental principles of operation	2	3rd para, 2nd sentence; Consensus is defined as at least a majority agreement,.....	Consensus is defined as at least a <i>simple</i> majority agreement,....	Change to match 2010 version
5. Working Group responsibilities	3	contains element a) through e)	slight differences in wording in elements a) through e), plus additional elements f) and g), specific to Sponsor, SC-2.	changes and variations are permitted; leave specific as to SC-2; no action
6. Officers				
6.1 Officer overview	3	slight difference in 2nd paragraph, requires WG officers to be elected, but changes not mandatory	slight difference in 1st paragraph, no need to change; no 2nd paragraph; WG officers appointed, not elected.	changes and variations are permitted; leave specific as to SC-2; no action
6.2 Election of officers	3		WG officers appointed	changes and variations are permitted; leave specific as to SC-2; no action
6.3 Temporary appointments to vacancies	3		slight differences, no need to change	changes and variations are permitted; leave specific as to SC-2; no action
6.4 Removal of officers	3		slight differences, no need to change	changes and variations are permitted; leave specific as to SC-2; no action
6.5 Responsibilities of WG officers				
6.5.1 Chair	1	contains elements a) through n)	elements a) through n) are identical; added additional elements o) and p).	changes and variations are permitted; leave specific as to SC-2; no action
6.5.2 Vice-Chair(s)	3	both versions the same		no action
6.5.3 Secretary	3	both versions the same		no action
6.5.4 Treasurer	3	contains elements a) through d).	elements a) through d) are identical; added additional element e).	changes and variations are permitted; leave specific as to SC-2; no action
7. Working Group				
7.1 Overview	1	both versions the same		no action

7.2 WG membership status	3	first 4 paragraphs the same in both	fifth paragraph specific to sponsor, SC-2	changes and variations are permitted; leave specific as to SC-2; no action
7.2.1 Corresponding membership	3	no such section	unique to this version	changes and variations are permitted; leave specific as to SC-2; no action
7.3 Subgroups of the WG	3	both versions similar		changes and variations are permitted; leave specific as to SC-2; no action
8. WG roster and membership list			title different	Change to match 2010 version
8.1 WG roster	1		there is no WG roster title, but material exists in section	Change to match 2010 version
8.2 WG member list	1	allows membership list to be publically distributed.	this section was 8.1; change to 8.2; does not allow membership list to be made public	re-number section, but maintain 2009 restrictions for SC-2
9. Voting				
9.1 Approval of an action	1	approval of an action in 9.3, supermajority, requires approval by [2/3][3/4] vote.	does not presently address supermajority	SC to decide if actions requiring approval by supermajority are needed.
9.2 Actions requiring approval by majority	1	contains element a) through d), without confirmation of Sponsor.	contains elements a) through c); confirmation of Sponsor, SC-2, and additional element d); should add element e)	SC to agree on 2009 version, as is.
9.3 Actions requiring approval by a supermajority	1	new to this version	not present in this version	SC to decide if actions requiring approval by supermajority are needed.
9.4 Voting between meetings	1		was 9.3, but would become 9.4, if new 9.3 is approved by SC-2; content same as 2010 version	section would be re-numbered, if SC decides to add new section 9.3
9.5 Quorum	1	defines quorum as one-half of members	defines quorum as one more than one-half of members	SC to decide which definition it prefers.
10. Meetings	1	allows for petition by 15% or more of members	allows for petition by three-tenths, 0.3, or more of members; contains sentence "A balanced body is required for IEEE Standards Sponsor ballot", but does not define "balanced body"; this statement is not in 2010 version; most other verbiage is identical, with some minor differences.	SC to decide which definition it prefers, and if it wants to retain the "balanced body" statement.
11. Conduct	1	both versions the same		no action
12. Appeals	1	both versions the same		no action
13. Communications	3	both versions the same		no action

* The following defines "change class" as stated in the 2010 version.

1. This clause shall not be modified, except to add additional material, responsibilities, to identify, or be compliant with the specific superior procedure of the Sponsor.
2. This clause shall not be modified.
3. This clause may be modified.



**Office of the Chairman
IEEE NPEC Subcommittee 2 Working Group 2.1**

James F. Gleason, Chairman

November 22, 2011

Dear Richard Wood,

As you know, IEEE WG 2.1 is in the process of reviewing changes proposed in the harmonization of IEEE 323 and IEC 60780. There were approximately 190 changes proposed on the draft that was provided to the WG in June 2011. The IEEE process is to review all changes with a quorum of the WG. We have not finished this task, but will continue to do so at our subsequent WG meetings. The lack of comment so far should not be interpreted as the WG's endorsement of a change rather it is that we have chosen to look at some of the more distinguishingly different technical items first.

The following changes have been rejected by IEEE WG 2.1 and will be removed from the draft:

1. Section 6.2.1.2 The sentence:

"If age conditioning have not be performed, a specific follow-up program shall be defined to verify during qualified life the absence of ageing mechanism, inducing vulnerability of equipment in case of design basis event or hazard the equipment is supposed to withstand to"

This sentence is not consistent with IEEE 323 philosophy as there has never been any need to further address aging in equipment that has no significant aging mechanisms. The addition of a follow-up program has never been a requirement in IEEE 323 or any US regulation and the addition of a follow-up program now is without technical merit.

2. Section 6.3.1.7 The sentence:

"The specification of the conditions of each test should be as detailed as possible, to avoid all ambiguity in the results, to guarantee the validity of the qualification, or to support the interpretation of any incidents which may occur. Standardized test specifications should therefore be used wherever possible. In particular, it is advisable to follow the IEC 60068-1, IEC 60068-2 and IEC 60068-3 series for the climatic and mechanical tests, and those concerning the various materials for the tests specific to each one."

This is not consistent with IEEE 323 philosophy, EQ research and NRC regulations. This sentence would require the establishment of standardized test specifications and test method requirements on test laboratories, which is un-necessary since the requirement that qualification laboratories are already required to perform tests per a nuclear QA program, the important tests in qualification, such as seismic tests, LOCA tests, and radiation tests, are already required to have calibrated equipment for the ranges being tested, and these very tests are based on the environments required by qualification.

3. Section 6.3.1.8.2 delete the added elements (blue) of the sentence :

Arrhenius methodology may be an acceptable method for accelerating time-temperature aging effects during type testing but it still exists other methods such as sequence of thermal tests and/or thermal tests with mechanical effect, and limited duration, for instance: a four-day dry heat test, followed by a rapid variation temperature test.

Substitution for Arrhenius testing is not consistent with IEEE 323 philosophy, EQ research and NRC regulations.

4. Section 6.3.1.8.2 delete the sentence:



Thermodynamic profile shall take into account the design of the plant, the fuel management and the management of accidental scenario. Two ways of carrying out this test under accident conditions may be envisaged:

- either by applying only one thermodynamic shock, with margins;
- or by applying two successive shocks as compared with the calculated theoretical profile.

This should be deleted because the definition of margin is: 3.13 margin: The difference between service conditions and the conditions used for equipment qualification.

Obviously double transients provide no margin per the definition. Therefore, using double transients instead of margin is not consistent with IEEE 323 philosophy, EQ research and NRC regulations.

5. Use of IEC documents not reviewed by WG 2.1. The changes to the June 2011 draft contain many references to IEC documents of which IEEE WG is unaware. Therefore, WG 2.1 has decided to not include any IEC document until it has been provided to the WG for review and voting as to its applicability to IEEE 323.

Sincerely,

James Gleason, Chairman IEEE NPEC SC2 WG 2.1