

Minutes of the IEEE SURGE PROTECTIVE DEVICES COMMITTEE

**May 12, 1999
St. Pete Beach , Florida**

The meeting was called to order at 4:15 PM by chairperson Gerald Lee.

1.0 **Introductions:** All in attendance were self-introduced. In attendance were:

John Dupont	Cooper Power Systems	M		John Posey	Consultant	M
RaoTahllam	SRP	M		Richard Odenberg	Transtector	M
Mick Maytum	Power Innovations	M		Mike Comber	Hubbell Power Systems	M
Chrysanthos Crysanthou	Telcordia Technologies	M		Steve Hensley	Joslyn Mfg. Co	M
Michel de Nigris	CESI	G		Ken Nolan	Alabama Power Co.	M
Dennis Lenk	Ohio Brass Co	VCh air		Phil Jones	ERICO	G
Don Worden	MGC Electronics, Inc	M		Arnie Vitols	ABB	M
Gerald Lee	BPA	Chai r		Bengt Johnnerfelt	ABB	M
Jeff Williams	Duke Energy	M		Volker Hinrichson	Siemens	G
Joe Osterhout	Consultant	M		Willy Kapp	Joslyn Electronics Sys.	M
Jon Woodworth	Cooper Power Systems	Sec		Misao Kobayashi	Consultant	G
Tom Hartman	Cooper Power Systems	G		David Wigen	Northern Technologies Inc	G
Joe Koepfinger	Duquesne Light Co.	M		Frank Waterer	Square D. Company	M
Andi Haa	Innovation Technologies	M		Fred Basso	Basso Associates	G
Chuck Richardson	Duke Power	G		Franois Martzloff	NIST	M
Steven Whisenant	Duke Power	M		John Gauthier	NEMA	G
Jim Wilson	Ameren Services	M		H. Wolfgang Ortel	Joslyn Electronics	M
Dave Jackson	R.W. Beck	M		Deborah Jennings- Conner	UL	M
Tom Rozek	Detroit Edison	G		David Hutchins	Protek Devices	G
Harry Br??????	Circa Telecom	G		Tom Conrad	LEA International	G
Hans Steinoff	Joslyn Electronics	M		M= Member	G=Guest	
Al Maguire	Consultant	M				

2.0 **Acceptance of Charlotte Meeting Minutes:** The minutes were accepted as written.

3.0 **Subcommittee Reports**

3.1 **A & S Subcommittee** - G. Lee

Membership: The following active subcommittee members were appointed to the main SPDC.

Jim Harrison
Benny Lee
Michael Maytum
Dee Unterweger
Don Turner
Tom Hartman

Fellow Nominations: No nominations were made. Dennis Lenk is the new chair of the committee since he is the latest IEEE Fellow. A meeting will be held at the Next SPD Meeting in Costa Mesa California.

3.1.1 Standards Coordinator -John Posey

Outline of a presentation made to the PES Standards Coordinating Committee and the PES Technical Council on February 1-2, 1999

NEW OPTIONS FOR DEVELOPING STANDARDS

Traditional balloting on IEEE Standards has been by individuals. An employer funded many of these individuals. In a few cases the individual was funded by an organization and was identified as an organizational member of the balloting group. This tradition of individual balloting has been a hallmark of the IEEE standards process.

Some standards developing efforts do not benefit from this traditional balloting process. Instead, there are instances where projects will benefit from a sense of organizational involvement and voice.

Organizational involvement can offer:

- Accelerated standards development. Organizations can commit resources to conduct many meetings over a shorter time interval than customary,
- Continued involvement by the organization even if personnel changes occur,
- **Organizational voting assures equal voting, a level field – not multiple votes from individuals having the same employer,**
- Some projects are only available for IEEE sponsorship if decision making is “organizational”,
- Organizations may offer quicker and wider distribution of information, may widely distribute draft information, and are more likely to purchase paper and electronic versions of approved standards.

A study of these and other concerns over the last four years has identified need for IEEE to offer more options for developing standards. The options adopted by the IEEE-SA Standards Board to become available in 1999 are:

- Continuation of the traditional individual balloting without any change, and
- Entity voting
(A combination of entity and individual voting is under consideration)

An entity can be any type of “person” except an individual. Examples are a corporation; federal, state, provincial or local government agency; partnership and similar. The entity must be a member of IEEE-SA.

The type of voting must be indicated on the PAR when submitted for Standards Board approval.

Revisions to the IEEE-SA Standards Board Operations Manual have been adopted to implement the new option. Additional revisions will be needed if combination voting of individuals and entities is adopted. Societies should harmonize their policies and procedures. The PES Open Ballot Process may need review.

ADDITIONAL REVISIONS TO IEEE-SA OPERATIONS MANUAL

The process of creating new standards, or revising existing standards, has been improved by additional changes in the Operations Manual, and in the way NesCom and RevCom review submittals of PARs and standards. The following changes may help Working Group chairmen.

The following sentence appears as an introductory statement in the Operations Manual:

“Upon approval by the IEEE-SA Standards Board, the standard shall be published as an IEEE standard”

A correction sheet and amendment (previously referred to as a supplement) are presently used to modify published standards when errors are found in the approved and published standard, or when substantive additions are made, respectively. To these methods is added a “corrigenda”.

An IEEE Standards Project may develop a document that is

- New: A document that does not replace or substantially modify another standard.
- Revision: A document that updates or replaces an existing IEEE standard in its entirety.
- Amendment: A document that has to contain new material *for* an existing IEEE standard and that may contain substantive corrections to that standard as well.
- Corrigenda: A document that only contains substantive corrections to an existing IEEE standard

Amendments and corrigenda are independent documents that are processed with a separate PAR and balloted independently. It is permissible to conduct the ballot only on the proposed changes, provided they are accompanied by sufficient information to permit adequate review.

The approved amendment or corrigenda may be printed as an insert to stock copies of the standard and will be incorporated into the standard at its next printing. [It will also be added immediately to the electronic version of the standard.]

Up to two amendments shall be approved before the standard shall be revised or reaffirmed, unless the base standard has been approved or reaffirmed within the past two years, in which case multiple amendments may be added until the base standard is two years old.

PAR forms are available from <http://standards.ieee.org/guides/par/index.html>. This location also provides review information and instructions on completion and submission of the forms electronically. Electronic submission allows review by NesCom members before normal quarterly meetings. Electronic PARs may be circulated to Standards Coordinators of other PES Committees to quickly identify any desired coordination to be included with the PAR submission.

The Sponsor is to submit proposed standards to RevCom 40 days before the next Standards Board meeting. Occasionally a recirculation ballot may not close by this date. Since recirculation ballots close within 15 days, RevCom will now accept submittals of a draft in recirculation provided there are no new negatives on issues different from those addressed in the recirculation ballot.

The Operations Manual requires submittal of the electronic file with twenty copies of proposed standard. This remains a Sponsor option. Alternately, the Sponsor may submit the electronic file with five hard copies of the draft standard, 15 copies of the draft through clause 2, and advise RevCom the URL for downloading of the draft for review.

The options described are intended to reduce the time needed to develop and process standards without reducing the quality of the process.

3.1.2 Awards -Richard Odenberg

At the SPDC Luncheon the following awards were awarded.

The following outstanding members that have helped SPDC write and publish many standards have been awarded The IEEE Medallion Awards:

1. Jim W. Wilson
2. Donald B. Turner
3. Bengt Johnnerfelt
4. Wilhelm Kapp

Thank You again for all your help

The outstanding standard was C62.34 IEEE/Standard for performance of low voltage surge-protective devices (Secondary Arresters.)

The SPDC Working Group Recognition Award was given to WG 3.6.9 the members that received the award are:

1. Gary Goedde
2. Ted Dhooge
3. Matt Wakeham
4. Ed Foelker
5. Michael F. Stringfellow
6. Steven Whisenant
7. Joe Osterhout
8. David Jackson
9. Robert Northrop
10. Hans Steinhoff
11. Andrea Haa
12. Wilhelm Kapp
13. Francois D. Martzloff

JOB WELL DONE !

3.2 Bibliography -Rao Thallam

Minutes of the Subcommittee 3.2 "Bibliography and Definitions" held on 5/10/99, 3:30 PM – 5:00 PM, in Royal Tern Room, Tradewinds Hotel, St.Petersburg Beach, Florida.

This meeting started late by ten minutes at 3:40 PM due to confusion in meeting room schedule. The following members attended.

Rao Thallam, chairman Hans Steinhoff Dennis Lenk	John Posey Steve Whisenant	Joe Koepfinger David Jackson
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1. Working Group 3.4.9 "Application of Surge Protective Equipment on AC Rotating Machinery" submitted a draft of paper "Bibliography Relevant to Surge Voltage Protection of AC Rotating Machinery". Dave Jackson explained the revisions being made. This was reviewed and after the appropriate revisions, the subcommittee decided to recommend the paper for publication in IEEE Transactions for Power Delivery.
2. Michael Maytum brought to the attention of the subcommittee that several new terms and definitions from C62.37-1996 (published in August 1997) were not included in the C62 Series Standards Definitions document. These and other new terms from the standards issued over the last 2 to 3 years will be added and the revised C62 Series definitions document will be issued by the 99 SPDC Fall Meeting.
3. The Subcommittee received from IEC TC 37, WG 11, a 77-page draft document 60060-456 "Harmonization of terms and in the documents of TC 37 and its Subcommittees 37A and 37B. The SC 3.2 was requested to review this document and provide input to help increased coordination and harmonization of terms used by IEEE SPDC and IEC TC 37. Subcommittee briefly reviewed the document. Rao Thallam will prepare a combined document to help compare the IEC and IEEE terms for similarities and differences.

Meeting adjourned at 5:00 PM.

3.3 High Voltage Surge Protective Devices

Minutes of OPD/ASPD Subcommittee Meeting St. Petersburg, FL May 12, 1999

J. Kester, Chairman (not in attendance)

S. Hensley, Vice-Chairman

18 members and 9 guests attended the meeting:

Members: S. Hensley, G. Lee, J. Woodworth, R. Walling, T. Rozek, J. Williams, J. Wilson, D. Lenk, J. Osterhout, J. DuPont, K. Nolan, A. Vitols, T. Hartman, B. Johnnerfelt, A. Maguire, D. Jackson, J. Posey, M. Comber, R. Thallam, V. Hinrichsen

Guests: Misao Kobayashi, Marcel Fortin, Michael Champagne, Philip Baker, Larry Vogt, Jody Levine, Paul Lindemulder, Ray Hill, and Michel de Nigris

1. Meeting called to order Wednesday 5-12-99 at 2:20
2. 18 members & 9 guests
3. Fall 1998 meeting minutes approval postponed until distributed
4. Working group meetings were held for
 - 3.3.11 Continuous revision of C62.11 Tom Hartman
 - 3.3.13 High Voltage Characterization & testing Ken Noland
 - 3.4.8 Protection & insulation coord. of transformers John Posey (acting)
 - 3.4.9 Surge Protection of AC Machines C62.21 Dave Jackson
 - 3.4.14 High Voltage Application Guide Ray Walling
 - 3.4.16 Separation Effects Jim Wilson
5. Working groups 3.4.11 Arrester Modeling and 3.4.13 Surge Protection of Generating Plants did not meet. It was requested that they be removed from the agenda.
6. Key Points from review of working group minutes include:

3.3.11

- Standard PC62.11-1997/d4 is has been approved and will be published this summer as C62.11-1999.
- A task force to create the framework for an energy based rating system to replace our current application based rating system was formed. Mike Comber agreed to become Chairman
- Insulation withstand tests – are they appropriate? Joe Osterhout will Chair this task force.
- There is no test to guarantee an isolator/disconnector operation for distribution arresters above 800 amps. This can also apply to transmission arresters as well. Charlie Williams and Joe Keopfing will write a scope for this TF.
- At the beginning of each design test a brief description of why a particular test is required. John Woodworth will chair this task force.

3.3.13

- The group reviewed and discussed the progress of TF1 - TF6
- All of the TF's are reviewing and considering tests from IEC 99.4
- A great deal of discussion centered on proposals to develop standardized methods of establishing energy capabilities of arresters

3.4.8

- This group has been working with the transformer subcommittee and has come to agreement on an insulation withstand curve for oil filled transformers.
- The group worked on the issued draft and will have a new revision out in 30 days.
- The WG will submit a PAR to create a supplemental update for C62.22 including this information.

3.4.9

- Primary business was to consider the WG paper Bibliography Relevant to Surge Voltage Protection of AC Rotating Machinery.

3.4.14

- The group reviewed and discussed the progress of TF12 – TF42. All task forces are to provide the next step for their application guide contributions by the end of August for distribution to all working group members.
- The IEEE PC62.22/D8 was not approved by ASC due to lack of responses from the voting body. A letter will be sent to IEEE asking them to rebalot
- The chairman passed out a proposed outline for C62.22-200X, with a comparison to the outline of C62.22-1998. Alignment with IEC 99-5 will be considered when it can be achieved.

- If C62.11 should be changed to an energy rating system, similar to IEC, rather than an application based system. The application guide would have to be brought into alignment.
- 3.4.16**
- The WG has sent a completed utility survey of separation effects to participating utilities and WG members.
 - A submittal from R. Hileman was discussed at length and the chairman will correspond with him on the WG's questions and comments.

7. D. Lenk reported that this Subcommittee has been renamed to High Voltage Surge Protective Devices

8. Approved subcommittee and working group membership requests:

Paul Schaffer - Gulf Power Co	3.4.14
Jody Levine – Ontario Power Tech.	3.3.11, 3.4.14
Lawrence Vogt - FP&L	3.4.14
Philip Baker – Duke Energy	3.4.14
Tom Rozek – Detroit Edison	3.4.16
Misao Kobayashi – Consultant	3.4.14 corresponding

9. Meeting Time Requirements:

Tom Hartman	3.3.11	4 Hours
Mike Comber TF 1 of	3.4.14	2 Hours
Ken Nolan	3.3.13	4 Hours
Eva Tarasiewicz	3.4.8	none requested (J. Posey)
Dave Jackson	3.4.9	2 Hours (Mon. PM)
Reigh Walling	3.4.14	4 Hours
Jim Wilson	3.4.16	2 Hours (Mon.)

11. Adjournment: The meeting adjourned at 3:40 PM EDT

3.6 Low Voltage Surge Protective Devices -Don Worden

IEEE-SPD 3.6 Sub-Committee Meeting

Meeting held on Wednesday, May 12, 1999 at the Tradewinds Resort Hotel in St Petersburg, Florida

Presiding Officer and Secretary

Chairman: Don Worden
Secretary: Frank Waterer

Attendees

Fred Basso	Basso Associates
Nisar Chaudhry	TII Industries
Chrysanthes Chrysanthou	Telcordia Technologies
Richard D. Cohen	PANAMAX
Deborah Jennings-Conner	UL
Tom Conrad	CIRCA Telecom
Doug Dorr	EPRI PEAC
James Funke	Curler-Hammer
Gary Goedde	Cooper Power Systems
David Hutchins	Protek Devices
Philip Jones	ERICO

Willy Kapp	Joslyn Electronic Systems
Carl Lindquist	San-O Industrial Corporation
Al Martin	Raychem
Francois Martzloff	NIST
Mick Maytum	Power Innovations, Ltd.
H.Wolfgang Oertel	Joslyn Electronic Systems
Michael Parente	MP Technologies
Chuck Richardson	Duke Power
Hans Steinhoff	Joslyn Electronics Systems (Retired)
Don Turner	Siecor
D. Unterweger	Texas Instruments
Frank Waterer	Square D Company
Steve Whisenant	Duke Power
Don Worden	MCG Electronics

1. Call to Order, Chair's Remarks

Introduction of members and Guests.

Chair suggested that WG members have first priority for seating at the table in WG meetings. Reserve perimeter seating for Interested Parties and Visitors when seating is limited.

F. Martzloff suggested that the WG secretary bring nameplate tents for each member. These would be placed in front of the member at the table.

The Following people have been appointed members of SC 3.6:

Gary Goedde
Jim Harrison
Deborah Jennings-Connor
Benny Lee
Dee Unterweger
Frank Waterer

2. Approval of Minutes of Previous Meeting

Motion to accept the minutes of the last meeting on October 14, 1998 in Cincinnati, Ohio. Motion was seconded and approved by the attendees.

3. Working Group Reports

WG 3.6.1 Low-Voltage Gap Type Protective Devices H.W. Oertel, Chair

No activity to report.

WG 3.6.2 Low-Voltage Solid State Protective Devices R. Odenberg, Chair

A balloting committee is being formed to ballot C62.37 Standard Test Specification for Thyristor Diode Surge-Protective Devices.

C62.33 Test Specification for Varistor Surge-Protective Devices expires in 1999. A balloting committee has been requested for reaffirmation. This will be followed with a PAR for revision of C62.33.

A reaffirmation ballot has been requested for C62.35 Standard Test Specification for Avalanche Junction Semiconductor Surge Protective Devices. This will be followed with a PAR for revision to include high frequency and speed issues. David Hutchins will chair the task force for this activity.

The working group will require a minimum of four hours at the next meeting to perform its activities.

WG 3.6.3 Low-Voltage SPD Application Guide R. Davidson, Chair

There was no new material for the WG to review and no meeting was held.

C62.42 IEEE Guide for the Application of Gas Tube and Air Gap Arrester Low-Voltage (Equal to or Less than 1000V rms or 1200V dc) Surge-Protective Devices was reaffirmed on 3/18/99. A balloting group has been formed for balloting the revision to C62.42 (Component Application Guide). Draft 9 of PC62.42, incorporating input from the WG meeting in the Fall of 1998, has been submitted for balloting.

Negative ballots on C62.43, IEEE Guide for the Application of Surge Protectors Used in Low-Voltage Data, Communications, and Signaling Circuits have been reviewed and addressed.

WG 3.6.4 Surge Characterization on L-V Circuits H. Steinhoff, Chair

Meeting convened on May 11, 1999 at 8:00AM. Thirty-three visitors and Interested Parties were present.

Meeting opened by Steinhoff. Meetings to be held in three sessions on two consecutive days.

Agenda approved.

Minutes approved. 500 Hz value was questioned from last minutes.

Previous contributions to C62.41 were acknowledged.

New PARs were discussed; all PARs must be done electronically. This is not as easy as it could be. The PARs for both C62.41.1 and C62.41.2 were submitted to John Posey who submitted them to the IEEE Standards Board. IEEE decided these should be new PARs rather than a revision of the existing PAR.

Membership requirements were discussed, written comments are required.

In the near future, all balloting on standards will be electronic.

Reviewed and updated progress on C64.41.1 and C62.41.2.

Much discussion on proposed Category D, especially on likelihood of occurrence, magnitude and wave shape. Further discussion on tall buildings and 'rare' lightning.

Continued discussion on 10/350 us waveform.

Meetings adjourned for lunch.

Meeting reconvened on May 11, 1999 after lunch. Thirty-two visitors and Interested Parties were present.

Continued discussion of Category D. Looked at splitting this in to scenarios, 1 surge impinging on the service entrance, the other a direct strike.

Motion: That the surge environment be described in 2 scenarios. 1) Surge impinging on the AC power system or produced internally. 2) Direct strike impinging on the building. Francois Martzloff, Richard Odenburg.
28 yea, 0 nay (10 Members)

Continued line by line discussion of C62.41.1.

Motion: That line 759 read “quite rare” and if this motion fails that the line will read “rare”. Francois Martzloff, Ted Dhooge. 8 yea, 18 nay

NEMA and NIST members will coordinate contacting 10/350 us generator owners to provide testing for IEEE manufacturers to prepare a database to compare 8/20 to 10/350.

Comments are requested on 3.3) NEMA 5VS task force report. Please contact Andi Haa within the next month at (352) 799-0713 ext. 114 or ahaa@itvss.protector.com or andihaa@gate.net. The due date is the 15th of June 1999.

Action: Group to review EPRI report was formed, lead by Bill Goldbach with Hans Steinhoff and Bryan Cole.

Note, all input should be directed to the secretary and forwarded (or copied) to the technical editor and chairman. Electronic input is strongly recommended.

Action: Task force to study definitions lead by Andi Haa with Frank Waterer, Mick Maytum, Steve Whisenant, Hans Steinhoff and Alan Rebeck.

C62.48 will expire next year, we will need to revise or reaffirm by that date.

Motion: To place in section 3 all new definitions and all other definitions to be placed in a new Annex called a Glossary. Francois Martzloff, Hans Martzloff. 30 yea, 0 nay

Line by line discussion of C62.41.2.

There was discussion on location of B/C demarcation. Decision was made to table discussion to joint 3.6.6 and 3.6.9 joint meeting.

Discussion on 5 kHz (500 Hz) capacitor switching waveform.

Motion: C62.41.1 include in environment description, a capacitor switching description. C62.41.2 describes a recommendation for a case study for specific applications. Francois Martzloff, Willy Kapp. 25 yea 0 nay

Meetings adjourned for the evening.

Meeting reconvened May 12, 1999 at 8:00AM.

C62.45 reviewed line by line.

Action: There was a discussion on safety requirements and legal implication. Francois Martzloff to discuss with IEEE editors.

Action: Harmonization with IEC terms for testing types to be reviewed by Andi Haa.

Action: Discussion on failure was also initiated with Francois Martzloff to review.

Action: Frank Waterer to provide input to 8.2 and ground fault in the appendix.

Action: James Funke to provide input on direct coupling and amplifier connections for surge coupling.

Action: Francois Martzloff will provide copies of SC110 Test Protocol for System Compatibility for those that request in through e-mail, martzlof@eeel.nist.gov.

Action: Francois Martzloff will provide an updated version of C62.45

Action: Francois Martzloff and Steve Whisenant will provide a conclusion.

No old business

No new business

Next meeting Costa Mesa, California; Sept. 27th to 30th 1999

Meetings adjourned

Minutes as reported by James Funke and Hans Steinhoff.

The working group will require a minimum of twelve hours at the next meeting to perform its activities.

WG 3.6.6 L-V AC Power Circuit Protective Devices D. Dorr, Chair

Twenty-five attendees present. Meeting time was shortened by being incorporated into joint meeting with WG 3.6.9.

C62.62, Draft 16, out for balloting

Frank Waterer as Chairman of WG 3.6.6 Task Force (editor) presented as overview of first draft of C62.72.

Gary Goedde will place document on IEEE web.

Alan Rebeck made the motion that guide be applicable to all SPDs used in LV ac power system as defined in scope of the document. Don Worden seconded the motion. There were no negative votes.

Editor will place present definitions into a glossary section as an informative annex.

Committee will forward the "Definitions Section" to SC 3.2 for review. Document will not be released until terms in the "Definitions Section" are approved by SC 3.2.

Editor will replace all acronyms, except SPD, with full descriptions

Francois Martzloff to provide input to document in order to harmonize document with Section 5 of C62.41.1 presently in development in WG 3.6.4.

Motion made and carried to add the voltage of 220Y/127 to Table 10.2.

The Chair requested new definitions be located in the body of the document and existing definitions to be placed in a glossary at the back of the document. Chair also instructed the task force to use existing IEEE definitions and only create new definitions when necessary.

There was discussion regarding the designation of location category "C" or "B" for Service Entrance Equipment

Don Worden announced that PAR for C62.72 was originated in 9/1996. PAR expires in 9/2000. It is the desire of the 3.6 Chairman to send C62.72 document out for balloting after next meeting of WG3.6.6.

The working group will require a minimum of four to six hours at the next meeting to perform its activities.

WG 3.6.7 L-V Data, Communications & Signaling Circuit SPDs M. Parente, Chair

Twenty-nine attendees present.

The working group continued revisions to C62.36. Sections of document covering test procedures, pulse mask, impulse limiting voltage, and impulse life were completed during session. Test procedures for longitudinal balance is presently under consideration.

The working group will require a minimum of four to six hours at the next meeting to perform its activities.

WG 3.6.8 Electrostatic Discharge W. Boxleitner, Chair

Working group did not meet in St. Petersburg, Florida.

Reaffirmation of C62.38 Guide on Electrostatic Discharge (ESD): ESD Withstand Capability Evaluation Methods (for Electronic Equipment Subassemblies) is in process.

WG 3.6.9 Performance Standard for L-V SPD (Secondary Arresters) G. Goedde, Chair

Twenty-five attendees present. Meeting time was shortened by being incorporated into joint meeting with WG 3.6.6.

Chairman distributed minutes of last meeting, a technical paper, and present draft of document for review by the committee .

Chairman reviewed the scope in the PAR with the committee, explained to points of connection of an arrester, as described in the PAR, and compared the description of the arrester connection in document. The chairman's intent was to describe the service entrance relative to the location of an arrester. There was much discussion on the locations of the service entrance relative to "C" or "B" location.

A task force, led by Hans Steinhoff, was created to investigate and recommend boundary definitions for Location Categories "C" and "B" relative to the Service Entrance Equipment. In performing this work, the task force was asked to review all available and applicable codes and standards. Work to be completed by July 15, 1999 and reviewed by the Chairs of WG 3.6.6 and 3.6.9. The approved report will be forwarded to WG 3.6.4 by August 1, 1999.

There was discussion on the use of the words "shall", "should", and "may" with standard IEEE documents. Discussion was tabled until all applicable documents could be collected from IEEE.

The working group will require a minimum of four to six hours at the next meeting to perform its activities.

WG 3.6.10 Combined Multi-Port SPDs R. Cohen, Chair

This initial meeting was chaired by Dr. Richard Cohen and attended by 25 people. Interest in membership was indicated by 14 of those attending.

Those attending contributed to the development of a Scope for WG 3.6.10, which was approved by the SPDC A&S Committee on May 13, 1999. It reads:

WG 3.6.10 Surge Protection of Equipment Connected to AC Power and Communication Circuits.

1. Develop a Guide for the application of multi-port surge protectors to protect equipment connected to AC power and communication circuits.
2. The Guide will consider and discuss coordination of the multi-port surge protective devices with other ac and communication circuit protection.
3. The Guide will be limited to premises served by 120/240V rms AC power, with the neutral bonded to ground at the service entrance.

A draft of the PAR for the Application Guide reads:

This Guide Covers the Application of SPDs to:

- Equipment connected to both AC power and communication circuits.
- Premises supplied by 120/240V rms split phase AC power with neutral grounded at panel to the load side of the service disconnect and the premises side of the interface with the communications network.

Joe Koepfinger voiced concerns regarding the limitations on the scope. F. Martzloff made a motion that the scope as drafted be submitted to A&S for approval. The motion was seconded and there were no negative votes. (A&S approved the scope on 5/13/99.)

Four hours of meeting time are requested at the next meeting.

4. Reports of Related Standards Activities

IEC

Between June 1998 and January 1999, F. Martzloff has made five requests for technical references or a database to justify the 10/350 waveform. As the SPDC liaison to TC81, he has received some information; however, the issue is still unresolved.

NEMA

The NEMA 5VS 61643-1 Task Force has prepared an “unofficial draft errata document” for review and comments by the low voltage IEC TAG and C62. Andi Haa explained that the document is prepared as an errata document to the IEC 61643-1 for the purpose of defining those changes required to enhance the usability of the document for North American power systems, including those systems in Canada and Mexico. Comments are due August 1, 1999. NEMA intends to produce a final document for release with the goal of seeking ANSI approval as an American National Standard.

ANSI C62

It appears that some IEEE standards have not been submitted to ANSI for approval. The chair requested that this be investigated - - In particular, C62.34 Standard for Performance of Low-Voltage Surge Protective Devices (Secondary Arresters).

5. Old Business

Chair reminded members and guests to update their e-mail addresses.

We have been asked to use existing definitions from the IEEE C62 Series documents and IEEE Std 100-1996 whenever possible. Refer to the C62 Series Definitions compiled by our Bibliography Subcommittee.

6. New Business

Working group chairs and secretaries were reminded to monitor the need to reaffirm or revise standards for which they have cognizance.

Francois Martzloff discussed the possibility of SPD manufacturers testing their products, which have an extended history of success in the field, on the two or three surge generators that can produce the high-energy 10/350 waveform. The generators are located in Australia, Germany and possibly at Gould Shawmut in the U.S.A. No decision was reached regarding this interesting proposal.

Fred Basso extended an offer from Dr. Peter Hasse, with Dehn & Sohne, to give a presentation at our next meeting on the IEC 10/350 waveform. The mixed response indicated a need to know more about the information Dr. Hasse wishes to present. (Mr. Basso will contact Dr. Hasse.)

Joe Koepfinger reminded us of the need to develop an application guide for protecting remotely monitored revenue meters and distributed power sources. The discussion that followed seemed to indicate that those present do not have experience in this area. No decision was reached regarding further work in this area.

The next meeting will be held September 27-30, 1999 in Costa Mesa, CA at the Westin South Coast Plaza.

4.0 Special Activities -Dennis Lenk

The SPDC A&S Subcommittee sponsored a well attended Monday afternoon meeting, hosted by Jon Woodworth and assisted by Tom Hartman. This session was designed to familiarize members with the new SPDC website, electronic interfacing and electronic balloting. John Posey also made a presentation on electronic balloting.

At the Spring 1999 SPDC meeting luncheon, Dr. Miroslaw Bartkowiak presented the high interest paper "Failure Modes and Energy Capability of ZnO Varistors" to the Wednesday luncheon attendees.

For the Fall 1999 meeting in Costa Mesa, Frank Waterer from Square D offered to sponsor a presentation entitled "SPDs in LV Ungrounded Power Distribution Systems".

5.0 IEC Activities -J.L. Koepfinger

REPORT ON IEC SC 37A ACTIVITIES

SC 37A has three working groups. Working Group 5 developed and published IEC 61643-1 First Edition 1998-02 titled "Surge protective devices connected to low-voltage power distribution systems- Part 1: Performance requirements and testing methods. The latest document of this Working Group 37A/86/CD was distributed by the USNC on 4/22/99. The Secretary of SC 37A has request that the National Committee comments be returned by 5/15/99. The US has objected to this request, since the document was received at such a late date it has not been possible to circulate this to the US TAG in time for this action to take place.

Working Group 3 is working on IEC 61643-2 Titled "Surge protective devices connected to low-voltage power distribution circuits, Part 2: Selection and application principles." The working group met in Darwin, AU in January and reviewed the draft of a new CDV.

Working Group 4 is working on IEC 61644-2, Surge protection connected to telecommunication and signaling networks - Part 2: Selection and application principles. They hope to issue a new CDV on this document shortly.

Liaison Category D for IEC SC 37B

Information has been received that SC 37B is going to seek a Liaison Category D with the IEEE. The IEEE is waiting for a formal request from SC 37B. To make this liaison effective it will be necessary to have an IEEE person participate as an expert in the standard development process of SC 37B and its working groups.

REPORT ON IEC SC 37B ACTIVITIES

IEC SC 37 B met in Houston and a review was conducted of the following documents

Project #	WG #	Ref No.	Title	Action	New Doc. #	Status	Comment
61647-1	1	37/B/38/CD	GDT-SPD	Go to CD V	37B/46/CD V	Ballot closes 15 May 99	Only one US comment received
61647-2	2	37B/25/CD	ABD-SPD	Go to CD V	37B/48/CD V	Ballot closes 15 June 99	No US comments
61647-3	1	37B/27/CD	MOV-SPD	Go to CD V	37B/43/CD V	Ballot closed 1 April 99	US voted negative
61647-4	2	37B/28/CD	TSS-SPD	Go to CD V	37B/47/CD V	Ballot closes 15 May 99	No US comments

At the Houston meeting, there was a discussion of the future work for this Subcommittee. A consensus was reached on the need for an application guide. There are two types of application guides being considered. One is a guide that explains the purpose of each test that is conducted on the SPD Component in accordance with one of the four test standards being developed.

Another type of an application document is one that provides guidance on the application of the components in surge protective products. The SC 37B requested the opportunity to review IEEE standards or draft standards dealing with the application of surge protective device components. Permission was received from the IEEE Standards Department to send copies of two document C62.42 IEEE Guide for the Application of Gas Tube and Air Gap Arrester Low-Voltage (Equal to or Less than 1000 V_{rms} or 1200 V_{dc}) Surge Protective Devices and the current draft of this document which is being considered by Working Group 3.6.3 of the IEEE Surge Protective Devices Committee. This material was forwarded unofficially to the Secretary of SC 37B for a review of his committee. There has been no word received from the Secretary with regard to this matter. The official position of the IEC Central Office is that a Working Group of the IEC has no power to make recommendation on the standards that are to be developed by the Committee. For the IEEE Standard to be considered as suitable for adoption as an IEC Standard, it would have to be submitted by a National Committee either as a proposed New Work Item or as a Question Document to determine if there is National Committee interested in the adoption of the IEEE document.

TC 64 Joint Working Group 31

Following much discussion and procedural actions, the Advisory Joint Working Group that was formed several years ago in an attempt to coordinate the application of Low-voltage Surge Protective Devices was formally constituted in 1997 as Working Group 31 of TC 64. The members of this working group are largely composed of the members of the former AJWG64. These members are representatives of five IEC Technical Committees that have different interests in the application of surge protective devices. The committees are SC 28A, SC 37A, TC 64/WG3, TC 77A, and TC 81. WG 31 of TC 64 produced a technical report that was edited by Mr. Martzloff. He did an excellent job of catching the essence of about two feet of reports and papers that were considered in the development of 64/1034/CD Technical Report EC 62066: General basic information regarding surge overvoltages and surge protection in low-voltage a.c. power systems. The information in this report is to be used as reference material by all of the technical committees having liaison with TC 64/WG31. Following a meeting of the Working Group, additional changes are to be made and then the document will be submitted to the National Committees as a CDV. Since this is a Technical Report, it will not be circulated as a Draft International Standard.

IEC TC 37 ACTIVITIES

Three standards have been processed from the CDV stage to the FDIS Stage. These two have been sent to Geneva following an Editing Committee meeting in January 1999.

1. 37/197/CDV - Amendment 60 60099-1 Surge Arresters Part 1: Non-linear resistor type gapped surge arrester for a.c. systems. This covers additions and changes to the following topics:
 - 1.1. pressure relief
 - 1.2. switching impulses
 - 1.3. Long-duration current withstand
 - 1.4. Short-circuit tests
2. 37/195/CDV - Amendment 1 to IEC 60099-5, Diagnostic indicators of metal-oxide surge arresters in service

Two documents are proceeding to the CDV stages. They are:

1. 37/199/CDV 2nd CDV- Amendment 2 to IEC 60099-4, Edition 1. 1 1998-08, Surge Arresters Part 4: Metal-oxide surge arresters without gaps for a.c. systems. This material is compilation of several CDs as shown below:

Project	Reference Document	Clause in Admendment 2 of IEC PUB. 60 099-4	Title
60099-4-A1-f ₃ -Ed 1	37/139/CD	Table 1, Clause 5.4, Clause 7.1,8), 7.8, 8.1c), 8.2,c)	Internal partial discharge type, routine and acceptance tests
60099-4-A1-f ₆ -Ed 1	37/150/CD	Clause 7.3.1	Steep current impulse residual voltage test
60099-4-A1-f ₄ -Ed 1	37/161/CD	Clause 7.5.2 through 7.5.2.2 including	Accelerate aging

		Figure 4 and Table 7	
60099-1-A1-f ₁₈ -Ed 3.0	37/153/CD	Clause 7.7 et al, Tables 8 & 9 and Figures 5,6-1 & 6-2.	Short circuit tests
60099-4-A1-f ₁₁ -Ed 1	37/154/CD	New section 9.0 et al and Section 9.8 and Annex	Non linear metal oxide resistor polymer housed surge arresters
60099-4-A1-f ₁₀ -Ed 1	37/137/CD	New section 10 et al and tables 10 and 11	Test requirements on gas-insulated metal enclosed arresters.
60099-4-A1-f ₁₂ -Ed 1	37/155/CD	New Section 11 et al and Tables 12,13, and 14 and Figure 7	Separable and Deadfront arresters
60099-4-A1-f ₁₅ -Ed 1	37/136/CD	New section 12 et al	Liquid immersed arresters

37/199/CDV was rejected by the National Committees prior to the October 1998 meeting of TC 37 in Houston, TX. Working Group 4 met in February 1999 and prepared a revised CDV that was sent to the IEC Central Office on 24 April 1999.

3. 38/189/CD Project IEC 60099-4 Amd 3, f3, Ed 1.0, Amendment No.3. To IEC 60099-4 Edition 1. 1 (1998-08) Surge Arresters - Part 4: Metal-oxide surge arresters without gaps for a.c. systems. This document has been assembled and sent to the Chair of TC 37 as part of the discussion regarding the other documents that were to be part of the 3rd amendment to IEC 60099-4. The other parts that were to be completed are discussed in the following paragraphs.

We are encountering a problem relative to the Third Amendment to IEC 6099-4 Edition 1.1 1998-08. This problem is due to the requirement to limit the number of changes that may occur to an IEC Standard. The Central Office of the IEC agreed that we could have a third amendment to IEC 60099-4. The plan at the time of the agreement was to include the following document in the third amendment.

Item	Project No.	Document Reference	Next Stage	Document Title
1	60099-4 Amd. 3 f1 Ed. 1.0	37(FR)51	CD	Addition to Table 4 - Parameter for the line discharge test on 200 A and 10000 A arresters, - Subclause 7.4.2
2	60099-4 Amd. 3 f2 Ed. 1.0	37/220/CD	CD	EMC Considerations
3	60099-4 Amd. 3 f3 Ed. 1.0	37/189/CD	CDV	Mechanical Considerations
4	60099-4 Amd 3 f4 Ed. 1.0	37/201/CD	CDV	Annex X: Guide for determination of the voltage distribution along metal-oxide surge arresters
5	60099-4 Amd 3 f5 Ed. 1.0	37/206/CD	CDV	Radial field stress test on metal-oxide surge arresters for system U _m =72 kV and above
6	60099-4 Amd 37. 1.0	37/185/NP	CD	New sub-clause 7.7

It is apparent from the inspection of the above table that there is no possibility of including items 1, 2 and 6 in the next amendment, Amendment 3. At the moment, we do not know the status of items 4 and 5. This leaves us with only item 5 having any reasonable chance of being included in amendment 3. I requested John Gauthier to contact Prof. Schei and Mr. Johnnerfelt to determine if we would get a document for circulation as a CDV on either item 4 or 5. A CDV on item 4 was due April 99 and the one on item 5 was due May 99. Admittedly, it is possible that something to be in progress, but there is no indication that this is occurring. Prof. Schei is going to be in ASIA for most of May. Thus, the possibility of getting a response to our inquiry on the status of item 5 is very marginal.

I have received and completed editing item 3. This has been reformatted to make it fit-in as Amendment 3 to IEC 60099-4. This will only be amendment 3 if the revision of 37/199/CDV is approved. If the national committees do not approve it then what is called Amendment 3 will become Amendment 2, if the national committees approve Item 3.

We were committed to have Item 3 move to the next stage by February 99. The latest date for the other CDV's is May 99. It is proposed that, unless we receive documents from Professor Schei and Mr. Johnnerfelt within the next two weeks, the attached document be forwarded to the Central Office for circulation as Amendment 3 to IEC 60099-4.

It appears that there is some difficulty getting a consensus of the working group on the topics covered by items 4 and 5. (It was recommended at the Houston meeting that item 5 be placed in the zero state.) If that is the case, they both should be put into a "zero state". This does not mean that work would have to stop on these two documents, but they would be removed from the project list and the periodic review of the Committee of Action. To remove the documents from the "zero state" is to petition the Committee of Action to take this step. They would then solicit the opinion of the appropriate National Committees on this issue. This process needs to be discussed with the Central Office.

- 4, 37/219/CD - Proposed amendment to IEC 60099-1 Part 1: Non-linear resistor type-gapped surge arresters, EMC Considerations
- 37/220/CD - Proposed amendment to IEC 60099-4 Part 4: Non-linear resistor type-gapped surge arresters, EMC Considerations

The CD was circulated to the National Committees. The closing date for comments was 30 April 1999. The Secretary will prepare a compilation of these comments within a month.

6.0 ASC C62 Activities -J.L. Koepfinger

REPORT ON ASC C62 ACTIVITIES

Within the last two years there has been a deterioration of the balloting mechanism used to process standards produced by IEEE through ASC C62 for status as American National Standard. The process, which worked fine for over 25 years, was changed by agreement between the two Secretariats, IEEE and NEMA on 12/15/94. This change was made without an opportunity for the members of ASC 62 to have any input to the process. The reason given for the exchanges was a concern by IEEE that its documents were not being processed for American National Standard Status in a timely manner. The documents of particular concern were those that were being processed by ASC C37, and C57. At the time of this concern, it was stated numerous times by Mr. Salem, Managing Director of the IEEE, that there was no problem with the processing of standards in ASC C62. However, when the Memorandum of Understanding (MOU) was presented to the IEEE Standards Board it included ASC C62. Koepfinger voiced a strong objection to this arbitrary action. Prior to the new MOU, NEMA provided all balloting services and administrative services. The changes that occurred in the MOU were:

1. Each Secretariat would be responsible for the balloting and processing of standards that it developed.
2. Standards not developed by either Secretariat but processed by ASC C62 would be balloted and processed by NEMA.
3. Each party, NEMA and the IEEE, has equal responsibilities as Co-secretariat. Each Co-Secretariat is to provide administrative services. These services are to be shared as follows: NEMA shall provide administrative services to the Committee and for standards developed by NEMA and the Committee
NEMA is to provide the membership for the ballot.
4. There is to be a Co-Secretariat member present at each Committee meeting and the meetings are to be scheduled by mutual consent of the Co-Secretariats.
5. Each Co-Secretariat retains the right to submit its standards directly to ANSI for recognition as American National Standards.

Not discussed in the MOU is the procedure for balloting the standards. Prior to the latest MOU, ASC C62 did not ballot an IEEE Standard until it had been circulated to the Power Engineering Society's committee or Balloting Body and until the Body had approved the Standard. This procedure prevented the condition of having ASC C62 vote to approve a standard that might be disapproved by IEEE's balloting body. IEEE, in 1994 initiated a new procedure where their draft standard is submitted to ASC C62 at the same time it is submitted to the balloting body. This presents a condition where it is possible for the ASC C62 to approve the standard and have the IEEE balloting body reject the standard. A further complication is that the IEEE delegation like, the NEMA and EL&P delegation, is supposed to be an instructed delegation, not an individual vote. According to the rules of the IEEE Operation Manual Clause 8.4.1 Source of Instructions:

"IEEE representatives and their alternates shall utilize the expertise of the members of their sponsoring group or TC to develop an IEEE position on proposed standards being considered by their ASC. They shall report at meetings of their Sponsor on the activities of their ASC, either in person or by written report to be included in the minutes of the meeting, to inform the members of the work of the standards committee. They shall solicit comments and suggestions from interested members of their Sponsors in order to establish their position on projects under consideration, and to identify substantially interested members to whom they can turn for advice and recommendations on short notice. They shall work with the Chair and the IEEE Standards Board liaison representative of their Sponsor to ensure that they act in accordance with the consensus within the Sponsor. In the absence of instruction, they shall use their best judgement based on their experience as a member of their Sponsor to support the position with which they believe the membership would agree. All Ballot action taken by IEEE representatives shall be reported to the sponsoring committee. On all policy matters coming before this committee, the representative shall solicit instruction from the IEEE Standards Board."

The present balloting arrangement does not allow the IEEE delegation to seek the guidance of the Sponsor since this cannot be established before the draft standard has been approved or disapproved by the IEEE balloting body. It is time consuming and an unnecessary use of the resources of the members of ASC C62 to ask them to ballot a document before the IEEE balloting body has approved it. The procedure that was followed prior to the latest MOU was to ballot the draft standard in ASC C62 at the same time as it was being balloted by the IEEE Standards Board. The chance of the standard not being approved on its technical merit at the Standards Board Ballot is, and probably will continue to be, very rare. This procedure allows ASC C62 to make a decision on

whether or not an IEEE Standard is suitable to be considered as an American National Standard in a manner that is not influenced by the delegation acting as individuals, but as instructed delegates from their respective organizations. The results of the ASC C62 ballot should be available to the IEEE Standards Board when they make their formal decision regarding the approval or disapproval of the IEEE draft standard as an IEEE Standard. The IEEE Standard Board is not and should not consider they are approving a standard as an American National Standard. The two processes, the approval of the standard as an IEEE Standard and as an American National Standard, must be independent of each other, although it is in the mutual benefit of each organization not to have published Standards with the contents not being in sync. Since IEEE owns the copyright of the draft standard, it is not possible for a standard developed within their organization to be published as an American National Standard without their permission.

If the ASC C62 ballot rejects the IEEE Standard it can be published as an IEEE standard if the IEEE Standard Board approves the draft standard. Therefore, there is no need to tie the ASC C62 approval or rejection of the document as an American National Standard. Any delay in this process would be to extend a courtesy to ASC C62 to assist the IEEE in solving differences that would, if not changed, prevent the standard from being accepted as an American National Standard.

The process of having an IEEE Standard adopted as an American National Standard should be no different than a process that would have to be followed to have an IEEE Standard adopted by another country or regional representatives of countries, like Cenelec. In these cases, the IEEE would process the draft standard to be an IEEE standard. Then a request would be made either by IEEE to the other country or regional body to have them adopt the IEEE Standard. Conversely, the country or the regional standard body could request that IEEE submit their standard for adoption. In either case, the IEEE standard would be subjected to an evaluation procedure that is independent of the IEEE procedure.

If the IEEE wishes to avoid the possibility that a National Standard Body would not accept their document, they should follow their own rules of coordination during the development of the standard. One of the methods that can be used is the circulation of drafts with a request for comments. This is very much equivalent to the IEC Committee Draft process. Although most IEEE PARs indicate that drafts related to the field of surge protection are to be coordinated with ASC C62 it is indeed rare that this has ever occurred in a formal manner, where-in all members of ASC C62 have had the opportunity to review drafts and make comments.

Thus, the problem that needs to be addressed is not the coupling of the ASC C62 ballots with the voting by the IEEE Sponsors Ballot, but for the establishment of a continuing dialog between ASC C62 and the sponsor of the IEEE document. This needs to be done on a regular and formal bases during the development of the standards that fall within the scope of ASC C62.

Further discussion of this topic should take place at the ASC C62 meeting.

Balloting results

Over the last two years there has been little or no information supplied the ASC C62 members on balloting results by the Secretariats. The following information was just received from IEEE.

Draft Std.	Date Schedule to close	Approved	Approved with Comments	Disapproved	No. Return	Date Sent to BSR
C62.43	1/18/99	8		6	10	
C62.22	9/24/98		13		11	30 Mar-17 May 8, 1999
C62.62	2/10/97	1		6	14	
C62.38 reaffirmation						

The following information supplemented that given above by Sue Vogel of IEEE Standards Office:

"IEEE did not undertake balloting of the C62 Operating Procedures or the UL standard.

Our files reflect that three of the four documents were issued to ASC C62. C62.38 (reaffirmation) was not issued. The three ballots that were issued did not close due to a lack of response, and have failed.

Specific information was contained in my 24 March 1999 correspondence regarding these ballots.

As you know, we have now begun to process the ASC documents through the IEEE Balloting Center.

As can be seen, there has been a lack of response from ASC C62 in recent balloting of IEEE documents. The cause for this needs to be discussed at both IEEE SPDC and ASC C62.

7.0 Liaison Reports

7.1 ASC C84 Preferred Voltage Ratings for AC Systems and Equipment- D. Jackson

No action that I know of. No report.

7.2 Insulation Coordination Projects IEEE 1312 & 1313 (C92.1 & 92.2)- A.R. Hileman

P1313.2, "Guide for the Application of Insulation Coordination" Comments received from the first ballot necessitated some revision. This standard is now being balloted and is expected to be approved.

7.3 USNC-IEC Advisory Group to SC28A OPEN No Report

7.4 Transformers Committee- Eva Tarasiewicz No Report

7.5 T&D Committee on Insulator Contamination - M. Comber

The Working Group met in February, 1999, during the IEEE PES Summer Meeting in New York City.

A task force of the WG has concluded its work to develop a procedure for surface resistance measurements of polymer insulators. It has been proposed that surface resistance provides a better measure of contamination than ESDD for non-ceramic insulators. It is also thought by some to provide a means of monitoring aging degradation of non-ceramic insulators. Task Force chairman, Dr. Ravi Gorur (Arizona State University) indicated that a paper will be written to summarize the results, and the Task Force will be disbanded.

At the July 1998 WG meeting, it was decided to have regular presentations of "case studies" related to insulator contamination problems. AEP and Ontario Hydro were to present the first two case studies. At the February 1999 meeting, AEP reported on a 69 kV line near an aluminum extracting plant that used NaCl and water in its process. Frequent flashovers of porcelain line post insulators were not mitigated by grease coating, RTV coating or replacement with resistive glaze units. The line was ultimately re-routed. Ontario Hydro reported on problems with a 230 kV line adjacent to a steel plant and downwind from a carbon black plant, and with an elevated highway running parallel to it. The line is exposed to fog and icing in addition to the contamination. Various alternatives have been tried to reduce the number of flashovers, but none have been completely successful, including the use of resistive glaze porcelain and silicone rubber insulators.

STRI presented data on a "dry salt layer method" for insulator contamination testing. A salt solution is sprayed in a fine mist which is redirected by a fan onto the insulator, drying in the process. The method is thought to give "better results" than the IEC 507 method for contamination testing. Additional information will be reported at the next WG meeting.

7.6 T&D Committee WG on Lightning Performance of Distribution Lines - S. Brewer No Report

7.8 Substations Committee WG E-5 Direct Stroke Shielding of Substation- E. Taylor No Report

7.9 T&D Committee: DC & Flexible AC Transmission Subcommittee - Rao Thallam

The DC and Flexible AC Transmission Subcommittee met in New York on Wednesday, February 3, 1999. Items of interest to SPDC are as follows:

1. A panel session on "Y2K Considerations with respect to HVDC Systems" is planned for 1999 PES Summer Meeting in July 1999, Edmonton, Alberta, Canada.

2. The WG on "Safety Aspects of HVDC Transmission" submitted changes to National Electrical Safety Code (NESC) as revisions relative to HVDC. The actions of the NESC subcommittees are summarized as follows:

A. (CP2206) Additional Table 124-1 for HVDC station safe clearances. Subcommittee 3 approved.

B. (CP2207) New Rule 330e to define equivalent dc clearances in Part 3 on underground applications. Subcommittee 7 rejected.

C. (CP 2209) Addition to Rule 92 to consider HVDC applications for use of earth/sea as a conductor. Subcommittee 2 rejected.

3. A panel session on "Planning and Application of FACTS Controllers" is also planned for 1999 PES Summer Meeting in July 1999, Edmonton, Alberta, Canada.

4. Among the special presentations made during the meeting is, "Thyristor Switched Arresters" by Jack Christofersen. The application of thyristor switched arresters to reduce overvoltages on distribution capacitor banks was described.

5. The next meeting of the DC and FACTS subcommittee will be held at PES Summer Meeting in Edmonton, Canada.

7.10 T&D Committee Capacitor Subcommittee- open

No Report

7.11 Substations Committee Gas Insulated Substations- G. Lee

No Report

7.12 PSI&M Committee High Voltage Testing Techniques Subcommittee- D. Lenk

The HVTT Subcommittee met on January 31, 1999, at the WPM in New York. The chairman is Bill Larzelere. The committee is in the process of performing a round robin test on impulse measurements. This will include both domestic and international laboratories. Gary Schneider is the HVTT contact person on this project. They are also pursuing the option of performing AC Round Robin tests. Jim McBride is the HVTT contact person on this project. The committee is also in the process of reviewing proposed revisions to various IEC testing documents. There is also continuing discussion regarding laboratory accreditation procedures.

7.13 PES Awards Committee- R. Odenberg No Report

7.14 T.C. Technical Sessions Improvement Committee- D Lenk

The Technical Session Improvement Committee met on February 1 at the New York WPM. After reviewing the pros and cons of upgrading to computerized presentation equipment for paper presentation, the committee has decided to continue to use the existing presentation equipment (eg, overhead and slide projectors) for future paper and panel sessions. Computerized equipment is still too expensive.

There have been mixed reviews regarding the quality of poster sessions from the committees that are still using poster sessions for paper presentations. The low number of SPDC papers presentations has allowed the SPDC to continue to use the standard paper session presentation format.

The various technical committees were asked to encourage their members to make written discussions on papers of interest.

The IEEE authors kit will be upgraded to include information regarding how to make a good slide. This information used to be in the kit but was taken out.

7.15 IEEE/PES Publication Committee D Lenk

The Publication Committee held its most recent meeting in New York on Feb. 1, 1999, at the IEEE PES Winter Power Meeting.. Most of this session was spent developing time tables for proceedings and panel session presentations. The following summarizes the time tables for each of these documents.

Time table for Proceedings papers to be presented at:		WPM	SPM
• Authors submit abstracts to PES Executive Office	July 1	Dec 1	
• Authors notified by PES Executive Office of Conditional acceptance (or rejection) based on a review of the abstract		Aug 15	Feb 1
• Authors submit completed Proceedings paper to PES Executive Office		Oct 1	Mar 15
• Authors notified of final acceptance or rejection based on a review of the final paper		Nov 12	Apr 27
Time table for Panel Session Presentations at:		WPM	SPM
• Summary of 2-6 page presentation submitted to Panel Session Chair (Panel Session Chair selected by TCPC, who is the Technical Committee Program Chair)		Sept 1	Mar 1
• Panelist notified by Panel session chair of acceptance (or required changes to the summary		Oct 1	Mar 15
• Panelist submits revised summary to Session Chair, if required change was requested		Nov 1	Apr 15
• Panel session Chair submits complete session information to TCPC and PES Executive Office		Nov 12	Apr 27

Mel Olken made a presentation regarding the status of electronic publishing. The IEEE goal is to convert exclusively to electronic publishing by 2000.

7.16 T.C. Organization and Procedures Committee- D. Lenk

The Organization and Procedures Committee met on February 2, 1999, at the New York WPM. A majority of the meeting time was spent discussing the time tables for Proceedings papers and panel session presentations. The Publication meeting minutes summarize the agreed-upon time tables.

There was also some discussion regarding the possible relocation of the T&D Committee Working Group on Separable Connectors to the Insulated Conductor Committee. This group is working on revisions to IEEE 386. No decision was made. The results of further discussions at the T&D Committee meeting are not available.

7.17 SCC 18 National Electric Code- C. Chrysanthou

No Report

7.18 SCC 23 Dispersed Storage and Generation- Doug Dawson

No Report

7.19 SCC 22 Power Quality- S. Whisenant

SCC-22 met during the PES Winter Meeting in New York on February 3, 1999. Noted below is the status of significant projects:

	<u>Project</u>	<u>Status</u>
P1100	Emerald Book	Approved. Standard for sale.
P1250	Distribution Voltage Quality	First draft expected by July, 1999.
P1346	System Compatibility	Approved. IEEE 1346-1998
P1159.1	Data Sampling	In progress.
P1159.2	Event Characterization	WG ballot 12/99
P1159.3	Output Format	Using EPRI's PQDIF. Draft by July, 1999
P519A	Harmonic Applications Guide	Final draft posted to web for comments by 3/15/99

7.20 IEEE Working Group on Estimating Lightning Performance of Transmission Lines

-D. Lenk

The IEEE Working Group on Estimating the Lightning Performance of Transmission Lines met at the 1999 WPM in New York. Abdul Mousa gave an interesting presentation on lightning eliminators and their lack of performance. Mr. Ishikama made a presentation on lightning arrester location based on lightning data from a lightning location system in Japan. John Anderson made a presentation on lightning leader propagation. Minutes from this meeting are not yet available

7.21 IEC TC 81 François Martzloff

Comments from François Martzloff

In support of a recommendation **not to** accept the document

Re: 81/120/CDV - To become IEC 61312-3 “protection against lightning electromagnetic impulse (LEMP) - Part 3: Requirements of surge protective devices (SPDs)

Substantive Comments

The introduction (page 4) describes the document as a “technical report” but the title uses the word “requirement” — is this not a contradiction?

Clause 4, “SPD performance requirements” makes reference to annex B (informative) for computing the current-carrying capacity of candidate SPDs: again, the same commingling of informative and normative stipulation.

The proposed approach of creating physical barrier in a building to establish “zones” might be useful for high-security installation but is not practical for the vast majority of installations. The report should make a clear distinction between categories of installation. As written, the document could be misconstrued and lead to mandates for protection that would be poor economics. Protecting a high-security installation against a direct strike makes sense, but the expense of such protection to a residential installation for a one-every-200-year probability (ref IEC64/1034/CD) is unlikely to be accepted by the consumer. Experience in the US with SPDs having much lower capability has been successful and clearly demonstrates that for typical residential and commercial installations, these high SPD ratings are unwarranted.

Clause 2 makes reference to a 10/350 microsecond waveform as “appropriate impulse current proofing...SPDs.” Work in SC37A takes exception of this single waveform and proposes to specify a charge transfer, regardless of waveform. That approach is also questionable.

References to a “Lightning Protection System” infer that there are two types of installations, one with an LPS, one without. Such distinction is a fallacy that should not be perpetuated. All buildings which contain an electrical installation have a de facto “lightning protection system” that is, the system of earthed conductors from which the “winning” streamer will connect to the descending stepped leader, acting as the “point of strike” of the lightning discharge. Thus, except for a wooden barn and other unpowered back-yard shacks, every building has some earthed extraneous or active conductors which eventually call for bonding to the incoming power system by direct bond or through an SPD, allowing part of the lightning current to “seek earth” by exiting toward nearby earthing electrodes via the service drop. Such lightning collectors — not intentional air terminals, but de facto terminals — include roof-mounted air-conditioning equipment, sewer vent pipes (perhaps plastics by now, but still many metallic), the lighting circuit in the attic, etc. etc.

Editorial Comments

The English text has not been sufficiently edited for clarity, syntax, and typos. Providing a bi-lingual document, the general practice for a CDV, generally flushes out these deficiencies.

8.0 PES Technical Council Activities -G Lee

On-Line Standards Presentation

An on-line presentation of the IEEE Standards Department On-Line Standards service was provided. Issues include access versus cost.

Harry Jones Report to the Technical Council

His report is summarized below:

1. Transactions Editorial Board is now active.
2. CD-ROM and Printed versions of the Meeting Proceedings are now available.
3. Stationary Battery Committee has been founded with Jim McDowell as Chair.
4. Jeff Burluson of Southem Company will act as the liaison to the IEEE-USA Energy Policy Committee.
5. Dispersed or Distributed Generation Task Force formed with Steve Brockschink, Pacific Engineers as Chair.
6. A survey was conducted to determine areas of technical development work.
7. The Edmonton Meeting Technical Committee Program Chairs meeting was held in Chicago. The meeting will have three tracks including: Reliability Management in the New Market Structure, Power Quality, and Distributed Generation.

WPM 2000 Singapore

- Technical Council Chair ask each Technical Committee to submit:
1. A written report to that lists committees, working groups, and task forces that will meet in Singapore.
 2. A listing of technical sessions that each committee plans to sponsor.
 3. Plan for New Standards and Publications

PES Standards Development

- Technical Council requested that each technical committee to canvass its subcommittees, working groups, and task forces for new ideas:
 - 1) Are we already addressing the subject?
 - 2) If not, what is the priority for publishing the suggested document?
- Then assignments will be made to the appropriate committees.
- Goals are:
 - 1) Establish and execute a plan to get any new needed standards documents on the street within 5 years of the date the need was identified.
 - 2) Have any needed publications (papers, tutorials, special publications) either presented at a General Meeting or in print within 18 months of the date the need was identified.

Executive Committee Meeting

- Don Russell asked what PES could offer to encourage EE's in the Region to join. He also stressed PES assistance in sponsoring meetings and the move toward electronic publishing and review.
- Don Volzka reported on efforts to improve relations with other societies worldwide and his role in supporting the Singapore Winter 2000 Meeting.
- Bob Dent gave an overview of the new PES Advisory Council.

- Hans Püttgen spoke about the role of the Power Engineering Education Committee in fostering Electrical Power Engineering education worldwide.
 - Leo Grigsby described the organization of the IEEE Board, and his role in representing PES on this Board.
 - Bill Schwartz discussed his present focus which involves promoting PES sponsored meetings worldwide.
 - Mel Olken described his Staff efforts to provide PES information on the internet.
 - Jim Howard spoke at length about PES support of local chapter activities. He described each of the following programs and benefits:
 1. Chapters Loan Program
 2. Annual Membership Contest
 3. Chapter Outstanding Engineer Award
 4. Distinguished Lecturers Program
 5. Chapters Manuals
 6. IEEE Senior Member Initiative
 7. Past PES Chapter Chairman Pin
 8. Video Tapes of Plenary Sessions
 9. Taped Tutorials
 10. Student Branch PES Chapters
 11. Free Chapter Web Page

Future Meetings

- Winter 2000 - Singapore
Chair Jones requested roll call input from the Technical Committee Chairs as to the sessions that they would sponsor at the meeting. He also reviewed the reduced fare and lodging packages available for the Singapore meeting. The registration fee includes all lunches and an evening banquet. Don Russell also reported on the activities of the Singapore Meeting committee.
 1. Electrical Machinery - Two sessions
 2. Energy Development & Power Generation - Three sessions
 3. Insulated Conductors - One session
 4. Nuclear Power Engineering - None
 5. Power Systems Analysis, Computing and Economics - One session
 6. Power Systems Communication - Two sessions and one committee meeting
 7. Power System Dynamic Performance - Two, possibly three sessions
 8. Power Systems Instrumentation and Measurements - None
 9. Power Systems Operations - Three or four sessions and one committee meeting
 10. Power Systems Planning and Implementation - None at this time
 11. Power Systems Relaying - One session
 12. Substations - Undecided at this time
 13. Surge Protective Devices - One session
 14. Switchgear - One session
 15. Transformers - One session
 16. Transmission and Distribution - Unknown at this time

New Standards Development

- John Posey and Jim Gurnery, members of the IEEE Standards Board, gave a presentation on a new way to development IEEE standards. This new Entity voting method allows organizational participation in the development process and permits only one vote per organization. Existing method still exists. Entity (person other than an individual) voting or individual voting will be selected as part of the PAR application.
- A new method for correcting substantive technical errors within standards without major changes to the standards has been approved. This method is to approve a document called a corrigenda. Mentors are now being assigned by the Standards Board to all rejected documents to provide assistance in obtaining approval at a future meeting.

Additional Revisions to IEEE SA Operations Manual

- The process of creating new standards, or revising existing standards, has been improved by additional changes in the Operations Manual. These changes include the following Standards Project document:
 - 1 .New: A document that does not replace or substantially modify another standard.
 2. Revision: A document that updates or replaces an existing IEEE standard in its entirety.
 3. Amendment: A document that has to contain new material for an existing IEEE standard and that may contain substantive corrections to that standard as well.
 4. Corrigenda: A document that only contains substantive corrections to an existing IEEE standard
- Amendments and corrigenda are independent documents that are processed with a separate PAR and balloted independently. It is permissible to conduct the ballot only on the proposed changes, provided they are accompanied by sufficient information to permit adequate review.
- The approved amendment or corrigenda may be printed as an insert to stock copies of the standard and will be incorporated into the standard at its next printing. [It will also be added immediately to the electronic version of the standard.]
- Up to two amendments shall be approved before the standard shall be revised or reaffirmed, unless the base standard has been approved or reaffirmed within the past two years, in which case multiple amendments may be added until the base standard is two years old.
- PAR forms are available from <http://standards.ieee.org/guides/par/index.html>. The Sponsor is to submit proposed standards to RevCom 40 days before the next Standards Board meeting.

Electronic Publishing

IEEE wants all documents to be submitted on diskette in Microsoft Word or Latec (?) with graphics in TIFF or BPS (?) formats. The cutoff date after which all transactions for review by the PES shall be submitted electronically was set as June 1, 1999.

Respectively Submitted,
Gerald Lee, Chair
Surge Protective Committee

9.0 PES Technical Sessions -D Lenk

The SPDC sponsored a paper session at the 1999 Winter Power Meeting in New York. Two Conference status papers were presented. The session was attended by 25-30 interested parties.

“Thyristor-Switched Arresters for Improved Protection of Power System Equipment” by Holenarsipur, et al.
“Switching of Fault Caused Transients in Electric Power Systems” by Chapman, et al.

The SPDC co-hosted, with the T&D Lightning and Insulator Subcommittee, two panel sessions at the Spring 1999 T&D Show in New Orleans. The first panel session was entitled “Transmission Line Surge Arrester Application Experience”. The chairperson was Eva Tarasiewicz. The second panel session was entitled “Distribution Lightning Protection”, and Tom Short of PTI was the chairperson.

As mentioned at the Fall 1998 SPDC meeting, the SPDC has been requested by the IEEE **PES to sponsor special paper or panel sessions** on current topics of interest. These special sessions would normally occur at the PES Winter or Summer Power Meetings. Proceedings from these special conference sessions would be printed in Conference Proceedings which will be available at the conference. **We are currently soliciting**

topics for the 2000 WPM in Singapore. To implement this, members are asked to input suggested topics of interest to Gerald Lee or Dennis Lenk.

10.0 Old Business

- a. **P1313.2 Ballot:** Was approved
- b. **Operations Manual:** Will be updated in the next few months.
- c. **The WEB site is up an running.**

11.0 New Business

- a. No SPD Session at the Summer power meeting.
- b. A discussion was opened by Steve Whisenant regarding several communiqués circulating on early streamer lightning protection Phil Jones offered the following explanation of the product via letter for inclusion into these minutes.

Letter from Phil Jones:

During the last IEEE SPDC committee meeting, mention was made of a letter written to the NFPA committee reconsidering the future of the proposed NFPA 781 Standard. Following on from this were several comments which demonstrated that considerable confusion existing amongst the membership on this topic. I offered a brief description of the types of alternative lightning protection systems in the market place, and so I have have lifted the following text from a letter ERICO Inc, is shortly going to post to the pes-lightning mailing list (<http://www.egroups.com/group/pes-lightning/>):

ERICO makes the observation that the broad statements being adopted by many opponents of Early Streamer Emission (ESE) terminals have been unhelpful and have added considerable confusion to the debate. Many of the submissions to the Panel re-examining the proposed NFPA 781 Standard, have sought to categorize everything except Franklin rods into the ESE category. ERICO submits that this is inappropriate. No recognition for variants within this category has been acknowledged. Not all "active terminals" rely simply on a ΔT principle. The confusion has even seen dissipation terminals - which claim an ability of decreasing the probability of a lightning strike (i.e. that they repel lightning) - as being classified within the ESE camp!

The following brief synopsis is an attempt to clarify this confusion. The categorization of air attachment terminals, as they are more formally known, falls into two distinct camps:

- i) *"conventional terminals" - often referred to as "passive" and,*
- ii) *"non-conventional terminals" - often referred to as "active".*

These broad categorizations are in turn separated further. Conventional terminals / systems are classified into Franklin rods, Faraday cages and Catenary guard wires, while the non-conventional terminals are classified into "Attractive terminals or ESEs" and "Repulsive terminals or DSE (Delayed Streamer Emitters)".

I hope this helps clarify the point that different systems do exist, with different underlying theories. A place for commentary on these systems is the internet discussion group listed above, which is apparently jointly hosted by the IEEE Power Engineering Society's Surge Protective Devices Committee and working groups under the Transmission and Distribution Committee (the working group on Estimating the Lightning Performance of Transmission Lines and the working group on the Lightning Performance of Distribution Lines).

Phil Jones
 ERICO, Inc

- d. WEB site protocol is being adopted. For the interim MS Word will be the default format for documents.
- e. The WEB site will be used for all postings of the minutes. Email notices will be sent out indicating when they are posted.
- f. The 10X350 wave shape is causing much concern in the working groups. It was agreed that Don Worden would coordinate an effort to resolve the concern.
- g. Mr. De Negris addressed the committee and asked for more coordination between the IEC and IEEE.

12.0 SPDC Meeting Schedule -J Woodworth

	Spring Meeting	Fall Meeting
1999	May 9-13, The Tradewinds, St. Pete Beach Florida,	Sept 27-30, Westin South Coast Plaza, Costa Mesa, Ca. (est.\$130 + tax)
2000	May 15-19, The Tradewinds, St. Pete Beach Florida, (\$131 + tax)	October 2-6, Westin Cincinnati Cincinnati OH
2001	May 14-18, The Tradewinds, St. Pete Beach Florida, (\$131 + tax)	October 1-5 Open (West)
2002	May 13-17, The Tradewinds, St. Pete Beach Florida, (\$131 + tax)	Sept 30- October 4, Open (East)

The SPDC meeting was adjourned at 6:05pm

Jonathan J Woodworth
 Secretary, SPDC