

# Minutes of the IEEE SURGE PROTECTIVE DEVICES COMMITTEE

**October 5, 2000  
Westin Cincinnati – Cincinnati, Ohio**

The meeting was called to order at 3:45 PM by chairperson Dennis Lenk.

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

Mick Maytum	Power Innovations	M		Joe Osterhat	Consultant	M
Richard Chadwick	Dehn Inc	IP		Steve Hensley	Joslyn Mfg. Co	M
Richard Cohen	Panamax	M		Ken Nolan	Alabama Power Co.	M
Tom Field	Southern Co Services	G		Joe Barnard	OG&E	G
Ray Hill	GA Tech/Neetrac	IP		Frank Waterer	Schneider Electric	M
Dennis Lenk	Ohio Brass Co	Chr		Reigh Walling	GE Power Systems	M
Don Worden	MGC Electronics, Inc	M		Paul Freeman	Tenn Valley Auth (TVA)	M
Michael Champagne	Entergy	G		Tom Conrad	LEA International	M
Carl Lindquist	San-O Industrial	M		Deborah Jennings-Conner	UL	M?
Jeff Williams	Duke Energy	IP				
Jon Woodworth	Cooper Power Systems	VChr				
Tom Hartman	Cooper Power Systems	M				
Joe Koepfinger	Duquesne Light Co.	M				
Gary Goedde	Cooper Power Systems	Sec				
Alan D Peterson	Utility Service Corp	IP				
Jim Wilson	Ameren Services	M				
Dave Jackson	R.W. Beck	M		M= Member	G=Guest	
Andi Haa	Consultant	M		IP= Interested Party	Sec=Secretary	
Patrick Howard	Lucent Technologies	IP		Chr=Chair		
Hans Steinoff	Consultant	M		VChr=Vice Chair		
John Posey	Consultant	M				

## 2.0 Acceptance of Minutes of the Spring Meeting in St. Pete Beach

The minutes were accepted as written.

## 3.0 Subcommittee Reports

### 3.1 Administrative & Standards - D. Lenk

#### 3.1 Administrative and Standards Subcommittee Report to SPDC Committee

- The A&S Subcommittee is pleased to report that Carl Lindquist has accepted the chair position of 3.0 Bibliography Subcommittee. The SPDC thanks Rao Thallam for the fine job that he did as Bibliography Subcommittee chair.
- The A&S Subcommittee is also pleased to report that Jim Wilson has accepted the position of High Voltage Standards Coordinator and Bill Goldbach has accepted the position of Low Voltage Standards Coordinator. The SPDC thanks John Posey for his long service in this critical position and thanks him for assisting Jim and Bill in their new jobs.

- For those SPDC members who have an interest in PDH (Professional Development Hours), a PDH registration form has been placed on the SPDC website.
- Tom Hartman, SPDC website coordinator, reports that the SPDC website is running very well. Tom provided two training sessions during the Fall 2000 meeting to acquaint members with this website. Tom reported that the HV working groups have been using the website extensively for the storage of working group minutes, meeting agendas, and related documents. Tom indicated that the LV working groups need to be encouraged take greater advantage of this site.
- Revisions to the SPDC Operations Manual have been completed by Jon Woodworth. The revised document will be forwarded by Jon Woodworth to Steve Brockschink (Chair of the PES Operations and Procedures Committee) at [steven.brockschink@gte.net](mailto:steven.brockschink@gte.net) for review and comment. Pending approval of the Operations and Procedures Committee, it will be posted on the SPDC website.
- Steve Kahofer, manager of the IEEE Standards Association Balloting Center, made a presentation to the A&S Subcommittee on electronic balloting. Steve indicated that IEEE was in the process of converting to electronic balloting. Conversion to e-balloting will significantly speed up the balloting process and save about \$450 per ballot. Last year, the IEEE processed 230 ballots, more than 30 electronically. The A&S voted unanimously to convert to e-balloting on all future balloting procedures. Ballots in process, including the Trilogy, will be processed using the existing paper system. Steve also noted that the IEEE was adding a new "corporate" category in addition to the current "individual" category of balloter. Under this system, a corporation will be allowed to vote on documents, provided it has met the requirements of IEEE. The A&S discussed this and voted to retain only the "individual" voting category for upcoming ballots.
- Per instructions at the Spring SPDC meeting, the A&S prepared a white paper response and forward it to the PES chair and the PES TC chair regarding a proposed reorganization of the Power Engineering society. The consensus of A&S was that the proposed reorganization could jeopardize the future effectiveness and functionality of the SPDC. Accordingly, the SPDC reply to PES did not support the proposed reorganization.
- At the request of the Power Engineering Society Technical Committee, the SPDC submitted an article for the November issue of the PE Review describing the activities of the SPDC. This article will appear in the November issue of the PES Review and hopefully be of sufficient interest to encourage new attendees at future SPDC meetings.
- The A&S reviewed the current SPDC membership directory and found that a number of active SPDC attendees were not members of the SPD Committee. Accordingly, the LV and HV Subcommittee chairs submitted the names of several candidates, who were approved as new SPDC members. The following were approved and are welcomed as new SPDC members (pending confirmation that they are IEEE members):

Chrys Chrysanthou  
Richard Cohen  
Bill Curry  
Doug Dorr  
James Funke  
Ernie Gallo  
Bill Goldbach  
Jim Harrison  
Tom Hartman  
Steve Hensley  
Volker Heinrichsen  
David Hutchinson  
Willy Kapp  
Phil Jones  
Benny Lee  
Carl Lindquist  
Ken Nolan

Al Martin  
H.W. Ortel  
Tom Rozek  
Eva Tarasiewicz  
Don Turner  
Dee Unterweger  
Reigh Walling  
S. Frank Waterer

- The A&S discussed guidelines for time frames for submitting meeting minutes and also the procedure for reserving peripheral meeting rooms during the SPDC meeting:

First, **submittals of WG and SubC Meeting minutes** to SPDC Secretary and SPDC webmaster. **WG chairs are asked to have WG minutes submitted to their Subc chairs within 2 weeks of the SPDC meeting. Subc chairs are requested to have Subc meeting minutes submitted to the SPDC secretary within 4 weeks of the SPDC meeting.** WG and Subc chairs are **encouraged to also sent parallel copies to Tom Hartman (Website manager)** so that minutes can also be posted on the website. Also, **all website postings for upcoming meetings should be e-mailed to Tom Hartman at least a month prior to the meeting** to insure information gets posted prior to the targeted SPDC meeting.

Every two years, we rotate officers and welcome a new secretary to the A&S Committee. One of many responsibilities of the Secretary's job is to schedule meeting room requirements for each meeting. Recently, we have had an increase in the quantity of meetings peripheral to the SPDC meetings. Since the new secretary may not be aware of the fact that his predecessor has been scheduling these additional meetings, sometimes these additional meetings are not scheduled. This creates unnecessary stress. Therefore, the A&S established notification guidelines for those desiring to schedule a meeting during the SPDC meeting week. It is recommended that the chair of the periferal meeting, or his designated person, shall notify the SPDC secretary via e-mail, fax, or letter (not phone) at least two months prior to the meeting that a meeting room is required. These meetings shall not be scheduled to conflict with normally scheduled SPDC meetings.

Dennis Lenk SPDC Chair 10/5/00

### 3.1.1 Standards Coordinator – J. Posey/J. Wilson/W. Goldbach

#### 7.14 **Bibliography** – C. Lindquist

##### Subcommittee 3.2 Bibliography and Definitions

Meeting on 10/05/00 in Cincinnati, OH

The Bibliography and Definitions Subcommittee met on 10/05/00 at the Westin Hotel in Cincinnati, OH for approximately two hours. Those in attendance included:

##### Members

J.L Koepfinger  
Francois Martzloff  
Hans Steinhoff  
Jim Wilson  
Don Worden

##### Guests

Tom Field  
Richard Cohen

John Posey  
Dennis Lenk  
Jon Woodworth  
David Jackson  
Carl Lindquist – Chairman

**Opening:**

The meeting was opened at 08:00 AM with a brief overview of topics to be discussed. An agenda was passed out to all attendees.

**Review and Disposition of Prior Meeting Minutes:**

It appeared from notes and an undated document of the past Chair that the last meeting discussed the "Harmonization of IEEE-SPDC and IEC Definitions. It was explained that we would proceed with this topic during our discussion of definitions.

**Bibliography:**

The first order of business was to determine if this subcommittee was indeed involved with "Bibliographies" and what our function had been, or would be. Discussion indicated that the subcommittee had been involved with bibliographies and this effort had been waning over the past few years. This was possibly due to the ready availability of such information on-line today. However, after further discussion, it was agreed that we could provide useful input for the IEEE-SPDC members by posting pertinent bibliographies on our Web Page.

A motion was made to post all SPDC document bibliographies that are presently available in digital format on the SPDC Web Site in an unprotected area under the Working Group involved with the associated standard. This motion was seconded and voted on in the affirmative.

It was agreed that we would begin with bibliographic material from an IEEE-SPDC document on rotating machinery and any other new sources within the SPDC with the information provided in compatible software file formats. This effort will be undertaken immediately to arrange for directories in the 3.2 Bibliography section of the SPDC Web Site. David Jackson agreed to provide a digital format of the initial Bibliography provided. First entries will be on-line prior to our next meeting.

There was some discussion regarding the importance of review of bibliography contents by the Working Group Chairs concerning the documents' bibliography references quality and sources. Out of this discussion came an Action Item to determine what rules are needed to guide in the development of a bibliography. While IEEE does have rules for format and minimum information needed in entries, there is not a clear description of whether or not to include authors of papers referenced in other referenced sources. The information involved does not cause any immediate problem. However, the question remains as to whether or not such information should be included. It was noted by the Chair and others that this decision should be left to the Working Group Chairs to be resolved during their document development. We would like input from Working Group Chairs and others regarding this issue. We will also review what the IEEE Editorial Staff does with biographies and what their feelings on this issue are. Our findings will be discussed further at the next meeting.

There was also a question posed regarding development of a bibliography and review by the 3.2 Subcommittee. When should the 3.2 Subcommittee receive the first information from Working Groups? This issue was tabled and will be discussed further at the next meeting. We will seek feedback from the Working Group Chairs and members regarding this issue.

**Definitions:**

It was noted by the Chair that the order of approaching this issue would be to first deal with the SPDC Dictionary and ever changing definitions. After this is under control, we will then again attempt to "Harmonize" with the IEC Dictionary. Mr. Koepfinger offered to provide a copy of the latest proposal of the IEC Dictionary for the 3.2 Subcommittee's use. It was further recommended that copies of the up-to-date SPDC Dictionary and IEC Dictionary be made available to each Working Group for reference during their standards development. Each updated SPDC Dictionary can be made available as new revisions are approved. However, we must look into the ramifications of providing copies of the IEC Dictionary. Perhaps an agreement can be reached with the IEC to permit providing copies to each active IEEE-SPDC Working Group.

Work will be initiated to establish a new liaison D with Working Group 11 of TC-37 in an attempt to permit our Bibliography members to review pending additions to the IEC Dictionary. A letter will be generated to Mr. Koepfinger requesting the liaison described. He has agreed to follow up with the necessary correspondence to move the issue forward.

In an effort to regain control of the definitions being changed and new definitions being developed, the SC 3.2 Bibliography Subcommittee will require that any new or redefined terms be submitted in writing to the 3.2 Subcommittee for review and approval. The submission must include the reason for change or need for a new term. It was agreed that SC 3.2 will review a proposed definition for "TVSS" for inclusion in our SPDC Dictionary as an initial implementation of the review process at our next meeting.

It is essential that this term's proposed definition be provided in advance in writing to the Subcommittee.

#### **Old Business:**

It was brought to the attention of Subcommittee members that significant documents dating back to the early 1900's are looking for an archive site. A first step in this effort should be to convert the papers to digital format for reference by the IEEE-SPDC.

Our next effort will be to try to find an appropriate storage location for the actual documents.

#### **New Business:**

A motion was made to create a task force within the 3.2 Subcommittee to develop rules and establish a time limit for getting documents to the Bibliography and Definitions Subcommittee for review, without jeopardizing the completion schedule of the standards. The motion was seconded and unanimously approved by the subcommittee. Volunteers that will carry out this effort are Francois Martzloff, Joe Koepfinger and David Jackson.

The meeting was adjourned at approximately 10:10 AM.

#### **Summary of Actions Items: (Responsible Member)**

- 7 Post Bibliography Rotating Machinery on IEEE-SPDC Web Site (C. Lindquist)
- 8 Review Bibliography contents with IEEE Editorial Staff (C. Lindquist)
- 9 Obtain copy of latest revision of the IEC Dictionary (J. Koepfinger)
- 10 Generate a letter to J. Koepfinger re: Liaison D with WG 11 of TC-37 (C. Lindquist)
- 11 Conversion of archive documents to digital format (F. Martzloff)
- 12 Establish rules and set time limits for getting documents submitted to SC 3.2 without jeopardizing completion schedules for the documents (F. Martzloff, J. Koepfinger, D. Jackson)

I thank all attendees for their participation. The SC 3.2 Subcommittee will need the same amount of time for the Spring, 2001 meeting.

Carl E. Lindquist  
Chairman  
SPDC Subcommittee 3.2

### 3.3/4/5 High Voltage Surge Protective Devices – S. Hensley

#### Minutes of HVSPD Subcommittee Meeting

Cincinnati, Ohio

October 5, 2000

Steve Hensley, Chairman

Attendance at the meeting:

**Members: Steve Hensley (Chair), Michael Comber, Tom Hartman, Raymond Hill, Volker Hinrichsen, Dave Jackson, Joe Koepfinger, Dennis Lenk, Ken Nolan, Joe Osterhout, Reigh Walling, Jeff Williams, Jim Wilson, Michael Champagne**

Guests: Joe Barnard, Tom Field, Paul Freeman, Alan Peterson, Tom Short

- 7 The meeting was called to order Thursday, October 5, 2000 at 2:00 p.m.
- 8 14 members and 5 guest(s) were present.
- 9 The spring 2000 meeting minutes were approved as written.
- 10 Working group chairs are asked to provide the minutes of their respective meetings to the subcommittee chair within two weeks with a roster spreadsheet as a separate file. Please send a copy to Tom Hartman for web page purposes. The roster should include every person present at the meeting (members, guests, and interested parties) as well as active members not present. The roster is available in electronic format on the web page under help desk.
- 11 Working group meetings were held for:

3.3.11	Continuous revision of C62.11	Tom Hartman
3.3.13	High Voltage Characterization & Testing	Ken Nolan
3.4.8	Protection & Insulation Coord. of Transformers	Eva Tarasiewicz
3.4.9	Surge Protection of AC Machines C62.21	Dave Jackson
3.4.14	High Voltage Application Guide C62.22	Reigh Walling
3.4.16	Separation Effects	Jim Wilson
- 12 Key Points from review of working group minutes include:
  - 3.3.11 – Continuous revision of C62.11 – Chairman – Tom Hartman. The working group met on October 4, with 21 members and 3 guests. There are several task forces working:

Task Force #1 – Proposal of Energy Based Arrester Rating Standard – Chairman – Mike Comber. The task force is heading toward a two-part method: Thermal energy limit (with thermal recovery) and single impulse energy limit. Mike's intention is that this test will replace the transmission line discharge test. The discussion centered on how to present information in a usable manner to the end user.

Mike will present a final concept at the next meeting. At that time since this does not deal with continuous revision of C62.11 Tom Hartman will refer this to 3.3.13 through the subcommittee.

Task Force #2 – Review of Insulation Withstand Tests – Chairman – Joe Osterhout. Joe presented the working groups most recent work. They consider the work complete. The main changes were:

- 13 Dropping the dry 60 Hz portion
- 14 Altitude correction is required for wet tests
- 15 Use of TOV value in the 10 second wet voltage calculation

The working group voted to accept the committee draft and disbanded the Task Force. A copy of the final document is on the web site.

Task Force #4 – Statement of Purpose for each design Test – Chairman – Jon Woodworth.

Task force #5 – Creation of “Hot” HTML Version of C62.11 – Chairwoman – Jody Levine. Jody made a presentation of her work to date to date. IEEE is considering using this format to convert new standards as they are written.

Task Force #7 – Partial Discharge Proposal – Chairman – Mike Comber. Mike Comber sent the task force’s final version to Tom Hartman after the last meeting.

A few editorial issues were uncovered and Mike will supply a revised final version to Tom. Tom will perform editorial work on it for discussion/vote by the working group at the spring meeting.

Task Force #8 – Review of C62.11 – Chairman - Michael Champagne. The task force identified 15 questions that could be clarified to help a novice user. The Working Group agreed that the next step would be to add members to the task force to propose additions and/or modifications to the current standard to address the issues. Joe Osterhout and Mike Comber volunteered to join the task force.

Task Forces #4 & #8 met after the meeting to continue their work.

3.3.13 - High Voltage Characterization & Testing – Chairman – Ken Nolan. The working group met on October 3, with 19 members and 7 guests. There are several tasks forces working:

Task Force #1 – Short Circuit Tests – Chairman – Bengt Johnnerfelt. The task force will post an electronic copy of the short circuit proposal and ask for comments to be submitted to Bengt Johnnerfelt. At the next meeting, there will be a panel discussion on issues and diversion from IEC.

Task Force #4 – Partial Discharge Proposal – Chairman – Mike Comber. The WG sent its proposal to WG 3.3.11 at the Spring 2000 meeting.

Task Force #5 – Moisture Ingress Test – Chairman – Ken Nolan. The task force circulated Draft 5 of this document. Volker Hinrichsen passed out comments for moisture ingress test of multi-column arresters (series-parallel units). Several points were discussed in depth and revisions were proposed. Changes will be circulated to the task force and then the working group as Draft 6. Draft 5 also included the MDLC test.

Task Force #6 – Polymer Aging – Chairman – Steve Hensley. The last document was circulated at the Spring 2000 working group meeting and to date he has received only one comment from TF members. He therefor proposed to accept these tests as currently proposed. Much discussion ensued. Consensus: Add as a statement for Series B Tests: “For purposes of conforming to this standard it is necessary to perform successfully only one of these tests (or similar wording). Steve Hensley will incorporate comments and

requested more participation from working group concerning sending in comments and text. Ken Nolan will assist in distributing e-documents to the entire Working Group.

Larry Vogt of FP&L presented on lightning arrester bracket tracking failures. The working group will form a task force to recommend whether or not a new test should be added to the test standard or if the application guide should be amended. The task force will write a proposal of work and present to the subcommittee for its decision if work needs to be done.

3.4.8 - Protection & Insulation Coord. of Transformers – Chairwoman - Eva Tarasiewicz. The working group met on October 3, with 11 members and guests.

The WG discussed drafts of the Amendment to C62.22 Standard prepared by the Chair. Changes and corrections proposed during Spring meeting (draft #7A) and recommended in WG member e-mails prior to fall meeting (draft #8A) were reviewed. The discussion focused on incorporating the new transformer insulation strength volt-time curve, its interpretation and application criteria, and a new insulation coordination method applicable to long-tail surges in the upcoming revision of the C62.22-2002 Application.

3.4.9 - Surge Protection of AC Machines C62.21 – Chairman - Dave Jackson. The working group met with three members and five guests.

1. Replacement of Clause 5.14 in C62.22, Application Guide for MOSA for AC Systems.
  - a) Will add a beginning sentence to clarify application to 1000 V and higher.
  - b) Will add several clarifying subheads.
  - c) Will email and WEB post 4 files: 3 standards references, Text replacement for 5.14, 16 items for Bibliography Annex Normative), and an example for a separate Annex (Informative).
  - d) Set schedule for draft approval by WG and submittal to WG 3.4.14 by 22 Feb 2001.
2. Draft 7 of C62.21 Application Guide for Surge Voltage Protective Equipment on AC Rotating Machinery was distributed. This draft has progressed substantially in editing of previously electronically scanned 2-column material into single column, and reducing by 20 pages. Schedule for Guide PC62.21 was set as follows:
  - e) PAR Extension requested by 18 October 2000
  - f) Standards Board approval of PAR Extension, December 2000
  - g) Chair to continue cleanup and reduction of draft text; distribute to WG for review and comment by 15 February 2001
  - h) WG return comments by 1 April 2001
  - i) Chair consolidate comments and distribute to WG for spring meeting by 1 May 2001
  - j) WG review comments and draft Guide at meeting, 16 May 2001
  - k) Chair distribute to WG comments on draft Guide from spring meeting by 30 June 2001, with request for additional review and comments
  - l) WG return comments by 15 September 2001
  - m) Chair consolidate comments and bring to fall meeting
  - n) WG review consolidated comments and draft Guide at fall meeting, 5 October 2001
  - o) Distribute fall meeting comments to WG for final comments by 15 December 2001. Circulate draft to other interested committees
  - p) WG final comments returned by 1 March 2002
  - q) Consolidated draft with final comments to WG by 20 April 2002
  - r) WG complete and approve draft for balloting at spring meeting, 20 May 2002
  - s) Submit draft Guide to Standards Coordinator for balloting by 15 June 2002

3.4.14 - High Voltage Application Guide C62.22 – Chairman - Reigh Walling. The working group met on October 4, with 19 members and 8 guests. The time line for the PAR expires in

2002. February 28, 2001 is the last date for submission by task forces to WG chair of new text and all non-editorial revisions. The balloting process will begin in December 2001.

Dave Jackson provided a draft for inclusion on the AC machine application.

There was a request made to add a section to the standard that would apply to series capacitor banks. Task Force # 45 will be formed, with Gerald Lee to serve as its chair.

The Coordination Curves working group (3.4.8) will have an amendment, hopefully in time for the next revision (2002). It was decided that the PAR for this working group (which expires in 2004) will not be withdrawn as a fallback in case its work is not ready for inclusion in 2002, it will be issued as an amendment in 2004.

There was some discussion on the presentation prior to this meeting, whose subject was distributed resources. Reigh Walling will coordinate with P1547, and make their draft available in the private area of the web site.

It is noteworthy that the Switchgear and Substation Committees asked for liaison with the revision of C62.22; however the Transformer Committee has not.

3.4.16 - Separation Effects – Chairman - Jim Wilson. The objectives of this meeting were to discuss how IEEE Standard 1313.2 may effect the revision of C62.22-1997 Annex C that we are working on, to discuss the three items submitted to the working group for our consideration, and to discuss draft 7 of the revision to Annex C. The current goal of the working group is to complete this revision of Annex C to meet the timetable of Working Group 3.4.14.

Two revisions were made to the minutes of Spring 2000 and the revised minutes were approved.

The working group discussed the similarities and differences of various clauses of IEEE Standard 1313.2-1999, the IEEE Guide for the Application of Insulation Coordination, as described by the chairman, and the revision of Annex C that we are working on. It was the working group opinion that Annex C should still be a part of C62.22.

The working group discussed Bob Hileman's submittal of "Comments on A Generalized Study to Determine the Optimum Location of Lightning Arresters in Power Transmission and Subtransmission Stations by Michael B. McNulty, June 1964".

The working group also discussed Bob Hileman's submittal on Calculations of the Separation Distance per "Insulation Coordination for Power Systems".

3.5.1 Neutral Grounding Devices – Chairman - Doug Dawson. This WG did not meet. The subcommittee chair asked for more participants because only two people are doing the work. They are working on C62.91, Technical Requirements and Test Procedures for Neutral Grounding Devices. This standard will be re-circulated for reaffirmation because its PAR has expired.

16 New Business:

- a) Jeff Williams will take over for Jim Wilson as Chairman of WG 3.4.16.
- b) The members of the subcommittee are asked to provide Jon Woodworth with program suggestions via e-mail.

17 Meeting Time Requirements for Spring 2001:

Tom Hartman	3.3.11	4 Hours
Ken Nolan	3.3.13	4 Hours

Eva Tarasiewicz	3.4.8	2 Hours
Dave Jackson	3.4.9	3 Hours
Reigh Walling	3.4.14	4 Hours
Jeff Williams	3.4.16	2 Hours

18 Adjournment: The meeting adjourned at 3:40 p.m.

### 3.6 Low Voltage Surge Protective Devices - D. Worden

#### MINUTES of IEEE/SPD SC3.6

Meeting held in Cincinnati, Ohio at the WESTIN Hotel on October 5, 2000 at 1400.

#### Members:

Warren Boxleitner*	Boxleitner Group
Chrys Chrysanthou	Telcordia Technologies
Richard Cohen	PANAMAX
Bill Curry	TYCO Electronics
Bob Davidson*	UL
Doug Dorr*	EPRI-PEAC
James Funke	Cutler-Hammer
Ernie Gallo*	Telcordia Technologies
Gary Goedde	Cooper Power Systems
William Goldbach*	Innovative Technology
Jim Harrison*	Liebert
David Hutchins*	PROTEK, Devices
Phil Jones*	ERICO
Willy Kapp*	Joslyn Electronic Systems (Retired)
Joe Koepfing*	Duquesne Light Company (Consultant)
Benny Lee	World Products
Al Martin*	TYCO/Raychem
Francois Martzloff	NIST
Mick Maytum	Power Innovations, Ltd
Richard Odenberg*	TRANSTECTOR
Wolfgang Oertel	Joslyn Electronic Systems
Mike Parente	MP Technologies
Hans Steinhoff	Joslyn Electronic Systems (Retired)
Don Turner	Corning Cable Systems
Dee Unterweger*	Texas Instruments
Matt Wakeham*	Leviton
Frank Waterer (Secretary)	Schneider Electric
Don Worden (Chairman)	MCG Electronics (Consultant)

\*Members not in attendance.

#### Interested Parties (In attendance)

Richard Bentinger	Ericsson Radio Systems
Richard Chadwick	DEHN, Inc.
Deborah Jennings-Conner	UL
Tom Conrad	LEA International
Andi Haa	Consultant
Patrick Howard	LUCENT Technologies
Carl Lindquist	SAN-O-Industries

Walter Miller

MAIDA Development Company

Agenda:

1. Introduction

An attendance sheet was circulated for each attendee to sign in

2. Agenda:

A meeting agenda was distributed to all attendees by the Chair.

3. Guest Comments

Jon Woodworth attended the meeting as a guest and requested input from the members to create technical papers on LV Surge Protection and topics relating to the application of SPDs on Distributed Generation Systems. Chair suggested that a technical report might be in order but there may not be enough Low Voltage members with DG experience to write an application guide. Jon will attempt to locate personnel in order to liaison between the low voltage and high voltage SPD subcommittees.

4. Reading of the Minutes:

Minutes from last meeting on May 18, 2000 were distributed and reviewed by attendees. Motion to approve minutes of the last meeting was made. Motion was seconded. There were no negative votes.

5. Comments from the Chair.

- Each Working Group Chair was requested to submit the number of hours needed during Spring 2001 Meetings to conduct activities.
- In order to satisfy the requirements of indemnification, each Working Group must have an up to date listings of all members. Membership list should include names, company affiliation, and all business, telephone, FAX, and E-MAIL addresses.
- Each Working Group Chair should provide SC3.6 Secretary with a list of all Interested Parties who attend meetings.
- Sub committee minutes are desired within two weeks in order to be posted on the IEEE Web Page within four weeks after each IEEE/SPDC Meeting
- Chair requires of each Working Group a listing of the status for completion of each standard under development or reaffirmation.

6. Other Topics:

- The organization of test standards and application guides was discussed with the desire to keep both documents within the same working group. Typically, an application guide will have a companion test document.

- John Posey is retiring at the end of December, 2000. Bill Goldbach will be the new IEEE Standards Coordinator for LV Standards and Jim Wilson will be the new IEEE Standards Coordinator for HV Standards
- Bill Goldbach requested a listing of E-MAIL Addresses for all members.

7. Summary of Working Group Report:

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

- Working Group met for approximately two hours on Wednesday Morning, October 4<sup>th</sup>.
- Seven members and six Interested Parties attended meeting.
- Jack Cawley volunteered to become Secretary of Working Group 3.6.1.
- PAR for the revision of C62.32 was discussed and approved by the group. The PAR will be forwarded to John Posey and Bill Goldbach. A copy of the PAR will be forwarded to Don Worden.
- Future revised C62.32 documents will be forwarded to the Working Group via E-MAIL for comments. The Working Group agreed to complete this task by November 30, 2000. Working Group intends to finish the revisions to C62.32 during the Spring Meeting in St. Petersburg in May, 2001.
- Working Group requires two hours during the next meeting. Meeting time should be arranged such that members can also attend a meeting of Working Group 3.6.3 on same day.

WG 3.6.2 Low-Voltage Solid State Protective Devices - Mick Maytum, Chair

Working Group met for eight hours during two separate sessions.

- Working Group met for four hours on Monday Morning, October 2<sup>nd</sup>.
- Eleven members, six Interested Parties, and four Guests attended meeting.
- The project scope for the revision of C62.33, developed during the Spring 2000 Meeting, was reviewed, modified, and approved by the working group.
- Members then discussed four proposed updates to the standard relating to new technologies, test circuits and procedures, reliability testing, and terms, definitions and letter symbols. The first three topics were extensively discussed, however, due to time limitations, the discussion relating to terms, definitions and letter symbols was not completed.
- Tasks to review the standard and proposed text changes were defined and assigned for a December, 2000 completion date.
- Working Group met for four hours on Tuesday Afternoon, October 3<sup>rd</sup>.
- Ten members, five Interested Parties, and two Guests attended meeting.
- A discussion of the comparison between IEC 61647-2 and the current draft of C62.35, prepared by Benny Lee, was initiated. It was determined that technical changes cannot

presently be made to IEC 61647-2 where as C62.35 can be modified. A review of the scopes and definitions was completed. It was determined that definitions in IEC 61647-2 were often too specific rather than generic. And consequently did not reflect a total industry practice. It was felt that a final version of C62.35 would serve the industry better than IEC 61647-2.

- Benny Lee will update C62.35 per the changes discussed during the meetings and post the document in the private area of the Website for Working Group 3.6.2 by December, 2000.
- C62.37.1 has been approved by the IEEE Standards Board.
- A total of eight hours is requested for the next meeting. Working Group requests two meetings of four hours each on different days.

#### WG 3.6.3 Low-Voltage SPD Application Guide Don Turner, Chair

- Don Turner replaces Bob Davidson as new chairman of Working Group. Bob Davidson will continue participating in Working Group on C62.42. Working Group's goal is to create a list of applicable application guides.
- No meeting held in Fall, 2000.
- A total of two hours is requested for the next meeting. Meeting time should be arranged such that members can also attend a meeting of Working Group 3.6.1 on same day.

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

- Working Group met for four hours on Tuesday Morning, October 3<sup>rd</sup>.
- Twelve members and nineteen Interested Parties attended meeting.
- Meeting opened with several requests for corrections and revisions to Meeting Minutes from the last meeting in May, 2000.

Chair read a description of the functions of a Ballot Resolution Committee (BRC) to the Working Group. Chair established a BRC for the Trilogy. Ray Hill to be acting chair. The BRC for the Trilogy will consist of James Funke, Francois Martzloff (non-voting member), Frank Waterer, Andi Haa, and Alan Rebeck. Ray Hill will instruct Francois Martzloff (as Editor) as to the accepted text, which he will resubmit to the balloting committee. Ray Hill will check with IEEE for the ground rules for the BRC. The Chair gave Ray Hill a memo from John Posey (IEEE Standards Coordinator) with suggested procedures for the BRC.

- Report given to Working Group by Francois Martzloff on the status of the Trilogy. C62.45 is ready for ballot. The electronic format had to have many conversions, from Mac to Word, to Word Perfect, and back to Mac, but is now complete. C62.41.2 is in good order except for adding to Scenario II (a strike very close to the building). Copies (not for discussion) of Table 8 of dot 2 were passed out to the Working Group. C62.41.1 is finished except for the Goedde paper synopsis.
- Invitations to ballot the Trilogy have been sent out by IEEE. However it will be 2001 before balloting can be completed.

#### Work on C62.48

- The Chair opened discussion on C62.48 D1. It was noted that this first attempt was to get thoughts together. Copies of the current draft of C62.48, with commentary made by Frank Waterer, were distributed to the Working Group for review and discussion. Most of meeting was spent discussing specific revisions to C62.48.
- The Chair discussed the negatives and comments received from the recent reaffirmation ballots.
- Chair appointed James Funke to act as editor for revisions to C62.48. Chair reiterated that anyone with additions and comments should write them down and send them to the editor, James Funke.
- Chair appointed Mike Hopkins and Jim Harrison to a Task Force on Definitions for revisions to C62.48.
- Francois Martzloff requested that further drafts from the editor be sent out in a "pdf" file format so that line numbers will not be changed by other's software. Editor agreed to try.
- Frank Waterer commented that the scope of document should cover the effects on SPDs and the effects of SPDs on the system. Francois Martzloff pointed out that it was there, however, the wording may not be as clear as it could be. The group would like to review the exact wording of the PAR.
- A total of four hours is requested for the next meeting

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

- Working Group met for four hours on Tuesday Afternoon, October 3<sup>rd</sup>.
- Eight members and fourteen Interested Parties attended meeting.
- Due to scheduling conflicts, Doug Dorr was not able to attend meeting. Frank Waterer functioned as acting Chairman for the meeting.

Review of Draft No. 9 of C62.72

- Members discussed definition of TVSS as presently used in the document. Members discussed history of the nomenclature "TVSS". The term SPD was reported to be more historically harmonious with IEC Standards.
- Motion: Attempt to include a definition for "TVSS". There were no negative votes. Proponents to submit comments to Francois Martzloff by October 31<sup>st</sup>.
- Action Item: Francois Martzloff wants Section 9 reinstated in a simplistic form for his edification. C62.72 editor to send Annex D to Francois.
- Don Worden, Francois Martzloff, and Hans Steinhoff to work on additions to Section 3.1 (Suppress Voltage Ratings) to include wording to coordinate with IEC.
- Comments to editors requested on or before November 15, 2000.
- Don Worden wants the document available for review on the IEEE/SDPC Web Page by the members and Interested Parties on or before January 31, 2001.

- Francois Martzloff suggests a timeline for continued development of the document. Editor to receive input from members and interested parties, editor incorporates changes, document is placed on IEEE/SPDC Web Page, comments received from members by Feb 28, 2001 prior to next meeting in May, 2001. Two weeks for webmaster to add to website as PDF File (March 15, 2001).

Counter proposals, in writing, to be brought to the next meeting in St. Petersburg. We attempt to declare consensus of at least 75% after the St. Petersburg meeting. Counter proposals relative to document and comments posted on the website are resolved prior to next meeting

- John Posey suggested that the IEEE Editor would have to sign off on editorial issues prior to distribution of the document for balloting.
- A total of four hours is requested for the next meeting

WG 3.6.7 L-V Data, Communication, And Signaling Circuit SPD Mike Parente, Chair

- Working Group met for four hours on Wednesday Morning, October 4<sup>th</sup> and four hours on Thursday Morning, October 5<sup>th</sup>.
- Twelve members and eleven Interested Parties attended meeting
- The PAR for revisions to Standard C62.42-1999 was approved by IEEE-SA. Contributions were made by all Working Group Members and revisions were commenced.
- Work on revision of C62.36-1994 has been completed and C62.36-2000 will soon be published.
- Phil Jones presented a review of C62.64-1997. The Working Group believes that it should be either reaffirmed or revised to harmonize with C62.36-2000 and IEC 61644. Decisions to resume after consulting with Subcommittee 3.6.
- Bill Curry is replacing Mike Parente as Chair of Working Group 3.6.7.
- A total of eight hours is requested for the next meeting. Working Group requests two meetings of four hours each on different days.

WG 3.6.8 Electrostatic Discharge W. Boxleitner, Chair

- Working group did not meet in Cincinnati.
- Working Group to be dissolved.

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

- Working Group met for four hours on Monday Afternoon, October 2<sup>nd</sup>.
- Nine members and eighteen Interested Parties attended meeting
- Chair distributed copies of IEEE Std C62.34-1996. Since the document expires next year, the chair suggests that the members reaffirm the standard as is without changes at this point. A PAR will be applied for next year to revise the document.

- Motion made to recommend that a balloting group be formed to reaffirm C62.34 without any changes. Motion seconded. There were no negative votes

Review of Draft 5 of IEEE PC62.44

- Chair provided a few editorial comments relative to the documents prior to the review by the membership. Other editorial considerations will not be incorporated into the minutes but will be considered by the editor after written submission.
- Document reviewed and discussed by members
- Jim Harrison will provide the editor a technical paper on SPD coordination for review.
- Due to time constraints, not all of the document was reviewed during the meeting. The editor will accept all written submittals prior to the next meeting.
- A total of four hours is requested for the next meeting

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

- Working Group met for four hours on Wednesday Morning, October 4<sup>th</sup>.
- Eight members and fourteen Interested Parties attended meeting.
- Comments from the Chair
  - a. Chair indicated that the guide is planned to be ten pages.
  - b. Chair provided a review of the submittal and completion status of the document.
  - c. Document will not address protection issues in facilities or homes that only have two prong receptacles.
  - d. Francois Martzloff voiced concerns about the document having a page allocated for a bibliography when target audience might not be interested in citations. Chair will contact IEEE/Standards Board concerning document style and requirements.
  - e. The document is not intended to harmonize with any IEC applications. The document is intended for installations covered by the National Electrical Code (NEC®) and CEC.
  - f. Chuck Richard and Duke Energy were complimented for their contributions and support of proposed graphics for the document.
  - g. All pictures will have titles or descriptions.
- Chair began a lengthy review of the proposed graphics to be incorporated into the document.
- Input and suggestions from the attendees.
  - a. Don Worden emphasized the need for the reader of the document to understand that there must be a common grounding reference for all ports connected to the protective device.

- b. Francois Martzloff indicated a need to state the Purpose and Intent at the beginning of the document.
  - c. Joe Koepfinger suggested that the document only be a technical report rather than an IEEE Standard.
  - d. Discussions from the floor as to whether or not the guide needs to be written for the "sophisticated consumer". Direction from the chair was no.
- Secretary will forward a copy of member's E-MAIL Address to all members and interested parties.
  - Chair reiterated that all correspondence, drafts, and submittals are openly circulated via E-MAIL to all members.
  - Chair reminded members and guests to update their e-mail addresses and memberships.

Summary of requested working group time for next meeting:

- WG3.6.1 Working Group request two hours during the next meeting.  
Working Group requested that meeting time should be arranged such that members can also attend a meeting of Working Group 3.6.3 on same day.
- WG3.6.2 Working Group request eight hours during the next meeting.  
Working Group requested two meetings of hours each on different days.
- WG3.6.3 Working Group request two hours during the next meeting.  
Working Group requested that meeting time should be arranged such that members can also attend a meeting of Working Group 3.6.1 on same day.
- WG3.6.4 Request 4 hours at the next meeting.
- WG3.6.6 Request 4 hours at the next meeting.
- WG3.6.7 Request 8 hours at the next meeting  
Working Group requested two meetings of hours each on different days.
- WG3.6.9 Request 4 hours at the next meeting.
- WG3.6.10 Request 4 hours at the next meeting.

Liaison reports for ANSI (Joe Koepfinger) and IEC/TC37B (Benny Lee) will be attached to these minutes.

8. Old Business:

Chair planning to retire next year at the meeting in St. Petersburg, Beach. It is time to designate a successor.

Chair read a list of members of LV Subcommittee

Chair read a list of Low Voltage members of SPDC. Note: To be a member of SPDC, you must be a member of IEEE-SA.

9. New Business:

Mike Parente indicated that there is a need to liaison with the IEC on C62.36. Chair will ask A&S to submit C62.36 to Joe Koepfinger for submittal to IEC. Mike requested clarification from A&S on how to deal with IEEE Standards that are not yet an ANSI Standard before they are forwarded to IEC.

Carl Lindquist, Chair of SC3.2 (Definition / Biography), has initiated a new methodology to document new definitions. Carl has request that the Working group submit proposed definitions that are new or being revised to SC3.2 for review. Chair requested that Carl send an E-MAIL to all Working Group Chairs asking for their input.

New Directory:: List of all current members is required from all Working Groups.

The SC3.6 Chair discussed John Posey's suggestions regarding working group administration. If additional discussion is required, Working Group Chairs are requested to contact John Posey or Don Worden

#### 10. Next Meeting

The next meeting will be held at the Tradewinds Hotel in St. Petersburg Beach, Florida May 14-18, 2001.

#### 11. Meeting concluded at 1540

## 4.0 Special Activities – J. Woodworth

### Luncheon Presentation

A the Fall 2000 meeting, Tom Short from EPRI PEAC presented overvoltage issues in the protection of Distributed Generation.

### Spring 2001 Planned Activities

#### Luncheon Presentations **open**

**Low Voltage group** is interested in learning more about DG on the low voltage side. Learning more about 1547.

**High Voltage Group** is interested in Coordination of Low and High Voltage arresters, end of life determination of station arresters, Thermal imaging of arrester, DC effect on arrester in DG arena.

#### Panel Session at Spring 2001 Meeting

There will be a presentation/forum for WG 3.3.14 to discuss the subject of Short Circuit Withstand testing of arresters. Dr. Michel De Nigris has agreed to present an IEC and CESI point of view. I will fill the panel out with 2 or 3 others.

### Fall 2001 Meeting in Niagara Falls

Special Tour of the Robert Moses Power Plant

### Future Meeting Announcements

IEEE Journals

Local Chapter News Letters and Web Sites

On Web site of upcoming IEEE meeting lists.

Goal is to get programs scheduled further ahead so they can be promoted in the above locations

## 5.0 IEC Activities - J.L. Koepfinger

## 6.0 ASC C62 Activities - J.L. Koepfinger

REPORT ON ASC C62, IEC TC 37 AND ITS SUBCOMMITTEE SC37A AND SC37B ACTIVITIES  
TO  
ASC C62, IEC TAG, and IEEE SPDC  
at  
CINCINNATI, OH  
3-5 October 2000

### Accredited Standard Committee C62

The committee is to meet on 3 October 2000 in Cincinnati, OH. In the last year its main function has been to ballot on IEEE Standards which are being submitted to it for approval for American National Standard classification. NEMA and ANSI hold a joint secretariat for C62. Under the present Memorandum of Understanding (MOU) between the secretariats each secretariat is to be the administrator of the process that is to be used for the approval of its standards as American National Standards through the ASC C62 that relate to the field of surge protection. All of the standards that have been submitted to Accredited Standard Committee (ASC) C62 in the last year have come from IEEE. The process of approval of these standards has been less than satisfactory. The ASC is receiving documents for approval as American National Standards (ANS) before the IEEE has achieved approval of the document by the sponsor of the document. Since the IEEE delegation is an instructed delegation, it cannot vote until it receives instruction from IEEE Surge Protective Devices Committee. Since this instruction cannot be given until the IEEE ballot is closed the IEEE delegation is not able to vote on the document. This issue has been explained to IEEE in numerous letters. Recently, IEEE and NEMA held a high level discussion to review the balloting process that is being used by IEEE. The Chairman of ASC C62 was not involved in this discussion. In a discussion with Mr. Kahofer, the new manager of balloting for the IEEE he indicated that he will strive to clear up the ASC balloting problems.

ASC C62 revised its operating procedures to be in accordance with guidelines of ANSI. At the meeting in Cincinnati, some additional changes to these procedures will be discussed. One of the changes deals with metrification. Some other changes are a result of ANSI Audit of one of the co-secretariats.

IEEE recently indicated that it feels that since it is one of the co-secretariats, it has some degree of responsibility to see that the ASCs are following appropriate procedures. This topic received considerable discussion at the IEEE AudCom and Standards Board Meeting on 19-22 September 2000. The Audit Committee (AudCom) concluded that their present scope did not cover the auditing of ASC. A motion was passed by the IEEE-SA Standards Board to authorize council to review the authority of IEEE-SA to audit ASC. Council is to make a report to the Board at their December 2000 meeting.

### IEC TC 37 and its Subcommittees' SC 37A and SC 37B

A series of meetings of TC 37 and its subcommittees were held in Paris, France and Kristiansand, Norway 5-16 June 2000. SC 37A met on 5-6 June in Paris. A meeting of SC 37A/WG5 on 7-8 June, at the same location, followed this meeting. SC 37B held its meeting in Kristiansand on 13-14 June 2000. The TC 37 meeting was held at the same location on 14-16 June 2000. Just prior to the TC 37 meeting, Working Group 4 held a meeting to review the comments on Amendment 2 to IEC 60099-4.

### TC 37 Activities

#### Standards in Process

There are five main activities taking place in TC 37, all of which were discussed during the TC 37 meeting:

1. Amendment 2 to IEC 60099-4 Metal-oxide surge arresters without gaps  
 It was recommended the this document should proceed to the Final Draft International Standard (FDIS) stage, but with one major modification to the document that was approved at the Draft International Standard (DIS) stage. The change is the Clause 5.11 "Short Circuit Testing" is to be moved from the body of the document and included as an Informative Annex. This action was taken because it became apparent that many of the comments were concerned that it would not be possible to make the test as proposed on large single column surge arresters. The clause was to replace the pressure relief test of the present IEC 60099-4. This amendment contains tests for polymer surge arrester, arresters used as part of separable connectors and arresters designed for gas insulated systems. The editing committee will be meeting in Geneva, Switzerland on 27-29 September to finalize the FDIS that is to be submitted to the National Committees for vote.
2. A Committee Draft on Metal-oxide surge arresters with gapped structure was circulated before the TC 37 meeting. Although the circulation period had not officially closed at the time of the TC 37 meeting, the comments were discussed The Convenor, Mr. Woodworth was instructed to issue a CDV. The CDV was prepared and sent to Geneva for circulation for vote to the National Committees. This has not yet occurred since time must be allowed for the preparation of the French version.
3. An Amendment to IEC 60000-4 on EMC has been circulated as a CD. The comments were discussed at the TC 37 meeting and it was agreed that a new CD should be prepared to address the comments.
4. At the Houston meeting of TC 37, it was agreed that there was a need to attempt to harmonize the definitions used by TC 37 and its subcommittees. Mr. Rousseau of France undertook this task. Because of changing employment, he was not able to finish the task. Mr. Maytum of the UK undertook the task of assembling the work that had been done by Mr. Rousseau. Mr. Odenberg was recently appointed Convenor of Working Group 11. A CD, 37/257/CD, was circulated. The comment period on this document closed on 15 September 2000. The Secretary is now in the process of collating the comments, which will be sent to the Working Group and to the National Committees. Mr. Maytum found it very difficult to achieve much harmonization.
5. The Committee agreed, after some discussion, that Working Group 12 is to proceed with the reorganization of the 60099 series of standards. The first task being to develop a new document that contains material that is command to all surge protective devices. Ms Haa is the convenor of this activity. As soon as the working group can develop sufficient material they will have to issue a NWIP to move this project from the zero state. The zero state is an IEC process that allows work to proceed on the development of a standard when it becomes apparent that more information is needed to achieve consensus.

#### Maintenance Policy

The IEC has adopted a new policy for the maintenance of existing standards. This policy requires that a maintenance cycle be established for each document (standard and technical report). The maintenance cycle is to be sufficiently long to insure that the standard has some stability, but not too long to cause the material in the standard to be come obsolete. A maintenance team has to be appointed for each standard. In the case of TC 37 this involves maintenance periods to be established for five documents:

Documents	Validity Date	Maintenance Team
IEC 60099-1 Surge arrester with gaps,	2008	none at this time
IEC 60099-3 a technical report on pollution tests	2010	none at this time
IEC 60099-4 Metal-oxides surge	2005	WG 4 to be MT 4

arresters without gaps		
IEC 60099-5 Selection and application of surge arresters	2005	MT 10 to be established
IEC 60099-6 Metal oxide surge arresters with gapped structure. Long maintenance periods were established for 60099-1	None at this time. One will be established as soon as the document reaches the FDIS stage	

The maintenance period for IEC 60099-1 and 60099-3 was selected to be much longer than the period for IEC 60099-4 and 5. Because of the longer time for the maintenance period for the first two documents, no maintenance teams were established at this meeting.

The maintenance teams have broad powers. They have the opportunity, on their own initiative, to identify modifications and additions that are needed in the standard. If a national committee identify a change that is needed, the change is to be communicated to the Maintenance Team. The maintenance team has the obligation to see that all-National Committee both P and O members are informed of the proposed changes. This may be done by the preparation of a New Work Item Proposal (NWIP). The proposal is to be issue in sufficient time to allow for the preparation of a CD, if needed, a CDV and FDIS by the end of the maintenance period that is given to the IEC.

### SC 37A

#### Standards

A review was made at the Paris meeting of the comments that that had been received on Amendment 1 (Fragment 1: Miscellaneous changes) and (Fragment 2: draft proposal to integrate a TOV characteristic test) to IEC 61643-1 Surge protective devices connected to low-voltage power distribution systems - Part 1: Performance requirements and testing methods. At the meeting, it was agreed that a new document shall be prepared and circulated to the National Committees as an FDIS. Working Group 5 is doing this work.

Working Group 5 meet as a Maintenance Team in Spokane, WA on 29 - 30 August 2000 to consider a list of several other item that have been identified previously as being need for additions and modifications to IEC 61643-1

Another activity of the Subcommittee is the work of Working Group 4. They have produced a standard, IEC 61644-12 Surge protective devices connected to telecommunication and signaling network - Part 1: Performance requirements and testing methods. This document has completed the CDV stage and it was recommended that it proceed to the FDIS stage.

Working Group 3 is preparing a FDIS based on 37/97/CDV IEC 61643-12 Surge protective devices connected to low-voltage power distribution systems, Part 12: Selection and application principles. They had a meeting in Spokane, WA on 31 August - 1 September 2000 to review the comments on 37/87/CDV and address changes that are needed for the FDIS.

#### Document numbers

The subcommittee had considerable discussion regarding the numbering of the low-voltage documents. There has been considerable discussion of the numbering since the meeting. It was determined that TC 37 has to circulate an Information document to the National Committees on this issue. The Secretary has sent the document to the IEC with the new proposed numbering scheme for the low-voltage surge protective devices. This document should be circulated to the National Committees prior to the end of October 2000.

### SC 37B

The subcommittee is working on four surge protective device component documents. Each of the four documents is a specification and testing standards. The documents cover air gaps, gas tubes, silicon

avalanche devices, and thyristor devices. They are somewhat behind schedule, but very soon they should all reach the FDIS stage.

Submitted by:

J. L. Koepfinger  
Secretary TC 37 and Chair ASC C62.

## 7.0 Liaison Reports

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

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

The Standards Board has approved the Insulation Coordination Guide, 1313.2. The guide will now be reviewed by the editors and is expected to be available by the end of the year.

### 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 July, 1999, during the IEEE PES Summer Meeting in Edmonton, Alberta.

The task force working on development of a procedure for surface resistance measurements of polymer insulators has concluded its testing work and has prepared a paper for future publication. It has been proposed that surface resistance provides a better measure of contamination than ESDD for *non-ceramic* insulators. The paper is currently in the Working group review/comment stage.

#### “Case Study” Reports

Much of the Working Group session is typically taken up by reports from members on field performance and laboratory investigations in areas related to contamination of insulators. At this WF meeting:

- A summary report was presented on system outages caused by “bird streamers” across insulators. Several US utilities have experienced such problems on lines and in substations. It was suggested that a panel session on bird/animal related outages be scheduled for the 2000 Summer Power Meeting.
- NGK reported results of studies performed with EPRI on contamination performance of polymer insulators with various shed profiles. Different test procedures were used, with significantly different results being obtained for the same ESDD (up to 2 to 1 difference in flashover voltage). Designs using alternating shed diameters performed better than uniform shed designs for the same total leakage distance and shed pitch.

- FP&L reported recent outage problems on 230kV lines 20 miles from the coast and near an open pit mine. Three lines sustained a total of nine outages, all due to flashover of porcelain insulator strings. Silicone rubber insulators installed in the same general location have suffered no flashovers in 10 years.
- PG&E reported that porcelain insulators on 500kV lines near Moss Landing have to be washed every 4-5 weeks to minimize contamination-related outages. Polymer insulators used at 230kV and 115kV in the same vicinity perform well with no need to wash.

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

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**7.8 Substations Committee WG E-5 Direct Stroke Shielding of Substation- Open No Report**

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

The "DC and Flexible AC Transmission Subcommittee" meeting was held on Wednesday, July 21, 1999 from 9:00 a.m. – 12:00 noon at the PES Summer Meeting in Edmonton, Alberta, Canada.

A panel session on "Y2K Concerns and HVDC" was held during the subcommittee meeting. Five speakers made presentations on Y2K preparedness for several HVDC converter stations and on general Y2K perspective on HVDC was discussed.

The 1999 Uno Lamm HVDC award was presented to dr. Chandra Krishnaya. The new FACTS award instituted this year was presented to Dr. Laslo Guigi of Westinghouse.

Finally, a presentation on "AEP-EPRI Unified Power Flow Controller Performance" was made A. S. Mehraban of AEP. Unified Power Flow Controller is a power electronics based controller, a prototype unit is installed at an AEP substation.

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**7.14 T&D Committee Capacitor Subcommittee- C. Erven**

IEEE SPDC 2000 Spring Meeting, St. Petes, FL

The capacitor subcommittee and working groups normally meet twice each year, at the Winter and Summer Meetings of the IEEE Power Engineering Society. Although I do not normally attend their meetings, I obtain regular mailings of minutes and participate as a corresponding member in some of the Working Group activities, relating to both shunt and series capacitors. This brief report is based on correspondence from Working Group chairs.

Series Capacitor Working Group

Chair: Stan Miske, General Electric Company

Tel: 518-385-5447 Fax: 518-385-5703

IEEE Std. 824-1994 – IEEE Standard for Series Capacitors in Power systems

IEEE P824/D4 (revision Nov 24, 1999) was circulated to the WG prior to the last meeting Jan 12, in San Diego. This document contains a number of significant changes, including revision of protective levels, insulation levels for platform-ground insulators, fault duty cycle, number of discharge tests for fuses, and varistor tests. A new

PAR has been approved. Working group will begin working a "Guide for specification of series capacitor banks". A new Thyristor Controlled Series Capacitor Working Group has been formed.

Shunt Capacitor Standard Working group

Chair: Ignacio Ares, Florida Power & Light

Tel: 407-845-4843 Fax: 407-845-4844 e-mail: [ignacioares@email.fpl.com](mailto:ignacioares@email.fpl.com)

IEEE Std. 18-1992 – Standard for Shunt Power Capacitors

This standard was revised in response to the need to include internally fused and fuseless capacitors, and to move capacitor application information in this standard to IEEE Std-1036, Guide for the Application of Shunt Power Capacitors, and to coordinate wherever possible with other pertinent National and International Standards. A letter ballot on IEEE P18/D7 November 30, 1999 has been circulated to members of the balloting group with a return date of April 27, 2000. I am pleased to see that a "Short Circuit Discharge Test (Design Test) has been added in response to my submitted comments on Draft 4.

Shunt Capacitor Application Guide Working Group

Chair: Antone Bonner, Cooper Power Systems

Tel: 262-835-1520 Fax: 262-835-1544 e-mail: [abonner@cooperpower.com](mailto:abonner@cooperpower.com)

IEEE Std. 1036-1992 – IEEE Guide for Application of Shunt Power Capacitors

Draft 6 has been circulated for comment. As noted in the above, most of the capacitor application information previously included in Std 18 has been moved to the latest revision to Std 1036. I am not able to comment further because my computer didn't appreciate the format of the attachment including a zipped file of unknown format. Probably Office 2000 which is a couple of leaps ahead of the software used by us folks on our in-house office setup!

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**7.11 Substations Committee Gas Insulated Substations - G. Lee No Report**

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

The HVTT Subcommittee was scheduled to meet in Toronto on April 29 and 30, but that meeting was postponed. The committee is reviewing the final draft of IEC270, "Partial Discharge Measurements". The committee is also 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 test. Jim McBride is the HVTT contact person on this project.

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**7.13 PES Awards Committee- R. Odenberg**

The PES Awards committee met for approximately two hours in Edmonton, Canada. The following major issues were discussed:

1. The multitude of IEEE/PES Awards to be giving.
  - a. Problem with filling out the paper work – Solution: Set up a task force to concentrate on the activity.
  - b. Scheduling and Process to IEEE and TC. Odenberg to provide outline used by PC/SPDC to R. Dent – Chairman

1. A detailed discussion of the administrative personal and contacts for processing the awards at PES and IEEE.

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

**Chairman: Bal Gupta**

The Technical Session Improvement Committee met during the 1999 SPM in Edmonton. 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.

The chairman reported that the IEEE author's guide on the WEB has been upgraded to include information on slide formats as part of the presentation guide.

At the technical presentation sessions, the session chair, or his designated person, will grade the presentation. This information will be used to assist the presenter on how to improve future presentations.

The chairman reminded attendees that the author of a technical paper can request whether he prefers to make a presentation or to have a poster session, but the committee will ultimately determine which type of presentation will be used. He noted that the author's preference will be considered.

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#### 7.15 IEEE/PES Publication Committee - D Lenk

The Publication Committee met at the 1999 SPM in Edmonton. It was noted that, as of June 1, 1999, all IEEE Transactions papers must be submitted in electronic form.

The following summarizes the time tables for technical session proceedings papers and technical sessions.

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

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

Chairman: Bruce Wollenberg

The Organization and Procedures Committee met at the 1999 SPM in Edmonton. A majority of the meeting time was spent updating the "Technical Council Organization and Procedures Manual".

**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 Summer Meeting in Edmonton, Canada on July 21, 1999. Noted below is the status of significant projects:

	<u>Project</u>	<u>Status</u>
P1159	Monitoring Electric Power Quality	Document to be reaffirmed
P1250	Distribution Voltage Quality	First draft expected by July, 1999.
P1159.1	Data Sampling	Draft expected 1/00
P1159.2	Event Characterization	Ballot Group forming.
P1159.3	Output Format	Using EPRI's PQDIF. Comments on draft until 9/30. Ballot Group forming.
P1433	Glossary of Power Quality Technology	Ballot Group forming.
P519A	Harmonic Applications Guide	Final draft posted to web for comments by 7/30/99. Ballot to start in October.

**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 SPM in Edmonton. 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-in-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 of 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.

### 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 - Dennis Lenk

- Summer 2000 Seattle PES Meeting

Anjan Bose was the Technical Committee Chair for the 2000 SPM. Over 320 abstracts were submitted for presentation at this meeting.

- Winter 2001 Columbus PES Meeting

Stan Horowitz is the Technical Meeting Chair for the 2001 WPM. The SPDC is planning to sponsor a paper session at this meeting.

- Summer 2001 Vancouver PES Meeting

This meeting will be held July 15-19, 2001. The selected theme of this meeting is Utilization, Reliability, and Control of the Power System-MW and Beyond. While topics addressing the theme are encouraged, candidates for proceedings paper on this and other topics are asked to submit their abstracts on proposed papers by Feb. 5, 2001. Authors are required to present the submitted paper as part of a paper session. The paper will be published as part of the PES Proceedings of this meeting.

- Proposed Reorganization of the IEEE Power Engineering Society

There was extensive discussion prior to and at the Seattle PES Summer Power meeting regarding the proposal to reorganize the technical structure of the Power engineering society. The current proposal under consideration is to leave the technical structure as is but to revise the meeting, conference and expositions as follows.

Currently, the IEEE PES organizes seven major events during any two year cycle:

- 4 PES General Meetings ( 1 SPM and 1 WPM each year)
- 1 T&D Conference and Exposition
- 1 PICA Conference
- 1 ESMO Conference

It is the opinion on the IEEE –PES Governing Board that, given budgetary and human resource curtailments prevalent in the electric power industry, the present level of conference activity is not sustainable.

The following restructuring of the meetings is proposed for consideration;

- One PES General would be organized during the Spring of each year. These meetings would not feature any exhibits. The focus would be on technical papers, panel sessions, and tutorials as well as on Committee, Sub-committee, and task force meetings. The intent of the General Meeting is to provide the meeting infrastructure to gather several Technical Committees under one roof.
- One conference or exhibit would be organized each year during the Fall.
- During uneven years, the T&D Conference and Expositions would be organized. These expositions will continue to focus on equipment and apparatus aspects of the power industry.
- During even years, a new event will be organized, possibly restructuring PICA to fill this need.
- ESMO Conferences will not be affected by this proposed restructuring

A proposed implementation plan would retain present meeting structure thru 2002. 2003 will become the transition year. New structure would be implemented in 2004.

- Electronic Review of Transactions Papers

For the last year, the IEEE Transactions review process has been using e-mail to obtain reviews of submitted papers, replacing the previous snail-mail process. This process has worked well and will soon be taken to a web review process, where the paper will be placed on a web site. Selected reviewers will be given a password so that they can gain access to these papers so that they can perform their review. The Web Review Process has not yet been implemented for the Transaction on Power Delivery so the SPDC Paper review process is currently still using the e-mail review process.

- PE Review Article on the SPDC

In September, the SPDC submitted an article to the IEEE Power Engineering Review magazine describing the SPDC activities. The purpose of this article is to introduce the Surge Protective Devices Committee to readers of the magazine. The article described the High Voltage and Low Voltage

subcommittee standards writing activity and also discussed the special sessions that we have been sponsoring in our recent meetings. Hopefully, interested readers might be encouraged to attend future meetings and participate in the standards writing process. The article is scheduled for the November issue of The Review.

Dennis Lenk SPDC Chair 10/5/00

## 9.0 PES Technical Sessions - Jon Woodworth

Critical Proceedings Paper Dates for Winter Power Meeting

August 15<sup>th</sup> Last date for Authors to submit abstracts of papers to PES staff office  
Oct 1<sup>st</sup> Last date for proposed proceedings papers to arrive at the PES staff office

Critical Proceedings Paper Dates for Summer Power Meeting

March 15<sup>th</sup> Last date for proposed proceedings papers to arrive at the PES staff office.

Note: No abstracts will need to be submitted for the Summer Power Meeting just have the paper submitted in full by March 15<sup>th</sup>.

**Winter Power Meeting Proceedings Session** will have 5 papers as follows:

“Series Graded Gapped Arrester Provides Reliable Overvoltage Protection in Distribution Systems”  
by Dr. Lubo Kojovic, Michael Marz, Gary Goedde, and Jonathan Woodworth, all of Cooper Power Systems

"Insulation Co-ordination for Gas-Insulated Transmission Lines (GIL)", Dr. Hermann Koch and O.Volcker. Siemens AG.

"Diagnostics and Monitoring of Metal-Oxide Arresters in High-Voltage Networks-Comparison of Existing and Newly Developed Procedures", Dr. Volker Heinrichsen and Christian Heinrich, Siemens AG

"Salt Fog Testing of Polymer Housed Surge Arresters", Dr. Ed Cherney, Shesha Jayaram: University of Waterloo.

“Evaluations of Installation ZnO Arrester for Lightning Surge Overvoltage Analysis” Chia-Chi Chu, Chang Gun University

### **Summer Power Meeting in Vancouver BC**

Theme: Utilization, Reliability and Control of the Power System - MW and Beyond.

#### Utilization

- Utilization beyond conventional limits
- Secondary use of the system for telecommunications and other purposes
- Impact of power electronics on end-use utilization
- Asset management techniques

#### Reliability

- Market environment
- Reliability standards and compliance - integration of legacy systems into the new reliability standards; reliability versus economics and in-situ testing of components
- Impact of inexpensive, widely dispersed distributed generation and storage, including fuel cells

Implications of "micro" versus the present "mega" systems

Control

- Direct Load Control
- Wide Area Monitoring and Control
- Distributed generation control

Computation

- Internet and Web based computation for power engineering
- Symbolically assisted computational tools

## 10.0 Old Business - Dennis Lenk

## 11.0 New Business- Dennis Lenk

## 12.0 SPDC Meeting Schedule – G. Goedde

	Spring Meeting	Fall Meeting
2001	May 14-18, The Tradewinds, St. Pete Beach Florida, (\$131 + tax)	October 1-5, Marriott Niagara Falls, Ontario
2002	May 13-17, The Tradewinds, St. Pete Beach Florida, (\$131 + tax)	October 7-11, Westin Cincinnati, Ohio
2003	May 10-16, The Tradewinds, St. Pete Beach Florida, (\$131 + tax)	

The SPDC meeting was adjourned at 4:55 PM.

Respectfully Submitted,

Gary L Goedde  
Secretary, SPDC