IEEE

POWER ENGINEERING SOCIETY

SWITCHGEAR COMMITTEE

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July 24, 1991

Dear Colleague:

Please find enclosed minutes of the Switchgear Committee Meeting of May 9, 1991, held in Ft. Lauderdale, Florida.

The next meeting will be held in Vancouver, British Columbia September 30 - October 3, 1991, and notices for the meeting are being circulated.

Sincerely,

K. I. Gray

KIG/ed

Enclosure

IEEE/PES Switchgear Committee
Meeting Minutes
of
May 9, 1991
Ft Lauderdale, Florida

1. The meeting was called to order at 8:00 am. by Chairman, D. G. Kumbera.

2. Introductions of members and guests; attendance roster attached.

3. The minutes of the October 4, 1990, meeting were approved.

Appendix

4. Chairman's Report - D. G. Kumbera — A

New Members

J. M. Jerabeck
H. M. Smith
T. J. Tobin

Reaffirmations

The vote was unanimous to reaffirm the following documents.

C37.60-1981 - (R1988)	Requirements for Overhead, Pad-Mounted, Dry Vault, and Submersible Automatic Circuit Reclosers and Fault Interrupters for AC Systems
C37.61-1973 - (R1988)	Guide for Application, Operation and Maintenance of Automatic Circuit Breakers
C37.20.1-1987 -	Metal-Enclosed Low Voltage Power Circuit Breaker Switchgear Assemblies
C37.20.2-1987 -	Metal Clad and Station Type Cubicle Switchgear
C37.20.3-1987 -	Metal Enclosed and Interrupter Switchgear
C37.23-1987 -	Metal Enclosed Bus and Guide for Calculating Losses in Isolated Phase Bus
C37.27-1987 -	Application Guide for Low Voltage AC Non-Integrally Fused Power Circuit Breakers
C37.48-1987 -	Guide for Application Operation and Maintenance of High Voltage Fuses, Distribution Enclosed Single-Pole Air Switches, Fuse Disconnecting Switches, and Accessories

5. Technical Council - D. G. Kumbera — C

6. Standards Board and PES Coordinating Committee - D. M. Larson — D

7. Meetings and Publications - J. H. Brunke — E

Subcommittee Reports

8. Administrative - J. H. Brunke — F

9. High Voltage Fuse - J. G. Leach for L. R. Beard — G

10. High Voltage Switch - H.L Bowles for C. S. Alexander H

Motion: "The Switchgear Committee is requested to approve a motion requesting ADSCOM to form a task force for the purpose of obtaining a PAR to process the possible adoption of four CENELEC Standards as IEEE/ANSI Standards.

"These CENELEC Standards are specific to the requirements of pressurized enclosures for gas filled electrical equipment and are:
CENELEC EN50-052 - Switchgear Enclosures - Cast Aluminum
CENELEC EN50-064 - Switchgear Enclosures - Wrought Aluminum and Aluminum Alloy
CENELEC EN50-068 - Switchgear Enclosures - Wrought Steel
CENELEC EN50-069 - Switchgear Enclosures - Cast Aluminum and Wrought Aluminum

"It would be the objective that the CENELEC Standards be adopted in their entirety without <u>any</u> changes. A suitable explanatory introduction and, if necessary, a glossary of terms and would precede this CENELEC text in the IEEE/ANSI document."

Made: Harvey Bowles Seconded: Jim Ransom Motion passed.

11. Low Voltage Switchgear Devices - M. T. Brown I

12. Reclosers and Sectionalizers - R. L. Capra J

13. Switchgear Assemblies - S. C. Atkinson K

14. Education, Recognition, and Planning - E. F. Veverka L

15. High Voltage Circuit Breaker - J. E. Reed M

Standard motion 1A was made and passed for the following documents.

1. Definition of a Grounded Tank Switching Device.
2. Generator Breaker Application Guide.

LIAISON REPORTS

16. ANSI C37 - T. C. Burtnett N

    a. HV Switchgear - A. K. McCabe O
    b. Industry Advisory WG - Nothing to Report
    c. LV Switchgear - D. L. Swindler P
    d. IEC - D. L. Swindler Q

17. STL/NA - E. F. Veverka R

18. ANSI C92 - S. R. Lambert - Nothing to report

19. HV Test Techniques - No report

20. Joint Switchgear/Trans. WG-Current Transformers - A. McCabe
Nothing to report

21. Transformer Committee/Bushing Subcommittee - J. O'Donnell S

22. Substation Committee/GIS Subcommittee - R. Matulic - No report

23. AEIC Electric Power Apparatus - B. F. Wirtz

    Bernie reported that his company is no longer supporting the AEIC. Marty Ecklekamp will report this activity in future.

24. CIGRE - J. H. Brunke - Nothing to report

25. EPRI - P. L. Kolarick T

26. IAS - No report

27. NEC - L. W. Gaussa - Nothing to report

28. NPEC Nuclear - L. W. Gaussa - Nothing to report

FINIS

29. Old Business:

    As a result of a motion from Ward Laubach which passed at the last meeting, Steve Lambert sent a letter to the IEEE on the subject of ANSI/IEEE coordination.

30. New Business:

    It was stated that there have been problems with the circulation of application guides within the industry. Members were asked to make any suggestions to ADSCOM which could improve this situation.

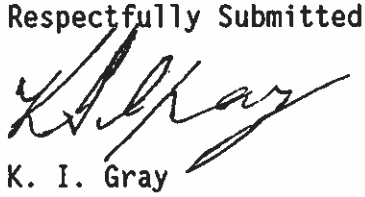
    There have been substantive revisions to the IEEE Standards and Style Manual, highlights of these are included in Appendix U.

31. Time and place of upcoming meetings:

    - Vancouver, B.C. - September 30 to October 3, 1991
    - Charleston, South Carolina - April 29 - May 2, 1992
    - Chicago, Illinois - September 28 - October 1, 1992
    - New Orleans, Louisiana - May 1993

32. The meeting was adjourned at 11:10 a.m.

Respectfully Submitted,



K. I. Gray

SWMINMAY.9

IEEE/PES SWITCHGEAR COMMITTEE
Attendance Roster
May 9, 1991 -- Ft. Lauderdale, FL

	Present
Alexander, C.S.	-E-
Alton, R.J.	
Angelis, J.G.	
Arndt, R.H.	X
Atkinson, S.C.	X
Beard, L.R.	
Bowles, H.L.	X
Brown, M.T.	X
Brunke, J.H.	X
Burland, C.G.	X
Cameron, R. F.	
Capra, R.L.	X
Chabala, L.V.	X
Dixon, A.	X
Dravis, J.J.	
Dvorak, C.J.	X
Dwyer, P.W.	X
Garzon, R.D.	Rep. by E.R. Byron
Gaussa, L.W.	X
Gray, K.I.	X
Hank, G. R.	Rep. by D.M. Reynolds
Hendrix, K.D.	
Hess, H.L.	
Hoenigmann, W.F.	X
Jerabek, J.M.	X
Kolarik, P.L.	X
Kumbera, D.G.	X
Lambert, S.R.	X
Larson, D.M.	Rep. by H.B. Doggett III
Laubach, W.E.	X
Leach, J.G.	X
Lester, G.N.	
Lott, D.L.	X
Luehring, E.L.	X
Maneatis, J.A.	
Matulic, R.	
Mayo, P.C.	Rep. by C.J. Ahrano
McCabe, A.K.	X
McCall, L.V.	X
McKay, W. L.	X
Mikulecky, H.W.	
Mills, D.C.	
Montillet, G.F.	X
Muench, F.J.	X
O'Donnell, J.F.	X
Parks, A.F.	
Peelo, D.	X
Perkins, G.O.	X
Ranjan, R.	X
Ransom, J.C.W.	X
Reed, J.E.	X
Rishworth, A.B.	X
Ross, H.G.	X
Saavedra, L.R.	X
Schmidt, L.H.	X
Schmunk, E.W.	X
Schwalbe, C.A.	
Scott, J.C.	Rep. by S.C. Atkinson
Smith, H.M.	X
St. Jean, G.	X
Swindler, D.L.	X
Telander, S.H.	X
Teufel, F.C.	X
Tobin, T.J.	X
Veverka, E.F.	X
Wagner, C.L.	X
Wilson, W.R.	X
Wirtz, B.F.	X

Note: X - Present
-E- - Excused
E(A) - Excused (Alternate)

Guests:

Roy Alexander
Allen K. Alsaker
David M. Benenson
Sten Beneryd
J.A. Bishop, Jr.
Ted A. Burse
Thomas Burtnett
Eldridge R. Byron
George Clary
H.B. Doggett III
Martin Eckelkamp
Jean LaFontaine
Francisco R. Martinez
Bill McCowan
Michael S. McGuire
Dennis Medlin
George Nourse
Davis E. Parr
J.W. Porter
Eric Ruoss
Roger Sarkinen
Gerhard Seyrling
D.N. Sharma
Ed Tarchalsky
Anthony Tomeo
Matthew B. Williams

SWITCHGEAR COMMITTEE
CHAIRMAN'S REPORT
FT. LAUDERDALE, FLORIDA; MAY 7, 1991

The Switchgear Committee morns the loss of one of it's long time and valued members, Bill Harper. Bill had been an active member of Switchgear for a number of years and will be missed by all. Bill passed away in December, 1990.

Our 1991 Spring meeting held in Ft. Lauderdale has been a very sucessful one thanks to our Vice Chairman, john Brunke and our secretary, Keith Gray. Vital statistics are:

Scheduled Meetings	31
Total Registration	119
Spouses	25
Noon Luncheon	82
Wednesday Evening Social	77

Since the Fall meeting in Portland, Oregon the Switchgear Committee has received recognition in several areas:

1. A Switchgear sponsored technical paper received a 1991 Prize Paper Award; the Paper was entitled Estimation of Fast Transient Overvoltages in Insulated Substations and was authored by Yanabu, et. al.

2. Switchgear's ADSCOM Working Group on "Seismic Capability of Switchgear" earned a 1991 outstanding Working Group Award. The working Group was staffed with the following people:

L.W. Gaussa - Chairman

R.N. Carson	A.P. Colaico
C.E. Corley	K.I. Gray
G. Laugens	R.W. Long
M.C. McKay	T.P. McNamara
J.J. Mikos	G.O. Perkins
W.H. Rothenbuhler	K.M. Skinner
S.H. Telander	D.R. Webster
C.E. Zanzie	

3. P.L. Kolarik earned a 1991 Distinguished Service Award for his many years of work with the Switchgear Committee.

Appendix A

4. Three Switchgear Members were recently elevated to the grade of IEEE Fellow and received their Fellow Awards at the 1991 Winter Power meeting held in New York. They are:

   J. Maneatis
   L.V. McCall
   A.C. Westrom

Subcommittee Chaimen; please review your Subcommittee Scopes and up-date/correct/revise them to fit the work of your group. Submit a copy of your Scope (revised or not) to the Switchgear Chairman by September 6, 1991.

Anyone conducting a Document Ballot please remember you MUST make an attempt to resolve all negative votes. That means a personal phone call, written communication, and/or meeting with the person submitting the neagative vote. DOCUMENT YOUR EVIDENCE! In addition to courtesy to the voter it may save a lot of time and confusion later in the Standards Approval Process.

A reminder to all Switchgear Committee Members; your attendance at the Switchgear Meeting is reqired. That includes the main Committee Meeting as well as any other meetings. If you miss two consecutive meetings your attendance record will be reviewed and you may be dropped from the Membership list.

New "IEEE Standards Submittal Kits" (dated December, 1990) are available and have been distributed to the Subcommittee Chairmen and Committee Officers. Additional copies may be obtained for Working Group and/or Task Force Chairmen; Subcommittee Chairmen will submit a list of people needing a copy of the Kit to our Vice Chairman, John Brunke.

Respectfully Submitted,

David G. Kumbera
Chairman, Switchgear Committee

REPORT ON THE ACTIVITIES
of the
TECHNICAL COUNCIL

The IEEE Technical Council meeting was held in New York February 5, 1991. Items of interest to the Switchgear Committee are:

1. Sue Vogel (IEEE Headquarters) will be sending out notification letters at the end of the four (4) year period following approval of a Standards Document allowing one (1) year for Reaffirmation action.

2. The Standards Coordinating Committee is forwarding a recommendation to the Standards Board that PARS have a four (4) year lifetime.

3. Sue Vogel indicated that if the Standards Office was used to conduct document balloting IEEE membership numbers are automatically checked to verify active up-to-date member registration. If the Standards Office is not used fo ballotting Sue will check member numbers if you provide her with the voting list.

Respectfully Submitted,

David G. Kumbera
Chairman, Switchgear Committee

REPORT ON THE ACTIVITIES
of the
TECHNICAL COUNCIL
ORGANIZATION AND PROCEDURES COMMITTEE

The Committee met February 5, 1991 in New York; reports were submitted by fourteen (14) Working Groups and Technical Committees including Switchgear.

Switchgear report:

a. Switchgear has added a new Vice Chairman -- Standards Coordinator; D.M. Larson. This is a permanent position; duties include handling PARS, Standards Documents, Revisions, Reaffirmations and tracking of all Standards Documents within Switchgear's control.

b. Switchgear has not had any Scope changes either at the Main Committee level or Subcommittee level.

c. Switchgear's Procedures Manual has not, as yet, been changed to reflect the addition of the new Vice Chairman -- Standards Coordinator. Work will be starting shortly to up-date and change the Procedures Manual as required.

TCO&P business items of interest to Switchgear:

1. A working Group has been established to work on streamlining PES activities.

2. Discussion was conducted on finding a home for C92 Insulation Coordination work. It is proposed that this work will be placed under the auspices of the Surge Protective Devices Committee. If anyone has any comments and/or suggestions regarding this activity please let me know by June 6, 1991 and I will this information to the attention of TCO&P committee at the July, 1991 meeting.

Respectfully Submitted,

David G. Kumbera
Chairman, Switchgear Committee

IEEE STANDARDS BOARD REPORT

The Standards Board met on May 31, 1990, September 28, 1990, December 6, 1990 and March 20, 1991. I did not attend these meetings, but the following action was taken:

1. PAR C37.30 (Dixon), Standard Definitions and Requirements for High Voltage Air Switches, Insulators and Bus Supports.
   Approved with comments, 5/31/90.

2. PAR C37.34 (Dixon), Standard for Test Code for High Voltage Air Switches.
   Approved with comments, 5/31/90.

3. PAR C37.59 (Dwyer), Standard for Requirements for Conversions of Power Switchgear Equipment.
   Approved with comments, 9/28/90.

4. PAR C37.09 (Harper), Standard TEst Procedures for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis.
   Approved, 12/6/90.

5. PAR C37.04f (Hanks), Standard for Operating Mechanism Requirements.
   Approved, 9/28/90.

6. PAR C37.04h (Hanks), Standard for Mechanical Loading Requirements of Circuit Breaker Terminals.
   Approved, 9/28/90.

7. PAR C37.38 (Rishworth), Standard for Switching Ratings and Design Tests for Gas Insulated Switches.
   Approved, 12/6/90.

8. PAR C37.71 (Capra), Standard for Three Phase Manually Operated Subsurface and Vault Load Interrupting Switches for Alternating Current Systems.
   Approved, 9/28/90.
   Resubmitted to include vault switches.
   Approval withheld, 3/21/91.

9. PAR C37.63 (Capra), Standard Requirements for Overhead, Pad-Mounted, Dry-Vault and Submersible Automatic Line Sectionalizers for AC Systems.
   Approved with comments, 9/28/90.

10. PAR C37.23 (Gaussa), Standard for Metal-Enclosed Bus and Guide for Calculating Losses in Isolated-Phase Bus.
    Returned to subcommittee for clarification, 9/28/90.

11. PAR C37.20.4 (Gaussa), Standard for Indoor AC Medium-Voltage Switches for Use in Metal-Enclosed Switchgear.
    Returned to subcommittee for clarification, 12/6/90.

12. PAR C37.36b (Dixon), Guide to Current Interruption with Horn-Gap Air Switches.
Approved, 9/28/90.

13. PAR C37.20.1 (Gaussa), Standard for Metal-Enclosed Low-Voltage Power Circuit-Breaker Switchgear.
Approved 9/28/90.

14. PAR C37.20.2 (Gaussa), Standard for Metal-Clad and Station-Type Cubicle Switchgear.
Approved 9/28/90.

15. PAR C37.20.3 (Gaussa), Standard for Metal-Enclosed Interrupter Switchgear.
Approved 9/28/90.

16. PAR P1247 (O'Leary), Standard for Interrupter Switches for Alternating Current, Rated Above 1000 Volts.
Approved with comments, 12/26/90.

17. PAR C37.11 (Lambert), Standard Requirements for Electrical Control for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis or a Total Current Basis.
Approval pending.

18. PAR C37.011 (Tobin), Application Guide for Transient Recovery Voltage for AC High Voltage Circuit Breakers Rated on a Symmetrical Current Basis.
Approved with comments, 12/6/90.
Resubmitted 2/20/91.

19. PAR C37.04i (Tobin), Standard Rating Structure for AC High-Voltage Circuit Breakers Rated in a Symmetrical Current Basis.

PAR C37.09g (Tobin), Standard Test Procedure of AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis.

PAR C37.100d (Tobin), Definitions for Power Switchgear.

All three were approved with comments 12/6/90.

20. PAR C37.09a (Peelo), Standard Test Procedure for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis.
PAR approved 12/6/90.
Ballot returned to sponsor for resolution of negative votes.

21. P1257 (Saavedra), Guide for Diagnostics and Failure Investigation of Power Circuit Breakers.
Approved with comments, 3/21/91.

22. PAR C37.013 (Kolarik), Standard for AC High Voltage Generator Circuit Breakers Rated on a Symmetrical Current Basis.
Approval Pending.

23. PAR P1259 (Peelo), Application Guide for Shunt Reactor Switching. Approval Pending.

24. C37.18, Enclosed Field Discharge Circuit Breakers for Rotating Machinery. Reaffirmation Approved, 3/21/91.

Donald M. Larson
Standards Coordinator

STANDARDS COORDINATING REPORT

1. Standards Coordinating Committee

The Standards Coordinating Committee (SCC) met on February 4, 1991, during the PES Winter Power Meeting in New York. Dave Kumbera represented the Switchgear Committee at this meeting.

Two primary action items were on the agenda:

a. Development of a common coordination method within PES.

b. The issue of streamlining standards. Bob Harner's concerns on this subject were addressed.

A motion by Bob Harner that PARs should have a 4-year lifetime was passed, and has been sent to the Standards Board. The intent is that if a project goes beyond four years, a new PAR would have to be submitted and approved in order to continue the development activities. As a liaison representative to the Standards Board, I intend to vote to approve this proposal unless directed otherwise by ADSCOM.

A proposal has been made to change the definition of "sponsor" in Section 2.2 of the IEEE Standards Manual

From: "A group of qualified members of the IEEE who have professed interest in the development of standards (either by direct participation or by the process of review) in technological areas that fall under the general scope of interest to the IEEE."

To: "A group of individuals who have a professed interest in the development - - -"

Rationale: In some areas, the movers in leading-edge technology may not be IEEE members. They should be encouraged to join the IEEE of course, but lack of membership should not preclude the participation of qualified persons in the standards development process. Note also that ProCom continues to recommend that members of the sponsor balloting group shall be IEEE members (or Affiliates).

Again, I intend to vote for this proposal unless directed otherwise by ADSCOM.

The committee discussed whether the date used to determine when a standard must be revised, reaffirmed or withdrawn should be the Standards Board approval date or the publication date. IEEE staff will use the date of publication when selecting standards which require 5-year review.

A revised PAR form should be available this summer. The IEEE Standards Manual and the IEEE Style Manual have also been revised. Significant changes in the Standards Manual include:

- Requirement that a Sponsor notify the Standards Board within 30 days of the date of the first meeting of a standards working group.

- Requirement of a 75% affirmative ballot for all reaffirmations.

- Addition of sections on annexes and appendixes.

- Requirement that the Sponsor submit status reports on projects at least annually.

2. Requests for Coordination

a. We have declined coordination on the following projects because they were judged to be of no interest to the Switchgear Committee:

(1) Transformers Committee

- C57.16, American Standards Requirements, Terminology and Test Code for Current Limiting Reactors.

- C57.12.24, Standard for Underground-Type, Three-Phase Distribution Transformers 2500 kVA and Smaller: High Voltage 34500 GRD Y/19920 Volts and Below: Low Voltage 480 Volts and Below-Requirements.

- C57.12.25, Standard for Pad Mounted, Compartmental-Type, Self Cooled Single-Phase Distribution Transformers with Separable Insulated High Voltage Connectors: High Voltage 34500 GRD Y/19920 Volts and Below: Low Voltage 240/120 Volts: 167 kVA and Smaller.

- C57.109, Guide for Transformer Through-Fault Current Duration.

- Standard for Bar Coding for Distribution Transformers (Pole Mounted, Pad Mounted and Underground).

- C57.12.27, Standard for Liquid Filled Distribution Transformers Used in Pad-Mounted Installations Including Unit Substations.

- C57.12.21, Standard for Pad-Mounted, Compartmental-Type, Self-Cooled, Single-Phase Distribution Transformers with High Voltage Bushings: High Voltage 34500 GRD Y/19920 Volts and Below: Low Voltage 240/120 Volts: 167 kVA and Smaller.

- C57.12.23, Standard for Underground-Type, Self-Cooled, Single-Phase Distribution Transformers with Separable Insulated High Voltage Connectors.

- Guide for Interpretation of Gases Generated in Silicone Liquid-Filled Transformers.

- C57.12.20, Standard for Overhead-Type Distribution Transformers, 500 kVA and Smaller: High Voltage 34500 Volts and Below: Low Voltage 7970/13800Y and Below.

- o C57.12.22, Standard for Pad-Mounted Compartmental-Type, Self-Cooled, Three Phase Distribution Transformers with High Voltage Bushings.

- o C57.12.26, Standard for Pad-Mounted Compartmental-Type, Self-Cooled, Three Phase Distribution Transformers for Use with Separable Insulated High Voltage Connectors.

- o C57.12.00i, General Requirements for Liquid-Immersed Distribution, Power and Regulating Transformers.

- o C57.12.40, Requirements for Secondary Network Transformers - Subway and Vault Types (Liquid Immersed).

(2) Insulated Conductors Committee

- o P83, Test Procedure for Radial Power Factor Tests on Insulated Tapes in Laminar Insulated Power Cables.

- o IEEE #48,Test Procedures and Requirements for AC Cable Terminations, 2.5 kV through 765 kV.

(3) T&D Committee

- o Guide on the Prediction, Measurement and Analysis of AM Broadcast Re-Radiation by Power Lines.

- o 656, Standard for Measurement of Audible Noise from Overhead Transmission Lines.

(4) ED & PG Committee

- o P1050, Guide for Instrumentation and Control Equipment Grounding in Generating Stations.

(5) Relaying Committee

- o Standard Inverse-Time Characteristic Equations for Overcurrent Relays.

- o C37.90.2, Withstand Capability of Relay Systems to Radiated Electromagnetic Interference from Transceivers.

- o C37.90, Relays and Relay Systems Associated with Electrical Apparatus.

(6) Surge Protective Devices Committee

- o PC62.48, Guide on Interactions Between Power System Disturbances and Surge Protective Devices.

(7) Substations Committee

- o Guide for Installing Temporary Substations.

- o P525, Guide for the Design and Installation of Cable Systems in Substations.

- o Guide for Development of Specifications for Turnkey Substation Projects.

- o Guide for Evaluation and Development of Substation Life Extension Programs.

b. We have requested coordination on the following projects:

- o Guide for Animal Deterrents in Electric Power Supply Substations. (Substations Committee)

- o PC62.42, Guide for the Application of Low-Voltage Surge Protective Devices.
  (SPD Committee)

- o C57.12.44, Standard Requirements for Secondary Network Protectors. (Transformers Committee)

- o P62, Guide for Diagnostic Field Testing on Power Apparatus. (PSIM Committee)

- o PC37.124, Pressurized Enclosures for Gas Insulated Substations (Substations Committee)

c. We have sent letters to other PES committees to see if coordination was needed on fifteen of our PARS. One or more requests for coordination were received for each, and the PAR originators have been notified.

Donald M. Larson
Standards Coordinator

Publications Committee
and
Sessions Improvement Committee

Reports

Publications Committee

We had 2 papers not presented at the Winter Meeting due to travel restrictions imposed by the Gulf War. These papers have been rescheduled for the Summer Meeting.

A number of committees have been exceeding their paper quota. At the Winter Power Meeting the total quota was exceeded by 56 papers. Our committee has a quota of 8 papers at each meeting and have done a good job of staying within that number. The cost of publication is the limiting factor.

Some authors have been using very small print to get around the page limit. We are going to specify acceptable print size.

A change in the quota system was proposed. That is to change from a number of papers to a number of pages. We could therefore publish more papers if they were shorter. Our quota would be 56 pages per meeting. We will not start this until next year.

There is some pressure to approve fewer papers as we have a large backlog of papers which have not been published.

Technical Sessions Improvement Committee

We have discontinued the reviewing of slides. Very few presenters provided the slides for review and it was not effective in improving the quality of presentations. We are developing guidelines for slides. If they are not met the session chairman can refuse to allow the paper to be presented.

We are discussing the rating of presentations to provide feedback to presenters.

Respectfully Submitted;

John H. Brunke

IEEE/PES Switchgear Committee
Administrative Subcommittee Minutes
May 7, 1991
Ft. Lauderdale, Florida

1. The meeting was called to order at 0800 by the Chairman, J. H. Brunke.

2. Introduction of members and guests. Attendance report attached.

3. The minutes of the October 2, 1990, meeting in Portland were approved.

PES Reports

4. Meeting and Publications - J. H. Brunke A

5. Technical Council - D. G. Kumbera B

Subcommittee Reports

6. High Voltage Fuse - John Leach reported for L.R. Beard C

7. High Voltages Switches - No report.

   It was learned that Charles Alexander had been in hospital for surgery and we all wish him a speedy recovery.

8. Low Voltage Switchgear Devices - M.T. Brown D

9. Reclosers and Sectionalizers - R.L. Capra E

10. Switchgear Assemblies - L.W. Gaussa F

11. Education, Recognition, and Planning - E.F. Ververka G

12. High Voltage Circuit Breaker - J.E. Reed H

ADSCOM Working Groups and Task Forces

13. Nuclear Liaison Report - L.W. Gaussa I

14. Task Force on Altitude Correction Factors - R.P. O'Leary J

15. Task Force on Partial Discharges - No report

    Ed Vererka will be the new Chairman of the WG.

16. Working Group on Insulating Materials - L.V. McCall K

18. Conversion of Power Switchgear - P.W. Dwyer L

Standards Activities

20. PES Standards Board and Coordinating Committee - D. M. Larson M

21. ANSI C37 - T.C. Burtnett N

FINIS

Old Business

John Brunke will work to revise the Committee procedures manual.

New Business

It was questioned if the current structure of the Switchgear Committee is appropriate. A proposal was tabled by Ward Lauback (Appendix O). It was agreed that the committee officers and subcommittee chairmen would review the structure of the subcommittees and their scopes. The subcommittee chairman will have available scopes of the subcommittees and their working groups for the meeting in Vancouver.

The following motion was tabled:
Moved by Steve Lambert, seconded by Jack Reed.

In an effort to promote a uniform approach to standards, the following policy is to be established:
Future standards and revisions to standards which incorporate fuses, switches, circuit breakers and/or reclosers and sectionalizers shall reference the basic fuse, switch, circuit breaker or recloser and sectionalizer standard whenever possible and treat material differently only when there are unique application requirements.

Motion passed by a vote of 8 to 4.

It was agreed that the monday afternoon meetings in Vancouver will be scheduled from 1.00 to 4.30 pm. This will allow those wishing to tour the B C Hydro test facility as part of the STLNA meeting to do so.

Resulting from the difficulty of having a quorum in attendance at main committee meetings it was decided to enforce the rule that if a person misses two consecutive meetings their membership will be revoked unless one was an excused absence. Absences due to company budget restrictions or other business commitments are not considered excused absences.

Future Meetings:

Vancouver, B.C. -	September 30 - October 3, 1991
Charleston, South Carolina -	April 29 - May 2, 1992
Chicago, Illinois -	October 1992
New Orleans, Louisiana -	May 1993

The meeting was adjourned at 11:56.

Respectfully Submitted,

K. I. Gray
Secretary

IEEE SWITCHGEAR COMMITTEE
ADSCOM Committee
Attendance Summary
October 2, 1990

Member	Present	Guests
Alexander, C.S.	Absent	Walt Wilson
Beard, L.R.	X (Rep. by John Leach)	Ward Laubach
Brown, M.T.	X	Stan Telander
Brunke, J.	X	Matt Williams
Capra, R.L.	X	Tom Burtnett
Dwyer, P.W.	X	Bill Mc Kay
Gaussa, L.W	X	Andy Salem
Gray, K.I.	X	Sue Vogel
Hendrix, K.D.	Absent	Roy Alexander
Kumbera, D.G.	X	
Lambert, S.R.	X	
Lester, G.N.	Absent	
McCall, L.V.	X	
O'Leary, R.P.	X	
Reed, J.E.	X	
Veverka, E.F.	X	
Wagner, C.L.	X	

Publications Committee
and
Sessions Improvement Committee

Reports

Publications Committee

We had 2 papers not presented at the Winter Meeting due to travel restrictions imposed by the Gulf War. These papers have been rescheduled for the Summer Meeting.

A number of committees have been exceeding their paper quota. At the Winter Power Meeting the total quota was exceeded by 56 papers. Our committee has a quota of 8 papers at each meeting and have done a good job of staying within that number. The cost of publication is the limiting factor.

Some authors have been using very small print to get around the page limit. We are going to specify acceptable print size.

A change in the quota system was proposed. That is to change from a number of papers to a number of pages. We could therefore publish more papers if they were shorter. Our quota would be 56 pages per meeting. We will not start this until next year.

There is some pressure to approve fewer papers as we have a large backlog of papers which have not been published.

Technical Sessions Improvement Committee

We have discontinued the reviewing of slides. Very few presenters provided the slides for review and it was not effective in improving the quality of presentations. We are developing guidelines for slides. If they are not met the session chairman can refuse to allow the paper to be presented.

We are discussing the rating of presentations to provide feedback to presenters.

Respectfully Submitted;

John H. Brunke

REPORT ON THE ACTIVITIES
of the
TECHNICAL COUNCIL

The IEEE Technical Council meeting was held in New York February 5, 1991. Items of interest to the Switchgear Committee are:

1. Sue Vogel (IEEE Headquarters) will be sending out notification letters at the end of the four (4) year period following approval of a Standards Document allowing one (1) year for Reaffirmation action.

2. The Standards Coordinating Committee is forwarding a recommendation to the Standards Board that PARS have a four (4) year lifetime.

3. Sue Vogel indicated that if the Standards Office was used to conduct document balloting IEEE membership numbers are automatically checked to verify active up-to-date member registration. If the Standards Office is not used fo ballotting Sue will check member numbers if you provide her with the voting list.

Respectfully Submitted,

David G. Kumbera
Chairman, Switchgear Committee

REPORT ON THE ACTIVITIES
of the
TECHNICAL COUNCIL
ORGANIZATION AND PROCEDURES COMMITTEE

The Committee met February 5, 1991 in New York; reports were submitted by fourteen (14) Working Groups and Technical Committees including Switchgear.

Switchgear report:

a. Switchgear has added a new Vice Chairman -- Standards Coordinator; D.M. Larson. This is a permanent position; duties include handling PARS, Standards Documents, Revisions, Reaffirmations and tracking of all Standards Documents within Switchgear's control.

b. Switchgear has not had any Scope changes either at the Main Committee level or Subcommittee level.

c. Switchgear's Procedures Manual has not, as yet, been changed to reflect the addition of the new Vice Chairman -- Standards Coordinator. Work will be starting shortly to up-date and change the Procedures Manual as required.

TCO&P business items of interest to Switchgear:

1. A working Group has been established to work on streamlining PES activities.

2. Discussion was conducted on finding a home for C92 Insulation Coordination work. It is proposed that this work will be placed under the auspices of the Surge Protective Devices Committee. If anyone has any comments and/or suggestions regarding this activity please let me know by June 6, 1991 and I will this information to the attention of TCO&P committee at the July, 1991 meeting.

Respectfully Submitted,

David G. Kumbera
Chairman, Switchgear Committee

High Voltage Fuse Sub-Committee
Report to Administrative Sub-Committee
Ft. Lauderdale Meeting
May 7, 1991

I. Membership

We currently have 31 members in HVFSC.

A current membership list for HVFSC and the related working groups is attached.

II. Working Groups

Active working groups are as follows:

A. WG on Revisions to Fuse Standards - (Schmunk chairman) 27 members at present.
B. WG on External Fuses for Shunt Capacitors - (Hassler chairman) 18 members at present.
C. WG on Fuses in Enclosures - (Leach chairman) 22 members at present.
D. WG on Full Range Current Limiting Fuse - (Arndt chairman) 12 members at present.
E. Document Coordination Committee - (Ranjan chairman) 3 members at present.
F. Representatives on Partial Discharge Task Force - Arndt and Pflanz.
G. Task Force on IEC Standards Commonality - Calderon, Ranjan, and Vitkus.

III. Active Projects/Status (see attached).

Submitted by: L Ronald Beard
L. Ronald Beard
Chairman, HVFSC

Reported by: _____
John G. Leach
Secretary, HVFSC

Appendix C

PROJECT STATUS - MAY 1991					
Document ID	PAR Number	PAR Date	Contact Person	Status Date	Status
C37.40-1981 (Reaffirmed)	PC37.40	02/89	Bill Schmunk 312/338-1000 Ron Beard 314/682-8325	05/91	Draft PC37.40 D3 - Now in switchgear ballot.
C37.41-1981 (Reaffirmed).	PC37.41	02/89	Bill Schmunk 312/338-1000 Ron Beard 314/682-8325	05/91	In working group.
NEMA SG2-1988 (High Voltage Fuses)	NEMA Document		Mathew Williams 202/457-1957	05/91	NEMA is addressing this issue.
External Fuses for Shunt Capacitors	PC37.40b PC37.41e PC37.48b	12/81	Steve Hassler 414/835-1581	05/91	C37.40b in working group ballot. 41e and 48b work in-process.
Expulsion Fuses in Enclosures	PC37.48c formerly C37.XX	03/86	John Leach 704/322-2860 Ron Beard 314/682-8325	05/91	Draft PC37.48c/D14 was successfully balloted in switchgear. One negative vote in main committee being resolved.
C37.48 - 87	PC37.48	02/89	Bill Schmunk 312/338-1000 Ron Beard 314/682-8325	05/91	In working group.
Standard Definition for Full Range CLF	PC37.40c	02/90	R.H. Arndt 414/548-9105 Ron Beard 314/682-8325	05/91	Definition for full range fuse included in PC37.40 D3 (Bill Schmunk).
Standard Design Tests for Full Range CLF	PC37.41h	02/90	R.H. Arndt 414/548-9105 Ron Beard 314/682-8325	05/91	In working group.
Standard Application, Operation, and Maintenance Guide for Full Range CLF	PC37.48d	02/90	R.H. Arndt 414/548-9105 Ron Beard 314/682-8325	05/91	In working group.

Membership List
IEEE HVFSC and Working Groups
May 8, 1991

HVFSC	Working Group on Revisions to Fuse Standards	Working Group Application of Fuses in Enclosures	Working Group External Fuses for Shunt Capacitors	Working Group Full Range CL Fuse	Project Coordination Committee
C.J. Ahrano	C.J. Ahrano	R.H. Arndt	R.H. Arndt	R.H. Arndt (Chr)	R. Ranjan (Chr)
J. Angelis	R.H. Arndt	T.A. Bellei	J. Barger	F. Calderon	J.R. Marek
R.H. Arndt	J.L. Barger	R.A. Brown	T.A. Bellei	H.E. Foelker	H.E. Swanson
J. Barger	L.R. Beard	C.G. Burland, Jr.	F. Calderon	S. Hassler	
L.R. Beard (Chr)	T.A. Bellei	F. Calderon	W.R. Crooks	W.J. Huber	
T.A. Bellei	C.G. Burland, Jr.	F.L. Cameron	H.E. Foelker	J.G. Leach	
C.G. Burland, Jr.	F.L. Cameron	R.L. Capra	J.E. Harder	F. Muench	
F. Calderon	R.L. Capra	W.R. Crooks	S. Hassler (Chr)	R. Ranjan	
F.L. Cameron	F. Calderon	H.E. Foelker	W.J. Huber	T.E. Royster	
R.L. Capra	W.R. Crooks	S. Hassler	S.W. Law	J.G. St. Clair	
W.R. Crooks	H.E. Foelker	D.G. Komessa	J.G. Leach	J. Schaffer	
H.E. Foelker	S. Hassler	J.G. Leach (Chr)	J.R. Marek	E.W. Schmunk	
S. Hassler	W.J. Huber	J.R. Marek	F.J. Muench		
W.J. Huber	S.W. Law	H.W. Mikulecky	W.H. Perry		
S.W. Law	J.G. Leach	F. Muench	H.M. Pflanz		
J.G. Leach	J.R. Marek	R. Ranjan	R. Ranjan		
J.R. Marek	H.W. Mikulecky	H.G. Reid	J.G. St. Clair		
H.W. Mikulecky	F. Muench	T.E. Royster	E.W. Schmunk		
F. Muench	V. Narancic	W.R. Rueth			
V. Narancic	H.M. Pflanz	J.G. St. Clair			
H.M. Pflanz	R. Ranjan	J. Schaffer			
R. Ranjan	T.E. Royster	E.W. Schmunk			
P. Rosen*	W.R. Rueth				
T.E. Royster	J. Schaffer				
W.R. Rueth	E.W. Schmunk (Chr)				
J.G. St. Clair	J.G. St. Clair				
J. Schaffer	H.E. Swanson				
E.W. Schmunk					
H.E. Swanson					
A. Vitkus					
A.C. Westrom					
Members Total: 31	27	22	18	12	3

* Correspondence member

REPORT TO ADMINISTRATIVE SUBCOMMITTEE

FORT LAUDERDALE
MAY 1991

LOW-VOLTAGE SWITCHGEAR DEVICES SUBCOMMITTEE

- **Subcommittee membership remains at 17 members**

- **Standards activity:**

  C37.26 - Guide for Power Factor Measurement
  Low Voltage Inductive Test Circuits.
  Reaffirmed by ANSI - February, 1991.

  C37.18 - Enclosed Field Discharge Circuit
  (1979) Breakers for Rotating Electric
  Machinery (R1991). Reaffirmed by
  Standard Board - March 1991.

  C37.13 - Standard for Low Voltage AC Power
  Circuit Breaker used in Enclosures.
  Revision approved by the IEEE
  Standard Board on 10/22/90.

  C37.14 - Standard for Low Voltage DC Power
  Circuit Breakers used in Enclosures.
  Subcommittee Ballot on revision complete.
  Recently reaffirmed.

  C37.27 - Application Guide for LV AC non-integrally
  Fused Power Circuit Breaker.
  Needs PAR to begin work.

Respectfully submitted

M T Brown

LOW VOLTAGE SUBCOMMITTEE
STANDARDS STATUS

STD.#	DATE	TITLE	CONTACT	STATUS
C.37.13	1991	Standard for Low Voltage AC Power Circuit Breakers Used in Enclosures	F C Teufel (215) 698-6249	Approved: IEEE 10/22/90 ANSI 3/5/91
C37.14	1979 (R1990)	Standard for Low Voltage DC Power Circuit Breakers Used in Enclosures	R A McMaster (803) 665-4144	Revised at Subcommittee Recent Ballot Complete Approved: IEEE 2/15/90 ANSI 7/19/90
C37.18	1979 (R1991)	Enclosed Field Discharge Circuit Breakers for Rotating Electric Machinery		Approved: IEEE 3/21/91
C37.26	1972 (R1990)	Guide for Methods of Power Factor Measurements for Low Voltage Inductive Test Circuits	P Clickner (319) 753-8633	Approved: IEEE 9/28/90 ANSI 2/20/91
C37.27	1987	Application Guide for LV AC Nonintegrally Fused Power Circuit Breaker		Needs PAR from Subcommittee
C37.29	1981 (R1990)	Standard for Low Voltage AC Power Circuit Protectors Used in Enclosures		Approved: IEEE 2/15/90 ANSI 7/19/90
C37.50	1981	Test Procedures for Low Voltage AC Power Circuit Used in Enclosures		No action

REPORT OF THE RECLOSERS AND SECTIONALIZERS SUBCOMMITTEE

May 7, 1991

Subcommittee membership stands at 17. Work is progressing on the following standards.

C37.60 - 1981 PAR
Recloser Standard. Review should be completed by this meeting. If not, we need to re-affirm at this meeting.

C37.61 - Recloser Application Standard. We need to re-affirm at this meeting.

C37.63 - Sectionalizer Standard. A par request has been submitted. Kris Ranjan, Chairman of the Working Group, will review draft of revision at the May meeting.

C37.66 - Capacitor Switch Standard. A par has been issued. Elmer Luehring will chair the Working Group. He has setup a computer mail box to expedite the revision process.

C37.71 - Subsurface Switch Standard. A par request has been submitted for a revision to make the test requirements this standard consistent with C37.72 and expand the scope to include vault type switches. The PAR has been returned pending resolution of a proposal to coordinate all switch standards in the High Voltage Switch Subcommittee.

C37.73 - Padmounted Fused Switch Standard. Work is progressing on this standard. A second draft of the Standard was reviewed at the Monday, May 6 meeting.

<u>Ballots Before the Switchgear Committee</u>

	Standard	Date
Re-affirmation	C37.63	5/90
Re-affirmation	C37.71	5/90
Re-affirmation	C37.61	5/91

R.L. Capra
May 7, 1991

REPORT TO ASCOM

May 7, 1991

SWITCHGEAR ASSEMBLIES SUBCOMMITTEE

MEMBERSHIP

Status quo:

18 Members
7 Users
11 Producers

STANDARDS

The following list shows the status of standards under the Assemblies' jurisdiction:

C37.20.1	(1987) published	PAR's approved revisions for C37.20.1, .2 & .3.
C37.20.2	(1987) published	Needs reaffirmation if the ballot to Switchgear
C37.20.3	(1987) published	Committee is not sent by June 1, 1991
C37.20.4	(New)	PAR approved with comments
C37.21	(1985) published	Needs reaffirmation
C37.23	(1987) published	PAR approval withheld for the following reason: Explaining the need to combine a standard for one topic and a guide for another in the same guide.
C37.24	(1986) published	Needs reaffirmation
C37.82	(1987) published	Needs reaffirmation
C37.81	(1989) published	

ACTIVITIES

The subcommittee will meet Wednesday afternoon.

WORKING GROUPS

The Working Group will meet on Tuesday to discuss C37.20's .1, .2, .3 and .4 revisions.

Lou Gaussa, Sr.

IEEE Education, Recognition & Planning

Subcommittee Report To The
Administrative Subcommittee

May 7, 1991

The Education, Recognition, and Planning (ER&P) Subcommittee met on Tuesday, October 2, 1990, with 6 members in attendance and 3 excused.

A nomination for the PES Outstanding Working Group Award has been submitted for our WG that developed the standard on Seismic Capability C37.81 1989. Since this is a new "stand alone" standard, we were optimistic that this would be successful and it was accepted. Accordingly, Power Switchgear commendation certificates will be obtained with presentation to the W.G. members. We are again soliciting nominations from the subcommittee for the PES Working Group Award.

The candidate for the Switchgear Committee Outstanding Individual Award has been selected with presentation to be made.

Regarding the Prize Paper Award, I submitted a paper entitled, "Estimation Of Fast Transient Overvoltage In Gas Insulated Substations" by Yanabau, et. al. Unfortunately, although this paper was accepted and presented at the IEEE Winter Power Meeting in 1989, it was lost in the system and published only last October. I requested that the review committee accept it even though it was 1 month over the publication deadline based on the above IEEE problem. My request was accepted and the paper received a PES Prize Paper Award.

Regarding the IEEE PES Award for Excellence in Distribution Engineering, I am very pleased to announce that Harvey Mikulecky has received this prestigious award for 1991. The presentation will be made at the IEEE Summer Meeting in San Diego on July 30th by Mr. H. Sherer, President of PES. The award includes a plaque and a $4,000 scholarship fund that will go to the school with an accredited power engineering curriculum that Harvey will choose. Looking ahead, if you have thoughts on a candidate for 1992, see Art Westrom, Chairman of the Selection Committee and get your nomination in.

Submitted by:

E. F. Veverka
Chairman of ER&P

HIGH VOLTAGE CIRCUIT BREAKER SUBCOMMITTEE
REPORT TO ADSCOM
FORT LAUDERDALE, FLORIDA - MAY 7, 1991

1. Five Working Group Meetings and one Task Force Meeting are planned during the week.

2. HVCB Subcommittee membership stands at 40 members. We note with deep regret the death of Bill Harper and recognize his innumerable contributions and dedicated service to HVCB, the Switchgear Committee, and the international standards process.

3. Ballot Activities:

HVCB Subcommittee Ballots			
10-31-90	C37.011	General Revision	S. R. Lambert
03-15-91	C37.013	Draft 4, Application Guide	P. L. Kolarik
05-04-91	C37.04 C37.06 C37.09 C37.010	Control Voltages	W. R. Wilson
05-03-91	C37.081	Recovery Voltages for Terminal Faults	A. K. McCabe

4. C37.11, Requirements for Electrical Control for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis or a Total Current Basis, has been assigned to the Switchgear Committee as a new standard. A PAR will be submitted to begin a general revision of C37.11.

5. The controversial revision to Section 4.12 of C37.09 which had sustained a successful ballot of the Switchgear Committee, but was sent to the Standards Board with two negative votes considered unresolvable, was returned by the Standards Board to the Working Group on Distribution Load Circuits. At their meeting 12/6/90, the Standards Board recommended that the revision be returned to the sponsor "for resolution of negative votes and re-circulation to the Balloting Committee". This has been done with a ballot due date of 4/24/91. Results of that ballot will be reviewed in the Working Group and reported at the HVCB and Switchgear meetings.

J. E. Reed, Chairman

JER:cdr
5/3/91

LIAISON REPORT

NUCLEAR POWER ENGINEERING COMMITTEE (NPEC)

Attended NPEC meeting on March 13, 14, 1991 in Denver, Colorado with no action items since the last Switchgear Committee meeting.

Reaffirmation Ballot for IEEE STD-383 was ballotted negative because it contains not current data for industry use.

L. W. Gaussa, Sr.

Appendix I

ADSCOM Task Force on Altitude Correction Factors

Report to ADSCOM
May 7, 1991

At the last ADSCOM meeting, in Portland, OR, the Task Force was asked to send the most recent correspondence to ADSCOM Members. The mailing to ADSCOM Members did not generate any additional comments.

Since the Portland meeting, IEEE Standard 97, IEEE Recommended Practice for Specifying Service Conditions in Electrical Standards, was discovered by the Task Force. Since IEEE 97 was withdrawn, 3 out of 5 members of the Task Force proposed to stay with their recommendations as outlined in the Task Forces Draft 5. (The other two members did not voice an opinion.)

Sue Vogle indicated that there was some confusion regarding the withdrawal of IEEE 97. Sue felt that the document was in the process of being re-instated.

Subsequent to the meeting Sue Vogle did, in fact confirm that IEEE 97 will be re-instated.

Ray O'Leary

Raymond P. O'Leary
Chairman

ADSCOM WORKING GROUP ON INSULATION MATERIALS
Ft. Lauderdale Meeting
May 6, 1991

Present:

Larry McCall	Ed Tarchalski
Pete Dwyer	Elmer Hornung
Dave Kumpera	Fred Teufel
Jim Ransom	Davis E. Parr
Roy Alexander	

The proposed Committee Report, "Application of Insulation Systems in Switchgear," was balloted in Switchgear Committee following the Portland meeting. Fifty-four (54) ballots were returned of 62 mailed, with 7 negatives, and several comments accompanying affirmative ballots.

In general, comments indicated a need for clarification of purpose and some editorial improvements.

In response, the Working Group will revise the draft position paper to provide the needed significant clarification of purpose, execute some restructuring for improved readability, and include more references. This will be done before the next Switchgear meeting (Vancouver), and reballot in Switchgear Committee by next fall.

L. V. McCall
Chairman
ADSCOM WG On Insulator Material

Report
ADSCOM Working Group
"Requirements for Conversion of Power Switchgear Equipment" (C37.59)
Ft. Lauderdale -- May 7, 1991

Since the last meeting report at Portland, Oregon, a ballot was taken of ADSCOM and Switchgear of Draft 9 of C37.59-19XX. A total of 62 eligible ballots were sent out -- 41 were received with approval, 4 negatives and 2 abstentions were returned for a 75% response.

The negatives were concerned with nameplate issues, i.e. the fate of the original nameplate, very numerous editorial clarifications and concerns that the document had too much of a flavor of a purchasing contract.

Draft 10 was prepared and the Working Group met from 2:00 p.m. until 6:00 p.m. on May 6 to resolve open issues. Twenty-three (23) attended this meeting including 13 members and 10 guests. A very lively discussion resulted in agreement to establish a Draft 11 which has a high probability of resolving all negative ballots. Our plan is to establish Draft 11 and circulate it to the most vocal of the reviewers for concurrence, then request a fairly short review by the working group as a whole, ADSCOM and Switchgear, for concurrence. Although it is felt that changes are editorial, they are fairly extensive.

Pete Dwyer
Chairman

IEEE STANDARDS BOARD REPORT

The Standards Board met on May 31, 1990, September 28, 1990, December 6, 1990 and March 20, 1991. I did not attend these meetings, but the following action was taken:

1. PAR C37.30 (Dixon), Standard Definitions and Requirements for High Voltage Air Switches, Insulators and Bus Supports.
   Approved with comments, 5/31/90.

2. PAR C37.34 (Dixon), Standard for Test Code for High Voltage Air Switches.
   Approved with comments, 5/31/90.

3. PAR C37.59 (Dwyer), Standard for Requirements for Conversions of Power Switchgear Equipment.
   Approved with comments, 9/28/90.

4. PAR C37.09 (Harper), Standard TEst Procedures for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis.
   Approved, 12/6/90.

5. PAR C37.04f (Hanks), Standard for Operating Mechanism Requirements.
   Approved, 9/28/90.

6. PAR C37.04h (Hanks), Standard for Mechanical Loading Requirements of Circuit Breaker Terminals.
   Approved, 9/28/90.

7. PAR C37.38 (Rishworth), Standard for Switching Ratings and Design Tests for Gas Insulated Switches.
   Approved, 12/6/90.

8. PAR C37.71 (Capra), Standard for Three Phase Manually Operated Subsurface and Vault Load Interrupting Switches for Alternating Current Systems.
   Approved, 9/28/90.
   Resubmitted to include vault switches.
   Approval withheld, 3/21/91.

9. PAR C37.63 (Capra), Standard Requirements for Overhead, Pad-Mounted, Dry-Vault and Submersible Automatic Line Sectionalizers for AC Systems.
   Approved with comments, 9/28/90.

10. PAR C37.23 (Gaussa), Standard for Metal-Enclosed Bus and Guide for Calculating Losses in Isolated-Phase Bus.
    Returned to subcommittee for clarification, 9/28/90.

11. PAR C37.20.4 (Gaussa), Standard for Indoor AC Medium-Voltage Switches for Use in Metal-Enclosed Switchgear.
    Returned to subcommittee for clarification, 12/6/90.

12. PAR C37.36b (Dixon), Guide to Current Interruption with Horn-Gap Air Switches.
Approved, 9/28/90.

13. PAR C37.20.1 (Gaussa), Standard for Metal-Enclosed Low-Voltage Power Circuit-Breaker Switchgear.
Approved 9/28/90.

14. PAR C37.20.2 (Gaussa), Standard for Metal-Clad and Station-Type Cubicle Switchgear.
Approved 9/28/90.

15. PAR C37.20.3 (Gaussa), Standard for Metal-Enclosed Interrupter Switchgear.
Approved 9/28/90.

16. PAR P1247 (O'Leary), Standard for Interrupter Switches for Alternating Current, Rated Above 1000 Volts.
Approved with comments, 12/26/90.

17. PAR C37.11 (Lambert), Standard Requirements for Electrical Control for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis or a Total Current Basis.
Approval pending.

18. PAR C37.011 (Tobin), Application Guide for Transient Recovery Voltage for AC High Voltage Circuit Breakers Rated on a Symmetrical Current Basis.
Approved with comments, 12/6/90.
Resubmitted 2/20/91.

19. PAR C37.04i (Tobin), Standard Rating Structure for AC High-Voltage Circuit Breakers Rated in a Symmetrical Current Basis.

PAR C37.09g (Tobin), Standard Test Procedure of AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis.

PAR C37.100d (Tobin), Definitions for Power Switchgear.

All three were approved with comments 12/6/90.

20. PAR C37.09a (Peelo), Standard Test Procedure for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis.
PAR approved 12/6/90.
Ballot returned to sponsor for resolution of negative votes.

21. P1257 (Saavedra), Guide for Diagnostics and Failure Investigation of Power Circuit Breakers.
Approved with comments, 3/21/91.

22. PAR C37.013 (Kolarik), Standard for AC High Voltage Generator Circuit Breakers Rated on a Symmetrical Current Basis.
Approval Pending.

23. PAR P1259 (Peelo), Application Guide for Shunt Reactor Switching. Approval Pending.

24. C37.18, Enclosed Field Discharge Circuit Breakers for Rotating Machinery. Reaffirmation Approved, 3/21/91.

Donald M. Larson
Standards Coordinator

STANDARDS COORDINATING REPORT

1. Standards Coordinating Committee

The Standards Coordinating Committee (SCC) met on February 4, 1991, during the PES Winter Power Meeting in New York. Dave Kumbera represented the Switchgear Committee at this meeting.

Two primary action items were on the agenda:

a. Development of a common coordination method within PES.

b. The issue of streamlining standards. Bob Harner's concerns on this subject were addressed.

A motion by Bob Harner that PARs should have a 4-year lifetime was passed, and has been sent to the Standards Board. The intent is that if a project goes beyond four years, a new PAR would have to be submitted and approved in order to continue the development activities. As a liaison representative to the Standards Board, I intend to vote to approve this proposal unless directed otherwise by ADSCOM.

A proposal has been made to change the definition of "sponsor" in Section 2.2 of the IEEE Standards Manual

From: "A group of qualified members of the IEEE who have professed interest in the development of standards (either by direct participation or by the process of review) in technological areas that fall under the general scope of interest to the IEEE."

To: "A group of individuals who have a professed interest in the development - - -"

Rationale: In some areas, the movers in leading-edge technology may not be IEEE members. They should be encouraged to join the IEEE of course, but lack of membership should not preclude the participation of qualified persons in the standards development process. Note also that ProCom continues to recommend that members of the sponsor balloting group shall be IEEE members (or Affiliates).

Again, I intend to vote for this proposal unless directed otherwise by ADSCOM.

The committee discussed whether the date used to determine when a standard must be revised, reaffirmed or withdrawn should be the Standards Board approval date or the publication date. IEEE staff will use the date of publication when selecting standards which require 5-year review.

A revised PAR form should be available this summer. The IEEE Standards Manual and the IEEE Style Manual have also been revised. Significant changes in the Standards Manual include:

- Requirement that a Sponsor notify the Standards Board within 30 days of the date of the first meeting of a standards working group.

- Requirement of a 75% affirmative ballot for all reaffirmations.

- Addition of sections on annexes and appendixes.

- Requirement that the Sponsor submit status reports on projects at least annually.

2. Requests for Coordination

a. We have declined coordination on the following projects because they were judged to be of no interest to the Switchgear Committee:

(1) **Transformers Committee**

- C57.16, American Standards Requirements, Terminology and Test Code for Current Limiting Reactors.

- C57.12.24, Standard for Underground-Type, Three-Phase Distribution Transformers 2500 kVA and Smaller: High Voltage 34500 GRD Y/19920 Volts and Below: Low Voltage 480 Volts and Below-Requirements.

- C57.12.25, Standard for Pad Mounted, Compartmental-Type, Self Cooled Single-Phase Distribution Transformers with Separable Insulated High Voltage Connectors: High Voltage 34500 GRD Y/19920 Volts and Below: Low Voltage 240/120 Volts: 167 kVA and Smaller.

- C57.109, Guide for Transformer Through-Fault Current Duration.

- Standard for Bar Coding for Distribution Transformers (Pole Mounted, Pad Mounted and Underground).

- C57.12.27, Standard for Liquid Filled Distribution Transformers Used in Pad-Mounted Installations Including Unit Substations.

- C57.12.21, Standard for Pad-Mounted, Compartmental-Type, Self-Cooled, Single-Phase Distribution Transformers with High Voltage Bushings: High Voltage 34500 GRD Y/19920 Volts and Below: Low Voltage 240/120 Volts: 167 kVA and Smaller.

- C57.12.23, Standard for Underground-Type, Self-Cooled, Single-Phase Distribution Transformers with Separable Insulated High Voltage Connectors.

- Guide for Interpretation of Gases Generated in Silicone Liquid-Filled Transformers.

- C57.12.20, Standard for Overhead-Type Distribution Transformers, 500 kVA and Smaller: High Voltage 34500 Volts and Below: Low Voltage 7970/13800Y and Below.

- o C57.12.22, Standard for Pad-Mounted Compartmental-Type, Self-Cooled, Three Phase Distribution Transformers with High Voltage Bushings.

- o C57.12.26, Standard for Pad-Mounted Compartmental-Type, Self-Cooled, Three Phase Distribution Transformers for Use with Separable Insulated High Voltage Connectors.

- o C57.12.00i, General Requirements for Liquid-Immersed Distribution, Power and Regulating Transformers.

- o C57.12.40, Requirements for Secondary Network Transformers - Subway and Vault Types (Liquid Immersed).

(2) Insulated Conductors Committee

- o P83, Test Procedure for Radial Power Factor Tests on Insulated Tapes in Laminar Insulated Power Cables.

- o IEEE #48,Test Procedures and Requirements for AC Cable Terminations, 2.5 kV through 765 kV.

(3) T&D Committee

- o Guide on the Prediction, Measurement and Analysis of AM Broadcast Re-Radiation by Power Lines.

- o 656, Standard for Measurement of Audible Noise from Overhead Transmission Lines.

(4) ED & PG Committee

- o P1050, Guide for Instrumentation and Control Equipment Grounding in Generating Stations.

(5) Relaying Committee

- o Standard Inverse-Time Characteristic Equations for Overcurrent Relays.

- o C37.90.2, Withstand Capability of Relay Systems to Radiated Electromagnetic Interference from Transceivers.

- o C37.90, Relays and Relay Systems Associated with Electrical Apparatus.

(6) Surge Protective Devices Committee

- o PC62.48, Guide on Interactions Between Power System Disturbances and Surge Protective Devices.

(7) Substations Committee

- o Guide for Installing Temporary Substations.

- o P525, Guide for the Design and Installation of Cable Systems in Substations.

- o Guide for Development of Specifications for Turnkey Substation Projects.

- o Guide for Evaluation and Development of Substation Life Extension Programs.

b. We have requested coordination on the following projects:

- o Guide for Animal Deterrents in Electric Power Supply Substations. (Substations Committee)

- o PC62.42, Guide for the Application of Low-Voltage Surge Protective Devices.
(SPD Committee)

- o C57.12.44, Standard Requirements for Secondary Network Protectors. (Transformers Committee)

- o P62, Guide for Diagnostic Field Testing on Power Apparatus. (PSIM Committee)

- o PC37.124, Pressurized Enclosures for Gas Insulated Substations (Substations Committee)

c. We have sent letters to other PES committees to see if coordination was needed on fifteen of our PARS. One or more requests for coordination were received for each, and the PAR originators have been notified.

Donald M. Larson
Standards Coordinator

Accredited Standards Committee C37 Power Switchgear

Chairman's Correspondence
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Cooper Power Systems
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REPORT TO IEEE SWITCHGEAR COMMITTEE, ADSCOMM

I have discussed with you on several occasions, our initiatives to bring better management to the ASC C37 consensus approval process. One of those initiatives was to implement a tracking system on the standards to provide us with management data. The past two years' data on 26 standards (13 in 1989 and 13 in 1990) processed from submittal to approval by ANSI is shown on the attached charts, broken down by three types of submittal: Reaffirmations, Revisions, and New Documents.

Reaffirmations in 1989 required an average of 139 days and in 1990 127 days to complete the approval process. New and Revised documents required an average of 294 days in 1989 (202 days if we eliminate C37.122 which was a "caught-in-the-crack" carryover from previous years) and 214 days in 1990. In 1990 two standards, C37.32 (sponsor, NEMA) and C37.013 (sponsor, IEEE) received comments which were sent back to the sponsor for resolution. Those comment resolution periods were quite long (≈ 150 to 200 days). As noted on the charts, two other standards received comments which were quickly resolved and these were processed in 154 and 186 days, respectively.

At this point we can say that Reaffirmations can be processed in about 130 days (high 138, low 119) and New or Revised documents in about 200 days (high 400, low 126) from submittal to ASC C37, assuming all parties do their part in a timely fashion: on the high end if they don't, on the low end if they do. Those parties include the C37 Administrative Secretariat (NEMA), the C37 voting public, ANSI's Board of Standards Review (BSR) and, of course, the sponsor (usually IEEE's Switchgear Committee or NEMA's Switchgear Section) when comments are received.

There has been much controversy regarding the time it takes to process a C37 standard (reference my report to you in May of 1990). Now that we have some facts to work with, perhaps we can develop some understandings and realistic expectations with regard to approvals and also develop ways to streamline this process further. I am asking for your comments and suggestions.

Is the current timeframe for approval reasonable? If not, what would you consider reasonable and how might that be achieved? What might be done to help expedite comment resolution?

Attached, also, is a list of those C37 standards, sponsored by IEEE Switchgear Committee, which will require action in ~~1991~~ 1992 under the 5-year rule. Please take the appropriate actions so that we may maintain them on a current status within ANSI.

Finally, for your information, the issue of IEEE publication of C37-designated standards is still not resolved. At this time, ASC C37 does not have a definitive understanding with IEEE on this issue but will continue to work toward that end. I believe that we can resolve it to the satisfication of both parties and seek your continued support in this regard.

T. C. Burtnett
Chairman
ASC C37 Committee

4/5/91
7690J/jmb

ASC C37 STANDARDS DEVELOPMENT
1990 ACTIVITY
DOCUMENT PROCESSING TIME (DAYS)

DOCUMENT	ACTION	BSR8 TO BSR9	BSR9 TO BSR APPROVAL	TOTAL
C37.013	RV	319	31	350**
C37.13	RF	93	35	128
C37.14	RF	93	35	128
C37.29	RF	93	35	128
C37.32	NEW	369	29	398**
C37.33a	NEW	114	31	145
C37.34e	NEW	158	28	186**
C37.36b	NEW	104	35	139
C37.57	NEW	124	30	154**
C37.58	NEW	94	32	126
C37.63	RF	95	24	119
C37.71	RF	95	24	119
C37.81	RF	106	32	138

1990 DOCUMENT SUMMARY

REAFFIRMATION	6
NEW	6
REVISION	1
DOCUMENTS PROCESSED (TOTAL)	13

1990 AVERAGE PROCESSING TIME

TYPE	BSR8 TO BSR9	BSR9 TO BSR APPROVAL	TOTAL
REAFFIRMATION	95	31	127
NEW	160	31	191
REVISION	319	31	350

**These documents received comments that needed addressing while under balloting.

NEW = New Document, RF = Reaffirmation, RV = Revision

ASC C37 STANDARDS DEVELOPMENT
1989 ACTIVITY
DOCUMENT PROCESSING TIME (DAYS)

DOCUMENT	ACTION	BSR8 TO BSR9	BSR9 TO BSR APPROVAL	TOTAL
C37.04	RF	84	65	149
C37.09	RF	84	65	149
C37.010	RF	84	65	149
C37.011	RF	84	65	149
C37.012	RF	117	30	147
C37.38	NEW	121	49	170
C37.41	REV	116	67	183
C37.50	REV	148	30	178
C37.52	RF	71	51	122
C37.53.1	RF	239	36	275
C37.100	NEW	77	30	107
C37.121	NEW	169	35	203
C37.122	NEW	721	34	755*

1989 DOCUMENT SUMMARY

REAFFIRMATION	7
NEW	4
REVISION	2
DOCUMENTS PROCESSED (TOTAL)	13

1989 AVERAGE PROCESSING TIME

TYPE	BSR8 TO BSR9	BSR9 TO BSR APPROVAL	TOTAL
REAFFIRMATION	86	53	139
NEW	312	38	350
REVISION	132	48	180

* THIS DOCUMENT BEGAN PROCESSING IN 1986, PRIOR TO THE ESTABLISHMENT OF THE C37 PROGRAM ADMINISTRATOR POSITION

STEPS TO ANSI APPROVAL OF AN ASC C37 STANDARD

1. Document is received from sponsor.

2. Receipt of Document is acknowledged.

3. BSR-8 is sent to ANSI to begin the public review process.

4. At the same time as #3, issue ballots for the document to ASC C37 and the appropriate NEMA Voting Classification.

5. Resolve any comments received.

6. Close NEMA Voting Classification ballot. Obtain the NEMA delegation to ASC C37 ballot.

7. Close the ASC C37 Ballot and issue ballot summary.

8. Send BSR-9 to ANSI to initiate the Board of Standards Review (BSR) approval process.

9. Obtain Approval, ANSI Board of Standards Review..

Standards Due for Processing

In 1992 the following standards are due for processing under ANSI's 5 year review policy.

Standards due for Processing in 1992

IEEE

C37.1-1987, Manual, Automatic & Supervisory Station Control and Data Acquisition

C37.20.1-1987, Metal-Enclosed Low Voltage Power Circuit Breaker Switchgear Assemblies

C37.20.2-1987, Metal Clad and Station Type Cubicle Switchgear

C37.20.3-1987, Metal Enclosed Interrupter Switchgear

C37.23-1987, Metal Enclosed Bus & Guide for Calculating Losses in Isolated Phase Bus

C37.27-1987, Application Guide for Low Voltage AC Non-Integrally Fused Power Circuit Breakers

C37.48-1987, Guide for Application Operation & Maintenance of High Voltage Fuses, Distribution Enclosed Single-Pole Air Switches, Fuse Disconnecting Switches, and Accessories

NEMA

C37.06-1987, Schedules of Preferred Ratings and Related Required Capabilities for AC High Voltage Circuit Breakers Rated on a Symmetrical Current Basis

C37.33-1987, Rated Control Voltages and Their Ranges for High Voltage Air Switches

C37.44-1981 (R1987), Specifications for Distribution Oil Cutouts and Fuse Links

C37.45-1981 (R1987), Specifications for Distribution Enclosed Single Pole Air Switches

C37.46-1981 (R1987), Specifications for Power Fuse and Fuse Disconnecting Switches

C37.54-1987, Conformance Test Procedures for Indoor AC High Voltage Circuit Breakers Applied as Removable Elements in Metal-Enclosed Switchgear

37.72-1987, Single and Three Phase Manually Operated 600 Ampere Dead-Front Padmount Load Interrupting Switches for Alternating Current Systems

ASC C37 STATUS REPORT
INFORMATION SHEET

Abbreviation Codes

NEW - New Standard or Supplement
RF - Reaffirmation
RV - Revision

ANT - Action needs to be taken
APD - Action Past Due
APP - Approved
AW - Administratively Withdrawn
CBR - Comments Being Resolved
CRNT - Current
N/A - Not Applicable
RU - Revision Underway
UB - Currently Under Ballot
UD - Under Development

S/C - Subcommittee
T/C - Technical Committee
W/G - Working Group

* - See Appendix for additional information.

BSR8 - A form that initiates the Public Review Process for a document.
BSR9 - A form that initiates ANSI/BSR Approval of a document.

Please note the following:

1. Information current as of April 22, 1991.

2. The standards contained in this report are divided into three groups as follows:

    a. NEMA, IEEE Switchgear Committee, and AEIC sponsored documents.
    b. IEEE Relay Committee sponsored documents.
    c. IEEE Substation Committee sponsored documents.

3. For more information concerning any standards in group "a" from above, contact the C37 Program Administrator at (202) 457-1957 (NEMA). For more information on standards in groups "b" and "c" from above, contact the Administrator, Society Services at (201) 562-3817 (IEEE).

Designation	Title	Type of Action Last Taken	Year Action Last Taken	Year Action Needs Taking	Status	Sponsor
C37.04-1979 (R1989)	Rating Structure for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis	RF	1989	1994	CRNT*	IEEE
C37.04a-199x	Revision of Section 5.16 - Rated Shunt Reactor Current Switching Requirements	UD	N/A	N/A	UD	IEEE
C37.04d-199x	Revision to Include GIS Application	UD	N/A	N/A	UD	IEEE
C37.04f-199x	Revision to clarify "Trip Free" (Subsection 6.5)	N/A	N/A	N/A	UB*, but CBR	IEEE
C37.04g-1988	Supplement to C37.04-1979 (R1989) - (Sealed Interrupters)	NEW	1988	1993	CRNT	IEEE
C37.04h-1988	Supplement to C37.04-1979 (R1989) - (Subsection 6.2 (4))	NEW	1988	1993	BSR9* at ANSI	IEEE
C37.04i-199X	Supplement to C37.04-1979 (R1989) - (Subsection 5.11.4.2 & 5.11.4.3)	N/A	N/A	N/A	UB	IEEE

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Designation	Title	Type of Action Last Taken	Year Action Last Taken	Year Action Needs Taking	Status	Sponsor
C37.06-1987	Schedules of Preferred Ratings and Related Required Capabilities for AC High Voltage Circuit Breakers Rated on A Symmetrical Current Basis	RV	1987	1992	CRNT	NEMA
C37.06a-1989	Revision of Table 3	NEW	1989	1994	CRNT	NEMA
C37.06b-199x	Revsion to Tables 1, 1A, 4, & 8	UD	N/A	N/A	UD*	NEMA
C37.09-1979 (R1989)	Test Procedures for Ac High Voltage Circuit Breakers Rated on a Symmetrical Current Basis	RF	1989	1994	CRNT*	IEEE
C37.09a-199x	Distribution Load Current Switching & Revision of Test Duty Tables 1 & 2	UD	N/A	N/A	UD*	IEEE
C37.09d-199X	Revision to Include Circuit Breakers for GIS Applications	UD	N/A	N/A	UD	IEEE
C37.09f-199x	Revision to include Shunt Reactor Switching	UD	N/A	N/A	UD	IEEE
C37.09g-199X	Supplement to C37.09-1979 (R1989) (Subsection 4.6.5.4)	N/A	N/A	N/A	UB	IEEE

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Designation	Title	Type of Action Last Taken	Year Action Last Taken	Year Action Needs Taking	Status	Sponsor
C37.010-1979 (R1989)	Application Guide for AC High Voltage Circuit Breakers Rated on a Symmetrical Current Basis	RF	1989	1994	CRNT*	IEEE
C37.010f-199x	Revision to Include Circuit Breakers for GIS Applications	UD	N/A	N/A	UD	IEEE
C37.010g-199X	Revision to Include Shunt Reactor Switching	UD	N/A	N/A	UD	IEEE
C37.011-1979 (R1989)	Application Guide for Transient Recovery Voltage for AC High Voltage Circuit Breakers Rated on a Symmetrical Current Basis	RF	1989	1994	CRNT*	IEEE
C37.011a-199X	Revision to Include Circuit Breakers for GIS Applications	UD	N/A	N/A	UD	IEEE
C37.012-1979 (R1989)	Application Guide for Capacitance Current Switching for AC High Voltage Circuit Breakers Rated on a Symmetrical Current Basis	RF	1989	1994	CRNT	IEEE
C37.013-1990	AC Generator Circuit Breakers Rated on a Symmetrical Current Basis	RV	1990	1995	CRNT	IEEE
C37.014-199x	Requirements for Current Transformers for AC High Voltage Circuit Breakers Rated on a Symmetrical Current Basis	UD	N/A	N/A	UD	IEEE

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Designation	Title	Type of Action Last Taken	Year Action Last Taken	Year Action Needs Taking	Status	Sponsor
C37.081-1981 (R1988)	Guide for Synthetic Fault Testing of Ac High Voltage Circuit Breakers Rated on a Symmetrical Current Basis	RF	1988	1993	CRNT	IEEE
C37.082-1982 (R1988)	Standard Methods for the Measurement of Sound Pressure Levels for AC Power Circuit Breakers	RF	1988	1993	CRNT	IEEE
C37.083-199x	Guide for Synthetic Capacitive Current Switching Test for AC High Voltage Circuit Breakers Rated on a Symmetrical Current Basis	UD	N/A	N/A	UD	IEEE
C37.1-1987	Manual, Automatic & Supervisory Station Control and Data Acquisition	RV	1987	1992	CRNT	IEEE
C37.11-1979	Requirements for Electrical Control for Ac High Voltage Circuit Breakers Rated on a Symmetrical and Total Current Basis	AW	1979	past*	To be* Sub-mitted	IEEE
C37.12-1981	Guide for Specifications for AC High Voltage Circuit Breakers Rated on a Symmetrical and Total Current Basis	RV	1981	past	BSR9* at ANSI	AEIC
C37.13-1991	Low Voltage AC Power Circuit Breakers Used in Enclosures	RV	1991	1996	CRNT	IEEE
C37.14-1979 (R1990)	Low Voltage DC Power Circuit Breakers Rated on a Symmetrical Current Basis	RF	1990	1995	CRNT*	IEEE

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Designation	Title	Type of Action Last Taken	Year Action Last Taken	Year Action Needs Taking	Status	Sponsor
C37.16-1988	Preferred Ratings, Related Requirements and Application Recommendations for Low Voltage Power Circuit Breakers and Power Circuit Protectors	RV	1988	1993	CRNT	NEMA
C37.17-1979 (R1988)	Trip Devices for AC and General Purpose DC Low Voltage Power Circuit Breakers	RF	1988	1993	CRNT (RV under-way)	NEMA
C37.18-1979 (R1986)	Enclosed Field Discharge Circuit Breakers for Rotating Machinery	UB	1986	1991	UB	IEEE
C37.20.1-1987	Metal-Enclosed Low Voltage Power Circuit Breaker Switchgear Assemblies	NEW	1987	1992	CRNT*	IEEE
C37.20.2-1987	Metal-Clad and Station Type Cubicle Switchgear	NEW	1987	1992	CRNT*	IEEE
C37.20.2a-199x	2 High Loading Supplement	UD	N/A	N/A	UD	IEEE
C37.20.3-1987	Metal Enclosed Interrupter Switchgear	NEW	1987	1992	CRNT*	IEEE

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Designation	Title	Type of Action Last Taken	Year Action Last Taken	Year Action Needs Taking	Status	Sponsor
C37.20.4-199x	Indoor Medium Voltage Switches for Use in Metal Enclosed Switchgear Assemblies	UD	N/A	N/A	UD	IEEE
C37.21-1988	Control Switchboards	NEW	1988	1993	CRNT	IEEE
C37.22-199x	Medium Voltage Circuit Breakers and Switches	UD	N/A	N/A	UD in NEMA T/C	NEMA
C37.23-1987	Guide for Metal Enclosed Bus and Calculating Losses in Isolated-Phase Bus	RV	1987	1992	CRNT	IEEE
C37.24-1988	Guide for Evaluating the Effect of Solar Radiation on Outdoor Metal-Enclosed Switchgear	RV	1988	1993	CRNT	IEEE
C37.26-1972 (R1990)	Guide for Methods of Power Factor Measurement for Low-Voltage Inductive Test Circuits	AW/NEW	1990	1995	CRNT	IEEE
C37.27-1987	Application Guide for Low Voltage Ac Non-Integrally Fused Power Circuit Breakers	RV	1987	1992	CRNT	IEEE
C37.29-1981 (R1990)	Low Voltage AC Power Circuit Protectors Used in Enclosures	RF	1990	1995	CRNT	IEEE

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Designation	Title	Type of Action Last Taken	Year Action Last Taken	Year Action Needs Taking	Status	Sponsor
C37.30-1971 (R1988)	Definitions and Requirements for HV Air Switches, Insulators and Bus Supports	RF	1988	1993	CRNT	IEEE
C37.30c-1984 (R1988)	Definitions for Ice Testing	RF	1988	1993	CRNT	IEEE
C37.30d-199x	Definitions for Fault Closing Testing	UD	N/A	N/A	UD	IEEE
C37.30e-1984 (R1988)	Definitions for Mechanical Operations Testing	RF	1988	1993	CRNT	IEEE
C37.30f-199x	Definitions for Switching Impulse Test	UD	N/A	N/A	UD	IEEE
C37.30g-1985 (R1988)	Definitions for Loading Guide	RF	N/A	N/A	CRNT	IEEE
C37.30h-199x	Supplement for Allowable Short-Circuit Temperatures for Air Switches	UD	N/A	N/A	UD	IEEE
C37.30i-199x	Definitions for Circuit Switches	UD	N/A	N/A	UD	IEEE

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Designation	Title	Type of Action Last Taken	Year Action Last Taken	Year Action Needs Taking	Status	Sponsor
C37.32-1990	Schedules of Preferred Ratings, Manufacturing Specifications and Application Guide for High Voltage Air Switches, Bus Supports and Switch Accessories	AW/NEW	1990	1995	CRNT	NEMA
C37.33-1987	Rated Control Voltages and Their Ranges for high Voltage Air Switches	RV	1987	1992	CRNT	NEMA
C37.33a-1990	Additions to Table 1	NEW	1990	1995	CRNT	NEMA
C37.34-1971 (R1988)	Test Code for High Voltage Air Switches	RF	1988	1993	CRNT*	IEEE
C37.34a-1978 (R1988)	Corona Test	RF	1988	1993	CRNT	IEEE
C37.34b-1985 (R1988)	Ice Test Requirements and Definitions for High Voltage Switches	RF	1988	1993	CRNT	IEEE
C37.34c-199x	Fault Closing Test Procedures and Definitions for High Voltage Switches	UD	N/A	N/A	UD	IEEE

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Designation	Title	Type of Action Last Taken	Year Action Last Taken	Year Action Needs Taking	Status	Sponsor
C37.34d-1989	Mechanical Operations Test and Definitions for High Voltage Switches	NEW	1989	1994	CRNT	IEEE
C37.34e-199x	Switching Surge Test Requirements for Extra-High Voltage Air Switches	UD	N/A	N/A	UD	IEEE
C37.35-199x	Guide for Operation and Maintenance of High Voltage Disconnecting Switches	UB	—	—	UB,* but CBR	IEEE
C37.36-199x	Application Guide for High Voltage Interrupter Switches	UD	N/A	N/A	UD	IEEE
C37.36a-199x	Line and Cable Switching Requirements for Interrupter Switch Application Guide	UD	N/A	N/A	UD	IEEE
C37.36b-1990	Guide to Current Interruption with Horn Gap Air Switches	NEW	1990	1995	CRNT	IEEE
C37.37-1979 (R1988)	Loading Guide for AC High Voltage Air Switches (in excess of 1,000 volts)	RF	1988	1993	CRNT	IEEE
C37.37a-199x	Emergency Overload Current Guide	UD	N/A	N/A	UD*	IEEE

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Designation	Title	Type of Action Last Taken	Year Action Last Taken	Year Action Needs Taking	Status	Sponsor
C37.38-1989	Gas Insulated Metal-Enclosed Switches	NEW	1989	1994	CRNT	IEEE
C37.40-1981 (R1988)	Service Conditions and Definitions for High Voltage Fuses, Distribution Enclosed Single-Pole Air Switches, Fuse Disconnecting Switches and Accessories	RF	1988	1993	CRNT*	IEEE
C37.40a-1988	Slant Rated Cutouts	NEW	1988	1993	CRNT	IEEE
C37.40b-199x	External Capacitor Fuses	UD	N/A	N/A	UD	IEEE
C37.41-1981 (R1988)	Design Test for High Voltages Fuses, Distribution Enclosed Single-Pole Air Switches, Fuse Disconnecting Switches and Accessories	RF	1988	1993	CRNT*	IEEE
C37.41b-199x	Transient Recovery Voltage	UD	N/A	N/A	UD	IEEE
C37.41d-199x	X/R Values for Interrupting Tests on Slant-Rated Cutouts	UD	N/A	N/A	UD	IEEE

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C37.41e-199x	External Capacitor Fuses	UD	N/A	N/A	UD	IEEE
C37.41f-199x	Mechanical Design Tests	UD	N/A	N/A	UD	IEEE
C37.41g-1989	New Section 6 Interrupting Test	NEW	1989	1994	CRNT	IEEE
C37.41h-199x	Design Tests for Full Range Current Limiting Fuses	UD	N/A	N/A	UD	IEEE
C37.42-1989	Specifications for Distribution and Fuse Links	RV	1989	1994	CRNT	NEMA
C37.44-1981 (R1987)	Specifications for Distribution Oil Cut-outs and Fuse Links	RF	1987	1992	CRNT	NEMA
C37.45-1981 (R1987)	Specifications for Distribution Enclosed Single-Pole Air Switches	RF	1987	1992	CRNT	NEMA
C37.46-1981 (R1987)	Specifications for Power Fuse and Fuse Disconnecting Switches	RF	1987	1992	CRNT	NEMA

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C37.47-1981 (R1988)	Specifications for Distribution Fuses, Disconnecting Switches, Fuse Supports and Current Limiting Fuses	RF	1988	1993	CRNT	NEMA
C37.48-1987	Guide for Application, Operation and Maintenance of High Voltage Fuses, Distribution Enclosed Single-Pole Air Switches, Fuse Disconnecting Switches and Accessories	RV	1987	1992	CRNT	IEEE
C37.48b-198x	Guide for Application and Test Standards for External Capacitor Fuses	UD	N/A	N/A	UD	IEEE
C37.48c-199x	Guide for Application and Test Standards for Expulsion Fuses in Enclosures	UD	N/A	N/A	UD*	IEEE
C37.48d-199x	Application, Operation and Maintenance Guide for Full Range Current Limiting Fuses	UD	N/A	N/A	UD	IEEE
C37.50-1989	Conformance Test Procedures for Low-Voltage AC Power Circuit Breakers Used in Enclosures	RV	1989	1994	CRNT	NEMA
C37.51-1989	Conformance Test Procedures for Metal-Enclosed Low Voltage AC Power Circuit Breakers Switchgear Assemblies	RV	1989	1994	CRNT	NEMA

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C37.52-1974 (R1989)	Test Procedures for AC Power Circuit Protectors	RF	1989	1994	CRNT	NEMA
C37.53.1-1989	Conformance Test Procedures for High Voltage Current Limiting and Motor Starter Fuses	RV	1989	1994	CRNT	NEMA
C37.54-1987	Conformance Test Procedures for Indoor AC High Voltage Circuit Breaker Applied as Removable Elements in Metal-Enclosed Switchgear	NEW	1987	1992	CRNT	NEMA
C37.55-1989	Conformance Test Procedures for Metal-Clad Switchgear Assemblies	NEW	1989	1994	CRNT	NEMA
C37.56-199x	Conformance Test Procedures for Frame and Pad Mounted Circuit Breakers through 72.5kV	UD	N/A	N/A	UD	NEMA
C37.57-1990	Conformance Testing of Metal-Enclosed Interrupter Switchgear Assemblies	NEW	1990	1995	CRNT	NEMA
C37.58-1990	Conformance Test Procedures for Indoor AC Medium Voltage Switches for Use in Metal Enclosed Switchgear Assemblies	NEW	1990	1995	CRNT	NEMA
C37.59-199x	Requirements for Conversions of Power Switchgear Equipment	UD	N/A	N/A	UD*	IEEE

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C37.60-1981 (R1988)	Requirements for Overhead, Pad-Mounted, Dry Vault, and Submersible Automatic Circuit Reclosers and Fault Interrupters for AC Systems	RF	1988	1993	CRNT	IEEE
C37.61-1973 (R1988)	Guide for Application, Operation and Maintenance of Automatic Circuit Breakers	RF	1988	1993	CRNT	IEEE
C37.63-1984 (R1990)	Requirements for Overhead, Pad-Mounted, Dry Vault, and Submersible Automatic Circuit Reclosers and Fault Interrupters for AC Systems	RF	1990	1995	CRNT	IEEE
C37.66-1969 (R1988)	Requirements for Oil-Filled Capacitor Switches for Alternating Current Systems	RF	1988	1993	CRNT	IEEE
C37.71-1984 (R1990)	Three Phase Manually Operated Subsurface Load Interrupting Switches for Alternating Current Systems	RF	1990	1995	CRNT	IEEE
C37.72-1987	Single and Three Phase Manually Operated 600 Ampere Dead-Front Padmounted Load Interrupting Switches for Alternating Current Systems	NEW	1987	1992	CRNT	NEMA
C37.73-199x	Pad-Mounted, Fused Load Interrupting Switches for Alternating Current	UD	N/A	N/A	UD	IEEE
C37.81-1990	Seismic Qualification for Switchgear	NEW	1990	1995	CRNT	IEEE

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C37.82-1987	Qualification of Class 1E Switchgear	NEW	1987	1992	CRNT	IEEE
C37.85-1989	Safety Requirements for X-Radiation Limits for AC High Voltage Power Vacuum Interrupters used in Power Switchgear	RV	1989	1994	CRNT	NEMA
C37.100-1981 (R1989)	Definitions for Power Switchgear	RF	1989	1994	CRNT*	IEEE
C37.100a-199x	Revisions to Include Circuit Breakers for GIS Applications	UD	N/A	N/A	UD	IEEE
C37.100b-199x	Definitions for TRV Terms	UD	N/A	N/A	UD	IEEE
C37.100c-199x	Definitions of Trip Free	UD	N/A	N/A	UD	IEEE
C37.100d-199X	Supplement to C37.100-1981 (R1989) (Initial Transient Recovery Voltage)	N/A	N/A	N/A	UB	IEEE
C37.121-1989	Unit Substations	NEW	1989	1994	CRNT	NEMA

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==========	The documents below are C37 Relay documents, sponsored by the IEEE Relay Committee	====	====	====	====	=
==========	==========	====	====	====	====	=
C37.90-1989	Relays and Relay Systems Associated with Electric Power Apparatus	RV	1989	1994	CRNT	IEEE
C37.90.1-1989	Surge Withstand Capability	RV	1989	1994	CRNT	IEEE
C37.90.2-199X	Withstand Capability of Relay Systems to Radiated Electromagnetic Interference - Trial Use Document	UD	N/A	N/A	UD	IEEE
C37.91-1985 (R1990)	Guide for Protective Relay Applications to Power Transformers	RF	1990	1995	CRNT	IEEE
C37.93-1987	Guide for Protective Relay Applications of Audio Tones over Telephone Channels	RV	1987	1992	CRNT	IEEE
C37.95-1989	Guide for Protective Relaying of Utility - Consumer Interconnections	RV	1989	1994	CRNT	IEEE

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C37.96-1988	Guide for AC Motor Protection	RV	1988	1993	CRNT	IEEE
C37.97-1979 (R1990)	Guide for Protective Relay Applications to Power Systems Buses	RF	1990	1995	CRNT	IEEE
C37.98-1987	IEEE Standard for Seismic Testing of Relays	RV	1987	1992	CRNT	IEEE
C37.99-1990	Guide for Protection of Shunt Capacitor Banks	RV	1990	1995	CRNT	IEEE
C37.101-1985 (R1990)	Generator Ground Protection Guide	RF	1990	1995	CRNT	IEEE
C37.103-1990	IEEE Guide for Differential & Polarizing Relay Circuits Testing	NEW	1990	1995	CRNT	IEEE
C37.104-199x	IEEE Guide for Automatic Reclosing of Transmission Line Circuit Breakers	UD	N/A	N/A	UD	IEEE
C37.105-1989	Standards for Qualifying Class 1E Protective Relays and Auxiliaries for Nuclear Power Generator Stations	NEW	1989	1994	CRNT	IEEE

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C37.106-1987	Guide for Abnormal-Frequency Protection for Power Generating Plants	NEW	1987	1992	CRNT	IEEE
C37.107-199x	Digital Protective Relay Systems Interface Standard	UD	N/A	N/A	UD	IEEE
C37.108-1989	Guide for Protection of Network Transformers	NEW	1989	1994	CRNT	IEEE
C37.109-1988	Guide for Protection Shunt Reactors	NEW	1988	1993	CRNT	IEEE
C37.110-199x	Guide for the Application of Current Transformers Used for Protective Relay Purposes	UD	N/A	N/A	UD	IEEE
C37.111-199x	Standard for Data Formatting of Digital Relays and Protective Systems	UD	N/A	N/A	UD	IEEE

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==========	The documents below are C37 substation documents, sponsored by the IEEE Substation Committee	========	========	========	========	=
==========	==========	========	========	========	========	=
C37.2-1979	Electrical Power System Device Function Numbers	UB	1979	past	UB	IEEE
C37.120-199x	Integral Three-Phase Unit Substations	UD	N/A	N/A	UD	IEEE
C37.122-1989	Standards, Recommended Practices and Guides for Gas Insulated Substations	NEW	1989	1994	CRNT	IEEE
C37.123-199X	Guide to Specifications for Gas-Insulated Substation Equipment	UB	N/A	N/A	UB	IEEE

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APPENDIX A
ASC C37 STATUS REPORT

APPENDIX - C37 STATUS REPORT

C37.04 - Revision underway in High Voltage Circuit Breaker Subcommittee.

C37.04f - Negative comments received from NEMA, IEEE rebutting.

C37.04h - BSR9 sent to ANSI 4/12/91.

C37.06b - Currently being balloted in NEMA's Power Switchgear Assemblies Technical Committee.

C37.09 - Revision underway in High Voltage Circuit Breaker Subcommittee

C37.09a - Rejected by IEEE RevCom and returned to the Switchgear Committee.

C37.010 - Revision underway in High Voltage Circuit Breaker Subcommittee

C37.011 - Revision balloted in IEEE Switchgear Committee.

C37.11 - Has been submitted to the IEEE Standards Board for consideration as a "new" standard. C37.11 is a "new" standard to IEEE due to the transfer of sponsorship from AEIC to the IEEE Switchgear Committee.

C37.12 - BSR9 sent to ANSI 4/9/91.

C37.14 - Has been re-balloted in the LVDS Subcommittee.

C37.20.1 - Revision Underway in Switchgear Assemblies Subcommittee.

C37.20.2 - Revision Underway in Switchgear Assemblies Subcommittee.

C37.20.3 - Revision Underway in Switchgear Assemblies Subcommittee.

C37.34 - To be revised by the Interrupter Switch Working Group.

C37.35 - Document received negative comments from EL&P Delegation to ASC C37, IEEE rebutted comments, EL&P obtaining guidance from EEI before addressing IEEE's rebuttal.

C37.37a - Has been balloted in IEEE Switchgear Committee.

C37.40 - Revision has been balloted in Working Group.

C37.41 - Revision, has been balloted in IEEE Switchgear Committee.

C37.48c - Has been balloted in IEEE Switchgear Committee.

C37.59 - Has been balloted in IEEE Switchgear Committee.

C37.100 - Entire document (including all supplements) has been balloted in IEEE Switchgear Committee.

April 30, 1991

Reorganization Proposal

IEEE Switchgear Committee Subcommittees

History

The alignment and scopes of the technical/subcommittees of the NEMA Switchgear Section, ANSI C37 and IEEE had been consistent over their many years of existence. However, some eight years ago, NEMA, recognizing that the many devices used in and controlled by switchgear, as well as designed and produced by the switchgear industry, were the responsibility of Technical Committees that were not attuned to the metal-enclosed switchgear business.

Accordingly, the NEMA Switchgear Section reorganized by making SG5, Power Switchgear Assemblies, responsible for all products used in switchgear. Thus, indoor drawout circuit breakers, low voltage circuit breakers and indoor switches that are used in switchgear became the responsibility of SG5, with SG4 covering only outdoor circuit breakers, SG6 covering only outdoor switches and SG3, which covered low voltage circuit breakers, was disbanded.

The Switchgear Committee is now involved in the same situation in determining where the standards responsibility for the indoor switches used in switchgear lies (proposed C37.20.4) and will be involved in the same determination for indoor drawout circuit breakers used in switchgear (proposed C37.20.5) now being prepared by NEMA as a "study" document for eventual submittal to the Switchgear Assemblies Subcommittee, as was 20.4.

It is submitted that the present Subcommittee alignment and scope, much like the prior NEMA alignment, are not attuned to the metal-enclosed switchgear marketand are writing standards that do not fully represent switchgear devices as they are utilized in switchgear assemblies. The metal-enclosed switchgear industry designs, manufactures and applicates all facets of the product and, as such, are the only ones in the technical position to control their own destiny. And, though volume should not influence standards, the volume of switchgear devices produced far surpasses the volume of the other outdoor devices and is a factor.

There are two special points in this matter that need to be aired and considered, regardless.

1. Fuses are used with certain switching devices and since all the switchgear manufacturers do not necessarily design and manufacture these devices and since they are really an adjunct to the basic switching device, it is felt that the HVF Subcommittee scope should remain as is.

2. The LVSD Subcommittee is much like the SG3 Technical Committee was and it is questionable if it should be eliminated, as was SG3, or retained and expanded.

A further facet of this situation is that NEMA is responsible for the ratings of the various devices and is working on creating a separate C37.22 that will list the preferred ratings of indoor switches and indoor drawout circuit breakers as

they are used in metal-enclosed switchgear. These ratings will no longer be listed in 20.4 and Table 1 and 1A will be eliminated from C37.06.

Action

Accordingly, based on the above, the following proposal for revision in the titles and scopes of the various subcommittees is made for consideration by ADSCOM and the Switchgear Committee.

HIGH VOLTAGE OUTDOOR SWITCHES SUBCOMMITTEE

Scope: Treatment of all matters relating to outdoor switches above 1000 Volts AC and 3000 Volts DC.

HIGH VOLTAGE OUTDOOR CIRCUIT BREAKERS SUBCOMMITTEE

Scope: Treatment of all matters relating to outdoor high voltage power circuit breakers and generator circuit breakers rated above 1000 Volts AC and 3200 Volts DC.

SWITCHGEAR DEVICES SUBCOMMITTEE

Scope: Treatment of all matters relating to all metal-enclosed switchgear devices rated 38000 Volts AC and 3200 Volts DC and below, including indoor switches, indoor low voltage power and medium voltage drawout circuit breakers, whether integral or in individual enclosures for separate mounting.

Note: The coverage of low voltage current limiting fuses is a moot point since the IEEE does not really write standards for these devices even though they have been included in the LVSD Scope. However, they have been purposely omitted from the new scope for the reason of non-coverage. The HVF Subcommittee might consider covering them if necessary under the circumstances.

SWITCHGEAR ASSEMBLIES SUBCOMMITTEE

Scope: Treatment of all matters relating to switchgear assemblies, metal-enclosed bus and control switchboards, regardless of voltage or insulating medium.

Note: If it is decided to eliminate the LVSD Subcommittee, then that scope will be part of this SA Subcommittee scope.

It is recommended that this proposal be duly considered, revised as need be by the Vancouver meeting and then be officially submitted to Switchgear Committee ballot before the Charleston meeting.

Respectfully submitted,

W. E. Laubach

IEEE SWITCHGEAR COMMITTEE CORRESPONDENCE

MINUTES:	IEEE High-Voltage Fuse Subcommittee
PLACE:	Ft. Lauderdale, Florida
DATE AND TIME:	May 8th 1991 -- 12:30 PM
PRESIDING OFFICER:	E. W. Schmunk --Acting Chairman
RECORDER:	J. G. Leach -- Secretary

MEMBERS PRESENT

R. H. Arndt	Consultant
J. Barger	Combined Technology
T. A. Bellei	S & C Electric Co.
R. L. Capra	Pacific Gas & Electric Co.
W. R. Crooks	Westinghouse Elec. Corp.
S. P. Hassler	McGraw-Edison Power Systems
S. W. Law	Kearney Co.
J. G. Leach	Hi-Tech Fuses, Inc.
J. R. Marek	Consultant
F. J. Muench	RTE Components-Cooper Pr. Sys.
H. M. Pflanz	G & W Electric Co.
W. R. Rueth	Joslyn Power Products Corp.
R. Ranjan	General Electric Co.
T. E. Royster	Virginia Power
E. W. Schmunk	S & C Electric Co.
J. G. St. Clair	Consulting Engineer
H. E. Swanson	Joslyn Mfg. Co.
A. C. Westrom	Kearney-National, Inc.

MEMBERS ABSENT

C. J. Ahrano	Southern States
J. G. Angelis	Victor Insulators
L. R. Beard ^	A.B. Chance Co.
C. J. Burland, Jr.*	Detroit Edison Co.
F. Calderon	Los Angeles Dept. Water and Power
F. L. Cameron	Consultant
H. E. Foelker^	Central Power & Light
W. J. Huber	Combined Technologies, Inc.
H. W. Mikulecky *	RTE Corporation
V. N. Narancic	Hydro-Quebec Institute of Research
J. S. Schaffer^	G & W Electric Co.
A. Vitkus^	Kearney Lab.

VISITORS

A. Magee	Bussman

* Nonactive Members ^ explained absence

1) The meeting was called to order by the acting chairman at 12:30 PM.

2) Members introduced themselves.

3) Jack Barger received membership in the sub-committee; he is a member of the working groups for full range fuses, external fuses for shunt capacitors, and the revision of fuse standards. Apologies were received from Messrs. Beard, Foelker, Schaffer and Vitkus.

4) The minutes of the Fall 1990 meeting were read by the secretary and approved with the correction in 7a) "Jim Marek" replaced by "Fernando Calderon".

5) Chairman's Report

Ron apologized for missing this week's meeting and thanked Bill Schmunk and John Leach for acting as chairman and covering the ADSCOM meeting, respectively. He reminded us to continue to consider the CEA report on "damageability", particularly in the "Full Range Fuse" Working Group.

The ADSCOM report was given by John Leach.

Highlights were: PAR's will have a four-year life only, before requiring renewal. Publications - rules regarding print size and legibility will be drawn up and the slide review process is to be discontinued. There will, however, be slide guidelines which must be adhered to.

The switchgear committee had declined coordination on a number of projects including "Revision to the Guide for Transformer Through Fault Current Duration". John requested that we do have coordination; he will receive drafts of all documents and report to the Sub-committee.

Ward Laubach has proposed a reorganization of the switchgear committees, which will be studied. It does not affect the HV fuse subcommittee.

Two issues were raised in ADSCOM by John. The first issue involved our practice of including definitions in C37.40 as well as in C37.100, which had been questioned in letter ballots of C37.40. After an animated discussion, it was agreed that, providing the definitions were also included in C37.100, our practice could continue.

The second issue involved the membership of P Rosen (UK representative to IEC) in the HV fuse subcommittee. Clarification of corresponding membership was sought from ADSCOM. However, it appears that such membership is not possible, and membership in a subcommittee is conditional upon the person being active in working groups. This therefore precludes Mr. Rosen from membership at this time.

In the light of this information, the HV fuse subcommittee then discussed the rules for membership as outlined by Keith Grey (Switchgear Committee Secretary). Based on their understanding of them, and wishing to give an adequate explanation to Mr. Rosen, the sub-committee then passed the following motion: "The High Voltage Fuse Subcommittee request that Dave Kumbera write to Phil Rosen explaining the following: His acceptance as a member of the subcommittee was made in error since membership is only granted to those persons who have served as active contributors to standards development at the subcommittee's working group level. After regular attendance and contribution to working group meetings, membership of the subcommittee may be requested and will be considered. Corresponding membership of the subcommittee is not available."

6) Document/Project Coordinating Committee - R. Ranjan

Kris gave the status of documents as outlined on the attached sheet.

7) Working Group Reports

a) Revision of Fuse Standards -- E. W. Schmunk reported that the working

group met on Tuesday with 17 of 27 members present. The subject of recovery voltage duration was again discussed. NEMA harmonization of distribution and power fuse voltages has not yet been done, so discussion on this subject was deferred. The letter ballot (Subcommittee, C37, and Switchgear Committee) of PC 37.40 draft 3 was reviewed. One negative in Switchgear has been resolved. It was agreed to pass draft 3 on to the IEEE review board. A question of retaining dew withstand requirements has been referred to NEMA. Extended duration meetings were discussed, but feelings were this should only be done if there was a strong imperative. The working group requested that the subcommittee ask Switchgear to reaffirm C37.48 - 1987. This was proposed by F. Muench, seconded by J. Leach, and unanimously approved.

The reformatting of C37.41 by F. Calderon was discussed. Working group members are requested to send comments on this by June 15. Any comments on content changes should be sent to Bill by June 30.

b) **Fuses in Enclosures** -- J. G. Leach reported that the working group met with sixteen of twenty-two members present and four guests. He reported on the Switchgear Letter Ballot of draft 13. Forty-nine votes were returned (76%) with four abstentions and no negatives. However, one negative was returned from the ANSI main committee (sent for information only). This negative was resolved by adding a clarifying note (editorial). Various other editorial notes were discussed, and some adopted. This document will now be passed to the IEEE review board, and the subcommittee agreed that the Fuses in Enclosures Working Group go on "inactive" status. A meeting slot will not be needed for the fall meetings. Dick Arndt requested that the full range fuse working group be moved to the Wednesday morning slot.

c) **Capacitor Fuses** -- Steve Hassler reported that the working group met on Tuesday with thirteen of eighteen members present. The working group and subcommittee input on revisions to the CP1 document were sent to the CP8 committee. CP8's changes were received and the working group objected to one change.

The subcommittee agreed that this objection should be communicated to them. The working group's letter ballots on definitions were reviewed and will not be balloted. When finalized, they will be held until the rest of the documents are completed. Working group members will be asked to send inputs in response to draft 5 of C37.41 and C37.48 b.

d) **Full Range Fuses** -- Dick Arndt reported that the working group met on Monday with ten of seventeen members present and six guests, four of whom requested membership. Three major items were discussed:

1 There was a review of the proposal for identifying the minimum test current for a fuse rating, and the wording agreed upon.
2 A proposal for the interrupting test procedure (using minimum test current from 1 above). A proposal will be circulated with the minutes.
3 How to resolve the poor understanding of fuse classifications. After reviewing the options, an ad-hoc committee was set up to focus on this issue. Frank Muench will receive comments and create a working document. A deadline of July 1 for comments, please. Members of the committee are Leach, Royster, Muench, Ranjan, St. Clair, Pflanz, and Barger.

e) **Task Force on IEC Standards Commonality** - In the absence of Fernando Calderon, this issue was deferred until the next meeting.

8) <u>Report of Liaison to Other Committees</u>

a) **NEMA** -- Kris Ranjan reported that the NEMA High Voltage Fuse Subcommit-

tee met on Monday with six of seven members present, and three guests. The proposed full range fuse definition was discussed and accepted. Capacitor fuse voltage, current and interrupting current ratings were discussed, and an IEC activities report received. Jim Marek has rearranged SG2 in light of recently published ANSI/IEEE C37 documents.

b) **ANSI C37 HV FUSE** -- Dick Arndt reported that the members received ballots for the C37.40 revision. Members met on Tuesday, May 7 to discuss activities occurring in ISO/IEC (see IEC report).

c) **RECLOSERS AND SECTIONALIZERS WORKING GROUP ON PADMOUNT FUSE SWITCHES** -- Ray Capra reported that the goal of this group is to take the switch standard C37.72 and fuses in enclosures documents and bring them together. Additional testing would be confined to anything which would-change as a result of the combination. However, many changes to C37.72 are proposed, so this will require looking at the requirements again.

d) **PARTIAL DISCHARGE TASK FORCE** -- Dick Arndt reported that, after the death of chairman Bill Harper, this group has not yet been reconstructed. Ed Ververka will be chairman.

e) **ER&P COMMITTEE** -- Art Westrom reported that the paper, "Estimation of Post Transient Overvoltage in Gas Insulated Systems" by Yanabau, et. al. was awarded a prize. Also, the IEEE PES Award for Excellence in Distribution Engineering has been awarded to Harvey Mikulecky.

f) **CANADIAN/IEC LIAISON** -- Dick Arndt reported that the Canadian group has met for the first time. Their first goal is to bring CSA standards into line with US standards. If Steve Cress sends meeting minutes to Dick, he will pas them on to us.

9) <u>Report of IEC Activities</u>
Dick Arndt reported that IEC working groups 3 and 4 met in Grenoble during the first week of April. WG3 has mostly old "unresolvable" issues to deal with (except test duty 4) which should be put on hold, but the main committee wants the group to keep working on them. Working group 4 (expulsion fuses, under the chairmanship of Costa from Brazil) met in November, producing a first draft document. Draft 2 was addressed in April resolving and dismissing many problem issues. More onerous (circuit breaker) TRV values were proposed. However, it seems likely that ANSI values will be used for cutouts and power fuses, while a third category of device (for use in substations) will be created, having the more onerous test values. A new draft will be circulated in July and after comments another in August, before the next working group meeting in September. This is to be held in London after the International Fuse Conference (Nottingham, England - September 22 -25).

10) <u>Old Business</u> -- None

11) <u>New Business:</u> -- None

12) <u>Future meetings:</u> Vancouver, BC, Canada -- September 30 - October 3, 1991, Charleston, SC -- April 27 - April 30, 1992, Chicago -- October 1992 and possibly New Orleans in May 1993

13) The meeting was adjourned at 3:15 PM.

Respectfully Submitted,

John G. Leach, Secretary

PROJECT STATUS
May, 1991

Document ID.	Par No.	PAR Date	Contact Person	Status Date	Status
C37.40-1981 (Reaffirmed)	PC 37.40	2/89	Bill Schmunk 312 338-1000 Ron Beard 314 682-8325	5/91	Draft PC37.40 D3 in Switchgear ballot.
C37.41-1988	PC 37.41	2/89	Bill Schmunk 312 338 1000 Ron Beard 314 682-8325	5/91	In Working Group
NEMA SG2-1988 (High Voltage Fuses)	NEMA Document		Mathew Williams 202 457-1957	5/91	NEMA is address-ing this issue.
External Fuses for Shunt Capacitors	PC37.40b PC37.41e PC37.48b	12/81	Steve Hassler 414 835-1581	5/91	In Working Group ballot work in process
Expulsion Fuses in Enclosures	PC37.48c formerly formerly C37.XX)	3/86	John Leach 704 322-2860 Ron Beard 314 682-8325	5/91	Draft PC37.48c/ d14 was success-fully balloted in Switchgear Comm. One negative ballot in Main Comm. being resolved.
C37.48-1987	PC37.48	2/89	Bill Schmunk 312 338-1000 Ron Beard 314 682-8325	5/91	In Working Group
Standard Definition for Full Range CLF	PC37.40c	2/90	R.H. Arndt 414 548-9105 Ron Beard 314 682-8325	5/91	Definition for Full Range Fuse included in PC37.40 document. (Bill Schmunk)
Standard Design Tests for Full Range CLF	PC37.41h	2/90	R.H. Arndt 414 548-9105 Ron Beard 314 682-8325	5/91	In Working Group

Document ID	Par No.	PAR Date	Contact Person	Status Date	Status
Standard Application, Operation & Maint. Guide for Full Range CLF	PC37.48.d	2/90	R.H. Arndt 414 548-9105 Ron Beard 314 682-8325	5/91	In Working Group

HIGH VOLTAGE SWITCHES SUBCOMMITTEE
IEEE SWITCHGEAR COMMITTEE

PLACE OF MEETING AND DATE: FT. LAUDERDALE, FLORIDA, MAY 8, 1991

MEMBERSHIP AND ATTENDANCE:

MEMBERS :

EXC	CHARLES S. ALEXANDER (CHMN.)	USCO POWER EQUIPMENT CORP.
YES	ALLAN K. ALSAKER	CONSULTANT
NO	CONRAD B. BAKER	KEARNEY
YES	HARVEY L. BOWLES (SECY)	RURAL ELECTRIFICATION ADMIN.
YES	L. V. CHABALA	S & C ELECTRIC COMPANY
YES	GEORGE A. CLARY	TU ELECTRIC
YES	BILL DAILY	FLORIDA POWER & LIGHT
YES	ALEX DIXON	ALEX DIXON, INC.
NO	KEN D. HENDRIX	PUBLIC SERVICE ELECTRIC & GAS
YES	JEAN LAFONTAINE	HYDRO-QUEBEC
YES	DON LOTT	SIEMENS ENERGY & AUTOMATION
YES	ELMER LUEHRING	JOSLYN CORP.
EXC	PAYTON C. MAYO	SOUTHERN STATES, INC.
YES	MICHAEL S. McGUIRE	CONSUMERS POWER
NO	HARVEY W. MIKULECKY	CONSULTANT
NO	DON C. MILLS	MEMCO MANUFACTURING, INC.
YES	RAYMOND P. O'LEARY	S & C ELECTRIC COMPANY
YES	JAMES C. W. RANSOM	CONSULTANT - ROYAL SWITCHGEAR
NO	HEADLEY G. REID	NEW YORK POWER AUTHORITY
YES	DAVID N. REYNOLDS	TENNESSEE VALLEY AUTHORITY
YES	ALAN B. RISHWORTH	ONTARIO HYDRO
NO	L. R. SAAVEDRA	LOUISIANA POWER & LIGHT
NO	CURT A. SCHWALBE	O'BRIEN & GERE ENGINEERS
NO	CARLOS L. SOTELO	KEARNEY

GUESTS:

C. J. AHRANO	SOUTHERN STATES (REP. MAYO)
ELMER HORNUNG	ROYAL SWITCHGEAR
SUE VOGEL	IEEE

1. CALL TO ORDER: The meeting was called to order at 12:30 pm by Ray O'Leary, Acting Chairman.

2. APPROVAL OF MINUTES: The minutes of the Portland, Oregon, meeting (October 3, 1990) were approved as written.

3. REPORT OF THE GIS WORKING GROUP (submitted by Alan Rishworth, Chairman):

As planned there was no meeting of the working group. It will be

recalled from the last minutes that we are awaiting completion of work in IEC before resuming discussion in this working group. The indications are that the IEC work is proceeding satisfactory. There should be no meeting shown on the October 1991 Vancouver program.

Work is proceeding in Canada towards obtaining a new uniform regulation policy for the pressurized enclosures of gas filled electrical equipment. This work is under a task force of the CEA and in order to prepare a basis for new Canadian regulations. CSA has been approached with a view to having four CENELEC standards adopted as Canadian standards. First indications are that there should be no problems of principle with this process.

With a view to preparing the basis for similar regulatory clarifications in the USA, it is suggested that we initiate the process or adopting these same CENELEC standards as ANSI Standards and the High Voltage Switch Subcommittee Chairman was requested to present the following motion at the Switchgear Committee meeting.

"The Switchgear Committee is requested to approve a motion requesting ADSCOM to form a task force for the purpose of obtaining a PAR to process the possible adoption of four CENELEC Standards as IEEE/ANSI Standards.

"These CENELEC Standards are specific to the requirements of pressurized enclosures for gas filled electrical equipment and are:

CENELEC EN50-052 - Switchgear Enclosures - Cast Aluminum
CENELEC EN50-064 - Switchgear Enclosures - Wrought Aluminum & Aluminum Alloy
CENELEC EN50-068 - Switchgear Enclosures - Wrought Steel
CENELEC EN50-069 - Switchgear Enclosures - Cast Aluminum & Wrought Aluminum

"It would be the objective that the CENELEC Standards be adopted in their entirety without <u>any</u> changes. A suitable explanatory introduction and, if necessary, a glossary of terms and would precede this CENELEC text in the IEEE/ANSI document."

Alan Rishworth, GIS Switch Working Group Chairman, is already involved in a similar initiative with CEA/CSA and is prepared, if requested, to assist in the IEEE Switchgear Committee actions.

[This motion was presented to the Switchgear Committee on May 9 by Harvey Bowles and it was seconded by Jim Ransom. The motion passed.]

[Subsequent to the Ft. Lauderdale meetings, Alan Rishworth obtained authorization from John Brunke to initiate the submission of a PAR on behalf of ADSCOM.]

4. REPORT OF THE INTERRUPTER SWITCH WORKING GROUP (May 7, 1991) (submitted by R. P. O'Leary, Chairman):

The meeting was called to order at 2:05.

Attendance:

Members:		Guests:
C. S. Alexander		A. K. Alsaker
R. W. Alexander	Present	H. L. Hess (for Steve Kuznetsov)
C. B. Baker		
H. L. Bowles		
R. A. Brown	Present	
L. V. Chabala		
G. Clary	Present	
W. Daily	Present	
A. Dixon	Present	
M. Hake		
K. D. Hendrix		
S. Kuznetsov	Represented	
S. W. Law	Present	
D. J. Lemmerman	Present	
D. L. Lott	Present	
E. L. Luehring	Present	
R. Matulic		
M. S. McGuire	Present	
H. W. Mikulecky		
D. C. Mills		
R. P. O'Leary	Present	
J. C. W. Ransom	Present	
H. G. Reid		
D. N. Reynolds	Present	
H. C. Ross	Present	
L. R. Saavedra		
C. A. Schwalbe		
K. W. Yagelski		

Membership

Gordon Perkins has rejoined the Working Group. Roy Alexander, Scott Law, and Gerald Sakats have also joined.

Minutes

The minutes of the October 2, 1990 meeting in Portland were approved.

Status of Projects

PAR 1247, Standard for Interrupter Switches for Alternating Current, Rated Above 1,000 Volts

Draft 1 (outline of the document) was discussed in detail. Much progress was made with many changes to the outline being suggested.

Nine members agreed to write various sections, adding text to the outline. The following schedule was established:

May 24, 1991
Ray O'Leary will change Draft 1, per the comments received during the meeting and will send the revised document to members of the Working Group, as Draft 2.

August 12, 1991
Contributions from the nine volunteers will be received by Ray O'Leary.

August 30, 1991
Ray O'Leary will collate the contributions into Draft 3 and send it to the members of the Working Group, allowing members to review Draft 3 before the meeting in Vancouver.

Adjournment

The meeting was adjourned at 5:25.

5. REPORT OF THE AIR SWITCH WORKING GROUP (May 7, 1991) (submitted by A. Dixon, Chairman):

Attendance: 21

Members

Present: 17

A. Dixon (Chairman)
A. K. Alsaker
H. L. Bowles
R.A. Brown
L. V. Chabala
G. A. Clary
B. Daily
E. H. Hornung
P. L. Kolarik
D. Lott
E. L. Luehring
M. S. McGuire
J. C. W. Ransom
D. N. Reynolds
L. R. Saavedra
D. N. Sharma
R. J. Gavazza

Absent: 9

C. S. Alexander (E)
S. Kuznetsov
H. W. Mikulecky
D. C. Mills (E)
C. L. Sotelo
R. Matulic
H. G. Reid
C. A. Schwalbe
R. Matulic

Guests: 4
C. J. Ahrand, E. Tarchalski
D. J. Lemmerman, T. A. Burse

Minutes for the meeting in Portland were approved as written.

C37.37A - Emergency Loading Guide - We have a valid ballot - 84% response, 50 affirmative, 2 negatives and 2 abstention votes. One negative ballot will be changed to affirmative. However, negotiations

to resolve the remaining negative have not yet been successful. The working group voted to add an editorial note to the scope of C37.37A stating that an air switch equipped with a load break or interrupter may not successfully interrupt currents above nameplate rating. The working group also voted to retain "enclosed" switches (Figures 4 & 6) in C37.37A.

C37.36B - Guide for Current Interruption - The working group reviewed calculations, graphs and sketch describing single sidebreak switches. Tentatively, the working group will accept recommendations to limit suggested current interruption levels to 2.0 A for excitation and 1.0 A for capacitive currents. Task force will proceed with work on center side break switches for next meetings. Work on various types of side-break switches will accumulate until all types are investigated before formal ballot of revision to C37.36B.

C37.30 - Definitions and Requirements - The working group reviewed Draft 2 of proposed revisions to standard. Draft 2 will be revised per discussions to Draft 3 before next meeting.

6. OLD BUSINESS:

C37.30 - A motion was made by Alsaker that in Draft 3 of the general revision of C37.30, the scope should remain as originally stated in C37.30. The motion passed. The subcommittee also voted to remove paragraph 4.2 (rated voltage), remove "rated voltage" from Table 2, remove line 3 (rated voltage) from paragraph 6.1, and then renumber as necessary and revise the Table of Contents as needed.

C37.30f - The question was raised concerning the status of C37.30f. This supplement was approved by the Switchgear Committee in 1979, but evidently never was approved by ANSI. Alsaker moved that this supplement be incorporated in the major revision of C37.30 currently underway. A copy of C37.30f is attached to these minutes.

Respectfully submitted,

Harvey L. Bowles

Harvey L. Bowles, Secretary

Attachment

DKHr...
P324f-197X

PROPOSED ADDITION TO ANSI STANDARD C37.30-1971

DEFINITIONS AND REQUIREMENTS
FOR
HIGH-VOLTAGE AIR SWITCHES,
INSULATORS AND BUS SUPPORTS

Table 2
Switch Ratings

	Disconnecting Switch	Load Interrupter Switch	Interrupter Switch with Capacitance Rating	Fault Initiating Switch	Grounding Switch
	Col. 1	Col. 2	Col. 3	Col. 4	Col. 5
Rated Switching-Impulse Withstand Voltage (Switches rated 362 kV and above)	X	X	X	X	X

DLK:daz
7/18/76

No Report Available

Appendix I

REPORT OF THE RECLOSERS AND SECTIONALIZERS SUBCOMMITTEE

The Subcommittee met on Tuesday, May 7, 1991 with 17 members and guests present. The following Standards were reviewed and discussed.

C37.60 - Reclosers. The final revision will be balloted by the Subcommittee prior to the October meeting. This Standard was reaffirmed at the May 91 meeting.

C37.61 - Recloser Applications. This Standard was reaffirmed at this meeting.

C37.63 - Sectionalizers. Proposed changes to this standard were discussed in detail. We expect to ballot the Subcommittee prior to the October meeting.

C37.66 - Capacitor Switches. A draft of the revised standard will be circulated to the Subcommittee for review and discussion at the October meeting.

C37.71 - Subsurface Switches. A revised PAR to expand the scope of this Standard to include vault type switches was turned down by the Standards Board due to questions about Subcommittee scopes and some jurisdictional issues. Hopefully, these concerns have been resolved, and the PAR will be re-submitted to the Board.

C37.73 - Padmounted Fused Switches. Continue to review drafts of the Ratings and Design Test Sections. We have had considerable input to these sections. We plan a full 1-day meeting in October.

Ballots before the Switchgear Committee.

	Standard	Date
Re-affirmation	C37.66,63	10/90
Re-affirmation	C37.60,61	5/91

R.L. Capra
5/13/91

SWITCHGEAR ASSEMBLIES SUBCOMMITTEE

MINUTES OF THE SPRING, 1991 MEETING

Fort Lauderdale, Florida

The meeting was called to order at 12:45 PM on May 8, 1991, with the introduction of the following members and guests:

MEMBERS:	C. G. Burland	C. Ball	W. C. McKay
	L. W. Gaussa, Sr.	A. Tomeo	G. R. Nourse
	J. A. Bishop, Jr.	S. C. Atkinson	J. M. Jerabek
	W. E. Laubach	W. McCowan	S. H. Telander
	P. Clickner	E. R. Byron	G. O. Perkins
	G. Sakats		
GUESTS:	D. J. Lemmermann	T. A. Burse	L. Doucet
	L. H. Schmidt	F. C. Teufel	L. E. Williams

The minutes of the Fall 1990, Switchgear Assemblies Subcommittee meeting in Portland, Oregon were approved with two minor editorial comments by Tony Tomeo.

The Adscom meeting report was given by Mr. Gaussa. The complete Adscom meeting minutes are included with the main committee minutes.

The Technical Committee had nothing to report.

There was also nothing to report from ANSI except that a newly formatted standard status report will be available at the main Switchgear Committee meeting.

The subcommittee voted to reaffirm C37.21, "Standard for Control Switchboards", C37.23, "Guide for Metal-Enclosed Bus and Calculating Losses in Isolated-Phase Bus", and C37.24, "Guide for Evaluating the Effect of Solar Radiation on Outdoor Metal-Enclosed Switchgear".

The PAR to rename C37.23 was rejected. The Subcommittee decided to request a new PAR to change the title and to review the entire standard.

As promised Lou Gaussa sent letters to seven isolated phase bus manufacturers concerning Mr. Hu Chiyang's comments on C37.23, "Standard For Metal-Enclosed Bus and Calculating Losses in Isolated Phase Bus". Mr. Gaussa received two responses, only one with comments. The comments stated that Mr. Hu's paper was theoretically correct. The Subcommittee decided to accept Mr. Hu's paper for presentation but would not include his conclusions into C37.23 since no test data was presented to prove his conclusions. Mr. Hu's additions to calculating losses in isolated phase bus would not significantly change the standard and would make the standard too cumbersome.

On May 7, 1991, the working group on C37.20.1, 2, & 3 met to review comments received on the standards. The PARs to revise the standards were officially approved. The requirements for flame testing need to be resolved before these standards can go out for ballot. A problem arose concerning the materials used by certain manufacturers. Allowing smaller size wire for electronic components in switchgear was discussed. New wording will be developed and sent out prior the next meeting.

Switchgear Assemblies will continue to work on C37.20.4 but HVCB and HV Fuses Subcommittees want to comment before the main committee is balloted. After the Switchgear Assemblies Subcommittee meeting, the working group on C37.20.4 met to review comments received since the last meeting. At the next meeting, C37.20.4 will be worked on during the working group meeting with C37.20.1,2,& 3.

Application papers are being requested for presentation at the Winter/Summer Power Meetings.

Corrections to the definition of switchgear in C37.100 were proposed by Tony Tomeo and Steve Atkinson concerning manual secondary couplers. These changes will make C37.100 agree with definitions already in C37.20.2. Mr. Tomeo and Mr. Atkinson will send their corrections to Lou Gaussa who will write to the responsible subcommittee.

At the main committee meeting, a sign-in sheet will place at the door for members and guests to sign as they enter. Voting will take place earlier in the meeting to ensure a quorum.

The Fall, 1991, Switchgear Meeting will be held in Vancouver, BC, September 30, through October 3, 1991. The Spring, 1992, meeting is scheduled for Charleston, South Carolina, April 27 through April 30, 1992.

The meeting was adjourned at 3:45 PM.

Respectfully submitted,

Steven C. Atkinson
Secretary

(SP91MIN.LTR)

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(MEMBER.LST)
6/11/91

IEEE Education, Recognition, and Planning
Subcommittee Report to Switchgear

May 9, 1991

The ER&P Subcommittee met on Tuesday, May 7th with 6 members in attendance and 2 excused.

Gordon Perkins, Chairman of Individual Awards, reported that this years presentation will be made at the meeting of the main committee. He has also started the selection process for the 1992 candidate. Following discussion, it was also agreed that Gordon would submit a nomination for the Standards Medallion since we have agreed on a candidate with excellent qualifications.

Regarding the PES Prize Paper award, we are pleased that at long last the paper entitled, "Estimation of Fast Transient Overvoltages in Gas Insulation Substations" by Yanabu et al has received this award. Art Westrom, Chairman of Prize Paper Awards has identified a paper for our next nomination but that will be held up until the paper is published.

Our efforts to obtain a PES Outstanding Working Group Award also has been successful. This award consisting of a plaque for the chairman and certificates of commendation for the members go to the WG that developed the Standard on Seismic Capability C37.81-1989. Regarding future WG awards, we have selected the next group and will submit a nomination.

We are also very pleased to announce that one of our members, Harvey Mikulecky, has been selected for the IEEE PES Award for Excellence in Distribution Engineering. He will receive this award at the IEEE Summer Meeting in San Diego with presentation by Mr. H. Sherer, President of PES. This award includes a plaque and a $4,000 scholarship fund given to a college as selected by Harvey that has an accredited power engineering curriculum. If you have any thoughts on a candidate for 1992, please see Art Westrom, Chairman of the Selection Committee and submit your nomination.

Finally, the EEI Power Engineering Education Foundation, Inc. is sponsoring a $25,000 Forgivable Loan Program for PHD candidates in the power engineering field. If you know of any candidates, contact C. Lawrence of this foundation at EEI office in Washington, DC.

Submitted by

E. F. Veverka
Chairman, ER&P

Appendix L

WP.ERP/bd

MEMBERSHIP/ATTENDANCE LIST
IEEE HIGH VOLTAGE CIRCUIT BREAKER SUBCOMMITTEE MEETING
MAY 8, 1991 - FT. LAUDERDALE, FL

NAME	COMPANY	PRESENT	ABSENT
S. Berneryd	ABB High Voltage Switchgear	X	
J.H. Brunke	Bonneville Power Administration	X	
R.L. Clark	Naval Construction Battalion		X
D.R. Crawford	Bureau of Reclamation		X
H.B. Doggett III	Duke Power Co.	X	
C.J. Dvorak	Western Area Power Admin.	X	
P.W. Dwyer	General Electric	X	
R.D. Garzon	ABB Power Distribution		X
K.I. Gray	Siemens Energy & Automation	X	
G.R. Hanks	Tennessee Valley Authority		X
H.L. Hess	Powertest, Inc.		E
P.L. Kolarik	Electric Power Research Inst.	X	
S. Kuznetsov	PSM High Power Lab	(X)	
H.E. spindle	(For S. Kuznetsov)	X	
G.C. Laguens	Pacific Gas & Electric	(X)	
R. Gavazza	(For G. Laguens)	X	
S.R. Lambert	Power Technologies	X	
D.M. Larson	Northeast Utilities Sevice	X	
G.N. Lester	Boston Edison Co.		E
J.A. Maneatis	Private Consulting Engineer		X
R. Matulic	Consolidated Edison Co.		X
A.K. McCabe	American Electric Powe Service Corp.	X	
G.J. Meinders	Florida Power & Light Co.		X
G.F. Montillet	Cogenel Alsthom Inc.	X	
J.F. O'Donnell	Cooper Power Systems	X	
B.K. Patel	Southern Company Services		X
D.F. Peelo	British Columbia Hydro	X	
G.O. Perkins	Square D Company		X
J.E. Reed	Ohio Edison Co.	X	
A.B. Rishworth	Ontario Hydro	X	
H.C. Ross	Ross Engineering Corp.	X	
J.R. Rostron	ABB T&D Inc.		X
E.M. Ruoss	ASEA Brown Boveri Ltd.	X	
L.R. Saavedra	Louisiana Power & Light Co.	X	
D.N. Sharma	Nova Scotia Power.	X	
G. St. Jean	Hydro Quebec, Inst. of Research	X	
D.L. Swindler	Square D Co.	X	
T.J. Tobin	S&C Electric	X	
E.F. Veverka	Cooper Power Systems Div.	X	
C.L. Wagner	Private Consulting Engineer	X	
W.R. Wilson	WRW Consulting Engineering	X	
B.F. Wirtz	Centerior Energy Corp.	X	

G U E S T S

J.W. Porter	EPRI
D.V. Medlin	Baltimore Gas & Electric Co.
R.W. Long	Westinghouse Electric Corp.
R. Kirkland Smith	Westinghouse Electric Corp.
Davis E. Parr	Georgia Power Co.
Gerhard Seyrling	GEC Alsthom
Roy W. Alexander	Pennsylvania Power & Light
Martin Eckelkamp	Union Electric

IEEE HIGH VOLTAGE CIRCUIT BREAKER SUBCOMMITTEE MEETING
SPRING MEETING
Sheraton Yankee Trader, Ft. Lauderdale, FL
May 8, 1991
J.E. Reed, Chairman

1. Call to Order

The meeting was called to order at 12:30 p.m., with 30 members and eight guests. for a total of 38 in attendance. The membership now stands at 40. Six Working Group meetings and one Task Force meeting were planned for the week.

2. Introduction of Members and Guests. - Members and guests introduced themselves.

3. A Moment of Silence - A moment of silence was held to remember William Harper, our colleague, who passed away last year.

4. Membership

Excused members - Harold Hess
Ruben Garzon
G. Lester
D. Crawford

5. Approval of Minutes - The minutes of last meeting were approved as written.

6. Chairman's Report

- ADSCOM reports that PARs are going to have a 4-year life

- Technical papers are going to have a limited number of pages. IEEE is trying to focus on having more technical papers at sessions.

- Attitude Correction Factors Draft 5 should be used by Working Groups in their documents.

- The Working Group on Conversions to Switchgear reviewed Draft 10. The editorial changes will be incorporated in Draft 11 and will be sent to the Standards Board.

- Each Working Group should review its Scope to ensure that it mirrors the work being accomplished by that group.

- Working Group and Subcommittee reports should be submitted on disk (WordPerfect or ASCII) with a paper copy.

- Members missing two consecutive meetings will be taken off the subcommittee.

7. Working Group Reports

7.1 - Working Group - Revision of Circuit Breaker Standards

Welcome & Introductions - The meeting convened at 8:00 a.m. Monday, May 6. There were 22 members and 22 guests.

Minutes - The minutes of the previous meeting were approved.

Sound Levels of Circuit Breakers - No action was taken.

Short-Line Fault Constants - A proposal to re-examine the short-line fault constant has been received. Discussion is expected at the next meeting.

Definition of Live Tank & Dead Tank Switching Device - A ballot is out in the working Group with a due date of May 31. Assuming a successful ballot, standard motion 1A was passed to allow a ballot in HVCB. The ballot establishes a "grounded-tank" breaker in addition to "live-tank" and "dead-tank" breakers.

Short-Line Fault Tests for Circuit Breakers - The need to recognize short-line faults for circuit breakers rated 72.5 kV and below is being considered. A proposal will be compiled as part of the general review of C37.09 to recognize modern technologies.

Criteria for Control Voltage and Current Ratings - There was a successful ballot on changes to control voltage and current ratings. These changes will be incorporated by task forces working on general revisions to C37.04, C37.09 and C37.010 to recognize modern technologies.

X/R Values and "S" Factor in C37.04 - The work done by the past chairman of the Working Group cannot be found. A reballot of the previous ballot will be undertaken to generate the negative ballots previously received. The reballot will begin in the Working Group.

General Revision of C37.04, C37.09 and C37.010 to Recognize Modern Technologies - Three new task forces were set up to streamline the revision process in this very large Working Group. Proposals in all task forces are expected to be balloted prior to the next meeting.

Task Force to Review C37.11-1979 - C37.11-1979 (Requirements for Electrical Control for AC High-Voltage Circuit Breakers) was recently turned over to IEEE from AEIC. A task force was set up to review this document.

7.2 **Study Committee - Future Circuit Breaker Standards** - The committee met on the afternoon of May 6 with 31 in attendance, 12 members and 19 guests.

Given that circuit breaker requirements are spread over C37.04, C37.06 and C37.09, the proposal is to produce a single standard where each subject matter is treated in a single chapter in terms of requirement, testing and application. One example of how this could be done was presented.

The consensus of the meeting was that this work should continue. A complete breakdown proposal by subject matter will be prepared for the next meeting. A proposed scope is also to be provided.

7.3 **Working Group - Shunt Reactor Switching** - The Working Group met all day May 7, attended in whole or in part by 12 members and 17 guests. Membership stands at 16. The following matters were discussed:

- Medium Voltage Circuit Breakers For Ungrounded Reactor Switching, Rating Basis and how to treat in the guide.

- Test Code prepared by Tom Tobin, reviewed and recommended changes agreed upon, the Code thereby being accepted.

- Fundamental Basis for the Guide (Chopping number concept or overvoltage approach), no doubt to be discussed further.

- Draft 4 of the Guide, reviewed and some recommended changes made.

7.4 **Generator Circuit Breaker Working Group** - The GCB-Working Group met on Wednesday, May 8, 1991 to discuss needed revisions to C37.013-1989 and the Application Guide letter ballot results. There were 10 members and eight guests present.

A PAR has been requested to revise C37.013. In the meantime, the WG is finalizing the needed revisions. The WG requests approval to ballot the revisions to C37.013 in HVCB and switchgear.

Regarding the Application Guide, we had an 85% return on the HVCB Subcommittee Ballot: 29 approved, 3 Not approved; 2 Not Voting and 7 Not Returned.

The comments received were discussed and the 3 Not Approved ballots were resolved. An example of GCB application, which will be Appendix A of the Application Guide was also reviewed. Several revisions and additions will be made to the example, such as load switching and out-of-phase switching.

It is expected that Application Guide revisions will be completed by mid-summer and the revised material will be sent to the GCB-WG members for review. The material will be discussed at

the Fall meeting. It will then be reballotted in HVCB Subcommittee and balloted in the Switchgear Committee.

7.5 **Meeting of Synthetic Testing Working Group** - Attendance was 10 members and six guests. Several minor editorial proposed revisions to C37.081 were reviewed. A completely revised paragraph on asymmetric current tests was reviewed and accepted, subject to editing.

The IEC four parameter TRV standard was discussed for possible integration into C37.081. Synthetic tests for 38 kV and below breakers. The need for a special power Engineering society meeting (or tutorial) for synthetic testing was discussed.

A rough schedule for completion of revisions to C37.081 was discussed.

7.6 **Working Group on Quality and Reliability of Circuit Breakers** - The meeting of the Quality and Reliability Working Group was held from 8:00 a.m. until 11:00 a.m., Wednesday, May 8, with 12 members and nine guests present. Membership stands at 17 with three requests for membership. Topics discussed were:

- Mr. David M. Benenson (SUNY) gave the WG a report on the status of the EPRI Project (2747-1) on circuit breaker diagnostics. This was a very good and detailed report which generated questions and discussion.

- Guide for Diagnostics and Failure Investigation: It was reported that a PAR (1257) has been approved by IEEE. The Task Force - Devki Sharma, Chairman - met from 11 a.m. to 11:35 a.m. Three new members were added. Draft 2 was reviewed. Comments and additions were requested by September 2, 1991.

Old Business: Circuit Breaker Trouble Form - it was recommended that the group working on revisions to C37.010 be contacted with the request to incorporate the trouble form as part of this revision.

New Business: CIGRE US Representative - (Jan Meinders) gave the working group some background on Committee 13 and 13.06 working group "Reliability of High Voltage Circuit Breakers." Mr. Meinders urged those utilities not participating in the second international inquiry to do so.

A copy of a 13.06 WG paper was distributed. This paper, "High Voltage Circuit Breaker Reliability Data for Use in System Reliability Studies - Interim Report CIGRE 13-06 Working Group" has been accepted for the CIGRE symposium on "Electric Systems Reliability."

Failure definitions - The issue of reliability definitions presently in ballot for addition/revisions to C37.100 was discussed. Walt Wilson discussed his negative ballot.

8. Reports on Related Activities

8.1 **AEIC** - No report - Martin Eckelkamp will take over liaison reporting from Bernie Wirtz

8.2 **ANSI C37** - See Switchgear Committee minutes

8.3 **C37, Industry Advisory Working Group** - No report.

8.4 **IEEE Instrument Transformer Working Group** - No report.

8.5 **IEC** - see Switchgear Committee minutes.

8.6 **CIGRE** - see Switchgear Committee minutes.

8.7 **HIGH VOLTAGE TEST TECHNIQUES** - see Switchgear Committee minutes.

8.8 **TRANSFORMER COMMITTEE, BUSHING SUBCOMMITTEE** - see Switchgear Committee minutes.

8.9 **ANSI C92** - No report.

8.10 **EDUCATION, RECOGNITION AND PLANNING SUBCOMMITTEE** - see Switchgear Committee minutes.

8.11 **STL** - see Switchgear Committee minutes.

8.12 **EPRI** - see Switchgear Committee minutes.

9. Old Business

None

10. New Business

None

11. Future Meetings:

Fall 1991 - Vancouver, BC September 30- October 3, 1991
Spring 1992 - Charleston, SC - April 29 - May 2, 1992
Fall 1992 - Chicago, IL
Spring 1993 - New Orleans, LA

Respectfully submitted,

A.K. McCabe, Secretary
IEEE High Voltage Circuit Breaker Subcommittee

cc: HVCB Members
WG Members
Guests

Accredited Standards Committee C37 Power Switchgear

Chairman's Correspondence
Mr. T.C. Burtnett
Cooper Power Systems
A Dv. of Cooper Industries, Inc.
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South Milwaukee, WI 53172

REPORT TO THE IEEE SWITCHGEAR COMMITTEE

In 1990, thirteen C37 documents were approved by ANSI: (6) New documents, (1) Revision, and (6) Reaffirmations. A summary chart is attached to this report which details those documents and their individual processing times through the C37 consensus approval process. Also included is a similar chart for 1989. The six Reaffirmations were processed to ANSI Board of Standards Review (BSR) approval in an average of 126 days. The seven New and Revised documents were processed to BSR approval in an average of 214 days. Four of these documents received comments which were resolved by the sponsor during the process. Two of these, one sponsored by NEMA, and one by IEEE, required 398 and 350 days, respectively to complete approval, with much of that time being spent on comment resolution. The other five New and Revised documents were processed in an average of 150 days. Since all of you are interested in seeing the results of your efforts come to fruition in a timely fashion, I believe this data will be of interest to you as well as helpful in planning your standards activities.

It takes time to go through the consensus approval process. I am of the belief, however, that it shouldn't take as long as it does in some cases. We have made improvements in streamlining the process (the results for 1990 are better than in 1989 and much better than in the several years prior) and are continuing to look for speedier ways to gain approval. Resolving comments is an area which, if improved, could help a great deal. I would appreciate your suggestions on this matter after the meeting.

Also attached to this report is a list of those C37 documents which require action in 1992 under the 5-year rule. I hope you find this helpful and urge you to take appropriate actions so that we may continue to maintain the C37 document inventory on a current status.

The C37 Committee Vice-Chairmen, Mr. Andy McCabe and Mr. Dave Swindler have detailed reports of C37 and pertinent IEC activities which they will present to you shortly.

C37's Executive Vice-Chairman for Low Voltage standards, Mr. Stanton Telander has retired as of January of this year. Stan has been a major contributor to C37's work for many years having also held the position of Executive Vice-Chairman for IEC activities. He has also been a major contributor for many years to the IEEE Switchgear Committee's activities, particularly in the Low Voltage area. Because of this I can think of no better forum than this Committee meeting to acknowledge and thank him for his contributions to the industry in standards development and wish him well in his retirement.

T. C. Burtnett
Chairman
ASC C37 Committee

4/5/91

7691J/jmb

ASC C37 STANDARDS DEVELOPMENT
1990 ACTIVITY
DOCUMENT PROCESSING TIME (DAYS)

DOCUMENT	ACTION	BSR8 TO BSR9	BSR9 TO BSR APPROVAL	TOTAL
C37.013	RV	319	31	350**
C37.13	RF	93	35	128
C37.14	RF	93	35	128
C37.29	RF	93	35	128
C37.32	NEW	369	29	398**
C37.33a	NEW	114	31	145
C37.34e	NEW	158	28	186**
C37.36b	NEW	104	35	139
C37.57	NEW	124	30	154**
C37.58	NEW	94	32	126
C37.63	RF	95	24	119
C37.71	RF	95	24	119
C37.81	RF	106	32	138

1990 DOCUMENT SUMMARY

REAFFIRMATION	6
NEW	6
REVISION	1
DOCUMENTS PROCESSED (TOTAL)	13

1990 AVERAGE PROCESSING TIME

TYPE	BSR8 TO BSR9	BSR9 TO BSR APPROVAL	TOTAL
REAFFIRMATION	95	31	127
NEW	160	31	191
REVISION	319	31	350

**These documents received comments that needed addressing while under balloting.

NEW = New Document, RF = Reaffirmation, RV = Revision

ASC C37 STANDARDS DEVELOPMENT
1989 ACTIVITY
DOCUMENT PROCESSING TIME (DAYS)

DOCUMENT	ACTION	BSR8 TO BSR9	BSR9 TO BSR APPROVAL	TOTAL
C37.04	RF	84	65	149
C37.09	RF	84	65	149
C37.010	RF	84	65	149
C37.011	RF	84	65	149
C37.012	RF	117	30	147
C37.38	NEW	121	49	170
C37.41	REV	116	67	183
C37.50	REV	148	30	178
C37.52	RF	71	51	122
C37.53.1	RF	239	36	275
C37.100	NEW	77	30	107
C37.121	NEW	169	35	203
C37.122	NEW	721	34	755*

1989 DOCUMENT SUMMARY

REAFFIRMATION	7
NEW	4
REVISION	2
DOCUMENTS PROCESSED (TOTAL)	13

1989 AVERAGE PROCESSING TIME

TYPE	BSR8 TO BSR9	BSR9 TO BSR APPROVAL	TOTAL
REAFFIRMATION	86	53	139
NEW	312	38	350
REVISION	132	48	180

* THIS DOCUMENT BEGAN PROCESSING IN 1986, PRIOR TO THE ESTABLISHMENT OF THE C37 PROGRAM ADMINISTRATOR POSITION

STEPS TO ANSI APPROVAL OF AN ASC C37 STANDARD

1. Document is received from sponsor.

2. Receipt of Document is acknowledged.

3. BSR-8 is sent to ANSI to begin the public review process.

4. At the same time as #3, issue ballots for the document to ASC C37 and the appropriate NEMA Voting Classification.

5. Resolve any comments received.

6. Close NEMA Voting Classification ballot. Obtain the NEMA delegation to ASC C37 ballot.

7. Close the ASC C37 Ballot and issue ballot summary.

8. Send BSR-9 to ANSI to initiate the Board of Standards Review (BSR) approval process.

9. Obtain Approval, ANSI Board of Standards Review..

Standards Due for Processing

In 1992 the following standards are due for processing under ANSI's 5 year review policy.

Standards due for Processing in 1992

IEEE

C37.1-1987, Manual, Automatic & Supervisory Station Control and Data Acquisition

C37.20.1-1987, Metal-Enclosed Low Voltage Power Circuit Breaker Switchgear Assemblies

C37.20.2-1987, Metal Clad and Station Type Cubicle Switchgear

C37.20.3-1987, Metal Enclosed Interrupter Switchgear

C37.23-1987, Metal Enclosed Bus & Guide for Calculating Losses in Isolated Phase Bus

C37.27-1987, Application Guide for Low Voltage AC Non-Integrally Fused Power Circuit Breakers

C37.48-1987, Guide for Application Operation & Maintenance of High Voltage Fuses, Distribution Enclosed Single-Pole Air Switches, Fuse Disconnecting Switches, and Accessories

NEMA

C37.06-1987, Schedules of Preferred Ratings and Related Required Capabilities for AC High Voltage Circuit Breakers Rated on a Symmetrical Current Basis

C37.33-1987, Rated Control Voltages and Their Ranges for High Voltage Air Switches

C37.44-1981 (R1987), Specifications for Distribution Oil Cutouts and Fuse Links

C37.45-1981 (R1987), Specifications for Distribution Enclosed Single Pole Air Switches

C37.46-1981 (R1987), Specifications for Power Fuse and Fuse Disconnecting Switches

C37.54-1987, Conformance Test Procedures for indoor AC High Voltage Circuit Breakers Applied as Removable Elements in Metal-Enclosed Switchgear

C37.72-1987, Single and Three Phase Manually Operated 600 Ampere Dead-Front Padmount Load Interrupting Switches for Alternating Current Systems

C37 High-Voltage Switchgear Report
for IEEE Switchgear Committee

Since the October 1990 Switchgear Committee Meeting, the following actions have taken place in the C37 Main Committee involving high-voltage standards:

1) ANSI/IEEE C37.04f-199x, Supplement to Standard Rating Structure for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis - Subsection 6.5(trip-free requirement) and ANSI/IEEE C37.04h, Supplement to Standard Rating Structure for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis - Subsection 6.2(terminal forces for 800kV circuit breakers) are out for ballot and technical comment with a due date of February 28, 1991. Results of these ballots will be reported at the next meeting.

2) ANSI/IEEE C37.04i-199x, Supplement to Standard Rating Structure for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis(ITRV) is out for ballot and technical comment with a due date of May 3, 1991.

3) ANSI/IEEE C37.09g-199x, Supplement to IEEE Standard Test Procedures for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis is out for ballot and technical comment with a due date of May 3, 1991.

4) ANSI/IEEE C37.100d-199x, Supplement to IEEE Standard Definitions for Power Switchgear is out for ballot and technical comment with a due date of May 3, 1991.

A. K. McCabe
Vice-Chairman
C37 High-Voltage Standards

TCB

ANSI C37 LOW VOLTAGE SWITCHGEAR REPORT
FOR
IEEE SWITCHGEAR COMMITTEE

The following actions have taken place since the last IEEE Switchgear Committee Meeting.

ANSI CURRENT ACTIONS

C37.13-1991 - Low Voltage AC Power Circuit Breakers
Revision approved by ANSI 3/5/91.

C37.18-1979 - Field Discharge Breakers
Reaffirmation ballot closes 6/14/91.

C37.26-1972 (R1991) - Guide for Power Factor Measurements
Reaffirmed by ANSI 2/20/91

C37.57-1990 - Conformance Test Procedures for Metal Enclosed Switchgear
Published by ANSI in January, 1991.

C37.58-1990 - Conformance Testing of Indoor MV Switches for Use in Metal-Enclosed Switchgear Assemblies
Published by ANSI in February, 1991.

IEEE CURRENT ACTIONS

C37.14-1979 (R1990) - Low Voltage DC Power Circuit Breakers
Has been re-balloted in the LVDS Subcommittee.

C37.20.1-1987 - Metal-Enclosed Low Power Circuit Breaker Switchgear
C37.20.2-1987 - Metal-Clad and Station Type Cubicle Switchgear
C37.20.3-1987 - Metal Enclosed Interrupter Switchgear
Revisions underway in Switchgear Assemblies Subcommittee

3/2/91

ASC C37 IEC LIAISON REPORT
MAY 1991

SC 17A: HIGH VOLTAGE SWITCHGEAR - (ANDREW K. MCCABE)

Meetings

Meetings of TC17A and WG10 were held in Beijing, China, October 22-25, 1990. Mr. W.E Harper and Mr. R. Harner represented the USNC. The following action occurred:

1) Results of voting under the six months rule for approval.

- Document 17A (Central Office) 207
  - Proposal for an amendment to IEC Report 815 as regards creeping distance of insulators across open circuit breakers and switches - Approved.
  - Decision: To amend IEC 694 at the next revision.

- Document 17A (Central Office) 208
  - Amendment to IEC Publication 56: High voltage alternating current circuit breakers, in respect of specification of the recovery voltage for capacitive tests - Approved.
  - Decisions: To issue an amendment to IEC 56.

- Document 17A (Central Office) 209
  - Revision of IEC Publication 420: High voltage alternating current switch-fuse combinations - Approved.
  - Decision: To issue a revised IEC 420.

- DIS 17A (Central Office) 213
  - High voltage alternating current switchgear and control gear. Inductive load current switching tests - Approved.
  - Decision: To issue the document as a Technical Report.

- DIS 17A (Central Office) 214
  - Revision of IEC 129: Alternating current disconnects and earthing switches, Second supplement: bus-transfer current switching by disconnects - Approved.
  - Decision: To issue an Amendment to IEC 129.

- DIS 17A Central office) 215
  - Revision of IEC 129: Alternating current disconnects and earthing switches. First supplement: Induced current switching by switches - Approved.
  - Decision: Amendments to the DIS will be circulated for a two months vote.

2) Results of voting under the accelerated procedure on Document 17A (Secretariat) 303/303A: Amendments to IEC56 Guide for circuit breaker maintenance. This document was circulated under the accelerated procedure. There were 16 countries that approved the draft under the Six Months Rule. It has been submitted to the National Committees as a DIS. The Chairman proposed to publish it as a Technical report Type 3 (only for circuit breakers) instead of an amendment to IEC56. This was approved.

SC 17A: HIGH VOLTAGE SWITCHGEAR (ANDREW K. MCCABE)

3) Decision by Cenelec/TC17A to continue its work in order to issue a European Norm on pressurized hollow insulators. The Secretary informed about the decision of Cenelec to issue a European Norm since SC36C has delayed their work on this subject. The Cenelec document has been circulated to the National Committees to see if an IEC standard can be prepared within SC 17A.

4) WG 15 Revision of IEC 694 - Common clauses for high voltage switchgear and control gear standards has been set up. Mr. J. Pasteau (France) will be the convener. The USNC supports this work especially in regard to rated duration of short circuit and temperature classes.

5) Discussion of Document 17A (Secretariat) 296: Proposal for an amendment to IEC 694, 129 and 56, concerning dielectric tests of high voltage switchgear, disconnects, earthing switches and circuit breakers. After a short discussion, it was decided to postpone the work until the revision of 694. The new WG should then take into account TC28 work on insulation coordination and the new edition of IEC 60 from TC42. The USNC proposed taking current U.S. and Canadian practice into account at the revision.

6) Discussion of Document 17A (Secretariat) 313 - Shunt Reactor Switching Tests - There were 48 comments addressed. On the Chairman's suggestion, it was decided an Editorial Committee will revise the document which will then be circulated as a CD to the National Committees for voting as a Technical report.

7) Discussion of Document 17A (Secretariat) 308 - Application Guide for Shunt Reactor Current Switching for AC High Voltage Circuit Breakers: Based on the comments and discussion, a revised CD will be prepared by a Task Force set up by the Secretary. Also, the development of the same subject within IEEE shall be followed and taken into account.

8) Publication of a report on Switching Inductive Load. According to IEC Directives, it is possible to issue a Technical report instead of a Standard under certain circumstances. In the actual case, a Type 3 technical report should be possible. The report will be composed of 17A (Central Office) 213, the revised documents 17A (Secretariat) 313, and 17A (Secretariat) 308. No-load transformer switching will be covered by referring to IEC 56, Clause 6.112.

9) Discussion of Document 17A (Secretariat) 301: Amendment of IEC 56 Guide for Seismic qualification of high voltage alternating current circuit breakers. A task force of experts (set up by WG 11) shall revise the document based on the NC comments and circulate it as a DIS.

10) Discussion of Document 17A (Germany) 197: Proposal of the German NC to amend IEC 694 in terms of rated insulation levels. On the Chairman's proposal, it was decided to transfer the document to the new WG 15 to revise 694.

SC 17A: HIGH VOLTAGE SWITCHGEAR (ANDREW K. MCCABE)

11) Discussion of Document 17A (Indonesia): Proposal of the Indonesian NC for an amendment of IEC 694 - Note 7 of Table V of limits of temperature and temperature rise for various parts, materials and dielectric of high voltage switching devices. The proposal was not accepted.

12) Discussion of Document 17A (Canada) 62: Proposal of the Canadian NC for an amendment of IEC 56, Sub-clause 6.101.3.3 Low Temperature Tests.

- Decision: It was proposed that the accumulated leakage during the complete low temperature test sequence (items b to k of 6.101.3.3 of IEC 56) shall not reach lock-out pressure. Requirements in the main text and Appendix EE do not harmonize. The text will be amended. The decision will be circulated as a DIS.

13) Discussion of Document 17A (Secretariat) 302: Amendment to IEC 56 Short Circuit (peak) making current. There were 14 comments. WG 10 will look at IEC 427 to check that no contradictions exist and will revise the document according to the discussion. The document will be circulated as a DIS.

14) Discussion of Document 17A (Secretariat) 306: Amendment to IEC 694 Power Frequency Test as Condition Check after type tests.

- Decision: The proposal will be revised according to the discussion and then circulated to the NC as a DIS.

15) Discussion of Document 17A (Secretariat) 307: Amendment to IEC 56: High Voltage Alternating Current Circuit Breakers Operating Sequence.

- Decision: It was decided to add a note to 6.102.9: The same test procedure can be applied also for circuit breakers having longer arcing time than one cycle, and circulate as a DIS.

16) Discussion of Document 17A (Secretariat) 309: Amendment to IEC 129: Alternating Current Disconnector and Earthing Switches. Design and testing of indicating devices for moving contacts position of disconnecting devices.

- Decision: To revise according to comments and discussion and circulate as a CD to the NCs.

17) Discussion of Document 17A (France) 257: Proposal of the French NC amendment of IEC 129:

- Decision: The document will be circulated as a DIS.

18) Discussion of Document 17A (Secretariat) 310: Amendment to IEC 56: High Voltage Alternating Current Circuit Breakers Appendix 11: Guide for Short Circuit and Switching test procedure for metal enclosed and dead tank circuit breakers. There were 44 comments.

- Decision: The document is referred back to the WG.

SC 17A: HIGH VOLTAGE SWITCHGEAR (ANDREW K. MCCABE)

19) Discussion of Document 17A (Secretariat) 311: Amendment to IEC 427: Synthetic testing of high voltage alternating current circuit breakers. Prolonged arcing times.

- Decision: Clause 6.106.5 will be amended and circulated as a DIS.

20) Discussion of Document 17A (Secretariat) 312: Amendment to IEC 56: High voltage alternating current circuit breakers. Miscellaneous provision for making and breaking tests. Circuit breakers with short arcing times.

- Decision: The document will be circulated as a DIS after editing according to discussions.

The following has occurred since the 17A meeting:

1) IEC 420, High Voltage AC Switch-Fuse combinations has been issued.

2) Document 17A (Secretariat) 334: Amendment to IEC 694, Clause 6.1.1 (K factor correction for air density and humidity). The USNC disagrees with the proposal in its present form and has asked for explanation of the proposal.

3) Document 17A (Secretariat) 331: Amendment to IEC 56, High Voltage Alternating Current Circuit Breakers. The USNC disagrees with the proposal on availability of spare parts.

4) Document 17A (Secretariat) 330: Amendment to IEC 694 - Common clauses for high voltage switchgear and control gear. Clause 5 design and construction, Clause 7 Routine test. The USNC does not support this proposal.

5) Document 17A (UNIPED) 5: Amendment to IEC 265-1 High voltage switches for rated voltages above 1kV and less than 52kV - Extended mechanical endurance tests. The USNC does not support this proposal.

6) Document 17A (UNIPED) 4: Amendment to IEC 56: High voltage alternating current circuit breakers. The USNC does not support this proposal.

7) Document 17A (UNIPED) 3: Amendment to IEC 129: Alternating Current disconnectors and earthing switches. The USNC does not support this proposal.

8) Document 17A (UNIPED) 2: Modification of IEC 56, 265-1 and 42: Clauses on electrical endurance testing. The USNC is prepared to participate in the development of the project.

9) Document 17A (UNIPED) 1: Amendment to IEC 694: Common clauses for high voltage switchgear and control gear standards. Clause 6 - Type Tests: The USNC does not support this proposal.

10) Document 17A (Secretariat) 336: Amendment to IEC 420 - TRV values for TD 4 and 5. The USNC supports this proposal.

SC 17C HIGH VOLTAGE SWITCHGEAR AND CONTROLGEAR
SC 17D LOW VOLTAGE SWITCHGEAR AND CONTROLGEAR (DAVID L. SWINDLER)

There has been very little happen in either SC 17C or SC 17D since the October 1991 report. SC 17D will meet during the week of May 13. With Mr. Stan Telander retiring, Mr. Glen Hesselbart of Westinghouse will be assuming the responsibility of TA for this area. Mr. Hesselbart will be reporting this activity beginning with our October 1991 report.

SC 17B: LOW VOLTAGE SWITCHGEAR & CONTROLGEAR - (DON FISCHER)

The following documents are in process:

947-2 Appendix A - Coordination under short circuit conditions between a circuit breaker and another short circuit protective device associated in the same circuit. this was 17B(CO) 181 and is released for printing.

17B(SEC)344 947-1 Power Frequency Dielectric Tests. Document to be released as a DIS 1991.

17B(SEC)346 947-1 Switching overvoltages. There is a question as to whether test are to be made to main circuits only or to both main and auxiliary circuits. WG-1 to prepare a new Secretariat document.

17B(SEC)347 947-1 Additional requirements for equipment suitable for isolation. Several proposed changes for equipment suitable for isolation. Changes may involve external mechanisms. A new Secretariat document will be issued.

17B(SEC)365 947-1 Short time withstand tests. This document revises section 8.3.4.3.(A). A DIS document should be released in April

17B(SEC)366 947-2 Modification of Table X. This document will revise and simplify Table X. Also Table IXa. is under review and the WG hopes to combine these into one table. A DIS document should be completed by June 1991.

17B(SEC)367 947-2 Assessment of the emission of ionized gases on short circuit. A DIS document will be released asking for votes on three separate proposals in a new document 17B(SEC)367B.

1. Vote on the basic document which will specify the use of a polyethylene sheet ionized gas test for every "0" test for breakers in an enclosure. For all other tests, the polyethylene sheet is used with an intermediate wire mesh at the face of the breaker.

2. Vote on the proposed revisions in 17B(SEC)367B.

3. Vote on the use of an insertion wire ".010" (26mm) in the handle area to eliminate the polyethylene sheet handle test if wire cannot be inserted in the arc area.

   Discussions are still in progress on the construction of the wire mesh.

SC 17B: LOW VOLTAGE SWITCHGEAR & CONTROLGEAR - (DON FISCHER)

17B(SEC)371 947-2 Appendix F - Additional requirements for electronically controlled circuit breakers.

Work is progressing on this document and a DIS document should be prepared for mailing late this year.

17B(SEC)387 947-1 Appendix C - Degrees of protection provided by enclosures. WG8 has been assigned the task of "how to apply IEC 529 in a general manner as well as product line guidance. National committees have been asked to appoint members to this W.G.

General Item EMC: Influence of the works of TC77 on 17B products and actions to be taken.

Ceinelec TC110 has prepared two drafts on this subject.

- Ceneric Emission Standard - Class 2 Industrial Draft .01 dated 8/1/90.
- Generic Immunity Standard - Class 2.

Industrial Draft.02 dated 8/1/90.

Product groups have been asked to review these drafts and be prepared to address the subject in mid 1991.

IEC TC 41/SC 41B RELAYS - (ERIC UDREN)

Due to a heavy travel schedule, Eric was unable to provide a report for this period.

IEC TC32 & SC32A(HIGH VOLTAGE FUSES) - (DICK ARNDT)

TC32 & SC32A

No meetings or activities of substance this period.

WG-3 (CURRENT LIMITING FUSES)

This group met in Grenoble France April 8 & 9, 1991.

The agenda addressed mostly old, open, difficult to resolve issues and several proposed new items related to

- -current limiting fuses in enclosures
- -power factor and TRV for takeover points
- -homogenious series applicability for 1 element fuses

The following major thrusts evolved out of the meeting

- -another round of proposals will be generated for consideration regarding
  - -enclosures
  - -power factor
  - -need for power dissipation tests
  - -voltage classification changes

Next WG meeting most likely will be held in conjunction with the next TC32 and SC32A sometime in 1992.

WG-4 (EXPULSION FUSES)

The first meeting was held November 5 thru 7, 1990. It was primarily organizational in content. A draft proposal was developed for WG consideration based on the discussions at this meeting.

The second meeting was held in Grenoble France April 9 through 12, 1991 following the WG-3 meeting reported on above. Another draft proposal for WG-4 consideration will be developed based on meeting discussions. The major proposed changes involve adding TRV and Test Duty 4 X/R values based on ANSI C37.41.

The next WG meeting will be held in England during September 1991.

Dick Arndt is the US representative and attended both WG meetings in Grenoble.

IEC Liaison Report Of STL/NA
To IEEE Switchgear Committee

May 9, 1991

The STL Technical Committee met on October 11th and 12th, 1990 in Milan, Italy.

Key technical items that were covered include:

- Development of a comparison of IEC, CENELEC and ANSI standards with the intent of determining where standards have been harmonized.

- Rejection of the STLNA request for a revision to the guide to IEC-56 on allowable temperature rise of circuit breakers on 50 HZ vs 60 HZ testing.

- The need to more fully define the extent to which breakers may be reconditioned following short circuit test duty.

- Discussion about SF-6 breaker minor loop clearing following the major loop of current.

- Discussion of breaker performance using either series or parallel damped TRV circuits.

- Review of a guide to IEC-76-5 for short circuit testing of transformers.

- Discussion of a new synthetic short circuit test technique used by the Japanese. Also, the reorganization of the STL task force charged with developing a guide for synthetic testing based on lack of progress of the initial group.

- The STL Task Group charged with evaluating the subject of measurement uncertainties has reported back that they are satisfied with commonly used standard calibration procedures and the resultant accuracies.

- Discussion of the possibility of sponsoring a cross calibration check between the various EC laboratories to compare accuracies, deviations, etc. This would be done on a blind basis so that no test facility would be identified.

- The acceptance of the STLNA request for revision to the Guide To IEC-56 circuit breaker standards regarding the "Assessment of Ability To Carry Rated Current" of a "sealed for life" interrupter following maximum short circuit duty. The STL had placed a restrictive limit on the allowable resistance rise. The data tabled by the Japanese supported the STLNA data and our request. After much debate the STLNA revision was accepted to allow the resultant circuit breaker resistance to rise in the range up to 2 PU. In this case IEC will now be aligned with ANSI standards.

The next STL Technical Committee Meeting is scheduled for early July in Lyon.

The STL Management Committee met on April 9th, 1991 at Arnhem, Holland.

The main items of discussion was the move by STL under their STLA designation to become an "Agreement Group" for all high voltage switchgear and other equipment. This is part of the EC-92 movement in which all of the EC and free trade countries will operate under a single set of product standards by CENELEC. The CENELEC standards are primarily based on IEC and ISO standards. If STL is accepted as an "Agreement Group" under CENELEC and the EOTC (European Organization for Testing and Certification) that will give them considerable influence over how apparatus is tested and certified and how laboratories are accredited. It represents a move for more formal control and bureaucracy in the approval of apparatus.

During the meeting, two representatives of the standardizing body CENELEC from Brussels, presented their case on how products should be tested and how products and laboratories are to be certified. Initially this will be done by each individual country but within 3 years it will be vested in a control authority. This authority may be the STLA organization.

After the CENELEC delegates left, there was considerable discussion about the advantages and disadvantages of being an Agreement Group under CENELEC and the EOTC. On the plus side there is control of the process, the negative side is loss of freedom, more bureaucracy and added cost for the operations of the proposed future system. The European members of the STL, i.e. STLA, signed an agreement to proceed to become an "Agreement Group" and most probably this will be accepted within the next 6 months.

Some members are now concerned about the membership of STLNA in the STL since they would like to keep their STLA activities restricted to European members. This topic will again arise. At this time the majority of the members support the approach of keeping the STL as a global organization that includes both STLNA and the Japanese as observers.

Other items included in the Management Meeting were the agreement for four new STL Test Guides which will be published and circulated. They will cover Fuses, Transformers, Switch/Fuse Combinations, and a General STL Test Guide.

The next STL Management Meeting will be in Paris, April 2, 1992.

Submitted by:

E. F. Veverka
Chairman, STLNA

WP.IEC/bd

May 9, 1991

Keith I. Gray, Secretary
Switchgear Committee
Power Engineering Society
The Institute of Electrical and Electronic Engineers

Liason Report
Transformer Committee/Bushing Subcommittee

There has been no liason activity with the Bushing Subcommittee of the Transformer Committee since the last Switchgear Committee meeting in October, 1990.

Attached for the Switchgear Committee members information is a copy of the Bushing Subcommittee minutes for their October 1990 meeting held in Monteal.

Respectfully Submitted,

James F. O'Donnell

IEEE BUSHING SUBCOMMITTEE

MINUTES OF MEETING
MONTREAL, QUEBEC
October 23, 1990

	MEMBERS PRESENT	GUESTS PRESENT
	M.S. Altman	Michel Beaulieu
	V. Dahinden	J.V. Bonucchi
	F.E. Elliott	R.L. Grunert
*	Robert H. Hartgrove	Peter Iijima
	C. Komlenic	Dennis J. Kopaczynski
	R.I. Lowe	Harold Moore
	R.J. Musil	George J. Reitter
	D.E.Parr	
	J. Patton	
*	Mangesh Rajadhyaksha	
	D.N. Sharma	
	P. Singh	
*	C.L. Stiegemeier	
	R.A. Veitch	
	L.B. Wagenaar	
	W. Young	

* New Members

Chairman L.B. Wagenaar opened the meeting at 11.16 AM by welcoming the members and the guests. This was followed by self introductions by all attendees.

Chairman's Remarks

Mr. Wagenaar made the following announcements:

o Two new subcommittees have been formed:

1. Distribution transformers. Chairman: Frank Stevens

2. Underground Transformers/Network Protectors.
   Chairman: Paul Orek

o IEEE is encouraging members to become Senior Members

o IEEE committee would like a feedback from the subcommittees on the question of conflict between meetings.
(A poll within the subcommittee members indicated that a majority of the members experience conflict and would not mind spending extra time.

Approval of March 27, 1990 Minutes of Meeting held at DENVER

The minutes were approved as written.

Technical Advisor for IEC/SC 36A

It was announced that Mr. Pritpal Singh has been appointed as Technical advisor in place Mr. John Easley who has retired.

Project PC57.19.100

Chairman Fred Elliott reported that his working group met on October 23, 1990 with 8 members and 21 guests present. The working group reviewed the results of the bushing subcommittee ballot on Draft 5 of Bushing Application guide. A total of 31 ballots were sent of which 24 were returned with the following results:

Sent	Received	Affirmative W Comm.	Affirmative W/O Comm.	Not Approved	Not Voting
31	24	5	16	2	1

The members with negative votes were not present at the meeting. The working group discussed all the comments. One of the negative vote was about the inclusion of the contents of C57.19.101-1989.(Trial-Use Guide for Loading Power Apparatus Bushings) The members agreed that it was the initial intent of the working group to include the contents of this guide in this document. The Trial Use Guide would be withdrawn once the Bushing Application Guide is published. (This topic was further discussed in the Bushing Subcommittee and the members agreed to this approach. It was agreed by the subcommittee members to explain this in the Forward) The working group discussed the comments and it was agreed to ballot the revisions within the Bushing Subcommittee.

The working group also discussed a proposal to include a derating factor when bushings are applied to transformers with top oil temperature rises between 55 C and 65 C. The new section will also have some wording about the adverse effect on bushing current rating, if the transformer oil level is raised above the minimum oil level on the flange.

PC57.19.03 Bushings for DC Applications

Acting chairman L.B. Wagenaar reported that his working group met on October 22. 1990 with 9 members and 5 guests present. The working group reviewed the scope with respect to including Dry Type and SF6 Bushings. It was reported that a letter had been issued to Dr. Herman Schneider, who is our liaison to the Substation Committee, asking for assistance in this matter. It was also reported that these bushings have

been used for wall applications and that some problems have been encountered. The working group addressed the section of testing. It was agreed to include DC pollution test as a design test for outdoor bushings and make impulse test as a routine test on bushings rated 200 kV and above. It was agreed to drop 60 Hz wet test as DC pollution test is more demanding. It was a agreed to drop the thermal stability test. The working group will attempt to gather information to establish ratings and other requirements.(Mechanical, Electricals, and others)

PC57.19.00 General Requirements and Test Procedure for Outdoor Power Apparatus Bushings

- It was reported that the subcommittee resolved the changes resulting from the two negative ballots on draft 10 from the Transformer Committee. These changes will now be balloted within the Transformer Committee.

- A comment was received on the subcommittee ballot to include PF measurements at voltages below 10 kV. After discussions, the comment was withdrawn by the member.

- Dennis Kopaczynski from Doble Engineering volunteered to provide PF test data at voltages from 2.5 to 12 kV for service aged bushings.

PC57.19.01 Standard Performance Characteristics and Dimensions for Outdoor Apparatus Bushings

- It was reported that Table 9 has been approved by the Transformer Committee

- It was reported that Draft 3 of Table 10 was successfully balloted within the Bushing Subcommittee. This would now sent to the Transformer Committee.

- Loren Wagenaar and Harold Moore attended an EEI meeting at Hartford, CT on October 16, 1990 and reported that in an EEI survey, their members have expressed a strong need for standardization. The present standard does not cover all popular ratings. Harold and Loren both presented papers on standardization at this meeting. It was reported that some utilities have already started their own standardization programs.

- It was reported that NEMA which has been responsible for providing inputs for this standard has been inactive for past 12 years. Chairman Wagenaar reported that it is in IEEE's charter to work on dimensional standards.

- It was unanimously agreed to revise the IEEE/ANSI Std 24 and include the newly revised tables 9 & 10.

- Chairman Wagenaar agreed to get an approval for a separate working group for the revision of this standard.

Doble Test Terminal

Concern was expressed by a member that in some instances, the bushing top terminal have experienced bending when Doble Test Terminals were used. It was felt that the use of these terminals exert additional bending moment at the top terminals and results in bending of the terminal. After a lot of discussions on this subject it was agreed to include this as an unusual condition and the subject should be taken up with the bushing suppliers.

Bushings with Epoxy Outdoor Weathercasing

A concern was expressed that condenser and SF6 bushings with epoxy weathercasing and condenser body are being applied to breakers and that these bushings are not covered by any standard. It was also reported that the Switchgear Committee is depending on the Bushing Subcommittee to develop such a standard. However, no formal request has been received from the Switchgear Committee. Chairman Wagenaar agreed to contact the members of Switchgear Committee to find out if such a need exists.

Adjournment

In the absence of any other business, the meeting was adjourned at 3.15 PM

Minutes Submitted by

Pritpal Singh
Secretary Bushing Subcommittee

MONTREAL.1090

EPRI
Electric Power
Research Institute

Leadership in Science and Technology

MEMORANDUM

May 1, 1991

TO: Messrs. D. G. Kumbera
J. E. Reed

FROM: P. L. Kolarik

SUBJECT: Status Report - EPRI/ESD
Research on AC Substations Equipments
IEEE Switchgear Committee Meeting
Ft. Lauderdale, FL - May 8, 1991

The Electric Power Research Institute, Electrical Systems Division has a number of projects completed or in progress, which should be of interest to the IEEE Switchgear Committee.

1. Interrupter Development and Studies:
   a. GE - General study on interruption in gases - RP246 - Completed. Final Report No. EL-3293.

   b. GE - Vacuum Interrupter - RP754 - Completed. Final Report No. EL-1895.

   c. Westinghouse - SF6 Puffer-RP478 - Completed. Final Report No. EL-3100.

   d. Gould-Hybrid Circuit Breaker - RP661A - Completed. Final Report No. RP810.

   e. Gould-Brown Boveri - Generator Circuit Breakers - RP1501 - Completed. Final Report No. EL2195.

   *f. RPI - Calculation of Upstream Flow Field - RP246. Developed computer program which gave good agreement between calculated and measured flows. The program will provide a low-cost method for the designer to optimize upstream flow conditions in single and double flow puffer interrupters. Final report will be published before the end of 1991.

2. Current Limiting Devices:

a. Phoenix Electric - Variable gap inductance - RP324 - Completed. Final Report No. EL-286.

b. Westinghouse - Series-Parallel L-C Circuit - RP654 Completed. Final Report Nos. EL537, EL857

c. Gould/ITE - Sand-arc device with parallel resistor - RP281 - Completed. Final Report No. EL-1396.

d. McGraw-Edison - Vacuum - RP1140 - Completed. Final Report No.EL-2266.

e. Gould-Vacuum - RP993 - Completed. Final Report EL-1187.

f. SUNYAB - Vacuum - RP993 - Completed. Final Report No. EL-4186.

g. Westinghouse - Vacuum - RP564 - Completed. Final Report Nos. EL-393, EL-1221, EL-2890.

h. Stanford University - Reduced Fault Duration Effects - RP1498 - Completed. Final Report No. EL-2772.

*i. Phoenix Electric - Improved Current Limiting Fuses - RP-1142. Development of 15- and 35 kV Current Limiting Protectors (CLP) for utility systems. CLP utilized current limiting fuse shunted by copper conductor that is pyrotechnically cut to transfer fault current to fuse on command. Fast fault anticipator (FFA) microprocessor based sensing scheme with intelligence to predict fault current levels in 500 microseconds and memory to record fault events. The 15 kV device is installed on Con Ed system. The 38 kV device and the FFA are being field tested on Rochester Gas & Electric System. The FFA has had minor problems and is being modified.

3. Gas Insulated Substations:

*a. Ontario Hydro/GE - Improved Techniques for Fault Locating - RP1360 - Completed. Final Report Nos. EL-2248, EL-2249. Even though the final report has been published, efforts continue to

improve the detection device. Xedar has recently shipped an improved camera to Louisiana P&L and ComPix has developed an infrared detecting cell which they hope to field test in the near future.

b. Gould/Doble - Arc By-Products in GIS Equipment - RP1204 - Completed. Final Report No. EL-1646.

c. Westinghouse/DuPont - Gases Superior to SF6 - RP847 - Completed. Final Report No. EL-2620.

d. An EPRI Report EL-2189, User Experience with Gas-Insulated Substations, is available.

4. Switches:

a. Allis-Chalmers - Ice-Release Coatings - RP931 - Completed. Final Report No. EL-1330.

b. Westinghouse - EHV Reactor/Capacitor Switch - RP655 - Completed. Final Report No. EL-934.

*c. McGraw-Edison - Advanced Stored Energy Operator for Distribution Switches - RP2452 - Develop innovative and versatile stored energy disconnect switch operator for use with distribution class gang-operated sectionalizing switches with rated voltages to 38 kV and rated currents to 2000 A.

Five motor-spring operated mechanisms have been built. Two have been installed on utility systems. One is operating satisfactorily. The other has higher loads than anticipated so is slow in operation and is being checked.

5. Bushings:

a. Westinghouse - Heat Pipe Bushing - RP565 - Completed. Final Report No. EL-1246.

b. Gould - Explosion-Resistant Bushing for GIS - RP1423 - Completed. Final Report No. EL-4421.

c. Lapp - Explosion-Resistant Bushing for GIS - RP1423 - Completed. Final Report No. EL-2788.

6. Circuit Breakers:

*a. SUNYAB-Circuit Breaker Diagnostics - RP2747 - Developing means to evaluate circuit breaker condition using non-intrusive methods, thereby determining need for internal inspection. Short-time analysis, together with pattern recognition are giving encouraging results. A portable diagnostic system for data collection has been developed, and several utilities have installed it. It is being planned as an on-line monitor.

*b. Westinghouse Science and Tech Center-RP3155-01 - Solid State Current Limiter/Circuit Breaker. The objective of this project is to design, develop, and evaluate prototype solid state current limiting devices and circuit breakers utilizing gate turn-off thyristors (GTOs) and other advanced power semiconductor devices. At present, in Phase 1 of the project, application requirements and design approaches are being studied. Two single-phase current limiter breadboards will be built for design verification.

7. Advanced Mechanisms:

a. Westinghouse - Advanced Mechanism for Switching Devices - RP1719 Completed. Final Report deferred.

8. Surge Generation by Fast Acting (Vacuum) Circuit Breakers:

*a. Ontario Hydro - Turn Insulation Capability of Large AC Motors - RP2307. Final Report No. EL-5862, Vols. 1&2.

*b. Ontario Hydro - Surge Protection of Generators - RP2594. Final Report No. GS-6936.

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* New and revised item.

Liaison Representative
EPRI/ESD

PLK:ab/jt
PLK9974.M

c: S. L. Nilsson
V. Tahiliani

Highlights of Revisions to the IEEE Standards Manual and IEEE Style Manual

The **IEEE Standards Manual** (revision approved December 1990), incorporates several significant changes:

- Provision for the IEEE Standards Board to approve "other organizations" as Sponsors of IEEE Standards

- Full descriptions of the scope, organization, and operation of each Standards Board Standing Committee, especially the New Standards Committee (NesCom) and the Standard Review Committee (RevCom)

- Requirement that a Sponsor notify the Secretary of the Standards Board within 30 days of the date of the first meeting of a standards working group

- Requirement of a 75% affirmative ballot for all reaffirmations

- Addition of sections on annexes and appendixes

- Requirement that the Sponsor submit status reports on projects, at least annually. (In most cases, a one-page summary is preferable to copies of each set of minutes).

The **IEEE Style Manual** has been revised to include information on:

- the addition of abstracts
- requesting copyright permission
- synchronization with project editors and responsibilities
- using non-sexist language
- general editorial clarification

5/91