IEEE TRANSFORMERS COMMITTEE

MINUTES OF MARCH 17, 1980

COLONIAL WILLIAMSBURG

WILLIAMSBURG, VIRGINIA

MEMBERS OR REPRESENTATIVES PRESENT

J. Bonucchi, Chairman
W. J. McNutt, Vice Chairman
L. J. Savio, Secretary
E. J. Adolphson
B. F. Allen
R. Allustiarti
E. H. Arjeski
J. C. Arnold
G. M. Bell
S. Bennon
J. J. Bergeron
J. D. Borst
D. F. Buchanan
D. J. Cash
J. E. Dind
D. H. Douglas
J. D. Douglass
J. C. Dutton
J. K. Easley
E. C. Edwards
C. G. Evans
P. Falkowski
W. R. Farber
H. G. Fischer
C. M. Gardham
D. A. Gillies
J. C. Gorub
W. F. Griffard
R. L. Grubb
G. Gunnels
J. L. Harbell (Rep. by A.A. MacDonald)
T. K. Hawkins
F. W. Heinrichs
K. R. Highton
C. C. Honey
C. Hurty
G. W. Iliff
D. C. Johnson
C. P. Kappeler
O. Keller
J. J. Kelly
T. S. Lauber
H. F. Light
C. Lindsay
T. G. Lipscomb
L. W. Long
R. I. Lowe
M. L. Manning
J. W. Matthews
D. E. Massey
L. S. McCormick
C. J. McMillen
S. P. Mehta
N. J. Melton
C. K. Miller
C. H. Millian
H. E. Mills
R. E. Minkwitz
H. P. Moser (Rep. by D. Barnard)
R. J. Musil
W. H. Mutschler
R. A. Nelson
J. R. Newton
R. A. Olsson
H. A. Pearce
D. A. Roach
R. L. Schmid
L. R. Smith
W. W. Stein
L. R. Stensland
A. L. Tanton
R. C. Thomas
T. P. Traub
E. F. Troy
S. Vargo
R. A. Veitch
J. P. Vora
J. W. Walton
J. R. Woodall
W. E. Wrenn
A. C. Wurdack
D. A. Yannucci
Z. Zepic

MEMBERS ABSENT

L. C. Aicher
D. J. Allen
R. J. Alton
S. J. Antalis
P. L. Bellaschi
J. H. Blake
F. J. Brutt
E. E. Chartier
O. Compton
F. W. Cook, Sr.
J. Corkran
M. G. Daniels
D. A. Duckett
S. L. Foster
H. E. Gabel
A. W. Goldman
G. H. Hall
J. J. Herrera
E. Hook
E. T. Jauch
R. B. Kaufman
E. J. Kelly
A. D. Kline
H. B. Margolis
G. G. McCrae
E. T. Norton
J. H. Otterangers
L. L. Preston
T. K. Sloat
B. E. Smith
R. B. Stetson
F. R. Stockum
D. E. Truax
F. J. Vogel
E. H. Wendt
R. J. Whearty
S. A. Wiencek
G. C. Wilburn

GUESTS

H. W. Anderl
D. A. Barnard
G. Bowers
E. Chitwood
V. Condello
R. Degeneff
K. W. Doughty
J. A. Ebert
J. Foster
M. Frydman
C. K. Hale
J. H. Harlow
W. R. Henning
P. J. Hoefler
E. J. Huber
A. J. Jonnotti
R. H. Kellogg
I. H. Koponen
J. J. Kunes
W. D. Lampe
H. A. Luettgen
J. W. McGill
L. M. Nicholas
A. C. Parikh
R. Russmann
R. B. Shores
R. W. Simpson, Jr.
D. Takach
V. Thenappan
F. W. Thomason
J. A. Thompson
L. K. Thompson
R. E. Uptegraff
J. W. Walton
C. R. Willmore
J. R. Woodall
W. E. Wrenn

1. Chairman's Remarks and Introductions

Mr. Bonucchi convened the meeting at 08:38 and welcomed the members and tuests in attendance at the meeting and expressed his thanks to Olin Compton for the excellent arrangements.

Mr. Bonucchi acknowledged the presence of:

Charlie Wilmore	-	NEMA
I. H. Koponen	-	ANSI C57
V. Condello	-	IEEE Staff

2. Approval of Minutes of October 31, 1979

The minutes were verbally approved as written.

3. Report of Administrative Subcommittee

Mr. Bonucchi reported that the Administrative Subcommittee met at 7:00 PM on Monday evenings, March 17, 1980.

I. New Members

The following new members were approved by the Administrative Subcommittee:

J. W. Matthew - Baltimore Gas and Electric Co.
J. Corkran - RTE Corp
R. L. Grubb - RTE Corp

II. Liaison Representation

Vacancies have been filled for all liaison positions except the following:

ANSI C68 - Techniques for H.V. Dielectric Testing
ANSI C76 - Bushings (we are allotted two (2) representative and one (1) vacancy still exists)
ANSI 81 - Acoustics

We welcome anyone interested in accepting these assignments.

III Future Meetings

The dates and locations are as follows:

October 27 to 29, 1980	- Pfister Hotel Milwaukee, Wisconsin Mr. E. Adolphson will be host
March 30 to April 1, 1981	- Thunderbird Jantzen Hotel Portland, Oregon Mr. G. Iliff will be host
October 18 to 21, 1981	- The Adams Hotel Phoenix, Arizona Mr. E. E. Chartier will be host
April 1982	- Los Angeles, California Mr. C. Hurty will be host
October 1982	- Philadelphia, PA. Mr. R. Whearty will be host
April 10 to 13, 1983	- Atlanta, Georgia Mr. C. G. Evans will be host
November 7 to 9, 1983	- Detroit, Michigan Mr. D. J. Cash will be host

IV. Report of TOD Meeting

TOD met on Monday, February 4, 1980 in New York at the WPM. PES wants TOD to get involved with other committees outside of PES. Nuclear is doing this with Aerospace. The purpose of the program is to use all the expertise from IEEE to provide information to any committee.

IEC is looking for a Secretariat for the Insulation Subcommittee TC2J. Representative should be from either IEEE or NEMA. The Electrical Insulation Group, SCC 4, recommends that IEEE take the job.

The new Technical Paper Review Procedure has been implemented for the 1980 SPM. A more stringent requirement has been placed on authors who cannot present their papers in person due to extenuating circumstances. In this case, a signed statement by the author is required stating who will present his paper and a signed statement by the presenter stating that he is capable of responding to discussions involving the paper.

Other changes are as follows:

A. There are no longer any F & A papers. The reviewer should either accept or reject the paper.

B. There should be complete anonymity between the author and reviewer. This means the author's name and company affiliation will be blocked out when the paper is sent out for review.

C. Each reviewer must submit a 100 word analysis of the paper giving his reasons for accepting or rejecting the paper. These comments will be sent to both the author and the other reviewers so they can check how their review agreed with others. Again, complete anonymity is required.

D. One (1) page summaries by the author are to be reviewed at the same time as the paper.

There was a great deal of discussion of the new IEEE paper procedure which indicated general displeasure over the new system.

The December 14, 1979 report of the Nuclear Certification Feasibility Study W.G. was sent to all members of TOD for their information. The whole subject of certification is in a holding pattern pending the outcome of the TMI investigation.

The TOD Long Range Planning Task Force has been organized with Jim Beehler as Chairman and 14 past technical committee chairmen as members. They are to: (1) review Subcommittee & Committee Scopes, (2) investigate possible new committees, (3) consider division of existing large committees, (4) consider new paper review procedure and (5) revise the TOD Procedural Guide.

We are working on providing representation on a Task Force on "Application of Probability Methods" sponsored by the Power System Engineering Committee.

We are also working on providing liaison representation to the W. G. on a standard or guide for preparation of installation and maintenance manuals for power equipment. This W. G. is being established by the Power Generation Committee.

Editor Joh Essel of the PES Newsletter is requesting information on committee activities for publication. We will make this report available whenever items of interest are completed by our working groups and/or subcommittees.

V Transformer Committee Operating Manual

The first draft of this revised manual is still under review by the Administrative Subcommittee.

VI Other Items

As requested by Leonard Long, the Task Force on Loss Tolerances and Measurements has been changed to the W.G. on Loss Tolerances and Measurements.

Mr. L. C. Archer, who has retired from Siemens-Allis, has resigned as Technical Advisor to IEC Committee TC14. Mr. J. C. Dutton has been appointed to TC14 in place of Mr. Archer. The Administrative Subcommittee accepted the assignment as a Technical Advisory Group to John Dutton providing that it is acceptable to all other parties concerned.

Congratulations were given to Leonard W. Long for his recent appointment to the grade of Fellow in IEEE.

3.1 Audible Sound and Vibration Subcommittee

Mr. Millian (Acting Chairman) reported as follows:

The Audible Sound and Vibration Subcommittee met on Tuesday, March 18, 1980 at the Motor House, Williamsburg, Virginia. There were seven members and nine guests present. Discussion began with the announcement that a chairman for the Audible Sound and Vibration Subcommittee has still not been found. One of the members of the subcommittee has indicated a desire to chair the committee but would not be available till the latter part of the year, time permitting and with his company's approval. I have requested Mr. Bonucchi to write to his company on behalf of the Transformer Committee requesting approval for the Chairmanship.

The Committee was informed of the progress of the ESEERCO Project contracted with BB&N and Westinghouse, to determine the most efficient and most economical means of reducing transformer sound external to the transformer. The search part of the literature survey was essentially complete. A listing of papers found in the literature since 1977 was distributed. I will distribute copies of the listing to the subcommittee members. A classificiation of the papers by noise abatement categories will be provided to ESEERCO.

Also discussed was Dr. Ver's (of BB&N) visit to European Transformer Manufacturers and his findings from those meetings.

The next progress meeting is to take place in Williamsburg at the Colonial Inn, Wednesday, March 19, 1980.

The two task forces set up at the last transformer meeting in Houston, Texas; one to define instrumentation for discrete frequency measurement (discrete tone filter set) and the other to work on a standard data reporting procedure had no progress to report on at this meeting.

3.2 Bushing Subcommittee

Mr. Easley reported as follows:

The Bushing Subcommittee met on March 18 with 11 members and 4 guests present.

The Working Group on Bushing Loading Guide reported that most of the comments received on P757XD3 (and its Appendix showing typical overload calculations) had been resolved on the previous day. It was decided that as soon as two remaining comments have been resolved, the guide will be submitted to the Transformers Committee for ballot.

An extensive discussion was held regarding two revisions of the tables in C76.2. One was a major change of Table 9 to show that bushings will not prevent meaningful measurement of partial discharge in transformers. The other was a minor addition to Table 1 to make provision for increased creepage of 750 BIL bushings when applied to 242 kV transformers. It was decided to re-circulate these revisions within the subcommittee for review and comment before balloting in the full Transformers Committee.

A report by Tom Orrock on the effect of oil level upon temperature rise was discussed. It was decided that this information should be included in the proposed Bushing Application Guide. A task force of Bob Veich, Del Johnson, and John Easley agreed to draft such a proposal.

An Ad Hoc committee consisting of Gene Arjeski, Del Johnson, Rich Stockum and Loren Wagenaar agreed to consider plans and actions for standards covering bushings connected to gas insulated bus.

Since several small changes are being contemplated in C76.1 all members of the subcommittee were urged to study this document for other recommended changes.

3.3 Dielectric Tests Committee

Mr. L. S. McCormick reported as follows:

I. W.G. on Partial Discharge Tests on Transformers

The Working Group met on Monday, March 17, 1980, at 10:15 AM with 17 members and 18 guests present.

The minutes of the meeting at Houston, Texas were adopted as written.

Mr. R. Malewski resigned from the Working Group and the Task Force for Accoustic Detection and Location of Partial Discharges. He will be replaced by Mr. G. Vaillanscourt.

Mr. M. Daniels, the Chairman of the Task Force for Accoustic Detection and Location of Partial Discharges, reported no progress in the work of the Task Force due to his relocation and change of employment. However, the Symposium has been organized for Tuesday, March 18, 1980, as scheduled.

Mr. C. Keil, the Chairman of the Task Force for Measurement of the Apparent Charge was unable to attend the meeting, but submitted a written report. It stated that virtually no progress has been made since October 1979 for the following reasons:

1. Acutran was unable to deliver Vogel type charge detectors within the proposed schedule.

2. There are still insufficient members on the Task Force to conduct a meaningful test program.

The discussion following this report indicated that several other manufacturers are considering their participation in the test program, but will make a final decision after reviewing the proposal for the test program. The proposal will be prepared and circulated to the members of the Working Group before the next meeting.

Messrs. R. Degeneff and G. Iliff, the remaining two members of the Task Force on RIV Measurements agreed to update the draft on "Partial Discharge Measurements - Radio Influence Voltage (RIV) Method" dated March 30, 1978 according to the conclusions of the April 3, 1978 meeting of the working group. The updated draft is expected to be completed by the end of June 1980.

II Working Group on Resonant Overvoltage

The meeting of the working group was held on Monday, March 17, 1980, at 08:00 AM with 9 members and 10 guests present.

The minutes of the Houston, Texas meeting were approved as written.

Hal Margolis discussed the AEP field tests and the single frequency analytical work being done to match the measured field data.

Charlie Honey commented on the instrumentation problems experienced by Florida Power and Light. F. P. and L. should be taking data in about six months.

Jim Gillies presented field measurement data taken while energizing the Lyons transformer. Wave forms with front times of 8 to 50 microseconds were observed.

Richard Muril discussed a plot of measured impedance vs. frequency for a 3 phase transformer and compared it to the amplification factor across the tap region of the same unit. The data indicated little correlation between terminal and internal frequency response.

Bob Degeneff presented a family of plots showing good agreement between terminal and internal frequencies. The two different conclusions point out two things:

1. Our understanding of the relationship between terminal and internal frequency response is not complete.

2. The hope of determining internal response characteristics from external measurements is quickly fading.

Bob Degeneff presented a brief review of the initial scope and subsequent accomplishment of the working group - with an eye to defining the group's direction in order to meet its initial scope.

The results of the subsequent discussion is as follows:

1. Compile all available field data in an effort to evaluate - front times, tail times, oscillating frequencies, and wave magnitudes. Jim Gillies has agreed to head this effort.

2. Study the fast front switching surges as one problem and the oscillatory type waves as another.

At this point time ran out. In the next few weeks the Chairman will be asking for assistance in looking at one of these three areas.

III Working Group on Dielectric Tests for HVDC Stressed Transformers and Reactors

The working group met on Monday, March 17, 1980, with five members and two guests in attendance. The entire meeting was given over to the discussion of the re-written draft of the working group report which is presently being balloted within the group. Comments on this draft are being encouraged from other groups and interested parties prior to being submitted for possible publication.

In addition to the report as it now stands, we are attempting to compile an appendix which will be a listing of dielectric test values for converter transformers and smoothing reactors which have been built previously or are in current production compared with the test levels as determined by the report.

IV Working Group on Revision of Dielectric Tests on Distribution Transformers

The working group met at the Cascade Meeting Center in Colonial Williamsburg on March 17, 1980 with 12 members and 6 guests present.

Due to a work assignment change John Borst has resigned from the working group and Roger Ensign has joined the working group. Present membership is 18.

The minutes of the October 29 meeting in Houston were approved.

The following items were discussed:

1. Chuck McMillen's proposal to make impedance tests mandatory on distribution transformers and the consequent reduction in low frequency test levels. He was unable to prepare the proper proposal to address this subject at this meeting. He will prepare the proposal and forward it to the working group for comment prior to the next meeting. He will discuss impulse tests on HV windings and on LV windings; also he discusses the adequacy of a 2.5 times normal line to ground voltage test for distribution transformers on both solidly grounded and ungrounded systems. Discussion at this meeting indicates that a test of 2.5 times normal line to ground voltage may be adequate for solidly grounded systems, but that it probably would not be adequate for ungrounded systems.

2. Ed Adolphson raised the question as to the need for an appendix in the Impulse Test Guide with information relating specifically to Distribution Transformers. Because of the low impedance of some distribution transformer windings and because of failure detection methods used in distribution transformer manufacturing, additional information in the guide would be desirable. Mr. McMillen agreed to prepare this information for submission to the working group on a ballot prior to our next meeting.

3. The subject of phase to phase clearances on three phase distribution transformers will be resolved thru a ballot of the working group members. The ballot will propose the elimination of the word power in the title of Table 6 of the new ANSI C57.12.00 Standard. The title would then read "Minimum Phase to Phase Insulation Levels for Three Phase Transformers". (This change would result in the same phase to phase test levels for distribution transformers where they

V Working Group on Revision to Dielectric Tests

The working group met at 3:00 PM on Monday, March 17, 1980, with 26 members and 29 guests present.

A proposal for Shunt Reactor Dielectric Tests was received from S. L. Foster. His proposal included the following:

1. Add a switching surge test as a routine test.

2. Change the turn-turn test to consist of one of the following:

   a. 105% normal voltage for 8 hours or
   b. 120% " " " 4 " "
   c. 150% " " " 1 "

The tests could be made 3 phase or single phase and might be made at an increased frequency.

Failure detection would be by partial discharge measurements or sonic monitoring and combustible gas measurements before and after the test.

The purpose of these changes is that a one minute test will not detect a turn-turn failure in a shunt reactor. The change in impedance is not enough different due to a shorted turn to use this as a failure criteria.

There appeared to be some interest in the proposal by the W. G. and guests and we will continue and write some change to C57.21 along these lines. A question was asked if there is any factory test experience using the gas in oil measurements to detect a turn-turn failure. The method has been used but there did not appear to be any available experience to verify the method.

G. Iliff provided a report on the results of the ballot by the Transformer Committee on Draft #6 of ANSI/IEEE C57.12.14.

"Dielectric Test Requirements for Power Transformers for Operation at System Voltages from 115 kV through 230 kV".

117	ballots sent
68	Approval
23	No Vote
8	Approval with comment
5	Did not approve the document
12	" " " sections of the document

It was voted in the W.G. to reballot the Transformer Committee with Draft #7. The motion to reballot passed by a very narrow margin.

VI Task Force for Revision of Impulse Test Guide

The Task Force met Sunday, March 16, 1980 from 3:00 - 5:00 PM at the Colonial Williamsburg in Williamsburg, VA. Six members were present.

All the editorial comments of Draft #3 were reviewed (copy of Draft #3 summation attached).

The one negative ballot listed and another negative just received March 14 were tabled until all the editorials were attended to. The majority of these comments will be included and integrated into Draft #4. These were reviewed on a one for one basis.

The one negative ballot concerning impulse testing of distribution transformers was then addressed. Discussion of this subject resulted in a concensus of opinion within the task force that: the W.G. of Dielectric tests on distribution transformers, chaired by Mr. W.R. Farber will be asked to submit a section on impulse testing of these units if it is their desire. This will then be ballotted in their W.G. and up through the subcommittee and main committee to then be an appendix of the guide. Mr. Ed Adolphson has discussed this with Mr. Farber.

The negative ballot received last Friday, March 14, was then addressed point by point. Some of the negative ballot concern had already been addressed by previous editorial changes regarding new digital recording and comparison techniques. Some rewording where the word oscillogram and oscilloscope is used was necessary to resolve this. The wording has been changed to recording device.

It is the concern of the task force that when these changes are incorporated into the guide that the main committee should now be ballotted with Draft #4. Such a request is now made.

The last item of business was a discussion concerning the degredation on insulation strength due to water and gas in transformers particularly those of greatly reduced BIL's. No action was taken on this item.

The meeting was adjourned.

Dry Type Transformers Subcommittee

The Subcommittee met at 11:45 a.m., March 18, 1980, with 16 members and 6 guests present.

During the Fall Meeting in Houston we discussed two items in regard to the revision of C57.94. Subsequent to that meeting IEEE Counsel reviewed the proposed footnote pertaining to "cost of losses" and recommended against including it. This permitted transmittal of the document to ANSI since the suggested change in title, from Guide to Recommended Practice, was accepted at our last meeting. This revised document, "Recommended Practice for Installation, Application, Operation, and Maintenance of Dry-Type General Purpose, Distribution, and Power Transformers," is being balloted now in ANSI C57.

Status of our W.G. activities is as follows:

Specialty Transformer Insulation Requirements W.G. chaired by Gordon Bell has been advised that the reaffirmation of IEEE 259 would be extended for only one year rather than five years because it was in conflict with various IEC documents. The IEC documents that were cited are primarily concerned with testing and obtaining thermal indexes of insulation materials rather than complete systems as in IEEE 259. Mr. Bell is working to overcome this objection.

Thermal Evaluation W.G. chaired by Dr. George Bowers met on March 17 with 9 members and 11 guests present. The editorial changes in proposed IEEE 65 resulting from the W.G. and Subcommittee action reported at our last meeting have been made and and identified as Draft 13 which is now ready for balloting in the Transformers Committee. During the meeting a question was raised as to whether or not this thermal evaluation procedure would cover cast coil dry-type insulation systems. Such systems have not been specifically considered in the development of the IEEE 65 procedure. It was the consensus of those present that the W.G. chairman and Subcommittee chairman generate a project proposal for developing an appropriate thermal evaluation procedure for cast coil type insulation systems.

Dielectric Problems W.G. chaired by Don Kline met on March 17 with 10 members and 14 guests present. Liaison with the Impulse Test Guide Revision Task Force is continuing. The results of the W.G. ballot on Draft 1 of the Transient Voltage Analysis Guide were reviewed and discussed. A meeting has been scheduled for May 6 to generate Draft 2. Mel Manning reviewed the responses to a survey on the subject dry-type transformer partial discharge testing. Additional survey forms are being distributed.

Revision of Loading Guide C57.96 W.G. chaired by Bill Mutschler met on March 17 with 10 members and 8 guests present. The present guide was reviewed. A majority of the text appears to be satisfactory. Constants that are now in the guide for loading when winding rises are less than guarantee and when ambients are other than 30°C were questioned; additional data is required. It was the consensus of the group that additional published data is needed before typical Arrenhius plots can be agreed upon for 80°C, 115°C, and 150°C temperature rise ratings. In the interim, a questionnaire will be prepared and distributed requesting feedback on the suitability of the equations and constants in the present guide.

In the category of new business there was an initial discussion of possible needs for technical standards in relation to cast coil dry-type transformer insulation systems. Those present were requested to provide the Subcommittee chairman with their opinion of the need for additional technical standards on this subject and whether or not they would be in a position to actively participate.

Also under new business there was a short discussion of the need for guide information for loading when the harmonic factor exceeds the standard 5%. No specific action was taken pending coordination with others interested and involved in this general subject.

Mr. Kline reported that IAS Project P685, "Underground Mining Power Distribution Centers," was not yet complete; but the plan was to incorporate; by reference, the recently published Dry-Type Transformer Standards C57.12.01 and C57.12.91.

3.5 Instrument Transformers

MINUTES OF IEEE INSTRUMENT TRANSFORMER SUB-COMMITTEE MEETING HELD 3/18/80 AT WILLIAMSBURG, VA.

Present Members	Guests	Copies to
J. W. Walton	B. F. Allen	J. C. Arnold
L. R. Smith	R. B. Shores	E. Basso
P. P. Falkowski	E. J. Huber	C. F. Burke
R. C. Thomas	C. R. Willmore	E. E. Conner
R. B. Stetson	J. R. Woodall	D. L. Hillhouse
		H. R. Lucas
		R. D. MacKimmie
		R. A. Magill
		S. C. McCollum
		J. E. Smith
		F. J. Levitsky

The meeting was called to order at 8:18 AM, chairman Thomas presiding.

The minutes of the last meeting (held 10/30/79 at Houston, Texas) were approved as distributed.

There was no report of the Switchgear and Transformer Working Group on Instrument Current Transformers for A.C. High Voltage Circuit Breakers.

Mr. Thomas reported on the Transformer Committee ballot on the proposal to issue a supplement to C57.13 - 1978, changing the note under Table 3. Ballots returned show:

Approved	50
Approved with comments	4
Not approved	5
Not voting	5

Adverse comments indicated dissatisfaction with need to refer to C37.074, confusion resulting from "terminal to terminal" phraseology and a desire to see the higher set of test values in C57.13. The Sub-Committee decided to continue to require reference to C37.074 for most material pertaining to wet switching surge testing of these CT's, pointing out that CT's in Table 3 will primarily be used with power circuit breakers and that C37.074 is the basic document. The Committee agreed to remove the "terminal to terminal" phrase, pointing out that this phrase is in C37.074. After considerable discussion, the Sub-Committee proposed the following coverage in Table 3 to replace the proposed ballot.

Wet Switching Surge Crest∓ (kV)	
Circuit breaker closed	Circuit breaker open (Internal only)
825	900
1175	1300
1425	1550

Mr. Thomas will formalize this recommendation and send out a concurrent ballot to the Transformer Committee and the Instrument Transformer Sub-Committee.

Mr. Thomas distributed Draft #2 of Detection of Partial Discharges (Corona) and the Measurement of Apparent Charge in Instrument Transformers. This draft was reviewed and the Sub-Committee made a number of changes in the draft.

Mr. Thomas had received letters from Mr McNutt stating that his Standards Project Authorization Requests (for preparation of a new standard on "Detection and Measurement of Partial Discharge (Corona) in Instrument Transformers" and for revision of C57.13) have been circulated to PES Standards Coordinating Committee. On the first item the Transmission and Distribution Committee (Mr. J. Lapp designated) requested coordination. On the C57.13 item, coordination was requested by:

PSIM Committee (via John M. Carr)
Power Systems Relaying Committee (via J. W. Walton)
Surge Protective Devices Committee (via W. R. Ossman)

Mr. R. B. Walton provided a copy of his 3/10/80 letter to Mr. Miller, proposing requirements on specification of kneepoint voltages on CT's. A copy is attached.

Mr. R. B. Shores, Chairman of HVACC Sub-Committee, reported that the proposed addendum to C57.13 covering Conformance Test Procedures had been referred to C57 for letter ballot. Mr. Shores commented that since the material was sponsored in IEEE, the material should be balloted in the IEEE Instrument Transformer Sub-Committee, the Transformer Committee, and then by C57. Mr. Shores provided copies of the 10/17/79 draft. The Sub-Committee reviewed this draft and made a number of changes. Mr. Shores will send 150 copies of the revised draft to Mr. Thomas for concurrent balloting of the IEEE Instrument Transformer Sub-Committee and the Transformer Committee. (Mr. Thomas will contact negative voters prior to re-balloting).

The Sub-Committee concurred that in proposed ANSI/IEEE C57.13.1 (Guide for Field Testing Relaying Current Transformers) polarity markings should be handled as "H", etc. rather than H1. This represents a Sub-Committee decision that C57.13 should use subscripts in polarity markings, as in other C57 documents. Mr. Dutton (Chairman of IEEE delegation to ANSI C57) has voted affirmatively on ANSI/IEEE C57.13.1, contingent on the use of subscripts.

The meeting adjourned at 2:30 PM, having recessed from 1:30 to 2:15 for lunch.

Respectfully submitted,

Ralph B. Stetson

RBS/dc

Attachment

NOTE: Since the meeting, the Secretary has investigated certain items and found:

1) American National Standard Specifications for Radio Noise and Field Strength Meters, 0.015 to 30 Megacycles/Second, C63.2 (R1969) is apparently about to be superceded by C63.2 - 1979, same title.

2) NEMA Publication 107 - 1976 Methods of Measurement for Radio Influence Voltage of High Voltage Apparatus is the current document.

3) Mr. C. R. Willmore does not propose to send the Conformance Test Procedures draft to C57 until this draft is approved by the IEEE Standards Board. The writer, as Chairman of ANSI C57.13 Sub-Committee, will elicit comments from that Sub-Committee.

4) The writer comments that the material 4.04 and 4.05 on page 9 and 10 of the Detection of Partial Discharges etc. could be clarified by changing to read:

"4.04 TRANSFORMER CONNECTIONS

Various transformer test connections are shown in Figure 2. Figure 2A may be used for both CT's and VT's. Figures 2B, 2C and 2D are used only for VT's. In Figure 2A, 2B and 2C, the test voltage E_t is applied as shown. In Figure 2D the test voltage E_t is induced between H_1 and H_2. The arrangement shown in Figure 2D eliminates the need for a separate high voltage source, by exciting the low voltage winding and inducing E_t in the high voltage winding.

"4.05 SIGNIFICANCE OF VARIOUS TEST CONNECTIONS

The various test connections shown for voltage transformers produce different distributions of voltage stress. Analysis of test results on various tests connections may indicate the location of ionization. Voltage stresses during the test can be compared with stress at normal operating conditions. The analysis must be based on the construction of the tramsformer being tested.

For example, a voltage transformer with two fully insulated primary terminals, suitable for operation line-to-ground at rated primary voltage (100% excitation) might be constructed with a two-section primary in which the inner diameter of each section represents the midpoint of the primary. If test voltage E_t is equal to rated primary voltage, then the ratio of test voltages to operating voltages will be as follows:

Versus Application*	Fig.	H_1 to Grd.	H_2 to Grd.	H_1-H_2	Mid-pt to Grd.
L-L	2(A)	1.732	1.732	0.0	3.464
L-L	2(B)	1.732	0.0	1.0	1.732
L-L	2(C)	0.0	1.732	1.0	1.732
L-L	2(D)	0.866	0.866	1.0	0.0
L-G	2(A)	1.0	1.0	0.0	2.0
L-G(H_2 to Grd)	2(B)	1.0	1.0	1.0	1.0
L-G(H_1 to Grd)	2(C)	1.0	1.0	1.0	1.0
L-G	2(D)	0.5	0.5	1.0	0.0

* At rated primary voltage across the primary coil"

Stearns-Roger
ENGINEERING CORPORATION

March 10, 1980

Mr. Joe Miller
Long Island Lighting Co.
175 E. Old Country Road
Hicksville, NY 11803

Dear Joe:

While I agree generally with the approach adopted by Ed Wentz & Company for specifying the performance of relaying CT's, both air gapped and closed iron, I feel that the impact on industry will be too great with so great a change of specifying technique. Also, with the little time available for submitting proposals to the Instrument Transformer Committee, I am proposing that, at present, our requirements be related more to the present specifying techniques as follows:

Kneepoint Voltage (closed iron and air gapped CT's)

"Kneepoint Voltage should be not less than 80% of the class 'c' rated voltage for 10% error where the excitation curve is expressed on log-log paper with voltage on the vertical axis and excitation current is on the horizontal axis and Kneepoint voltage being the point at which a straight line inclined 30^{0} to the horizontal axis tangentially touches the excitation characteristics."

The figure of 80% is debatable! I have chosen to go high since some manufacturers will require reductions whatever we specify. The angle of 30^{0} was chosen since it is more compatible with some of the high magnetizing characteristics of air gapped CT's and even some poor closed iron CT's that I know of. We still have to control excitation current, and to this end I propose the following.

4500 CHERRY CREEK DRIVE • P.O. BOX 5888 • DENVER, COLORADO 80217 • PHONE (303) 758-1122 • TWX 910-931-0453 TELEX 045-540

"Closed iron and air gapped CT's shall, in addition to meeting the 'c' rating requirements, shall meet the requirements of the minimum metering accuracy unless otherwise specified".

Residual Magnetism

Minimum residual magnetism should be specified for both closed iron and air gapped CT's. This should be related to a specific test method, presumably following d.c. energization up to a voltage relative to the kneepoint voltage.

The above is food for thought. I shall not be able to attend the next meeting in Philadelphia, but will be interested to hear the outcome of your discussion.

Sincerely,

STEARNS-ROGER ENGINEERING CORPORATION

J. W. Walton

JWW/dgm

cc: C. M. Gadsden

3.6 Insulation Life Subcommittee

The Insulation Life Subcommittee met yesterday, March 18. Attendance was 27 members, 3 alternates, and 46 guests, for a total attendance of 76. The minutes of the previous meeting last fall in Houston were accepted without correction.

The first working group reporting was the working group on loading, Ron Olsson - Chairman. They met Monday, March 17, with 24 members and 22 guests. Loading Guide revisions ANSI C57.91 and .92 are now being balloted in ANSI. We expect completion this Summer and ready for publishing in the Fall. John Dutton informed us that balloting on revision of C57.12.00 we approved the proposal that altitude and low temperature corrections of loading formerly in C57.12.00 are to be placed in our latest revisions of C57.91 and C57.92 as their most logical placement. Review of the loading guide revisions reveal that placement in C57.91 was included. ANSI C57.92, however, does not have it; but it appears it can be easily added before publication as an Appendix. In checking with Charlie Willmore and Vince Cardella, it does not appear to present any serious problems to accomplish the addition to C57.92.

We still do not have a replacement for Don Duckett as Chairman of the Task Force on Reaffirmation or Revision of the Current-Limiting Reactor Loading Guide. We are trying to contact a Mr. Mark of the Trench Company that manufactures most of this type of apparatus.

The Loading Guide Working Group has formed a task force to undertake a revision of the Regulator Loading Guide. We thank Harold Mills for volunteering as the Chairman and others who have volunteered to help Harold. We also want to thank Al Wurdack of McGraw Edison who, on his own, prepared a preliminary first draft using parts of C57.91 and C57.92 and the present regulator guide. This should help the task force to rapidly accellerate their work.

The task force preparing a new guide for transformers above 100 MVA is hard at work under Dave Douglas. Draft #2 of the proposal has been completed and is circulating through the task force for comments. Olin Compton presented a composite load profile of various categories of loads from utilities in the Eastern half of the USA. Dave Truax and Frank Heinrichs presented a proposed formula method of dealing with the risks associated with loading beyond nameplate. It is quite intriguing and deserves further study by the task force. The task force also formed four subtask forces to continue work on parts of the guide including one task force to prepare a paper for presentation at a

Power Society meeting. This will be done to give the philosophy and content of this guide wider exposure in the industry. The task force also received from Bill McNutt additional rewording on new parts of the guide.

Al Wurdack, Chairman of the Thermal Evaluation of Oil-Immersed Power and Distribution Transformers, reported that their meeting March 18 had 7 members and 15 guests. He reported the main item of business was the revision of IEEE Standard Project 345, The Thermal Evaluation Test Procedure for Distribution Transformers. There have been proposals to add words on the effect of gas bubbles on insulation life and reference to dissolved gas analysis. After some discussion, it was agreed that these subjects should be held for inclusion in a future revision, and that we should proceed with reaffirmation of the document as is. A ballot in the working group and subcommittee will be prepared to determine if this proposal is acceptable.

A proposal was made at the last meeting that the working group undertake a project on operation of oil-immersed transformers in very cold weather. The response for volunteers on this project has been nil, so the proposal has been dropped.

Bob Veitch, Chairman of the Thermal Tests Working Group, reported his working group had 16 members and 12 guests at their meeting Monday. The entire meeting was devoted to a review of Draft #2 of a new proposed guide for performing overload heat runs. It was prepared by Bob Grubb, chairman of the task force. The scope of the guide emphasizes this is a guide and not a standard, and its primary aim is to provide a more uniform method of determining the accuracy of equations in the loading guides for estimating temperatures in power transformers during transient load conditions. There was not time to review all of the second draft in the meeting, but they are planning to complete the review individually and send proposed changes to Bob, so Draft #3 will be ready before the Fall meeting.

That concluded the Working Group reports.

The question came up relative to the procedure for approval of a task force or working group paper for presentation at a Power Society meeting, because of the plans for just such a paper by the Task Force preparing the Above 100 MVA Loading Guide. Not knowing of any rules in the Transformer Committee, but to be sure we will know where the blame should be placed if someone should question the imprimature, the subcommittee gallantly voted unanimously that approval be limited to the task force level, as the most criminally suspect. It also was felt that it would help them meet the proposed deadline for presentation at the next Winter Power Society Meeting.

Olin Compton asked attendees for any loading guides prepared in the past, both foreign or domestic to help him and Jan Ottevangers in their new tasks of preparing for the next revision of C57.91 and C57.92 loading guides.

The meeting concluded with an excellent presentation by Dave Douglas explaining in detail the new approach taken in preparing the loading guide for transformers above 100 MVA. We thank Dave, again, for his clear and informative talk.

3.7 Insulating Fluids Subcommittee

The Insulating Fluids Subcommittee met on Monday and Tuesday morning with 20 members and 14 guests in attendance.

We gegan work on Project P-799, Handling and Disposal of Askarel. Preparation of the first draft has begun. Mr. Peter Niemiec of the USEPA Enforcement Department is serving with our subcommittee as a consultant on this project.

Guide #76, Acceptance and Maintenance of Transformer Askarel in Equipment, is up for reaffirmation. While the need for this document is phasing out, it still has a function at this time. Therefore, the subcommittee has approved reaffirmation of Guide #76 with the addition of the following preamble:

> "IEEE Standard 76-1974 IEEE Guide for the Acceptance and Maintenance of Transformer Askarel in Equipment" is being re-issued at this time for the convenience of those groups who currently have askarel filled transformers in service and who expect to continue to use them until some future date. The information contained in this document is considered to be of value to the industry until such time as all askarel filled transformers have been removed from service.
>
> Polychlorinated are toxic substances under Federal Regulation 40CFR Part 761. These regulations must be consulted and adhered to in all cases. No part of this guide may be used in contravention of 40CFR Part 761".

We recommend approval by the Transformers Committee.

Under Project P637 the subcommittee has approved a draft of the "Guide for the Reclamation of Insulating Oil and the Criteria for Its Use" by letter ballot and we now recommend to the Transformers Committee the approval of a letter ballot for the main committee.

We also initiated a task force to review the area of other insulating fluids for the purpose of recommending to the subcommittee whether any other documents are required.

3.8 Performance Characteristics Subcommittee

The Performance Characteristics Subcommittee met March 18, 1980 in the Cascades at Colonial Williamsburg Motor House in Williamsburg, Virginia with 28 of 46 members present, 2 members represented, and 41 guests, totaling 71 attending.

Minutes of the October 30, 1979 meeting in Houston were approved.

Reports of Working Groups were received.

Working Group on Transformer Reliability

The Working Group met March 17 with 18 members and 18 guests present. A January ballot of the glossary of terms received 10 negative votes with most comments indicating desire for abbreviating and simplifying the glossary. An ad hoc task force assembled to review the glossary on January 8 in Detroit, and a second ballot on the revision was conducted in March with 2 negative votes. The task force will meet again in Montreal to revise the glossary draft for a third ballot before the next Committee convocation. Work will also be done on guide sections for population reporting and failure reporting to be balloted concurrently with the glossary.

Chairman Harold Light is pursuing the possibility of a short tutorial on transformer reliability for Working Group members and others interested which may develop into a Committee seminar. Harold is also encouraging Working Group members to attend a Reliability, Availability, and Maintainability Engineering Conference in Madison, Wisconsin April 28-30 at which one member, Richmond Johnston, will present a paper. The first day of the conference will be devoted to a reliability tutorial.

Working Group on Qualification of Transformers for Class 1E Application in Nuclear Power Stations

The Working Group met March 17 with 5 members and 3 guests present. Chairman Leo Savio announced the results of the February ballot of P638/D8 in the Transformers Committee:

Approved	58
Approved with comments	24
Not approved	8
No objection	8
Not returned	16
Total issued	114

The meeting was devoted to review of the negative ballots. The allotted time expired before the task could be completed, and no suitable time could be found for further work at the Williamsburg meeting. The chairman will summarize the comments of the affirmative ballots and discuss with the Working Group at a meeting in May.

Working Group on Transformers Connected to Generators

The Working Group met March 17 with 10 members and 16 guests present. Len Stensland presided in the absence of Chairman Dean Yannucci.

At this meeting, John Woodall reviewed the initial draft of a guide section on the selection of the low-voltage rating of the generator step-up transformer. A second draft incorporating comments of the members will be prepared. Ashwin Parikh displayed exhibits showing the effect on generator reactive capability of the high- and low-voltage ratings and impedance of the generator step-up transformer. Harry Chen presented typical fault-current decrement curves for faults at the generator bus and low-voltage side of the unit auxiliary transformer.

Attention was devoted to the nomenclature for designating transformers connected to generators. The term generator step-up transformer is preferred to main power transformer or unit transformer, and the term unit auxiliary transformer is preferred to unit auxiliaries transformer. These preferences are at variance with IEEE 100-1977 and IEEE 505-1977, and contact will be made with the groups responsible for these standards to suggest a change of the terminology.

Working Group on Short-Circuit Duration

The Working Group met March 17 with 14 members and 20 guests present. Since the last meeting, Chairman Bill Griffard has circulated for comment two revised drafts of a brief guide on overcurrent protection of transformers. The second of these will be balloted jointly in the Working Group and Subcommittee in the next few weeks.

The Task Force on Impressed Voltage for Short-Circuit Test has not reported any progress to date.

Working Group on Loss Tolerances and Measurements

The Working Group met March 17 with 6 members and 16 guests present. John Borst has resigned the chairmanship because of a change in his work responsibilities, and Dave Takach presided.

At its meeting, the Working Group amended the equation for instrument phase-angle error correction and established criteria for the conditions which require the correction to be made. A ballot of this proposal will be conducted shortly.

Although an expected analysis of the error in no-load loss measurement caused by wave distortion has not yet been developed, the Working Group will continue to pursue this matter.

Other Business

Jim Arnold discussed a question recently raised with him about the temperature to which excitation losses are referred. Reports indicate that some manufacturers are making loss corrections for core temperature although no procedures for such correction exist in the standards. A survey will be made of manufacturers to determine what practices are being followed.

Stu Lauber presented a revised proposal for more precise wording of the ratio tolerance in paragraph 9.1 of C57.12.00. This proposal had been mailed previously to Subcommittee members. Discussion indicated that further revision is needed, after which a ballot of the Subcommittee will be conducted. Project authorization will be requested.

By letter to the chairman last October, Dean Yannucci suggested that a new standard for semiconductor rectifier transformers be developed possibly based on the withdrawn standard C57.18-1964(R1971) for mercury-arc rectifiers. No interest in taking up this task was evident, and no volunteers came forward.

No new business was brought to the floor.

3.9 Recognition and Awards

No Report.

3.10 Transformer Standards Subcommittee

Mr. L. R. Smith reported on the activity of the Working Group on step voltage regulators with Jim Harlow as Chairman. The Working Group has gotten organized and met on Monday, March 17, 1980. They expect to have the first draft out to the Working Group very shortly.

The status of the various projects is attached as Appendix A.

APPENDIX A

The following is a summary of the activities and status of the various Subcommittee projects.

My records have the chairmen as listed below:

John Easley	Bushing
L. S. McCormick	Dielectric Tests
B. F. Allen	Dry Type Transformers
L. W. Long	Performance Characteristics
H. A. Pearce	Insulating Fluids
C. J. McMillen	Insulation Life
R. C. Thomas	Instrument Transformers
T. K. Hawkins	West Coast

For the record, I would like it known that I had responses to my request for updates of project status from each of the Subcommittee Chairmen. Even though one or two were handed to me in Williamsburg, I did get them and I want to express my thanks to the above gentlemen.

Project Status:

PC57.21 - Working Group on Revision of Dielectric Test. Will begin revision soon. Need Project Authorization Number.

P21 - Revision of ANSI C76.1.

New project. Preliminary stage in Subcommittee.

P24 - Revison of ANSI C76.2

New project. Preliminary stage in Subcommittee.

P65 - Thermal Evaluation of Ventilated Dry-Type Power and Distribution Transformers.

Draft #12 reached general agreement in Houston. To be balloted in Transformer Committee.

P76 - IEEE Guide for Acceptance and Maintenance of Transformer Askarel in Equipment.

Reaffirming.

P93 - Transformer Impulse Tests (C57.98)

Draft #3 being balloted in Dielectric Tests Subcommittee.

P238 - Revision of ANSI C57.21. Correction of Loss Measurements on Shunt Reactors.

No report of status change.

P252 - Short Circuit Test Guide

Reported ready for print with C57.12.90.

P259 - Insulation Systems for Specialty Transformers

Not reaffirmed by Standards Board at 12/79 meeting. Reason not known. Standard extended for one year.

P262 - ANSI C57.12.90 Test Code for Liquid-Immersed Distribution, Power and Regulating Transformers.

BSR approved 10/30/79. Galley proofs out on C57.12.90.

P262D Short Circuit Test Guide, will follow C57.12.90 in publication as appendix.

P262E - Revision of C57.12.90, Less Tolerances

No reported status change.

P283 - Oil Immersed Transformers (10,000 kva and Larger and 69 kV to 287 kV Voltage Rating. Installation of.

Passed ANSI C57. Being sent on to BSR.

P345 - Review of IEEE Std. 345-1972 (C57.100) Test Procedures for Thermal Evaluation of Oil-Immersed Distribution Transformers.

Ballot for Transformers Committee still in progress.

P462 - ANSI C57.12.00 General Requirements for Liquid-Immersed Distribution, Power and Regulating Transformers

Galley Proofs returned to printer

P462C - Revision of C57.12.00 Loss Measurement.

Work continues - changes in work assignments and locations for principal participants may delay project. This Task Force is to become a working group. Adcom voted this status 3/17/80.

P507 - Revision of C57.92 Power Transformer Loading Guide

Now being balloted in ANSI C57

P513 - Seismic Guide for Power Trnsformers and Reactors

Balloted by the Transformers Committee. Negative ballots resolved. Revised draft sent to Transformers Committee for comment. If no negative comments, it will be forwarded to Standards Board.

P514 - Guide for Installation of EHV Oil-Immersed Transformers 345 kV and above.

Passed C57. Will be sent on to BSR

P523 - Guide for the Control of Transformer Sound

No report of status change.

P545 - Recommended Practice for Partial Discharge (corona) Test for Transformers

No report of status change

P547 - Revision of ANSI C57.94. Guide for Application, Installation and Maintenance of Dry-Type Transformers

Transformers Committee changed "Guide" to "Recommended Practices". Document now being balloted in ANSI.

P631 - Revision and Reaffirmation of C57.91. The Distribution Transformer Loading Guide.

Being balloted in ANSI.

P637 - Proposed Guide for the Reclamation of Insulating Oil and the Criteris for its Use.

Should be ready for approval by Subcommittee.

P638 - Standard for Type Tests on Class IE Transformers for Nuclear Power Generating Stations.

Draft #8 has been balloted in Transformers Committee. Report of results is expected in Williamsburg.

P670 - Switchgear and Transformers Working Group on Instrument Transformers for High Voltage Circuit Breakers.

No report of status change.

P673A - Shunt Reactor Audible Sound Test Code Addition to C57.21

No report on status change.

P673B - Shunt Reactor Vibration Test Code Addition to C57.21

No report on status change.

P681 - ANSI C57.12.01 General Requirements for Dry-Type Distribution and Power Transformers

Printed by IEEE and now available.

P682 - Standard TEst Code for Dry-Type Distribution and Power Transformers

Printed by IEEE and now available.

P731 - Revision of Guide for Loading Current Limiting Reactors, C57.99

No report of status change

P732 - Revision of Current Limiting Reactor Standards, C57.16

Balloting complete in Working Group. D. A. Duckett is resigning. Working Group is looking for a new chairman.

P733 - Revision of Shunt Reactor Standard, C57.21

Approved by IEEE Standards Board. Edited copy sent to C. R. Willmore in December, 1979. Being balloted in ANSI C57.

P740 - Dielectric Test Required for Power Transformers for operation at System Voltage from 69 kV through 230 kV.

Draft #6 balloted in Transformers Committee. Results to be reported in Williamsburg.

P745 - Guide for Conducting a Transient Analysis for Dry-Type Transformers

Balloting of Draft #1 in Working Group is completed.

P765 - Guide for Loading Transformers above 100 MVA

Draft #1 is in progress.

P757 - IEEE Guide for Loading Power Apparatus Bushings

No report of status change.

P784 - Coordination of Overcurrent Protective Devices with Power Transformers

Draft #1 balloted in Working Group and Subcommittee with 10 negative ballots. Revision has been circulated. To be reported in Williamsburg.

P785 - Transformers Connected to Generators

No report of status change.

P786 - Transformer Failure Reporting and Reliability Analysis

No report of status change.

P787 - Transformer Loss Measurements and Tolerances

No report of status change.

P799 - Guide for Handling and Disposing of Askarels

Work is underway in Subcommittee.

P800 - Bushing Application Guide

In preliminary stage in Subcommittee.

P801 - Recommendation for Revision to C57.15. Requirements, Terminology and Test Code for Step-Voltage and Induction-Voltage Regulators.

Draft #1 prepared.

In the future, it would be very helpful in my keeping up-to-date on the status of projects if each Subcommittee chairman would send me a copy of correspondence dealing with any change in status of projects. For instance, letters transmitting documents to the Standards Board, letters of transmittal of ballots to Working Groups, Subcommitte, etc.

The Working Group for revision of C57.15, on Regulators, which is assigned to the Standards Subcommittee is progressing very well under the helm of J. H. Harlow. They have the 1st draft under consideration in the Working Group.

According to my records there are 42 active projects underway in the Transformer Committee. This does not include the several which are in the PAR stage.

Very truly yours,

Leonard R. Smith

Leonard R. Smith, Chairman
Standards Subcommittee

3.11 West Coast Subcommittee

Mr. T. K. Hawkins reported on the following.

The West Coast Subcommittee with eleven members and one guest present met on January 15 and 16 in Los Angeles, one week following the 1980 San Gorgonio earthquake which measured 3.5 on the Richter scale.

The following items are of note:

P283: "Guide For Installation of Oil Immersed Transformers (10,000 KVA and larger and 69KV to 287 KV Voltage Rating)"

This guide is now numbered C57.12.101. It has been approved by the Transformers Committee and by ANSI.

P514: "Guide for Installation of Oil Immersed EHV Transformers, 345 KV and Above".

This guide, referred to in ANSI letter ballot C57/335, has been approved by the Transformers Committee and by ANSI.

P513: "Seismic Guide For Transformers and Reactors"

This guide has been balloted by the Transformers Committee. All negative ballots have been resolved and the revised draft has been sent to the membership of the Transformers Committee for comment. Any comments are to be returned by March 14, 1980. If there are no negative comments the document will then be sent to the Standards Board.

"Consolidation of Installation Guides".

The Working Group for consolidating the installation guides covered in P283 and P514 will have the first draft of this consolidated guide ready by June 1980.

"Fire Protection Guide".

The Working Group is preparing a scope and first draft of this guide to be completed by June 1980.

The next meeting of the West Coast Subcommittee and the Working Groups is scheduled for June 11, 1980 in San Francisco. No significant seismic activity is anticipated at that time.

4.1 PES Standards Coordinating Committee

Mr. W. J. McNutt reported as follows.

The PES Standards Coordinating Committee met on February 4, 1980 at the IEEE Winter Power Meeting. Items discussed were as follows:

1. Mr. Irving Howell has been appointed as the new chairman of the IEEE Standards Board, succeeding Mr. Joel Koepfinger.
2. Problems with very slow publication of new and revised IEEE standards were discussed. A proposal was made to review the operation of the IEEE Standards Publication Office.
3. The implementation of a new schedule of ANSI Service Fees which would be assessed to individual and corporate members of ANSI was discussed. This is being done to overcome an operating deficit which is now experienced by ANSI. Each member of the Council was asked to investigate the impact of this assessment on members of their committees, so I solicit your inputs if you feel an impact.
4. IEEE 268-1979, a Metric Practice Standard, has now been published. Simultaneously ASTM has been preparing a similar document, ASTM E-380. Both have been submitted to ANSI, who insists that the two be resolved into a single document. This creates a problem, since ASTM is unwilling to maintain a standard on a joint basis with another organization.
5. The third revision of the IEEE Dictionary, IEEE-100, is now underway. The terms and definitions which must be reviewed by each technical committee will be sent out within the next two months.
6. A new IEEE Standards Board Submittal Form, SF 2-1A (9/79), has been prepared and distributed. It will be necessary for all technical committees to use this form when they are submitting a document for Standards Board approval. Since it contains a great deal more information than we customarily provided, I will ask the secretary to attach a copy to the Minutes, so that those of you who will be submitting standards documents can be aware of the material which must be provided. You may obtain a copy from me or from Elizabeth Perry at the Standards Office when you are ready to submit a new or revised standard.

In addition to items from the PES Standards Coordinating Committee meeting, I would like to report the following coordination activity for 1979.

(12) PAR's from the Transformers Committee circulated for coordination. (10) submitted to the IEEE Standards Board and approved.

(39) PAR's from other technical committees received for coordination consideration. Coordination requested on (8).

We also accomplish coordination with ANSI committees through liaison membership, and I would like to mention that we currently have open positions on three committees: ANSI C68, Techniques for Dielectric Tests; ANSI C76, Apparatus Bushings; ANSI S-1, Acoustics. Anyone having an interest and wishing involvement in these areas should contact Joe Bonucchi or myself.

P.S. Form SF 2-1A 9-79 IEEE Standards Board Submittal attached in Appendix C.

4.2 ANSI C57 - Transformers

Mr. Dutton reported on C57 activities as follows:

The status of various standards is attached in Appendix B.

Loading guide C57.92 requires addition of altitude and low temperature corrections. There were no questions.

Protective Devices Committee requested note be added to C57.12.00 regarding transformer protection coordination curve. C57.12.92 will not contain a curve. A new document is in progress to cover the material required by the Protective Devices Committee and will be note in C57.12.92.

4.3 ANSI C57.12.1 - Power Transformers IEC Standards

No report. Mr. J. Dutton has been approved as the representative replacing L. Aicher.

4.4 ANSI C57.12.2 - Distribtuion Transformer Subcommittee Task Force - Pressure Relief and Tank Withstand Pressure

No activity.

4.5 ANSI C57.12.5 - Dry Type Transformers

No activity.

4.6 ANSI C57.13 - Instrument Transfomers

Refer to 3.5 above.

4.7 ANSI C57.15 - Voltage Regulators

No activity.

4.8 ANSI C57.17 - Arc Furnace Transformers

No activity.

4.9 ANSI C57.21 - Shunt Reactors

No activity.

APPENDIX B

STATUS OF IEEE AND ANSI C57 BALLOTS

6/28/80

ANSI C57 BALLOT NO. / IEEE PROJ. NO.	BRIEF DESCRIPTION	IEEE STDS BOARD SUBM.	ANSI C57 COMM. SUBM.	ANSI BSR SUBM.	EDIT, TYPESET	PRTD.
335 P514	C57.12.12 (EHV Inst. Gd.)	C	C	C	C	
338 P462	C57.12.00-1979 (Gen. Requirements)	C	C	C	C	
339 ----	C57.12.21-1979 (Dist. Trans., rev.)	N/A	C	C	IP	
340 ----	C57.12.22-1979 (Dist. Trans., rev.)	N/A	C	C	IP	
341 P262	C57.12.90 (Test Code)	C	C	C	IP	
* --- P262d	Short-Circuit Test Guide (Appendix to C57.12.90)	C	C	C	IP	
342 P283	C57.12.11 (Inst. Gd. 69-287 kV)	C	C	C	C	
343	C57.12.50 (Dry-Type)	N/A	C	#		
344	C57.12.51 (Dry-Type)	N/A	C	#		
345	C57.12.52 (Dry-Type)	N/A	C	#		
346	C57.13.1 (Gd. Fld. Testing Rel. CT's)	C	C	#		
347	C57.12.20 (Dist. Trans. rev.)	C	C	#		
348 P733	C57.21 (Shunt Reactors)	C**	C			
349 P547	C57.94 (Dry-Type Rec. Pract.)	C	C	#		
350 P507	C57.92 (Pow. Tr. Ldg. Gd.)	C	C	#		
351 P631	C57.91 (Dist. Tr. Ldg. Gd.)	C	C	#		
352	C57.12.25 (Dist. Tr.)	N/A	C			

*combined in one document ** approved with conditions

expected to go to ANSI BSR shortly

Bltg. = balloting IP = in process C = complete N/A = not applicable

4.10 ANSI C62 - Surge Protective Devices

No activity.

4.11 ANSI C68 - Techniques for Dielectric Tests

No report.

4.12 ANSI C76 - Bushings

Mr. Melton reported as follows

A meeting of delegation heads was held in Baltimore on November 1, 1979 to review the work of ANSI C76. Work on the bushing application guide is under way. As a part of this guide NEMA has proposed a section on allowable line pull. This proposed section has been given to the Chairman of C76 and will probably be balloted and issued as a supplement to the present C76 standard.

4.13 ANSI C84 - Preferred Voltage Ratings

Mr. Dutton reported as follows

REPORT OF ANSI C84 LIAISON ACTIVITIES

1. Considerable discussion and correspondence has transpired seeking to achieve consistent, harmonized definitions, relating to voltage matters which are acceptable to C84, C92, and others concerned. The progress is very encouraging.

2. A meeting of C84 Task Force on definitions was attended in New York on 2/6/80 during the Winter IEEE/PES Meeting.

3. Through discussion and correspondence with Mr. Koponen (Chairman, ANSI C57), and comments on certain C57 ballots, we are seeking to identify through usage of distinctive typefaces whether the voltages listed in transformer standards are "preferred", "non-preferred", or "non-standard" relative to voltages listed in ANSI C84.1-1977; as proposed in J. C. Dutton's IEEE paper.

4. ANSI Subcommittee C57.12.2 at its October 1977 meeting suggested a Joint Task Force between ANSI C84 and C57 to consider voltage coordination.

5. A meeting of ANSI C84 is planned for 6/3/80 in St. Louis, which your liaison member presently plans to attend.

6. IEEE has renewed this liaison appointment to 12/31/82.

4.14 ANSI C89 - Speciality Transformers

Mr. S. Antalis reported as follows.

1. No ANSI C89 Meetings were held in 1979.

2. New officers for 1979-80 in the NEMA ST-8 Dry Type & Specialty Transformer Section (Secretarial for ANSI-C89) are:

Chairman:	R. H. Stallworth
Vice-Chairman	A. D. Kline
Secretary:	Charles H. White

3. One of the tasks of the C89 Committee is still to consider overlap of 601 V through 15 KV Transformer Product Standards, which are also to be covered in ANSI C57.12.50 when published. ANSI C89.2 presently covers General Purpose Transformers (600 V & below), as well as High Voltage Transformers 601 V through 15 KV.

4.15 ANSI C92 - Insulation Coordination

Mr. J. C. Dutton reported as follows.

1. ANSI C92 has balloted proposed revisions of C92.1 and C92.2, which your liaison representative supported - after certain revisions had been made.

2. Coordination between C84 and C92 is improving.

3. A meeting of C92 in Atlanta was attended on November 8, 1979.

4. The officers of the Transformers Committee and the Chairman of the Dielectric Tests Subcommittee have been kept informed of significant C92 activities by sending copies of letters, reports, proposals, etc.

4.16 ANSI C107 - Disposal of Askarel

Refer to 3.7 above.

4.17 IEEE Joint Committee on Nuclear Power Standards

No report.

4.18 CIGRE Study Committee No. 12

Mr. W. J. McNutt reported as follows.

Plans are progressing for the 1981 Transformer Colloquium which will be held in Cambridge, Mass. from September 3 to 8, 1981. Subjects to be discussed include:

1. Determination of Transformer Condition and Preventative Maintenance Procedures in Service.

2. Loading and Overloading Limitations of Large Transformers.

3. Future Developments in Power Transmission Systems and Their Impact on Power Transformers.

These CIGRE Colloquia are not open meetings, as our IEEE meetings are, but we have been asked to bring in some U.S. participation from beyond the boundaries of CIGRE. I have already spoken to some Transformer Committee members and I may be seeking a few other participants. If you have a particular interest to be involved in one of the areas mentioned, please see me.

4.19 IEEE W.G. No. 70.1 - Gas Insulated Substations

Mr. Cash reported as follows.

W.G. 70.1 met February 7, 1980 in New York City.

The two documents, "Standards, Recommended Practices and Guides (P468-1) and "Recommendations to Others" (P468-2) were sent out for a fourth ballot.

A summary of the count of ballots as of February 5, 1980 is as follows:

	Approved	Not Voting	Not Approved
P468-1	101	5	9
P468-2	113	2	2

This is based on balloting done in the Substation Committee, Transmission Substation Subcommittee and Working Group 70.1 with a combined membership of 169.

*

It was emphasized at the meeting that all negative ballots must be resolved and documentation will be required when the final package is forwarded to the Standards Board.

Currently W.G. 70.1 Chairman Zanzie has informed me that more than 75% of the ballots have been returned as required for final approval. He also stated that, at this time, he was unsure whether or not a fifth ballot would be required.

Mr. Matulic reported that W.G. 70.1 - GIS Bibliography was published in the third installment last summer as F79634-7.

The next meeting of the Working Group will be on April 28, 1980 in St. Louis.

* I will be casting an approved ballot on this document as representative for the Bushing Subcommittee + Transformer Committee.

4.20 Standards Coordinating Committee No. 4 and 4.1

Standards Coordinating Committee No. 4 (Insulating Materials and Systems). E. A. Boulter, Chairman, General Electric, Lyon, MA 01910 (17 members).

Dr. M. L. Manning, liaison member for the Transformer Committee reported as follows: Note appendix I for agenda by Chairman.

The committee met February 4, 1980 at IEEE headquarters, New York. Working groups have been active for:

A. IEEE No. 1, General Principles for Temperature Limits on the Rating of Electric Equipment in maintaining the USA position in classifying materials by functional test procedures and service experience rather than classification of material by temperature. The IEC Document 85 takes the latter position and has created much controversy and such will continue during the March 17-21, 1980 IEC meeting in Paris. Work on IEEE 1 has been divided, with SCC4.1 responsible for systems and SCC4.2 for materials. Approval target date - June 1982.

B. IEEE 98 Guide for the Preparation of Test Procedures for the Thermal Evaluation and Establishment of Temperature Indices of Solid Electrical Insulating Materials. A PAR will be submitted by the secretary to IEEE, after a W.G. June 1980 meeting makes revisions of terminology and definitions. SCC4.2 work is similar.

C. IEEE 99 Recommended Practice for the Preparation of Test Procedures for the Thermal Evaluation of Insulation Systems for Electric Equipment has been approved, and is scheduled for publication May 1980.

D. IEEE 96 General Principles for Rating of Electric Equipment for Short-time Intermittent or Varying Duty is revised and approved.

E. IEEE 97 Recommended Practice for Specifying Service Conditions in Electrical Standards is updated.

F. IEEE 101 Appendix A - Guide for the Statistical Analysis of Thermal Life Data is undergoing revision by the Electrical Insulation Society to include advanced statistical practices. Target Date - June 1982 to the Standards Board.

Reports by members of the Technical Advisors Group for TC-63, USNC were made. Most dealt with the non USA approval of IEC 85 which is contrary to IEEE No. 1 Philosophy which has been highly successful in USA standards dealing with functional tests and the related temperature class of materials.

The next meeting of the Committee is scheduled for February 2, 1981 during the IEEE Winter Power Meeting to be held in Atlanta, GA.

IEEE Standards Coordinating Committee No. 4.1, E. A. Boulter, Chairman, General Electric Co., Lynn, MA 01910 (19 members).

This committee, the Technical Advisory Group for TC-63 USNC met in the afternoon of February 4, 1980 in the same location as the 4.0 group. Note appendix II for agenda by Chairman.

The status of IEC TC 63 work was outlined. Since approximately 21 countries are involved in a forthcoming March 1980 meeting in Paris, the position USA is to take becomes important. IEC 85 remains a question of outcome. WG-6, Multi-Stress Functional Testing of Machines, creates problems, cable testing is underway. WG-7, Mechanical Stresses as Aging Factors of Electrical Insulation reported as well as WG-2, Thermal Aspects and WG-4, Electrical Aspects. The positions of these WG's with respect to the March 1980, Paris meeting were outlined. The materials status of IEEE and IEC activity for radiation environment for insulation was outlined by Mr. F. Campbell in a 30 minute presentation. IEC TC-15, Pub 544 outlines procedures and test methods. And the status of IEEE work in the Nuclear Power Engineering Committee was outlined by Mr. N.M. Burstein. Really, the committee meeting fortified the position by W.G. Chairman are to take in the March 1980 Paris meeting.

The next meeting of the Committee is scheduled for February 2, 1981 during the Winter Power Meeting in Atlanta, GA.

4.21 EPRI

No report.

APPENDIX I

February 1, 1980

Agenda

IEEE SCC 4 Meeting - February 4, 1980

genl info 3

Report of the Chairman

While little in the way of completed work can be reported for the past year, it has nevertheless been a period of considerable activity.

- Revision of IEEE No. 99 is being printed.

- Working groups are active on the revisions of Standard Nos. 96, 98, and 101.

- A large amount of effort by members of SCC4 has gone into the international activity concerning IEC Publ. 85. Since the consensus believes that the resolution of this situation will have a significant bearing on the pending revision of IEEE No. 1, active work on this revision has been delayed.

- Coordination with other IEEE organizations working on insulation standards No. 275, 429, 522, and 345, has been established. Coordination with S-32 Radiation Effects Committee, Radiation Life Subcommittee, W. G. 2 for work on IEEE Standards Project P775 has been requested. This W. G. is developing a standard on Electrical Insulation Selection Criteria for Nuclear Power Plant Service Inside the Containment.

SCC4 is still considering the possible conversion of IEC Publications on insulation to IEEE Standards. More effort should probably be spent on this work.

I want to recognize that most of the membership of SCC4 wears many hats and have heavily committed themselves to insulation related activities in IEC, ASTM, ANSI, S-32, and PES. These efforts are appreciated and provide an invaluable background of experience for our work in SCC4.

EA Boulter

Edward A. Boulter
Chairman, SCC4

ms

APPENDIX II

agenda item 4.1

Agenda

February 1, 1980

1979 Activities of SCC No. 4.1

Since the last meeting of SCC No. 4, the subcommittee has held two meetings:

- Feb. 5, 1979, pm, General review of TC 63 activities.

- Sept. 20, 1979, Discussions of IEC Publication 85 and preparation for TC 63 Combined working groups meetings held in Turku, Finland, during the period October 22-26, 1979.

In addition, I arranged a meeting of U.S. Technical Advisors, USNC Group Managers, IEC US TC officers and U.S. delegates representing TC 2, TC 15, TC 15 B, and TC 63, for the purpose of coordinating policy and work on the situation regarding IEC Publ. 85. This group felt that it was desirable for SCC 4 to start working on the revision of IEEE No. 1 as a means of helping U.S. input and positions on the Publ. 85 problem.

SCC 4.1 will meet again this afternoon for a general review of TC 63 activities and to prepare for the forthcoming Working Group and Technical Committee meetings to be held in Paris during the period March 12-21, 1980.

E.A. Boulter
Chairman, SCC 4.1
Technical Advisor, USNC-TC63

ms

4.22 DOE

IEEE TRANSFORMERS COMMITTEE MEETING

U. S. DEPARTMENT OF ENERGY

WILLIAMSBURG, VA.
MARCH 19, 1980

THE FOLLOWING TRANSFORMER RELATED ACTIVITIES OF DOE MIGHT BE OF INTEREST:

I. NEW INITIATIVES:

1. GAS INSULATED TRANSFORMERS: A MULTI-YEAR PROGRAM EFFORT HAS BEEN INITIATED TO DESIGN, DEVELOP AND EVENTUALLY DEMONSTRATE COMPACT GAS INSULATED TRANSFORMERS FOR THE POWER DELIVERY OF ELECTRIC ENERGY. THE INITIAL WORK HAS BEEN STRUCTURED TO INCLUDE THE NECESSARY DESIGN, DEVELOPMENT, TEST AND EVALUATION OF ADVANCE TECHNOLOGIES IN THE FORM WHICH SHALL BE USABLE FOR THE DESIGN AND DEMONSTRATION OF LARGE POWER TRANSFORMERS.

2. STUDY TO IMPROVE TRANSMISSION SYSTEM AVAILABILITY AND UTILIZATION THROUGH IDENTIFICATION OF CRITICAL PARAMETERS AND TRANSFORMER PERFORMANCE ANALYSIS. THE INTENT HERE IS TO DEVELOP A MICROPROCESSOR BASED SYSTEM FOR CONTINUOUSLY MONITORING RECORDING AND ANALYZING TRANSFORMER/TRANSMISSION SYSTEM CONDITIONS.

3. DEVELOPMENT OF NON-CELLULOSIC INSULATION FOR TRANSFORMERS. THE PRIMARY OBJECTIVE OF THE PROPOSED TECHNOLOGY DEVELOPMENT IS TO DETERMINE THE POTENTIAL FOR ECONOMIC UTILIZATION OF NON-CELLULOSIC SOLID INSULATION IN TRANSFORMERS. REDUCTION IN SIZE AND WEIGHT AND ELECTRICAL LOSSES IS THE GOAL OF THE PROJECT EFFORT AND AT THE SAME TIME INCREASE THE RELIABILITY OF TRNASFORMERS BY REDUCING THE PROBABILITY OF FAILURE DUE TO TRANSIENT MECHANICAL OR ELECTRICAL STRESS.

4. DETERMINATION OF EDDY CURRENT LOSSES IN ELECTRICAL EQUIPMENT

THE SPECIFIC OBJECTIVE OF THE PROPOSED RESEARCH EFFORT IS TO DEVELOP A PRACTICAL MEANS OF ANALYZING THE EDDY CURRENT AND LOSS DISTRIBUTION IN CONDUCTING STRUCTURES. NON-LINEARITY DUE TO CHANGES IN PERMEABILITY AND CONDUCTIVITY WILL ALSO BE CONSIDERED.

5. ELECTRIC FIELD CALCULATIONS. THROUGH THIS EFFORT A DIGITAL COMPUTER PROGRAM WILL BE DEVELOPED TO CALCULATE SOLUTIONS OF LAPLACE'S EQUATION IN ELECTROSTATIC FIELDS WITH ARBITRARY THREE-DIMENSIONAL GEOMETRY AND PRACTICAL - USEFUL BOUNDARY CONDITIONS.

II. PROGRESS IN CURRENT PROJECTS:

1. A 1200KV GAS INSULATED INSTRUMENTATION PACKAGE (P.T - C. T. - CARRIER) IN COAXIAL CONFIGURATION HAS BEEN SUCCESSFULLY TESTED. IT WILL BE FURTHER EVALUATED AT WALTZ MILL TEST FACILITY. THE FINAL REPORT IS UNDER PREPARATION.

2. THE PROJECT ON "OPTIMIZATION OF DISTRIBUTION TRANSFORMER EFFICIENCY CHARACTERISTICS" HAS BEEN COMPLETED. THE RESULTS OF THE STUDIES WERE PRESENTED IN TWO TECHNICAL PAPERS AT THE WINTER POWER MEETING.

3. PART-1 OF THE FINAL REPORT ON EVALUATION OF ADVANCED TECHNOLOGIES FOR POWER TRANSFORMERS HAS BEEN COMPLETED. IT WILL BE PRINTED AND DISTRIBUTED BY THE TECHNICAL INFORMATION CENTER OF DOE.

4. NBS HAS SUCCESSFULLY DETERMINED KERR COEFFICIENT OF MINERAL OIL, THUS, RIGOROUS MEASUREMENTS OF SPACE CHARGE DISTORTIONS AND ELECTRIC FIELD DISTRIBUTION IN MINERAL OIL IS FEASIBLE DURING AND PRIOR TO IONIZATION.

SOME OF THE RESULTS FROM NBS STUDY WERE PRESENTED AT THE CONFERENCE ON ELECTRICAL INSULATION AND DIELECTRIC PHENOMENON.

5. TECHNICAL PAPERS HAVE also been prepared for presentation at the upcoming MEETINGS - IEEE INTERNATIONAL SYMPOSIUM AND IEEE SUMMER POWER MEETING.

6. BOLT-BERANEK AND NEWMAN IS IN THE PROCESS OF PREPARING THE FINAL REPORT ON "STUDY OF TRANSFORMER NOISE - CONTROL RESEARCH REQUIREMENTS." THE PURPOSE OF THIS STUDY HAS BEEN TO EXAMINE THE TRANSFORMER/REACTOR NOISE PROBLEM IN U.S. AT THE PRESENT TIME, AND AT VARIOUS FUTURE TIMES.

III. THE FOLLOWING REPORTS AND DOCUMENTS WERE DISTRIBUTED TO THE MEMBERS OF THE TRANSFORMERS COMMITTEE SINCE LAST DOE REPORT IN SAN DIEGO.

1. STUDY TO DETERMINE THE POTENTIAL USE OF SILICON FLUIDS IN TRANSFORMERS.

2. AN ENERGY ANALYSIS OF THE BASIC MATERIALS UTILIZED IN ELECTRIC POWER TRANSMISSION SYSTEM.

3. 3RD ANNUAL PROGRAM INFORMATION NOTICE.

4.23 HVAC

Mr. Shores reported as follows:

HVACC Subcommittee I (High Voltage Transformers)

All of the proposed HVACC documents on conformance standards for High Voltage Transformers in the voltage range from 601 volts through 34.5KV class have been balloted and approved by HVACC Subcommittee I and forwarded to the C57 Chairman with a recommendation for balloting for publication. These documents are as follows:

1. "Proposed American National Standard Conformance Standard for Dry-Type Transformers Used in Unit Installations, Including Unit Substations." The document has 2 appendices--Appendix A is a "Proposed ANSI Conformance Guide for Thermal Evaluation of Dry-Type Ventilated Transformer Insulation System" and Appendix B is "Proposed Standard Test Procedures for Thermal Evaluation of Insulation Systems for Ventilated Dry-Type Power and Distribution Transformers - IEEE 65 19XX." These 3 documents are recommended for publication as Supplement C57.12.01(a) - 198X. When Appendix B is actually completed and published as IEEE 65, it would be rescinded from C57.12.01(a).

2. "Proposed American National Standard Conformance Standard for Liquid-Filled Distribution Transformer Used in Pad-Mounted Installations Including Unit Substations." The document has an Appendix A "Conformance Guide for Insulating Systems and Materials for Liquid-Filled Transformers." The 2 documents are recommended for publication as C57.12.27-198X.

3. "Proposed American National Standard for Liquid-Filled Transformers, Excluding Pad-Mounted Compartmental-Type Transformers, Used in Unit Installations Including Unit Substations." The document has an Appendix A "Conformance Guide for Insulating Systems and Materials for Liquid-Filled Transformers" (i.e., the same Appendix as Item 2 above). The two documents are recommended for publication as C57.12.13-198X.

4. "Proposed Addendum to American National Standard for Instrument Transformer C57.13" (This document has simultaneously been sent to the IEEE Instrument Transformer Subcommittee Chairman to initiate IEEE balloting.)

The HVACC Working Groups responsible for developing the above proposals will continue to be available to assist in clarification or modification of these documents if required.

5.0 Technical Papers for Future IEEE-PES Meetings

A total of (15) papers have been submitted for the 1980 Summer Power meeting and these are now out for review. At this time I can't say how many will be accepted for presentation, but I have tentatively scheduled (3) sessions. I have requested that our sessions be scheduled on Monday and Tuesday, as they traditionally had been, rather than on Wednesday and Thursday as they were at the 1980 Winter Power Meeting.

The new IEEE-PES Technical Paper Publication Plan is being implemented effective with the 1980 Summer Power Meeting. This means the following:

1. All papers that are accepted for presentation will be published in full in the Transactions.

2. In addition, a one page summary of all papers will be published in a "Review" publication.

3. There will be complete anonymity between authors and reviewers, both ways, during the review process.

4. Reviewers will be asked to prepare a 100 word analysis of the paper, giving reasons for acceptance or rejection.

This appears to make a little more work for reviewers, but I'm sure the analysis will be welcomed by the authors. I ask for your cooperation when I request you to review a paper for me. It's a very important aspect of your IEEE involvement.

6.0 New Business

Questions raised about status reporting on IEEE projects. Secretary offered to furnish SC-2 report form.

Meeting adjourned at 12:03 PM.

Respectively Submitted,

Leo J. Savio, Secretary
IEEE Transformers Committee

APPENDIX C

STANDARDS BOARD SUBMITTAL FORM

Date: _____

Project Number: _____

Title: _____

_____

_____

_____

Sponsoring Group/Society: _____

Committee: _____

Subcommittee: _____

Working Group: _____

Submitted By: _____

_____

_____

_____

Telephone Number: _____

I. Description. Check where applicable.

1. ( ) New ( ) Revision ( ) Reaffirmation ( ) Withdrawal

   a. Revision of: _____

2. ( ) Standard ( ) Recommended Practice ( ) Guide

3. ( ) Full Status ( ) Trial-Use

4. Supersedes standard _____

5. Conflicts with standard _____

   Explain:

II. Ballot Information

Number of members of Sponsoring Committee _____

Breakdown of Classification: User _____

Producer _____

General _____

Ballot Breakdown:

A. Sponsoring Committee Ballot*

	NUMBER	PERCENT
Ballots sent out		
Ballots returned		
Approved		
Approved with Comment		
Negative		
Abstain		
Not returned		

* If balloting was not done by the sponsoring committee, e.g. by a subcommittee, please explain why. Also include information regarding the means by which the balloting authority was delegated by the sponsor.

NEGATIVES: Please provide information regarding the nature of any negatives and responses/resolutions which occurred (copies of unresolved negatives and responses made to them must be attached). Responses made to 'Approved with Comment' ballots should also be included.

Reasons for abstentions:

B. Any Subordinate Balloting Which Took Place

Subordinate Group Name / Ballot Breakdown						
	Number	Percent	Number	Percent	Number	Percent
Ballots sent out						
Ballots returned						
Affirmative						
Negative						
Abstain						
Not Returned						

Reasons given for negative ballots and responses made to them:

III. Coordination Activity

Coordination Effected* / Response (Check one)					
Approved					
Not Approved					
Delined Participation					
Did Not Respond					
No Objection**					

*As per the approved Project Authorization Request [SF 1-1A 1978]

**To be used when the committee may have no background in subject matter but does not object to the document for any reason.

Please give reasons for negatives received as a result of the coordination activity and responses made to them:

IV. IEC/ANSI Documents

A. IEC Documents considered in the development of this draft:

_____

_____

B. Proposed standard is consistent with related IEC documents:

( ) Yes ( ) No

If 'No' explain why:

C. ANSI Documents considered in the development of this draft:

_____

_____

D. Proposed standard is consistent with related ANSI documents:

( ) Yes ( ) No

If 'No' explain why:

Please return this form to: *Secretary, IEEE Standards Board*
IEEE Standards Office
345 East 47th Street
New York, NY 10017
(212) 644-7960