

**MINUTES OF MEETING  
BUSHING SUBCOMMITTEE  
OF THE  
IEEE/PES TRANSFORMER COMMITTEE  
COSTA MESA, CA  
MARCH 22, 2006**

**7.6 Bushing Subcommittee – Fred Elliott, Chair**

**7.6.1 Introduction/Attendance**

Fred Elliott - Chair opened the meeting at 9:30 AM and welcomed the members and guests. There were 70 attendees with 17 members and 53 guests present. Two guests requested membership to the Bushing Subcommittee.

IEEE patent policy was addressed and no patent conflicts were reported.

**7.6.2 Approval of Minutes of Last Meeting**

The minutes of last meeting in Memphis, TN were approved as written.

**7.6.3 Chairman's Remarks**

A special presentation was arranged during the meeting – Interaction of bushings and transformer during seismic events by Dr. Anshel Schiff. It discussed the present status of the IEEE 693 Recommended Practice for Seismic Design and Research being done to improve future editions of the document.

The presentation document was posted on the Web.

**7.6.4 Working Group (WG) and Task Force (TF) Reports**

**7.6.4.1 WG - Revision of C57.19.00 - Keith Ellis, Chair**

No meeting was arranged.

**7.6.4.2 TF - Revision of C57.19.100 – Tommy Spitzer, Chair**

The meeting was called to order at 3:15 with 17 members and 26 guests, 7 requested memberships. After introductions the minutes of the fall 2005 meeting were approved.

No patents were disclosed.

A PAR has been submitted and will be voted on March 30. The IEEE-SA Policy on Intellectual Property was presented. A copy of the Guide in word format has been sent to Tom for ease in revising.

There were three items remaining for discussions:

- Guidelines on Draw-lead application,
- Bushing Order information checklist,
- Bushing replacement document.

During the discussions, changes were suggested on each item. These and all former items will be placed in the revised document before the next meeting.

One additional item was presented that changes would need to be made to conform to the recent revision in C57.19.00. This will be addressed by ABB (Lonnie Elder).

The meeting was adjourned at 4:00 pm.

#### **7.6.4.3 TF – Bulk Bushings – Bob Hartgrove, Chair**

No mtg / report.

#### **7.6.4.4 C57.19.03 Corrigendum 1 – DC Bushing Standard – Fred Elliott, Chair**

The std was re-conformed, and no mtg / report.

#### **7.6.4.5 IEC Bushing Standards Activity - John Graham of Trench Ltd., UK**

John Graham reported as following;

### **IEC BUSHING STANDARDISATION WORK**

Within IEC, standardization of bushings is covered by Technical Committee TC36: Insulators, Subcommittee SC36A: Insulated Bushings.

Sub-committee officers are:

Chairman: Lars Johansson, ABB, Sweden.  
Secretary: Alberto Sironi, CESI, Italy.

The last meeting of SC36A was held at the IEC General Meeting in Rosslyn, Virginia, on December 9<sup>th</sup> 2004. The next meeting will be Berlin, Germany in October 2006. There is one active working group:

**SC36A MT5: IEC 60137: Insulated bushings for alternating voltages above 1kV.**  
**Project Leader: John Graham, Trench-UK.**

A Committee Draft (CD) was distributed for comment by National Committees in October 2005 and comments close in April 2006 for discussion in Berlin.

As reported previously TC14 would prefer that all dielectric tests on to the transformer have been applied to the bushing, with a margin of 10%. Bushing manufacturers consider this procedure has no technical or economic justification and if the margin is required then bushings of a higher rating should be purchased. Although we thought we had a compromise TC14 have stated that if all their requirements are not included, they will be put into the next revision of

IEC60076-3. It would be unacceptable for there to be conflict between the two standards so further discussions are needed.

#### Other Work

##### **SC36A MT6: IEC 61464: Dissolved gas analysis of bushings.**

This new maintenance team will be set up to review the document published in 1998. This gives information on interpretation of DGA specifically for bushings. There have been issues with TC10 on the scope and whether this work should be included in IEC60599. No work yet.

##### **SC36A MT7: IEC 61463: Seismic qualification of bushings.**

This new maintenance team will be set up to review the document published in 1997. This offers a more simplified approach to qualification than IEEE 693, allowing static calculation. No work yet.

##### **CENELEC TC36A WG4 prTS50458: Capacitance graded outdoor bushings 52 up to 420kV for oil filled transformers**

This document gives dimensional standardization for transformer bushings and was accepted for publication in November 2005.

#### **7.6.5 Old Business**

- C57.19.01– Bushing Performance Characteristics and Dimensional STD was reconfirmed.

#### **7.6.6 New Business**

No new business was discussed.

#### **7.6.7 Technical Papers**

No activity was reported for this mtg.

#### **7.6.8 Adjournment**

The meeting adjourned at 10:45 AM.

Minutes submitted respectively by,

Peter D. Zhao

Secretary  
Bushing Subcommittee