MINUTES OF MEETING
BUSHING SUBCOMMITTEE
OF THE
IEEE/PES TRANSFORMER COMMITTEE
Houston, TX
March 10, 2010

9.6 Bushing Subcommittee – Fred Elliott, Chair; Peter Zhao, Secretary.

9.6.1 Introduction/Attendance

Chair opened the meeting at 9:30 AM and welcomed the members and guests. A quorum was formed by confirmation of member attendance. There were 57 attendees with 20 members and 37 guests present.

IEEE patent policy was addressed in the meeting and no patent conflict was reported.

9.6.2 Approval of Minutes of Last Meeting

The minutes of last meeting in Lombard, IL was approved as written.

9.6.3 Chairman's Remarks

a) 2010 Spring meeting was moved forward due to T&D Show at April, 2010.
b) 2010 Fall meeting will be held in Toronto, Canada on October 24-28, sponsored by Trench. And San Diego, California USA will be the location for 2011Spring mtg.
c) Working Group Practice and Procedure Manual is under construction and review, shall be ready soon. This manual will provide the practice guide for WG and TF in IEEE Transformer Committee.
d) Copyright Policy is under drafting, and by end of March, will be signed off.

9.6.4 Working Group (WG) and Task Force (TF) Reports

9.6.4.1 WG - Revision of C57.19.00 - Keith Ellis, Chair

REAFFIRMATION REPORT:

All ballot comments and negative ballot issues have been addressed with no objections from the voters.

During this process it was found that a number of paragraph numbers were not provided in the final published version of the documents. The missing numbers make it confusing when one clause refers to another specific clause in the document.

IEEE is looking into how this happened and will likely publish ERRATA with the missing paragraph numbers re-inserted.

IEEE has not gotten back to me since our discussions last fall.

The reaffirmation process was extended for one year to resolve this issue.

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

The meeting was called to order at 11:00 am on March 9, 2010 with 17 members and 17 guests.

A quorum was present. After introductions the minutes of the spring 2009 minutes were approved. There were no patent disclosers.

Changes in draft 3 were discussed. These changes will be addressed with other written comments in draft 4 to be sent out by the end of March. Remaining comments will be addressed by e-mail in order to complete the guide and have it balloted by year end.

The meeting adjourned at 12:15.

9.6.4.3 TF – GSU Bushings – Catherine Hurley, Chair

March 9, 2010 (1:45pm)

1. Attendance: The meeting consisted of 37 people in attendance: 23 Members and 14 Guests. 7 of those guests requested membership.

2. Agenda: An Agenda was not presented by the Chair of the Task Force, but was distributed to the TF by email prior to the meeting.

3. Minutes: The Minutes of the last meeting in Lombard, IL were not presented or approved. The Chair will present and approve the minutes from this meeting and the Lombard, IL meeting from the Fall 2009 at the Fall 2010 meeting in Toronto.

4. PAR: A draft copy of the PAR and standard was presented in hardcopy to the group. During the meeting this version of the PAR was modified. Some changes were unanimous, but others are still a topic of discussion. As a result, a second, alternative PAR with a modified scope was created. Both scopes (options A & B), differ slightly and will be distributed to the members for vote/comments by email prior to the Fall 2010 meeting. The consensus among the TF is a standard needs to be created for bushings with rated current in excess of 5000A which require thermal upgrading because they are used in an environment which does not concur with the usual service conditions defined in IEEE C57.19.00. More specifically, a standard is needed for bushings enclosed and connected to a bus which routinely operates at a bus hot spot temperature not limited to 70C at a distance of 1 meter from the bushing top terminal. Additionally, this elevated bus temperature subjects the enclosed bushings to “ambient” temperatures inside the bus duct/enclosure which are in excess of the usual service conditions also defined in C57.19.00 (max 40C, min. -30C, and 24hr average of 30C). This type of application is typical of the LV bushings on a Generator Step-Up Transformer (GSU). The main topics of dissent were how to word this in the best way possible. Conference call(s) will be scheduled among the members prior to the Fall 2010 meeting in Toronto in hope of finalizing the scope and purpose before the Fall 2010 meeting in Toronto in preparations of a live vote.

5. Adjournment: The meeting was adjourned.

9.6.4.4 C57.19.03 – DC Bushing Standard – Les Recksiedler (IEEE) and John Graham (IEC), Chair

IEC/IEEE JMT5 Dual Logo Standard IEC/IEEE 65700-19-03
Report of Meeting Houston, Texas, USA

The second meeting of the Joint Maintenance Team was held on Saturday, March 6th 2010 from 9.00 to 17.30. A total of nine persons attended including seven IEEE members and four IEC members (three being common to both groups). IEEE staff was represented by Jodi Haasz. The meeting was chaired by joint convenors Les Reckseidler (IEEE) and John Graham (IEC).

The first item of business related to group membership. Requests for membership of the IEEE group, made at the Lombard meeting, by Chris Stankowski and Ulf Radbrant have not been confirmed and Les Reckseidler promised to review the situation. John Graham stated that the present IEC representation also had to be confirmed by the results of a request for experts made to National Committees in October 2009.

Following the Lombard meeting the results of comment discussed have been included in a second draft (IEC/IEEE 65700-19-03 Draft) and was circulated to members together with a revised compilation of comments in January 2010. These documents were reviewed at the meeting.

A total of 68 editorial and technical comments were discussed and many issues resolved. Actions on open comments were assigned to individual members. Details of decisions made are included document 36A(JMT5/Graham)03.

The following work schedule was agreed to meet the target for discussion of a Committee Draft (CD) at the next IEEE Transformer Committee meeting in Toronto in October;
- Unconfirmed minutes of meeting: March 12th 2010.
- Working draft 3: April 5th 2010.
- 3rd JMT5 Group meeting at HSP, Cologne, Germany June 9th 2010.

Note depending on comments received this meeting may be held as a web-conference.
- Circulation of Committee Draft：June 30th 2010.
- IEC NC / IEEE Membership comments: Sept. 30th 2010.
- 4th JMT5 Group meeting in Toronto: Oct 24/28th 2010.

There was no other old or new business.

The meeting was adjourned at 5.30pm.

9.6.4.5 IEC Bushing Standards Activity - John Graham of Trench Ltd., UK

No report.

9.6.4.6. IEEE 693- Interaction of Bushings and Transformers During Seismic Events – Lonnie Elder

No report

9.6.4.7 Task Force on PD Measurement on Bushings & CTs

No report

9.6.5. Old Business

9.6.5.1 Busing Service Conditions - Devki Sharma and Tommy Spitzer

The question was raised by Devki and Tommy regarding the coordination between the bushing standard C57.19.00-2004 and the application guide C57.19.100-1995.

Standard C57.19.00 Clause 4.1 includes usual service conditions as follows:
- Ambient air temperature not to exceed 40 deg C and average over 24 hours not to exceed 30 deg C.
- Temperature of transformer insulating oil in which the inboard end of the bushing is immersed not to exceed 95 deg C average over 24 hours.
- The external terminal and bus connections not to exceed 30 deg K rise over ambient.

Application Guide C57.19.100 clause 4.1.1.1 contains advice stating that rated temperatures in the bushing may be exceeded during some high temperature loading conditions resulting in reduced bushing life expectancy. Clause 5.2 gives advice for derating of bushings under this high temperature condition.

The concerns expressed during the discussion are that these two items are confusing and may even appear to be in conflict with each other. The wording and advice may need to be better coordinated in future revisions of the documents. This item will be carried forward to the next meeting for further discussions.

Loren Wagenaar will be contacted for his comments on the subject and Fred will follow up with him.

9.6.5.2 Breaker Bushings – Activity in Breaker Committee

The Switchgear Committee is balloting a Standard for Circuit Breaker Bushings (PC37.017, Standard for Bushings for High Voltage (over 1000 Volts ac) Circuit Breakers and Gas Insulated Switchgear). Interested individuals should join the balloting group.

A suggestion was discussed to move the historic Transformer-Breaker Interchangable Bushings information from the informative annex in C57.19.01 to the new PC37.017 document so that all of the breaker bushing information is in one place. The Chair will survey the Subcommittee for opinons on this suggested move.

9.6.6 New Business

9.6.6.1 Re-affirmation or Revision of C57.19.01

Chair states that action on this standard is required by the end of the year. What action to take was discussed. The Chair will survey the Subcommittee to get a sense of the need for either reaffirmation or revision so that the appropriate PAR can be submitted for action.

The title word – Apparatus was suggested to change to Transformers since this standard doesn't cover new bushings for breaker application anymore.

9.6.6.2 PF Correction Factor for Temperature

The question was raised during the mtg, and shall the standard provide such information? Considering the factor is the bushing structure related, it is suggested to consult the bushing manufactures for it.

9.6.7 Adjournment

The meeting adjourned at 10:45 PM.

Minutes submitted respectively by,

Peter Zhao

Secretary
Bushing Subcommittee