Meeting Minutes (Amended)
Task Force Core Gassing and Grounding
August 1, 2014

Chairman: David Buckmaster, Secretary: Donald Ayers

The third on-line meeting of the task force took place on August 1, 2014.

The meeting was called to order at 10:00 a.m. EST by Chairman David Buckmaster. A roll call was made and 16 of the 18 voting members were in attendance so a quorum was established. Three guests were also in attendance.

The minutes from the last meeting were reviewed. Don Platts state that a clarification was needed as to actions after approval of proposed language. Once approved the proposal must be approved by PCS prior to submitting to Standards Subcommittee. Phil Hopkinson moved and Steve Shull seconded the revised language for the July 11 minutes. The vote was unanimous.

A paper by Jeewan Puri, previously distributed to the task force, was discussed at length. His hypothesis was that there was not enough voltage developed between laminations to cause partial discharge breakdowns and thus the hydrogen gas. The stress causing the gassing must be at the corners of the core outer laminations. After lengthy discussion, it was concluded that Mr. Puri's hypothesis was not supported by the findings from field and factory testing. The language being proposed best supports the findings from factory and field testing.

Most likely the cause of the hydrogen gas generation is due to interlaminar bubbles in the core that cause partial discharges when voltage is supplied. The partial discharges continue to exist even when voltage is decreased past rated voltage. Shielding of winding or inside core grounding causes PD to significantly reduce or completely extinguish.

Tom Prevost stated that proposed language must be specific as to the transformer size and type to which the proposed language applies. Attached is the proposal as to the language to include in C57.12.00.

A discussion was had on whether four or five legged stacked cores should be included in the scope. Differences between stacked and wound cores were discussed and enough differences were identified to suggest that stacked cores may not have the same characteristics as wound cores relative to grounding and gassing. Ramsis Girgis moved and Wally Binder seconded a motion to delay inclusion of stacked cores in the present language until some future time after more study is made. The vote was unanimous.

Tom Prevost stated that the language proposed for C57.12.90 can not be in Clause 10.7 but must be in its own clause. Clause 10.7 defines a partial discharge test for Class I transformers when requested by the customer. The new proposed test is a design (not type) test which is to validate a specific proposed design arrangement. Tom Prevost and Phil Hopkinson agreed to jointly come up with new Clause and placement within C57.12.90. Aniruddha Narawane said that he would provide some proposed language for the section.

The proposed language for C57.12.90 was reviewed. Tom Prevost said that background of 100 pc (100 μv) is the same as the proposed acceptance level. His experience was that the background needed to be at least 50% of the target acceptance level. He proposed that 50 pc (50 μv) be the proposed background level. Jerry Corkran was concerned that trying to get background to 50 was unnecessary and may be time delaying and costly. After further discussion, the committee agreed that the background should be reduced to 50 pc (50 μv).

After discussion, the committee decided that the second proposed pass criterion was unnecessary and was removed. Don Platts asked if 30 seconds was sufficient time for an accurate PD reading to be made. It was decided that it was.

Since modifications were made to both the C57.12.00 and the C57.12.90 language, and the C57.12.90 placement was not set, it was decided that a vote would not be taken at this meeting. The proposed language agreed to during the meeting will be sent to members as part of these minutes. Modifications that are proposed to the document by Messrs. Prevost and Hopkinson on the C57.12.90 placement will be forwarded to committee members prior to the next meeting. The wording for both standards will be solidified and voted on at the next meeting.

The next meeting is being scheduled for Friday August 22, 2014 at 10:00 a.m. ESTs on-line.

A motion was made and seconded to adjourn the meeting. The vote was unanimous.

The meeting was adjourned at 12:10 p.m. EST.

Respectfully submitted,

Donald E. Ayers
Secretary

Encl: New proposed language for C567.12.00 and C57.12.90