

5.3. Underground Transformers and Network Protectors – Carl G. Niemann (Chair), Dan Mulkey (Vice-Chair)

Introduction/Attendance

The Underground Transformers and Network Protectors Subcommittee met on Wednesday, March 14, 2012, in the Music City room of the Renaissance Nashville Hotel in Nashville, Tennessee, at 11:00 AM with 9 members and 14 guests present.

Membership

Quorum was achieved with 9 out of the 12 members attending. One guest was granted membership.

Approval of Minutes

The minutes of the November 2, 2011, meeting in Boston, MA were approved as submitted.

Working Group Reports

5.3.1. Underground Single Phase Transformers (C57.12.23) – A. Traut, Chairman

The WG did not meet. The document was published in April 2009 and is valid until 2018. After the WG on Tank Pressure Coordination lead by Carlos Gaytan, concludes this standard will need to be revised. Allan suggested that this group could alternate revision cycles with C57.12.24.

5.3.2. Three-Phase Underground-Type Transformers (C57.12.24) – Giuseppe Termini, Chairman

The Chairman welcomed members and guests to the meeting which was called to order at 9:45 AM in the Ryman room at the Renaissance Hotel in Nashville on March 12, 2012. George Payerle acted as the recording secretary. An agenda was presented and introductions were made. Cory (Charles) Simmons and Justin Pezzin were made members. The meeting was attended by 8 members and 14 guests. There was a quorum for this meeting. Minutes from the previous meeting in Boston were reviewed and approved.

The Chairman explained that members need to attend 3 consecutive meetings in order to apply and become a voting member of the working group (WG). The expectation is that the guests and members should take an active participation in the proceedings of the working group.

The Chairman explained some recent administrative changes. Standards will now have a life of 10 years and cannot be extended. With the new rule C57.12.24 has a life until 2019. The standard is being considered for revision to include additional mechanical and electrical requirements. The PAR that was previously submitted to initiate the revision of the standard was approved on November 9, 2011, and will expire on December 31, 2015. Consultants who attend meetings are now required to disclose who they consult for. The Chairman asked if there were any consultants in the room and there were none.

Working Group Minutes / Significant Issues / Comments:

1. After the last meeting in Boston, a survey was sent out with the help of Christopher Sullivan and Bill Wimmer to approximately 30 end-users. Topics included in the survey were additional requirements for: fusing, pressure relief valves, loadbreak switch, corrosion protection and tank material and size.
2. Replies were received from 13 end-users. About half of the remaining recipients reported that they do not use submersible transformers and the remaining recipients did not reply. The results of the survey are summarized in the table attached to the minutes. Some end-users did not give permission to publish the name of their company; therefore the survey only listed the number of respondents. The

Chairman will contact Bill Wimmer to obtain the name of additional end-users from an intranet group run by Bob Landman. George Payerle volunteered to contact the additional end-users once the survey is sent out to them. The Chairman will report the results of any additional survey responses at the next meeting.

3. No reporting was made on the task force for Tank Pressure Coordination, now a working group (C57.12.39) and the Tank Rupture & Mitigation working group (C57.156).
4. One of the guests asked if single phase submersibles were being considered as part of the survey. Since there is a single phase submersible working group (C57.12.23), the C57.12.24 working group will only focus on three phase submersible transformers. The single phase submersible transformers working group will consider the work of this working group to be utilized in future revisions of C57.12.23.
5. The Chairman presented the results of the survey. The survey also included additional comments made by the end- users to be considered for inclusion in the next revision of the standard (see attached survey for details).
6. The purpose of the survey was to gain information from the end-users on what additional mechanical and electrical requirements should be included in the next revision of the standard. After the survey presentation, the working group was asked to consider the information received from the survey for inclusion in the next revision. The results of this discussion were as follows:
7. A motion was made, seconded and approved to investigate the use of natural ester and its effects on gaskets. This motion was made because natural ester fluid may be considered to be included in the standard in addition to mineral oil. Christopher Sullivan volunteered to investigate and he will report back at the next meeting.
8. A motion was made, seconded and approved to consider the inclusion of a fusing system (BON with CL) along with the loadbreak switch and pressure relieve valve in the next standard revision. Dan Mulkey volunteered to work on this topic and will report back at the next meeting.
9. A suggestion was made to include specific material requirements in the next standard revision. Dan Mulkey stated that this requirement may be too specific and may not be approved by IEEE. In order to gain a better understanding of the material requirements, Bob Kinner volunteered to give a presentation at the next meeting on material choices for the tanks installed inside manhole (underground vault) where water and other corrosive material may be present.
10. The tank dimensions were discussed since some end-users specify tank dimensions in their material specifications. It was agreed that the tank dimensions as listed in the standard are adequate and may not need to be changed.
11. A suggestion was made to have an option to mount various components such as HV bushings and LV terminals and load-break switch on the tank wall besides to the tank cover. This request was deferred for further consideration at the next meeting.

The meeting was adjourned at 11:00 a.m. with the next meeting set for Milwaukee, WI on October 22, 2012

5.3.3. Liquid Filled Secondary Network Transformers (C57.12.40) – Brian Klaponski, Chairman

The WG met on Monday, March 12, 2012 at 11:15 am with 14 members and 7 guests.

The minutes of the October 31, 2011 meeting in Boston, MA were reviewed and approved. Steve Schroeder made a motion to approve the Meeting Minutes and Carl Niemann seconded the motion.

The Chair gave a brief summary praising the excellent and efficient IEEE editing process after the standard was sent for recirculation. The standard had received a 100% affirmative vote but needed a Recirc due to changes incorporated with balloting comments.

Working Group Minutes / Significant Issues / Comments:

1. The Chair stated that a new PAR will be submitted to initiate a new revision to the standard. A motion was made by Ed Bertolini to change the title of the standard to read: IEEE Standard for Network, Three-Phase Transformers, 2500 kVA and Smaller; High Voltage, 34 500 V and Below; Low Voltage, 600 V and Below; Subway and Vault Types (Liquid Immersed). The motion was seconded by John Crouse. The motion was voted on and it was approved. The Chair will submit the PAR with the new title and revised scope to reflect the title change.
2. There was general discussion on the unresolved comments received from the balloting process. In particular, Steve Schroeder will review his ballot comments and raise them in our next meeting. Also other emailed comments received from John Rossetti regarding network protector interface issues will be considered for the next standard revision. Additional comments for inclusion in the next revision were received at this meeting as follows:
 - Jeremy Sewell proposed an amendment to Section 6.2.2.2. Jeremy was asked to bring his comment forward at our next meeting once we are working under a new PAR.
 - Larry Dix will forward dielectric test level recommendations for inclusion to C57.12.40 regarding any discrepancies due to the latest version of C57.12.00
 - A suggestion was made to review (sect 3.6) the Audible Sound Levels and possibly align them with the NEMA TR1 document.
 - A suggestion was made to have a second drawing similar to Figure 1 but without a primary switch.
3. The Chair will table at the next meeting the unresolved comments along with other comments received after the standard was published to the WG for review and consideration.
4. Bob Kinner agreed to give a brief summary of the tank material presentation at the next meeting. This would be a synopsis of the presentation that he will be giving at the next C57.12.24 meeting in Milwaukee.

The meeting was adjourned at 12:25 pm with the next meeting set for Milwaukee, WI, in October 2012.

5.3.4. Secondary Network Protectors (C57.12.44) – Bill Wimmer, Chairman, Mark Faulkner, Secretary

- PAR Date: 06/17/2010 PAR Expiration Date: 12/31/2014, PAR Status: Approved
- Current Standard Date: 06/07/2006
- Current Draft Being Worked On: Draft 1 Dated: NA
- Meeting Date: 3 /12/2012 Time: 1:45 – 3:00
- Attendance: Members 7, Guests 3, Total 10
- Guests Requesting Membership 0

Meeting Minutes / Significant Issues / Comments:

1. The Boston minutes of October 31st, 2011 were reviewed and approved (Niemann/Morgan).
2. Discussion on Normative references. The second paragraph of section 2 discusses the issue with dates in normative references. We need to review the references and determine if the latest revision is acceptable prior to changing dates. Dan Mulkey pointed out that any standards referenced in the annex are not part of the standard and just for reference.
3. Dan reviewed 12.28 and 12.32 and submitted that these were acceptable to be updated to the latest revision. (12.28 – 2005, 12.32 – 2002 reaffirmed). It was determined that 12.40 was acceptable since the reference is to the throat dimensions only. This will need to be reviewed in the next revision as there is discussion in 12.40 that may modify this.
4. Carl Neman stated that the footnote 2 was not needed in the standard (ANSI publications). C57.12.28 is listed as ANSI should be IEEE.
5. On design tests – section 5 – Ed Bertolini wanted to modify the wording on the resistance of the conductors to “the resistance of each individual phase shall be measured in its entirety. Dan suggested

that we combine the two sentences and eliminate the word “flowing”. This was accepted by the working group.

6. Mark Faulkner commented on the thermocouple attachment method in section 5. The group decided to change the wording to the “The thermocouple shall be held in intimate contact with the conductor surface.” Eliminating the terms welding, drilling, peening, and cementing.
7. A final working group ballot was taken to submit the document to IEEE for ballot.

5.3.5. Ventilated Dry-Type Network Transformers (C57.12.57)

The WG was not scheduled to meet.

New Business

Brain Klaponski noted that individuals were being approached about common wording re mineral oil and natural ester use, with the thought that this should be in the realm of the Distributions and UGNTP subcommittees.

Brian also noted concern about overload for 2018. Ten year life is too long and the Transformer Committee should consider working on a shorter time frame – i.e. 5 year cycle.

Old Business

None

Adjournment/Next Meeting

The meeting was adjourned at 11:28 AM with the next meeting set for Milwaukee, WI, in October 2012.