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

Meeting Minutes – November 2, 2011

Introduction/Attendance

The Underground Transformers and Network Protectors Subcommittee met on Wednesday, November 2, 2011, in the Pacific AB room of the Renaissance Waterfront Hotel in Boston, MA California, at 11:00 AM with 8 members and 9 guests present. One guest requested membership.

Approval of Minutes

The minutes of the April 2011, meeting in San Diego, CA were approved as submitted.

Membership

There are 12 members, and attendance by 7 is required for a quorum, which was achieved for this meeting.

Chairman's Remarks

The chair provided a summary of the Administrative activity.

Working Group Reports

10.9.1.1 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 12/31/2014. After the TF on Tank Pressure Coordination lead by Carlos Gaytan, concludes this standard will need to be revised.

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

1. The Chairman welcomed members and guests to the meeting which was called to order at 8:00 a.m. in the Caspian Room of the Renaissance Boston Waterfront on October 31, 2011. George Payerle acted as the recording secretary. 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.

2. An agenda was presented and introductions were made. The meeting was attended by 7 members and 19 guests and there was quorum for this meeting. Minutes from the previous meeting in San Diego on April 11, 2011 were reviewed and approved. It was noted that since patent disclosure will now be a part of the registration process, the subject does not need to be discussed at the meetings.

3. The Chairman previously submitted a PAR to start the process of the standard revision. The PAR has not yet been approved. Meanwhile, the working group proceeded in discussing future changes to the standard. Three areas were discussed as potential topics for future inclusion in the standard: a. fusing, b. pressure relief valve and c. tank material and corrosion.

    a. Fusing - The current standard does not recommend a fuse system. There was a discussion of adding current limiting fuses in the standard as a way to mitigate the possibility of a catastrophic failure (tank rupture). It was noted that Dominion Virginia did a study in the 60s and came out with specifications that require transformers to be equipped with current limiting or weak link fuses. It was pointed out that current limiting fuses help with high current short duration faults but the faults that sometimes cause tank failures are the low current faults with long duration.

b. Pressure relief valve (PRV) - It was noted that there is a task force looking at a standard regarding tank rupture. There was discussion as to whether work from that group should be incorporated into our standard. The Dominion study mentioned previously also recommended that there was a need for pressure relief devices and a need to define tank withstand. Justin Pezzin will attend the TF for Tank Pressure Coordination and George Payerle will attend the WG for Tank Rupture & Mitigation C57.156 at these meetings. They will report back at the next meeting.

c. It was also noted that PRVs on submersible transformers need to be able to withstand the same stringent requirements as the transformer itself. Some utilities do not use PRVs on submersible transformers. The standard allows for the installation of a PRV but it does not provide any design or operational requirements.

4. Tank material and corrosion - The last issue discussed was how tank corrosion requirements are handled by the end-users. It was mentioned that one of the most common failure mode of submersible transformers failure is corrosion. The need to include specific stainless steel material grades for the tank construction was discussed.

5. It was decided to create a survey to poll end-users of submersible transformers on the three topics discussed above. Some of the users that were identified for this poll included PECO Energy, Hydro Quebec, Dominion Virginia, Georgia Power and PG&E. Bill Wimmer volunteered to expand the users' list to include an intranet users group run by Bob Landman.

   Possible questions to the end-users to be included in the survey are:
   - Do you use PRVs on submersible transformers?
   - What concerns do you have about PRVs and do you have data supporting these concerns?
   - What type of fusing do you specify on submersibles?
   - What concerns do you have about the fusing and do you have data supporting these concerns?
   - What tank materials do you specify for submersibles? Stainless steel 304L, 316L, 400 series, or other?
   - Do you have install cathodic protection inside manholes where transformers are located?

6. The Chairman will prepare the initial survey and will send it to Chris Sullivan, Said Hachichi and Bill Wimmer to be finalized prior to sending it to the end-users group.
7. The meeting was adjourned at 9:15 a.m. with the next meeting set for Nashville, TN on March 12, 2012.

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

1. The WG met on Monday, October 31, 2011 at 09:30 am with 11 members and 7 guests. The minutes of the April 11, 2011 meeting in San Diego, CA were reviewed and approved. Steve Schroeder made a motion to approve the Meeting Minutes and Bill Wimmer seconded the motion and they were approved.

2. The meeting consisted of the review of the balloting and re-circulation process of the standard. The chairman stated that a ballot resolution committee, comprised of the chairman, Larry Dix, and Giuseppe Termini was formed to resolve comments received during balloting. The comments were just associated with affirmative ballots. There were no negative ballots on the original ballot nor on the Recirc ballot. The ballot resolution committee was able to resolve or dispose of all comments received during the balloting process and then the Recir ballot in early Oct 2011 had no negatives and no comments.
3. The balloted standard was sent to the IEEE RevCom committee for review and approval during their Dec 6/11 meeting. Once RevCom approves the standard, then the next day it goes to the Standards Committee for approval. It is anticipated that the standard will be published early in 2012.
4. The comments that weren't accepted along with other comments received earlier from John Rosetti will be considered for the next standard revision.
5. The approval of the standard marks a significant milestone because this was the first comprehensive revision of the standard since the mid 90's.
6. The meeting was adjourned at 10:30 am with the next meeting set for Nashville, TN, in March 2012.

10.9.1.4 Secondary Network Protectors (C57.12.44) – Bill Wimmer, Chairman

1. The meeting was called to order and a review was made of the members present. Introductions were made of all members and guests present.
2. The San Diego minutes of April 11th, 2011 were reviewed and approved (Niemann/Faulkner).
3. Discussion of Changes to the Document
    A. It was noted that it is acceptable to lock in a specific reference date for the standard references or not put any date. In the case of the latter, IEEE will supply the current approved standard date. B. Klaponski
    B. References to 12.40 are ok to leave as current due to only one reference regarding throat standard which has and will not change.
    C. C37.108 -- must come out of informative references and placed in document. Must be moved into informative annex. And date removed for reference.
    D. Clause 10.5.20 on Page 23 discussions.
        i. Lead back to original phase in standard except with the addition of the word "properly": "The operating mechanism and relay cases shall be properly grounded to the enclosure through the removable breaker. "
    E. 5.2.3.3. Micro-Ohm
        i. Lead sentence added in Design Type Section:

        If the manufacturer can demonstrate that the micro ohm values recorded will not exceed temp in table one. A additional heat run after type testing's will not be required. Further discussions will continue on this topic with an email ballot on the final wordings.

4. The WG adjourned at 12:15 pm with the next meeting in Nashville, TN on March, 2012.

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

1. The WG was not scheduled to meet.

Old Business

1. Brian Klaponski – 10 years is a long time. You can loose a lot of knowledge in that time frame Standard revisions should be done on a 5 year time cycle to avoid that.
2. Brian Klaponski has volunteered to visit IEEE headquarters with Ed Smith to explain the issues on moving a standard project through the system when you only use it every four or five years

New Business

1. Patent Issue – it is great to see the patents dealt with during the Registration process. That is a great time saver in our meetings all week. Now we need to finish the patent issue. What is the Transformers Committee going to do with the patents that are declared. Also what is required is a method to make <u>all</u> the patent declarations and <u>any</u> LOA's transparent to all Transformers Committee members.
2. ANSI – where has the ANSI designation gone is IEEE published standards since about 2006. It is now buried in a full page of descriptive text on about page 3 of recent documents that IEEE published.
3. The part of the Standards development process that is administrative (PAR, balloting, etc)- this process needs stream lining from the Transformers Committee standpoint. WG Chairs are left to sort through an administrative process to satisfy IEEE needs that is far too difficult and time consuming. WG chairs need to concentrate on CONTENT and not administrative protocol.

Future Meetings

- The Spring 2012 meeting will be on March 11-15, 2012 in Nashville, Tennessee.