

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

Meeting Minutes – March 10, 2010

9.4.1 Introduction/Attendance

The Underground Transformers and Network Protectors Subcommittee met on Wednesday, March 10, 2010, in the Regency B room of the Omni Houston Hotel in Houston, Texas at 11:00 AM with 7 members and 10 guests present.

9.4.2 Approval of Minutes

The minutes of the October 28, 2009 meeting in Lombard, Illinois were approved as submitted.

9.4.3 Membership

Membership stands at 15 members, so a quorum for this meeting was not met.

9.4.4 Chairman's Remarks

The following Administrative Subcommittee notes were reported to the subcommittee:

- An overview of meeting statistics was provided
- Admin Committee is still finalizing the O&P manual

9.4.5 Working Group Reports

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

1. The WG did not meet. The document was published in April 2009 and is valid until 12/31/2014. The WG has no new issues to address so it will be inactive until revision or reaffirmation is required.

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

1. The meeting was called to order by the Chairman at 8:00 a.m. on Monday, March 8, 2010 in the Regency A/B Room of the Omni Houston Hotel. Brian Klaponski acted as the recording secretary.
2. The first discussion was about the roster and membership on this WG and a quorum. There was a quorum for this meeting.
3. An agenda was presented and introductions were made. The meeting was attended by 12 members and 24 guests. One guest requested membership.
4. The Chairman asked if anyone in the Working Group knew or had knowledge of any existing or pending patents that may affect the work on this standard. No one responded as having knowledge about any patents affecting this WG.
5. The Meeting Minutes from the previous meeting in Lombard on October 26, 2009 were reviewed and approved.
6. The Chairman asked if the WG members felt a need to start a new review of this standard as it was just published. Discussion about this ensued. Topics suggested for starting a new review were:
 - A. Comments and negative ballots from the latest ballot

- B. Tank rupture requirements
 - C. Review of the Scope and Purpose to see if that suggested any need for change
 - D. Use of natural esters and the possibility of 75C rise instead of 65 C rise – would that need additions to this spec
 - E. Should this specification include vault types
 - F. Should this specification include side mounted bushing type submersibles are there enough users to try to standardize?
7. It was agreed to meet in Toronto at the October meetings to discuss the above. Marcel Fortin volunteered to look into rupture requirements to make a recommendation to this WG. Marcel also volunteered to do a presentation in Toronto at the next meeting on rupture.
 8. The meeting was adjourned with the next meeting in Toronto in October 2010.

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

1. The WG met on Monday, March 8, 2010 at 09:30 am with 14 members and 9 guests. One guest requested member status. Giuseppe Termini acted as recording Secretary.
2. The chairman reviewed the patent legal issue and asked whether there were any patents or patents pending that would affect the WG or standard. None were identified.
3. The minutes of the October 26, 2009 meeting in Lombard, Illinois were reviewed and approved.
4. The Chairman gave an overview of the highlights of Draft 7. During this discussion the following additional changes were agreed upon:
 - A. Add the width (W), length (L), and Height (H) as per Table 7 to Figure 1 for clarification.
 - B. Clause 3.1 – change the 80C hotspot rise in the last sentence of the 2nd paragraph to 110C hotspot temperature.
 - C. Clause 6.2.2.1 – change the 3rd sentence to: “...15000 amperes rms per phase (average of the 3 phases to be 15000 amperes) ...”
 - D. Clause 6.2.2.2 - change the 3rd sentence to: “... 45000 amperes rms per phase (average of the 3 phases to be 45000 amperes) ...”
 - E. Clause 6.2.2.2 – Add a last sentence to read: “This can be accomplished with one test or multiple tests.”
5. A motion was made to approve these changes and the motion was carried.
6. The Chairman agreed to now take this Draft revised as above through the Ballot procedures ASAP.
7. The meeting was adjourned at 10:55 am with the next meeting in Toronto Canada in October.

9.4.5.4 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. The working group consists of 8 members and 6 of those members were present. A quorum of the members was present. Introductions were made of all members and guests present.
2. A call was made of the attendees to disclose any patents that may have an impact on the activities of this working group. No patents were brought forward.

3. A brief review was made of the minutes of the last meeting at Lumbar, Ill. The chair indicated that the minutes would be amended to include the names of all persons attending. The minutes were approved.
4. Old Business
 - A. There was no old business to discuss
5. New Business
 - A. PAR
 - B. The group reviewed the proposed PAR for the revisions to the document. Dan Mulkey commented that item 4.2 “Expected Date of submission of draft to the IEEE-SA for Initial Sponsor Ballot” should be 11/2014. Item 4.3 should be one year later also (4/2015).
 - C. The Scope and Purpose sections were reviewed in detail and determined to be acceptable.
 - D. The PAR will be submitted with these changes.
6. Revisions to Document
 - A. Section 6.2.1.3b “The network relays(s) shall be tested at 1500 V at 60Hz for 1 min.” Is this left over from the electromechanical days? (Mark Faulkner) .
A motion was accepted to change the terminology from network relay to electromechanical relay. (Any electromechanical relay shall be tested at 1500 VAC.)
A list of minimum standards that all digital network relays must comply to.
Eaton and Richards to provide minimum set of standards.
 - B. Section 5.2.3.3 “At the end of the test, the network protector shall be capable of meeting its interruption rating and capable of carrying rated continuous current without exceeding the temperature rise limit.” Does this require a second heat run test? (Mark Faulkner)
A motion was accepted to qualify the required repeat thermal test after interruption. Thermal re-test is only required if the post micro-ohm test fails to fall in X% of original micro-ohm test. Doug Craig will submit a revision for working group review.
 - C. Section 10.5.20 “The operating mechanism and relay cases shall be grounded to the enclosure through the removable breaker.” There is a general lack of detail in the requirements and in some case customers may not be properly installing protectors and maintaining the ground connection. Suggest that a non-painted stainless pad, etc should be added. (Ed Bertolini)
The working group decided that the section should be changed to “The removable breaker shall be grounded through at least all mounting bolts to the enclosure.
 - D. We should consider adding a section on environmental requirements. This would include requirements for such items as CTs and PTs (Ed Bertolini).
Consensus was that environmental improvements fall outside the minimum required standards for secondary networks.
7. Other Items
 - A. Mark Faulkner requested clarification on 5.1.1 on wording and specific 12” interval spacing between thermocouples on incoming and outgoing bus work.
The group was unable to reach a consensus before time expired.
8. The meeting was adjourned with the next meeting in Toronto in October 2010.

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

1. The WG was not scheduled to meet.

9.4.6 Old Business

1. Brian Klaponski's comments on the Patent Issue from the :October 2009 meeting has yet to be resolved. While some limited conversations have been held the disclosure of involved patents is still not a transparent:

“We need to understand if there are issues that will affect the availability of products that are parts of our specs. We need transparency to ensure proper decision making. Should not there be full disclosure (of patents).”

9.4.7 New Business

1. None

9.4.8 Future Meetings

- The Fall 2010 meeting will be October 24-28, 2010 in Toronto, Ontario, Canada.
- The Spring 2011 meeting will be April 10-14, 2011 in San Diego, California