**Subcommittee for Underground transformers and network protectors**

Introduction/Attendance

The Underground Transformers and Network Protectors Subcommittee met at 11 AM on Wednesday October 23, 2013 in the Landmark 5,6 rooms at the Renaissance Grand Hotel in St Louis MO.

There were 9 members and 18 guests present. Dan Mulkey Chaired the meeting and George Payerle acted at the Recording Secretary.

Minutes from the Munich meeting were reviewed. Brian Klaponski moved and Said Hachichi seconded and the minutes were approved.

Alan Trout stated that C57.12.23 single phase submersibles WG will resume in Savannah in March 2014.

**C57.12.24 Three-Phase Submersible Transformers working group – Giuseppe Termini, Chairman**

IEEE/PES Transformers Committee Working Group on Requirements

for Three-Phase Submersible Transformers (C57.12.24)

**Meeting Minutes**

Renaissance Grand Hotel, St. Louis, MO October 21, 2013

Landmark 1 Room

**Members present**

Giuseppe Termini – (Chairman) Exelon – PECO

Paramjit Bhatia – Moloney Electric

Adam Bromley – Fort Collins Utilities

Paul Chisholm - IFD Corp

Said Hachichi – Hydro Quebec

Brian Klaponski - CARTE International Inc.

Kent Miller – T&R Electric

Charles Morgan – Northeast Utilities

Dan Mulkey – PG&E

George Payerle – Carte International Inc.

Justin Pezzin – IFD Corp.

Christopher Sullivan - Heartland Solutions, Inc.

Alan Traut – Power Partners

**Guests present**

James Aimstions – Siemens

\*Timothy Albers – ABB

Jerry Allen – Metglas, Inc.

Kahveh Atef – San Diego Gas & Electric

Ed Bertolini – Richards Manfacturing

\*Mark Bielat – Public Works Commission

Rhett Chrysler - Ermco

Anil Dhawan – ComEd

Ben Ehmcke – Ehmcke Consulting

Jean-Francois Gagnon – Siemens

Carlos Gaytan – Prolec GE

Jack Harley, FirstPower Group

Paul Henault – IFD Corp

Brian Just – IFD Corp

Bob Kinner, FirstPower Group

Alejandro Macias - CenterPoint Energy

Brian Marquardt – AK Steel

Mike Miller – WE Energies

Abhinav Mitra – Siemens

Jeffrey Nazarko – Tempel Steel

Barb Patoine – Weidmann

Nahid Pempin – Optimized Program Service

\*Juan Saldivor – Prolec GE

Stefan Siebert - Brockhaus

Liz Sullivan – ABB

Tas Taousakis – PHI Inc.

\*Bill Wimmer – Dominion

\* = requests membership

The chairman called the meeting to order at 9:30 AM in the Landmark 1 room of the Renaissance Grand Hotel in St Louis on October 21, 2013. Introductions were made and an agenda was presented. The meeting was attended by 13 members and 27 guests. A quorum was achieved with 13 out of 15 members present. Four (4) guests requested membership. The chairman explained the requirement of attending three (3) consecutive meetings in order to qualify for membership. George Payerle acted as recording secretary.

The Minutes from the Munich meeting were reviewed. Brian Klaponski made a motion to accept the minutes as submitted, Said Hachichi seconded the motion. The motion was put to a vote and was approved unanimously. The chairman then moved to discuss the draft revision (D0) of the standard. The chairman stated that changes to the draft D0 will be sent out to members and guests for review under a new draft revision (D1).

The remaining of the meeting consisted of the review of Section 7.3 of the standard relating to the accessories. The suggested changes in the draft were highlighted in yellow. Some of the administrative changes in draft revision D0 included changing the revision number of the IEEE standards referenced in the document with the latest issued revisions. Al Traut suggested discussing the revision changes of the referenced IEEE standards. The chairman recommended addressing Al’s suggestion after the review of the draft changes however; no action was taken at this meeting. The results of the review and changes to the draft revision are summarized below:

* **Section: 7.3 Accessories**
  + **Existing Sub-Section: 7.3.1 Tap changer – No changes**
  + **New Sub-Section: 7.3.2 Pressure relief device**
  + **New Sub-Section: 7.3.2.1** A ½ inch NPT fitting or UNC fitting with gasket shall be provided for mounting the pressure relief device.  The pressure relief fitting shall allow slow release of pressure without completely removing the fitting.  If a replaceable automatic pressure relief valve is specified, the fitting shall be sized for the flow rate of the valve.

Christopher Sullivan clarified a statement he had made at the previous meetings in regard to the pressure relief device (PRD). Previously, Christopher stated that manufactures of PRDs could not guarantee that water or other debris would not enter the tank if a PRD became stuck in the open position following operation. At this meeting, Christopher added that the occurrence of water or debris entering the tank, though possible, is very unlikely and that he is not aware that it has ever happened.

A discussion followed on the wording of the thread sizes specified and the location of pressure relief fittings and valves. Carlos Gaytan suggested that the same terminology referenced in C57.144, Section 3.12 be used in Sub-Section 7.3.2.1 and said that either NPT or UNC can be used.

Dan Mulkey volunteered to look into standard threads for PRDs and rework Sub-Section 7.3.2.1. Dan will provide the reworked section to the chairman who will incorporate it in the next draft revision and send it to the WG for review.

* + **New Sub-Section: 7.3.2.2** The pressure relief fitting shall be located on the transformer cover.
  + **New Sub-Section: 7.3.2.3** If an automatic pressure relief valve is used, it shall be operable by using a standard hot-line tool.

Dan Mulkey made a motion to keep 7.3.2.2 and 7.3.2.3 as modified pending further discussion, Adam Bromley seconded the motion. The motion was put to a vote and was approved unanimously.

* **New Section: 7.3.3 Loadbreak Switch**
  + **New Sub-Section: 7.3.3.1** A two-position loadbreak switch shall be provided to energize and de-energize the transformer’s high voltage windings.
  + **New Sub-Section: 7.3.3.2** The switch shall be labeled as “OPEN” and “CLOSED” and shall be distinctly observable at a distance of eight (8) feet from the transformer by the position of the handle.

## C57.12.24 Meeting Minutes – October 21, 2013

* + **New Sub-Section: 7.3.3.3** The switch operating handle shall be located on the transformer cover and shall be operable by using a standard hot-line tool.

* + **New Sub-Section 7.3.3.4** The switch rotation shall be clockwise to close, to energize the high-voltage windings, and counterclockwise to open, to de-energize the high voltage windings.

Brian Klaponski made a motion to accept Sub-Sections 7.3.3.1, 7.3.3.3 and 7.3.3.4 and modify Sub-Section 7.3.3.2 to include the metric value for the distance, Said Hachichi seconded the motion. The motion was put to a vote and was approved unanimously.

The chairman stated that the remaining changes in the draft will be reviewed at the next WG meeting and encouraged the WG to provide additional input prior to the meeting so that the changes can be included in the next draft revision. The meeting was adjourned at 10:45 with the next meeting scheduled for March, 2014 in Savannah, GA.

**Respectfully Submitted by:** Giuseppe Termini, Chairman C57.12.24 Working Group

Aditional discussion at the SC meeting -- Giuseppe then requested that participate more fully in the work of this WG so that more progress can be made. Brian Klaponski stated that we need to draw the proper expertise from those in specific industries to move forward on subjects such as tank material selection where we are not experts.

Brian gave as an example that in talking with a materials expert following his meeting he learned that for example, if you work 304 on equipment that you normally work mild steel, properties of the 304 can be compromised. If you use 316, there is enough chrome and nickel in the material that you won’t have the problem. The recommendation was that stainless be fabricated on dedicated equipment.

The par for 12.24 expires in 2015 so balloting has to be in 2014. Dan Mulkey suggested that Giuseppe take a small part of the standard and send it out for comment and get that resolved so that at least some of the standard can be revised before the par expires.

**C57.12.40 Secondary Network Transformer working Group – Brian Klaponski, Chairman**

IEEE Transformers Committee

**C57.12.40**

**Secondary Network Transformer Working Group**

**St. Louis, MO Meeting Minutes**

**Renaissance Grand Hotel in Munich, Germany**

**Landmark Room**

## 11:00 am October 22, 2013

# Members Present Company

Brian Klaponski (Chairman) Carte International Inc.

John Crouse Crouse Consulting Company

Larry Dix Quality Switch

Said Hachichi Hydro-Quebec

Dan Mulkey PG&E

George Payerle Carte International Inc

John Rossetti Memphis Light, Gas & Water

Jeremy Sewell Quality Switch

Giuseppe Termini PECO (Exelon)

Terry Turvey The Specialty Switch Company

# Guests Present Company

Jeff Antal Eaton/Cooper Power Systems

Paramjit Bhatia Moloney Electric Inc.

Alejandro Marcias Center Point Energy

Cory Morgan Northeast Utilities

Barb Patoine Weidmann

Stefan Siebert Brockhaus Messtechnik

Adam Sewell Quality Switch

Russ Sewell Quality Switch

Christopher Sullivan Heartland

Liz Sullivan ABB

Tas Taousakis PEPCO

1. The WG met on Tuesday, October 22, 2013 at 11:15 am with 10 members and 11 guests.
2. An agenda was presented and approved; and introductions were made.
3. The minutes of the March 18, 2013 meeting in Munich, Germany, were reviewed. Jeremy Sewell made a motion to approve the Meeting Minutes and Bill Wimmer seconded the motion and they were approved unanimously.
4. The meeting consisted of the discussion of proposed changes for the next revision made by various individuals within the WG over the last 3 meetings. The proposed changes are listed below:
5. Comments received from John Rossetti regarding network protector interface issues will be considered for the next standard revision.

John Rossetti volunteered to provide proposed changes to address the network protector interfaces.

1. A suggestion was made to review (sect 3.6) the Audible Sound Levels and possibly align them with the NEMA TR1 document.

The Chair asked the end-users if sound was an in issue for network installations and based on the responses, sound does not appear to be an issue.

1. A suggestion was made to have a second drawing similar to Figure 1 but without a primary switch.

The Chair agreed to create this new drawing for the next meeting.

1. Jeremy Sewell suggested that the last sentence of section 6.2.2.2 be changed to read: “The peak current value for each of the three phases shall be equal to or greater than 107 kA.”

The WG agreed to incorporate the suggested change.

1. Section 6.2.2.4 – Change: “…………….minimum of 5000 amperes rms symmetrical passes through……….” to: “minimum of 15000 amperes rms symmetrical passes through………..” .

There was a lot of discussion around this suggested change. It was agreed that this change will require further discussion and will require input from the end-users.

1. Table 8 – rms, in lower cases, is missing from the header of the third column “Cable test (kV) ac 5 minutes”. This header should read: “Cable test (kV) ac rms 5 minutes”.

The WG agreed to incorporate the suggested change.

1. Table 9 – drop the word “minimum” from the header of the third column: “Minimum dropout voltage” and add the words: “or less” next to numeric values. This column should read: “

Table 9 – drop the word “minimum” from the header of the third column: “Minimum dropout voltage” and add the words: “or less” next to numeric values. This column should read:

|  |
| --- |
| Dropout voltage |
| 15 or less |
| 33 or less |

Larry Dix pointed out that after further consideration that there needs to be a minimum Dropout Voltage and he agreed to propose a minimum dropout voltage range for consideration by the end-users.

1. In consideration of the suggested change to Section 6.2.2.4, a recommendation was made to use as a minimum 600 amps bushings and wells instead of 200 amps as 200 amp wells are not adequate for 15000 amp 5 sec fault levels.

Larry Dix and Tas Taousakis agreed to develop a table to address the current rating of primary deadfront bushings and wells based on available fault currents. Tas stated that there is a 40KA rated elbow in the market.

1. The Chair stated that there should be coordination between the C57.12.24 and this standard in regard to tank corrosion requirements discussed at the previous working group meeting for the C57.12.24 standard.

The C57.12.24 Chair stated that the draft revision of his standard will contain tank material changes that will be addressed at the next WG meeting set for Savannah, GA. Bob Alens was asked if he could attend future meetings of C57.12.24 as he has expert knowledge in this area.

6) The meeting was adjourned at 12:15 pm with the next meeting set for Savannah, GA in March 2013.

Respectfully submitted

B. Klaponski, Chairman

**C57.12.44 Secondary Network Protectors working group – Bill Wimmer, Chairman, Mark Faulkner, Secretary**

**Document #: PC57.12.44**

**Document Title:** **Standard Requirements for Secondary Network Protectors**

**Co-Chairman: Bill Wimmer & Mark Faulkner**

**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 9 Dated: NA**

**Meeting Date: 10/21/2012 Time: 1:45-3:00 PM**

**Attendance:**

|  |  |
| --- | --- |
| Members | **5 of 9** |
| Guests | **7** |
| **Total** | **12** |
| **Guests Requesting Membership** | **0** |

**Meeting Minutes / Significant Issues / Comments:**

The meeting was called to order and a review was made of the members present. Introductions were made of all members and guests present.

It was determined that a quorum of the membership was present.

Dan Mulkey set motion to approve agenda, a second confirmed by Ed Bertolini. We had an unanimous approval.

Approval of minutes was postponed to later in the meeting when projector issues were resolved.

**Old Business**

The two remaining issues were discussed as below:

8.3 Para 1. Comment on fuses

1. Lee Welch – Clause 8.3, paragraph 1. Not normal fuses?? Why would an industry standard require something which it defines as abnormal? This phase adds no value and could create liability issues.

Bill Wimmer suggested a change to eliminate the wording “not normal fuses and are specially….” and replaced with “specifically designed for use in network protectors”

Cory Morgan motioned to accept change, Dan Mulkey second. We had an uanimous approval.

2). John Teixeira – Clause Annex H. Remove reference B3 and renumber the other references.

Mark Faulkner motioned to keep references , Ed Bertolini second. We had an unanimous approval.

The minutes of the last meeting in Milwaukee were reviewed. A motion to approve was set by Dan Mulkey and second by Ed Bertolini. The minutes were approved by a unanimous vote.

All the changes in response to comments were discussed and will be captured in revision 09.

Revision 09 will be sent out electronically in the near term for review and the group will make comments at this time. Working Group members will also be asked (vote) if Revision 09 is ready for recirculation.

**New Business**

The chair opened a discussion on the future of this Working Group. There is concern that shutting down the group for a period of 3-4 years would result in a loss of expertise and discontinuity. Dan Mulkey suggested two options: 1) Making the working group a standing group. 2) to pair two working groups together and cycle between the two every four years. This issue will be discussed at the subcommittee meeting.

Meeting adjourned.

Respectfully submitted,

Bill Wimmer

Dan Mulkey mentioned that pars are good for 4 years and standards are good for 10. We could split up the standard, revise a section, then work on another section and get that one approved and that way we would make progress on at least some of the document.

**Old business**

From a discussion in of Munich regarding a table in C57.12.00, we have not received a reply. We will ask them again. (After our meeting this was discussed with Bill Chui and he indicated that it was being dealt with.)

**New Business**

There was no new business. The meeting was adjourned at 12:00. Next meeting will be in Savannah GA in March 2014.