Distribution Transformer Subcommittee
Task force / Working Group Report

Document #:	**PC57.12.34**
Document Title:	**Requirements for Pad-Mounted, Compartmental Type, Self Cooled, Three Phase Distribution Transformers, 10 MVA and Smaller; High Voltage, 34.5 Nominal System Voltage and Smaller; Low Voltage,15kV Nominal System Voltage and Below**

Chair:	**Ron Stahara**	**Vice-Chair**	**Stephen Shull**
Secretary	**Scott Dahlke**	**Per Cent Complete**	**70**
Current Draft Being Worked On:	**2.4**	**Dated:**	**March 2019**
Meeting Date:	**March 25, 2019**	**Time:**	**3:15 – 4:30**

Attendance:	**Members**	**40**
	Guests	**38**
	Total*	**78**

*** For details of attendance, please refer to AMS system of the Transformers Committee**

Meeting Minutes / Significant Issues / Comments:

Steve Shull called the meeting to order and introductions were made. The rosters were circulated. A "Get Well" card was circulated for Ron Stahara as he was absent due to illness. The names of those in attendance are recorded in the AM system. To establish a quorum, a members list was displayed on the screen and those who saw their names were asked to stand. From the people standing, it was determined a quorum was established. Essential Patent information was displayed and Steve Shull asked for any known essential patents to which no one responded.

The agenda was presented and a motion to accept it was made by Jerry Murphy and seconded by Ed Smith. The motion was approved unanimously. Steve Shull made comment that the Fall 2018 minutes were posted on the IEEE website. A motion was made to accept them by Jerry Murphy and seconded by Igor Simonov. Steve Shull asked the members for any opposition for approving Fall 2018 minutes, to which there was no opposition. The group approved the motion unanimously.

Steve started the review of the most current document at Annex A, Section A3.4. The changes shown were the consensus of the Working Group.

1. "A.3.4.1.1 Dry Well" – Gary King made a comment that he believes the loadbreak dry well canisters have been discontinued. Steve Shull modified wording in second sentence to "The canister can be provided as ~~either loadbreak or~~ non-loadbreak." Steve Shull commented that he will have to look at the wording of this section and will modify accordingly and have ready for next meeting.
2. "A.3.4.1.2 Submersible" – Jerry Murphy asked the group if the submersible full range current limiting fuse is available as loadbreak. Gary King volunteered to verify Jerry's question. Tom Callsen recommended that the last sentence to be changed to the following: "This is normally accomplished by using a type of ~~modified~~ Bayonet fuse assembly…". Jim Dorsten agreed with this wording change. Rhett Chrysler made a comment that he thought the EL fuse holder had loadbreak capability. Steve commented that he believed that Rhett was correct but it could represent a safety issue unless the correct removal procedure is followed to the letter.
3. "A.3.5.1 Weak Link Fuse Assembly (Bayonet or Internal Cartridge)" – No comments on this section

4. "A.3.5.1 Mounting Options" – No comments on this section.
5. "A.3.5.2 Spill Prevention" – The last sentence states " It should be used to make sure there is no positive pressure inside of tank…". Gary King asked about all pressures, specifically negative pressures. Gary King commented that negative pressure could allow moisture to enter the system. Steve Shull reiterated to the group that this section specifically pertained to "Spill Prevention" only. The group was in agreement with the following change in wording "Each bayonet fuse assembly ~~shall~~should be equipped with a means…".
6. "A.3.5.3 Fuse Link Options" – No comments on wording in this section. But a comment was made by Jeff Schneider that oil contamination will occur when many of these fuse option. Steve Shull stated that that was very good point and so he asked Jeff to generate some wording pertaining to "Oil Contamination and Gassing" that can be used at the end of each specific fuse section(s) where this issue could present itself.
7. "A.3.5.3.1 Current Sensing Fuse" – No comments on this section.
8. "A.3.5.3.2 Dual Sensing Fuse" Thomas Callsen asked the question on what temperature that the dual sensing link would melt at. Steve Shull answered Thomas Callsen that it depends on the fuse manufacturer.
9. "A.3.6 Isolation Link" - No comments on this section.
10. "A.3.7 Weak Link Fuse in Series with Partial Range Under Insulating Fluid Current Limiting Fuse" - No comments on this section.
11. "A.4 Under Insulating Fluid Loadbreak Switches" – The group agreed with the following wording change in the last sentence of the last paragraph "To that extent, a means ~~shall~~should be provided of verifying these are sufficiently immersed.". Dan Mulkey made a comment that the oil level must be verified before operating switches.
12. "A.4.1 Labeling" – Jerry Murphy asked the question about where to apply the ground to which he answered as the obvious answer would be on secondary side. Dan Mulkey made comment to change wording in the note from "transformer" to "device". There was much discussion pertaining the labeling of "OPEN/CLOSED" versus "ON/OFF". Dan Mulkey uses both "OPEN/CLOSED" and "ON/OFF" on devices utilizing switches. Steve Shull commented that the wording "ON/OFF" implies transformer operation. Weijun Li made a recommendation to delete the entire note. Gary King asked the group if there was NOT a reason keep the note in this section. There were no objections from the group. Therefore, the note will remain in the section.
13. "A.4.2 Location" – Steve Shull made the comment that the "shall" in this section is important and should remain in this section. There was discussion pertaining of switch location. Rhett Chrysler made comment that from a manufacturer perspective it is easier to put a switch on the High Voltage side versus the Low Voltage side. However, it was pointed out that the section that refers to the auxiliary cabinet needs to reviewed carefully when we get to it as this section could be in conflict.
14. "A.4.3 Switch Rotation" – The group agreed on the following wording changes: "The two-position switch rotation ~~shall~~should be clockwise to close and counterclockwise to open. The four-position switch ~~will~~should be clockwise to initiate the first operation as indicated by the labeling on the switch.".
15. "A.4.4 Current-carrying" – Dan Mulkey suggested that this section should be revised per the following: "The ~~minimum~~ continuous current rating capability ~~shall be either~~ is typically 200 A, 300 A, or 600 A."
16. "A.4.5 Short-time Current Rating" - No comments on this section.
17. "A.4.6 Loadbreak Four Position Switch Types" – Tom Callsen made comment to break out the two-position switches from the four-position switches. Steve Shull made comment that this section is for four-position switches only. The first 2 switch references in the chart depict an "ON/OFF" configuration, but the switches were designed as a four-

position switch. Jim Antweiler made comment that he has customers that utilize (2) two-position switches and/or (3) two-position switches. His comment was that this combination of two-position switches can do the same as a V-blade and T-blade switch combined.

18. "A.4.7 De-energized under Insulating Fluid Tap Changer Switch" – Dan Mulkey explained to the group about HV voltage descriptions pertaining to transformers utilizing a Delta-Wye switch. Jim Antweiler asked the group about including all other types of switches. Jim Antweiler was asked to propose wording depicting the other types of switches.
19. Due to time restraints, "New Business" was not discussed.
20. Steve Shull adjourned the meeting at 4:30 P.M.

Gerald Paiva, a longtime member, made a comment that this Annex sounds like a guide. Steve remarked that since it was an informative annex, it was built in such a way to help the unsophisticated user understand the items that could be provided for a three phase transformer.

Submitted by: Scott Dahlke

Date: 03/25/2019