

Annex K Power Transformers Subcommittee

October 17, 2018

Jacksonville, FL

Meeting Time: 1:30 p.m.

Chair: Bill Griesacker

Vice Chair: Alwyn VanderWalt

Secretary: Daniel Blaydon

K.1 Meeting Attendance

The Power Transformers Subcommittee met on Wednesday, October 17, 2018 at 1:30 PM. The RFID attendance record indicated that 79 out of 112 members of the subcommittee were in attendance; a quorum at the meeting was achieved. A total of 203 individuals attended the meeting; 20 guests requested membership.

K.2 Approval of Agenda and Meeting Minutes

The Chair requested a motion for approval of the proposed meeting agenda. A motion to approve was made by Dan Sauer and seconded by Dave Geibel. The motion was approved by unanimous consent. The approved agenda can be found in Attachment K.2.

The Chair requested a motion for approval of the Spring 2018 meeting minutes. A motion to approve was made by Marnie Roussell and seconded by Dan Sauer. The motion was approved by unanimous consent.

K.3 Chair's Remarks

The chair provided an overview of the present subcommittee membership statistics, including new members and those members which had been moved to guest status.

The chair provided the dates and meeting locations for the next two Committee meetings.

The chair provided an overview of the Working Group and Task Force requirements for the scheduling of meetings, submission of minutes, and other administrative tasks.

K.4 Working Group and Task Force Reports

K.4.1 Revision of C57.12.10 IEEE Standard Requirements for Liquid-Immersed Power Transformers – Gary Hoffman

This group did not meet.

K.4.2 Revision of C57.93 IEEE Guide for Installation and Maintenance of Liquid-Immersed Power Transformers – Mike Lau

This working group met on Monday. There were 84 total attendees, 24 of 44 members present, establishing a quorum. The guide was balloted and received a 91% approval rating (112 returned ballots, 96 affirmative, 7 negative). There were 334 comments. A ballot resolution group was formed and the recirculation ballot was conducted in September. 4 of the voters changed their vote, which resulted in a 94% approval rating. 84 comments remain. They are currently in the process of conducting Recirculation #2. This ballot will close next Thursday.

The complete meeting minutes can be found in Attachment K.4.2.

K.4.3 Revision of C57.125 Guide for Failure Investigation, Documentation, Analysis and Reporting for Power Transformers and Shunt Reactors – W. Binder

This group did not meet.

K.4.4 WG IEC 60214-2 - Tap Changer Application Guide and WG 60214-1-C57-131 - Tap Changers - Craig Colopy

The FDIS (final draft international standard) for the Part 2 Tap Changer Application Guide is completed and ready to be circulated for final review. It was agreed to do an additional recirculation ballot, so members of ballot can see changes made. Previous recirculation was 100% approval with all negatives resolved. Part 1 for Tap Changers and Part 2 will be joint revision standard.

The complete meeting minutes can be found in Attachment K.4.4.

K.4.5 C57.140 Guide for the Evaluation and Reconditioning of Liquid-Immersed Power Transformers – Paul Boman

This group did not meet.

K.4.6 C57.143 – Guide for Application of Monitoring Equipment to Liquid-Immersed Transformers and Equipment – Mike Spurlock

This working group met on Monday. There were 122 total attendees, with 46 members present. A quorum was not established. Presentations were given on work done on Section 5 and Section 1 of the guide. It was noted that there will be a dedicated chapter just for communication of monitoring devices. There was no new business.

The complete meeting minutes can be found in Attachment K.4.6.

K.4.7 Revision of C57.148 Guide for Control Cabinets for Power Transformers - Joe Watson

This working group met on Monday. There were 33 total attendees, with 16 of 29 members present, establishing a quorum. Various sections of the document have been revised by Task Forces. Some more work will be required to clean up some sections of the existing standard. The WG plans to issue a straw ballot in a couple months and will have results by the Spring meeting. They intend to go to ballot pending the results.

The complete meeting minutes can be found in Attachment K.4.7.

K.4.8 Revision of C57.150 Guide for the Transportation of Transformers and Reactors Rated 10,000 kVA or Larger – Greg Anderson

This working group met on Tuesday. There were 122 total attendees, with 24 of 37 members present, establishing a quorum. This guide was originally published in 2013. A revision is due by December 2022. Some of the topics discussed during the meeting for consideration in the next revision included impact recorders, shipping bracing, weather impacts, mobile substations and alternative fluids (natural esters).

The complete meeting minutes can be found in Attachment K.4.8.

K.4.9 Development of PC 57.153 Guide for Paralleling Transformers - Tom Jauch

This group did not meet.

K.4.10 Development of PC57.156 Guide for Transformer Tank Rupture Mitigation of Liquid-Immersed Power Transformers and Reactors - Peter Zhao

This group did not meet.

K.4.11 Development of PC57.157 Guide for Conducting Functional Life Tests for De-Energized Tap Changer Contacts - Phil Hopkinson

This group did not meet.

K.4.12 Task Force on V/Hz Curve – Joe Watson

This Task Force did not meet this week. Conference calls will be arranged before next meeting. If you would like to become part of Task Force, contact Joe Watson or Kipp Yule.

K.4.13 Task Force on Condition Assessment Guide – Brain Sparling

This working group met on Tuesday. There were 108 total attendees, with 98 members present, establishing a quorum. The task force spent time reviewing the scope and the CIGRE guide on condition assessment. A vote was passed recommending to the Sub-Committee that a new guide be established for condition assessment.

Brain Sparling moved to form a Working Group to develop a new transformer condition assessment guide. Sanjib Som seconded motion. Gary Hoffman spoke in opposition, stating that there is no scope or title. Dan Sauer seconded Gary's opinion that a Working Group cannot exist without a par. Dan Sauer moved to table the primary motion until the title, scope and purpose is to be defined. Kris Zibert seconded the motion. This motion passed by unanimous consent. This will be addressed as an old business item during the next subcommittee meeting.

The complete meeting minutes can be found in Attachment K.4.13.

K.5 Old Business

IEEE C57.135 Phase Shifting Transformers, joint IEC/IEEE Standard - It was noted that no work is being done on this standard at this time. It was recently approved and is not up for revision. The document will be reviewed during the next revision cycle.

K.6 New Business

Roger Fenton (consultant) made a motion to make an amendment to C57.12.10 to add provisions to radiators for the purpose of installing monitoring equipment. Roger explained that current monitoring provisions on drain valves are not sufficient for this purpose. This motion was seconded by Marcos Ferrera.

The following discussion took place on the floor:

-Brian Sparling stated that this would belong in the C57.143 monitoring guide, not in base standard C57.12.10

-Dan Sauer stated that deciding whether to include fittings as a standard requirement would determine whether it should be included in a guide or standard.

-Gary Hoffman stated that C57.12.10 covers minimum requirements, not maximum requirements and reiterated that the group needs to decide whether this should be a requirement for all transformers.

-Joe Watson stated that monitoring provisions are not currently included in C57.12.10 in any form.

-Bill Griesacker stated that the proposed change is something new that is not broadly adopted in the industry and the request would make this new device a standard requirement for all transformers.

-Gary Hoffman called the question which seconded by Dan Sauer.

-There were 41 in favor, 2 opposed, and 4 abstentions. This effectively ended further discussion on the original motion.

-A vote on the motion to amend 12.10 was called.

-There were 4 in favor, 41 opposed, 3 abstentions, and therefore the motion did not pass.

There was no further new business.

K.7 Adjournment

The meeting was adjourned at 2:24 pm

K.8 Attachments

Attachment K.2 – S18 PTSC Agenda

Attachment K.4.2 – PC57.93 Installation Guide

Attachment K.4.4 – WG IEC 60214-2 - Tap Changer Application Guide and WG 60214-1-C57-131 - Tap Changers

Attachment K.4.6 – C57.143 Monitoring Guide

Attachment K.4.7 – PC57.148 Control Cabinets

Attachment K.4.8 – C57.150 Transportation Guide

Attachment K.4.13 – Task Force on Condition Assessment Guide

AGENDA

Power Transformers Subcommittee IEEE PES

Transformers Committee Wednesday,

October 17, 2018, 1:30-2:45 PM

Hyatt Regency Jacksonville Riverfront Hotel; Jacksonville, Florida, USA

Bill Griesacker – Chair, Alwyn VanderWalt – Vice Chair, Dan Blaydon – Secretary

1. Call to order
2. Determine quorum
3. Approval of previous meeting minutes
4. Chair remarks
5. Working Group and Task Force reports
 - a. WG Revision to C57.93, Installation Guide M. Lau
 - b. WG 60214-1-57-131, Tap Changers (on hold) C. Colopy
 - c. WG Tap Changer Application Guide IEC 60214-2 C. Colopy
 - d. WG Revision of C57.143, Monitoring Guide M. Spurlock
 - e. WG Revision of C57.148, Control Cabinet Standard J. Watson
 - f. WG Revision of C57.150, Transportation Guide G. Anderson
 - g. TF Transformer V/Hz Curves J. Watson
 - h. TF Transformer Condition Assessment Guide B. Sparling
6. Old business
 - a. IEEE C57.135 Phase Shifting Transformers, joint IEC/IEEE Standard - document revision will start in IEC. Task force to be formed to determine the scope for revising the standard.
7. New business
8. Adjournment

Attachment K.4.2

Working Group for Installation of Power Transformers C57.93
1:45 pm – 3:00pm
Hyatt Riverfront Grand Ballroom 1, Jacksonville, FL.
Monday, October 15th, 2018

Chairman Mike Lau
Vice Chairman Alwyn VanderWalt
Secretary Scott Reed

The meeting was called to order at 1:46 pm by Chair Mike Lau.

There were 26 of 44 members present. There were 40 guests and 15 visitors. A membership quorum was achieved.

Agenda

1. Attendance Roster Sign In / Quorum Check
2. Patent Call
3. Approval of the Agenda
4. Approval of the Spring 2018 minutes
5. March/April Ballot
6. September Recirculation #1 Ballot
7. Recirculation #2 Ballot
8. Unfinished Business
9. New Business
10. Adjournment

The Spring 2018 Minutes were unanimously approved. The Fall 2018 Agenda was unanimously approved.

Chairman Lau posted the Patent Claim. No notifications or comments were received.

Chair's Remarks:

Chairman Lau remarked that the PAR had been extended for one year. Next, he announced there were 132 eligible voters for the March 2018 ballot: 96 voted to affirm the guide, 9 negative votes were submitted with comments, and 7 voters that abstained. The guide met the minimum threshold of 75% approval rate. There were 339 comments submitted, mostly editorial (should/shall), so the Ballot Resolution Group divided the comments for review. The Ballot Resolution Group consisted of:

Deanna Woods	Joe Watson
Wally Binder	Kevin Sullivan
Pat Rock	Alan Sbravati
Stephanie Denzer	Don Dorris
Mike Lau	Alwyn VanderWalt
Scott Reed	

A revised draft 1.6 was sent out for recirculation on September 11, 2018. Three previous negative votes affirmed the revised guide for a total of a 94% approval. The second ballot revision had 84 comments

and again, mostly editorial (should/shall, immersed/filled). The revised guide has been updated and is in the process of going through a 2nd Recirculation ballot. IEEE was consulted, some of the comments were accepted, some revised and some rejected—i.e., the title of the guide is “Immersed” so “immersed” should be the primary term used. The ballot will be closed by the October 25, 2018.

No new business was discussed.

The meeting was adjourned at 1:58 pm. If the 2nd Recirculation ballot is successful, this will be the last meeting of this working group.

Scott Reed, Secretary

Attachment K.4.4

Meeting Minutes	Page 8 of 20	REV 0
P60214-2	Working Group #	
Tap-Changers - Part 2: Application guide	Working Group Title	

Chair: Craig A. Colopy **Vice-Chair** Axel Kraemer
Secretary Adam M. Sewell

Current Draft Being Worked On: FDIS

PAR Expiration Date: December 31, 2018

Meeting Date: 16 October 2018 **Time:** 8:00am to 9:15am

Location: Jacksonville, FL

K.9 Attendance:	K.10 Members	<u>16/28</u>
	K.11 Guests	<u>54</u>
	K.12 Guests Requesting Membership	<u>12</u>
	Total (recorded in AMS)	<u>70</u>

Meeting Minutes / Significant Issues / Comments:

1. Meeting was called to order at 8:00 am, October 16, 2018.
2. Introductions were made and attendance sheets were passed out.
3. More than 50% WG members were in attendance so a quorum was established
4. Call for patents were made with no response from any attendees.
5. Agenda for this meeting was unanimously approved.
 - a. Motion-Dave Geibel, Dieter Dohnal-second
6. IEEE Minutes from March 2018 in Pittsburgh were unanimously approved.
 - a. Motion-Dave Geibel, Dieter Dohnal-second
7. Chair and Vice Chair comments
 - a. IEC FDIS is ready and scheduled to be distributed and scheduled by end of Oct 2018
 - i. FDIS technical comments aren't allowed, only editorial
 - b. IEEE recirculation ballot will go out after IEC FDIS – scheduled by start of Nov 2018
 - c. IEC CDV comments were reviewed by Vice Chair
 - i. CDV comments were addressed and now FDIS is ready for distribution

- ii. Comments file will be posted on 60214-2 website
 - d. 60214-1/C57.131 update
 - i. IEEE will do joint revision with IEC 60214-1 when stability date is up in 2020/2021
 - ii. IEEE C57.131 will not be revised and left to expire
- 8. Next meeting – no planned meetings.
- 9. Meeting adjourned at 8:45am.
 - a. Motion- Marc Foata, second-Dieter Dohnal

Submitted by: Craig A. Colopy

Date:

Attachment K.4.6

**Revision to C57.143 – “Guide for Application of Monitoring Equipment to
Liquid-Immersed Transformers and Components”
Transformer Monitoring Working Group**

Monday, October 15, 2018

Jacksonville, FL, USA

Minutes of WG Meeting

The meeting was called to order at 3:15 pm by Chair Mike Spurlock. Vice Chair Brian Sparling and Secretary Elizabeth Bray was also present.

This was the fourth meeting of the working group, rosters were circulated and members asked to stand to determine quorum, quorum was not reached with 46 of 103 members present. The attendance for the meeting was as follows:

Number of Members in Activity = 103

Number of Members Present = 46

Quorum Present = 44.7%

Number of attendees = 122

Attendees requesting Membership = 9 (To be reviewed based on Participation to date)

The WG does plan to meet at the Spring 2019 Transformers Committee Meeting in Anaheim, CA.

PAR Status: PAR for a Revision to an existing IEEE Standard

Type of Project: Revision to IEEE Standard C57.143-2012

PAR Request Date: 19-Nov-2016

PAR Approval Date: 17-Feb-2017

PAR Expiration Date: 31-Dec-2021

The Agenda for the meeting was reviewed as seen below.

A. MEETING AGENDA

1. Welcome & Introduction
2. Call for Patent Disclosure
3. Roster Circulation
4. *Quorum Roll Call*
5. Chair Remarks
6. Recognition of past and introduction of new Secretary for C57.143 WG.
7. Recognition and thanks to volunteers.
8. New Members – Indicate on Roster
9. Call for approval of Spring 2018 Meeting Minutes (Pittsburgh, PA)
10. Working Group Activities
 - a. Poorvi, Emilio, and Bill update on their team’s progress.

- a.i. Chapter 5 “Monitored Parameters”.
- a.ii. Chapter 6 “Monitoring Systems and Equipment”.
- a.iii. Discuss possible new Chapter on Communications and Connectivity.
- a.iv. Discuss possibility to include Annex “E” (informative) “Communications Protocols for On-line Monitoring Equipment” into the new Chapter.
- b. Brian Sparling to discuss progress to date and plan going forward for Chapter 1 “Overview”.

11. New Business

Mike Spurlock mentioned a letter of assurance (LOA) was received previously on a patent claim and asked for any additional patent claims against C57.143 to be raised by attendees. One additional patent claim was received during the meeting, which was not related to the first claim.

Mike Spurlock reviewed the Par Status and Scope and Purpose for the PAR with the working group.

Mike Spurlock shared a recent AEP transformer failure with a news clip.

Bill Whitehead presented on the update on the work being down around Chapter 5. Each topic will include the general purpose of the technology including detecting time, operating conditions, technology types with installation and maintenance description. It was recommended that Chapter 5.1 (thermal properties) and 5.3 (load) be combined. Due to the lack of quorum this topic was brought up for discussion only. Volunteers have been emailed for potential meetings the week of November 5th 2018. .

Brian Sparling gave the background on the existing Chapter 7 material. The source of the chapter came from IEEE C37.10.1 Application to monitoring circuit breakers. Also noted that Cigre looked at the economics in a different method with technical risk into financial terms. The Cigre guides are TB 248, Guide on Economics of Transformer Management June 2004. Also mentioned during the meeting was the possible recommendation for fitting the means for future addition of monitoring on new transformers. The Cigre Guide for Recommendations for Condition Monitoring and Facilities for Transformers is TB 343 April 2008, provides a recommendation for this need. Both Guides are available (in soft copy) from the Cigre web site at no cost. The source of this was independent of vendors.

The new Chapter 6 will be the old Annex E on the topic of Communications. Brian Sparling agreed to lead this work. Brian also suggested investigating outside this working group for assistance. The previous Annex E was compiled with the assistance of the IEEE Substation Committee.

No new business could be conducted so the committee opened the floor to comments and suggestions. What about updating Chapter 7. Luiz Cheim asked the question who is going to use this data? Gary Hoffman brought up the point that justification for monitoring maybe should be looked at. Gary would volunteer for this task. Gary also plugged the new working group for distribution transformer monitoring and justification for monitoring distribution transformers was on their agenda for tomorrow.

A motion to Adjourn was given by Marcos Ferreira and seconded by Joe Watson, Meeting adjourned at 4:00pm.

Attachment K.4.7**Revision of C57.148 Standard for Control Cabinets for Power Transformers**

Joe Watson: Chair, Weijun Li: Vice-Chair, JF Collin: Secretary

The working group met at 11:00 AM on Monday 10/15/2018 in Grand Ballroom 1 at the Hyatt Regency Jacksonville Riverfront in Jacksonville, Florida. 33 attendees were recorded, including 16 of the 29 members (55.2%). Quorum was reached. It was the fifth official Working Group meeting for this project. The complete attendance record is available in the AMS System. 1 guest requested membership.

As required by the main committee, the Patent question was asked at the beginning of the meeting. No essential patents were claimed. The Pittsburgh Spring 2018 meeting minutes and the Jacksonville Fall 2018 meeting agenda were approved unanimously.

The WG chairman said the newest revision of the standard was sent out for WG's review prior to this meeting. Markus Stank asked why the comment resolution spreadsheet was not included with the latest draft. It was clarified that only a clean copy of the latest Draft and another copy with all changes shown were sent to the WG before the meeting. The Task Forces' straw ballot comment resolution list was not sent to the WG. All pertinent comments were discussed in the previous two meetings and resolved by the task forces. Editorial changes by the WG officers have also been incorporated into the latest revision.

Gary Hoffman asked if any additional straw ballots are planned. The WG chairman confirmed that one straw ballot was conducted within the working group and we may have another one following the next revision of the document. The WG chair also estimated that the working group should be able to complete the document and go to ballot after 2 more meetings. The PAR expires at the end of 2020.

Section 5.17 Lights and AC Power Outlet was then discussed. Markus Stank asked why LED was removed from the text. After an extensive discussion, the WG agreed that the cabinet could be illuminated with any current or future types of light approved by the User, but that the light fixture should be designed to accept the most common currently available type when replacement is needed and agreed to avoid discussion on different types of lights and just update the section to read the following: "...The light fixture shall include a standard 26mm, E26 base."

Regarding Figures A.4, A.5 and A.6 of Annex A, Ryan Musgrove proposed to replace Schematic with Scheme to reconcile the updated definition and requirements for Schematics. This was agreed and the applicable changes will be included in the next revision.

Gary Hoffman inquired about his previous comment regarding the optional contactor monitoring capability. It was confirmed that this particular comment has already been addressed in 5.20.1 of the updated document.

Another point of discussion at the meeting was regarding the Sample Ordering Form in Annex B. WG Chairman asked if any users, OEMs or control cabinet suppliers have ever used this ordering form. JF Collin responded that he has never seen this request and said OEMs usually have their own ordering form based on their own standard or special request from the end user. Ryan Musgrove said that the WG needs to review Annex A and Annex B and ensure that all recent changes will be reflected. Wallace Binder proposed to replace the title of "Sample ordering form" with "Sample check list" and this was agreed by the WG.

The WG Chairman said that the document will be updated accordingly and will be made available for the WG's review 2 or 3 months before the next meeting. Another straw ballot will be done.

A motion to adjourn was proposed by Kris Ziebert and seconded by Patrick Rock. The meeting was adjourned at 12:00 PM. The group will meet again in Anaheim, California in March 2019.

Attachment K.4.8

C57.150 – IEEE Guide for the Transportation of Transformers and Reactors Rated 10 000 kVA or Higher

Tuesday, October 16, 2018; 11:00 a.m. – 12:15 p.m.

Hyatt Regency Jacksonville Riverfront Grand Ballroom 5

Jacksonville, Florida, USA

Minutes of WG Meeting

The meeting was called to order at 11:03 a.m. by Chair Greg Anderson. Vice Chair Ewald Schweiger and Secretary Marnie Roussell (writer of Minutes) were also present.

There was a total of 122 people present. This included 24 members present of the 37 members in the working group, resulting in a 64.9% quorum. Attendance was taken utilizing RFID tabulation. Paper rosters were not passed around, so any guests desiring membership were asked to contact one of the WG leaders.

Agenda

1. Welcome and Introductions
2. Patent Issues
3. Determination of Quorum (determined by RFID system)
4. Approval of the Minutes
5. Old Business
 - a. Timeline of Project
 - b. Review of assigned work
6. New Business
7. Additional discussion, ideas
8. Adjourn

Introductions of the Chair, Vice Chair, and Secretary were made. Attendees were asked to introduce themselves and indicate their affiliations when making comments or asking questions (although this was later determined to be an unnecessary task).

A call for essential patent claims was made. No patent claims were identified.

There were no objections to the agenda as identified above.

Minutes of the Spring 2018 Meeting were posted within the minutes of the SC Power Transformers. The minutes were approved with a motion by Eduardo Garcia and seconded by Susan McNelly.

List of Meeting Attendees is provided below. Those identified with an asterisk are WG Members in attendance. Those granted membership at this meeting are noted with two asterisks (**)

Hamid Abdelkamel*
 Mario Alonso**
 Gregory Anderson*
 Javier Arteaga*
 Roy Ayers
 Jay Bennett
 Mats Bernesjo
 Enrique Betancourt
 Wallace Binder*
 William Boettger*
 Sanket Bolar
 Paul Boman
 John Brafa
 David Calitz
 Stephen Cameron
 Juan Castellanos
 Jorge Cruz Cienfuegos
 Paul Dolloff**
 Don Dorris
 Joshua Elliott
 James Fairris*
 Howard Fennell
 Eduardo Garcia*
 James Gardner
 Jorge Gonzalez de la Vega
 Jeffrey Gragert
 James Graham
 Bill Griesacker
 Shamaun Hakim
 Robert Harper
 Thomas Hartmann
 Joseph Holleran
 Jill Holmes
 Anirudhdhsinh Jhala
 Grace Jones
 Stephen Jordan**
 Akash Joshi
 Kurt Kaineder
 Gael Kennedy
 Zan Kiparizoski
 Lawrence Kirchner
 Peter Kleine**
 John Lackey
 Michael Lau*
 Antoine Lecomte
 So-young Lee*
 DongGi Lim
 A. Pedro Lima
 Jacky Lin
 Parry Lively
 Kerry Livingston
 Mario Locarno*
 Mark Lowther, Jr.
 Andrew Lugge
 Tara-lee MacArthur
 Richard Marek
 Rogelio Martinez
 Douglas McCullough
 John McFadden

Susan McNelly*
 Vinay Mehrotra
 Michael Miller
 Paul Morakinyo
 Martin Munoz Molina
 David Murray
 Ryan Musgrove
 Paul Mushill
 Shankar Nambi**
 Anthony Natale
 William Oliver
 Anastasia O'Malley
 Jamie Partington
 George Partyka
 Brian Penny
 Ion Radu
 Rakesh Rathi*
 Jeffrey Ray
 John Reagan
 Kevin Riordan
 Marnie Roussell*
 Jose Salva
 Oliverio Sanchez
 Amitabh Sarkar
 Mark Scarborough
 Eric Schleismann
 Alfons Schrammel*
 Ewald Schweiger*
 Pugazhenthii Selvaraj
 Cihangir Sen**
 Samuel Sharpless*
 David Sheehan
 Mark Shem-Tov*
 Jin Woo Shin
 Yukiyasu Shirasaka
 Richard Simonelli
 Andre Simons*
 Kenneth Skinger*
 Christopher Slattery
 Arthur Speegle
 Mike Spurlock
 Brad Staley
 Andrew Steineman
 Gregory Stem
 Kevin Sullivan*
 Charles Sweetser
 Craig Swinderman*
 Radoslaw Szewczyk
 Troy Tanaka
 Robert Thompson
 Krishnamurthy Vijayan**
 Dharam Vir
 Waqar Wahid
 Hugh Waldrop
 David Wallach*
 Bruce Webb**
 Matthew Webb
 Kenyon Webber
 Peter Wei

Matthew Weisensee*
 Daniel Weyer
 Jeffrey Wright
 Kris Zibert*

Timeline

Greg provided a brief history of the document and the timeline for the revision. He indicated we need to essentially have a complete draft done at least a year prior to the 12/31/2022 expiration of the PAR.

Revision Topics/Assignments

The Task & Assignments were reviewed and status provided.

Assignments Chart			
Task	Brief Scope (see meeting minutes)	Assigned To (team assigned to each task)	Status
CIGRE Guide	Compare CIGRE document 673 - WG A2.42-2016 to our Guide. Identify topics to be included.	H. Abdelkamel, M. Locarno, K. Vijayan, S. Nambi, E. Schweiger, B. Webb	Done
	#3 Definitions	Paul Dolloff, Mario Alonso	WIP
	#4 Transport Incidents - case studies	Paul Dolloff, Mario Alonso Need more volunteers	WIP
	#5 Design Considerations for Transportation	Need more volunteers	WIP
	#7 Design review	K. Vijayan, Mario Alonso, A. Jhala	WIP
	#8, 12, 13 Transport (process, planning, instructions)	Need more volunteers Shankar Nambi	WIP
	#9 10 Impact recorder application and data interpretation	Paul Dolloff Need more volunteers	WIP
	Annex Flowchart for test/conditions after transport	Need more volunteers	WIP
Swimlanes	Helpful "matrix/table" to Guide	D. Wallach	Done
Impact Recorders	Enhance section on impact recorders	S. Nambi, K. Nunn, R. Rathi, J. Watson, P. Dolloff	
Internal Bracing	Add guidance (careful, a design issue!)	R. Verdolin, J. Watson, M. Alonso	
External Bracing, Lashing, etc.	Provide some guidance	Kris Zibert Need more volunteers	
Exceeding Impact Limits	Add: What to do if specified impact limits are exceeded.	R. Verdolin, J. Watson	
Tests	Compare Tests, C57.150 vs. C57.152	W. Binder, J. Watson	
Air Pressure	Add: How internal air pressure changes w/ambient temperature.	J. Arteaga, Peter Kleine	WIP
SFRA	Enhance section on SFRA	G. Anderson, R. Su, K. Sullivan	
C57.93, Installation Guide	Review C57.93 for any overlap and conflicts.	J. Sen, Mike Lau	Done
Shipping w/Natural Ester Fluids	Add section of unique issues	R. Simonelli, A. Jhala	
Mobile Subs	Add section of unique issues	K. Vijayan Need more volunteers	
Design Review Checklist	Checklist of discussion topics during a design review	K. Vijayan, Mario Alonso, A. Jhala	

Ewald Schweiger summarized an initial review of the CIGRE Guide on Transformer Transportation, WG A2 42 (CIGRE Proceedings 673). Bruce Webb, Ewald Schweiger, Mario Locarno, and Shankar Nambi met October 11, 2018 to finalize the recommendations from 673 to be included in C57.150. Shankar presented the recommendations to the working group. Volunteers were requested to assist in incorporating the details in C57.150. The presentation and Comparison Matrix details will be posted to the website.

Swim Lanes

Dave Wallach completed the Swim Lanes Concept matrix. It is posted to the website.

Impact Recorders

Paul Dolloff volunteered to assist the existing team with this effort.

Field Tests

Wallace Binder indicated that the working group C57.152 will start in about 2020. The working group for C57.150 will make a recommendation to add a column indicating when to perform the tests.

Air Pressure

Peter Kleine volunteered to assist Javier Arteaga with this effort.

C57.93 Installation Guide

Mike Lau will be assisting Jon Sen to prevent C57.150 from repeating material already stated in in C57.93 Installation Guide. C57.93 refers to C57.150 and indicates a clear demarcation between the two guides as the point at which the transformer is placed on the foundation. Jon Sen noted that C57.93 is more detailed than C57.150 and suggested adding additional detail to match C57.93 without repeating the material.

Shipping w/Natural Ester Fluids

Richard Simonelli and Anirudhdhsinh Jhala volunteered to develop this topic.

Mobile Sub

Krishnamurthy Vijayan volunteered to develop this section, but additional volunteers are desired.

Design Review Checklist

Dave Wallach suggested that the working group add a Design Review Checklist to the guide. Krishnamurthy Vijayan, Mario Alonso, and Anirudhdhsinh Jhala volunteered to develop this checklist.

New Business – There was no new business

The meeting was adjourned at 11:54 p.m. with a motion by Wallace Binder that was seconded by Samuel Sharpless.

The Working Group plans to meet at the Spring 2019 Transformers Committee Meeting held March 24-28 in Anaheim, California USA.

Greg Anderson
WG Chair

Ewald Schweiger
WG Vice Chair

Marnie Roussell
WG Secretary & Technical Editor

Location: Jacksonville, FL

Meeting Room: Grand Ballroom 5, Hyatt Hotel

Date: Tuesday, Oct 16, 2018

Time: 9:30 AM – 10:45 AM hours

Meeting Minutes Task Force on Condition Assessment

- Introductions
- The Chair and Vice-Chair could not attend the Pittsburgh meeting and Joe Watson stepped in to chair the meeting.
- The Task Force met at 9:30 AM on Oct 16, 2018 in the Grand Ballroom 5 of the Hyatt Hotel with 108 attendees (going by roster) in total with 51 (hand count) of the 98 TF members present. A quorum was present.
- Call for patents – there were no issues.
- The Jacksonville meeting agenda was approved and adopted.
- The previous minutes from Louisville and Pittsburgh were approved- proposed by Luiz and seconded by Joe Watson.
- Brian Sparling: Brian asked the TF if we need to develop a new condition assessment guide or revise the existing C57.140 guide. He identified a number of gaps between the almost approved CIGRE A2.49 guide and the C57.140 guide. Brian stated that CIGRE is okay with the idea of using their document provided IEEE makes the necessary acknowledgement while revising the C57.140 guide.
- Joe Watson felt that we should open up the C57.140 guide and revise it. Paul Bowman also supported this idea.
- Tom Prevost supported the idea of opening up C57.140 and revise the necessary sections to fill the gaps but not necessarily copy the A2.49.
- Patrick Picher started a discussion on Chapter 7 of C57.140. Joe Watson mentioned C57.140 has considered the individual failure probabilities of all components to obtain an overall cumulative probability which in turn provides input to the overall transformer failure probability. Luiz Cheim suggested we should focus on RCM evaluation method in the revision of C57.140 and not base it on simple health indices as used by many utilities now. Brian added that A2.49 guide has a good condition assessment method and severity of condition section.
- Tom Prevost reminded the TF that C57.140 contained many sections covering repairs, life extension, component upgrading and that if C57.140 is to be revised then its scope will have to be changed.
- Ali Naderian felt that CIGRE is a solid guide for condition assessment, but we have to be careful about how we go about using it.
- Roger Fenton felt that A2.49 is too complex and we should look at oil condition and gas energy levels to simplify the methods of arriving at condition assessment indices.
- Jeffrey Wright stated that condition assessment is not in the scope of C57.140 and will need to be added if it is revised.
- Poorvi Patel mentioned that C57.140 is more focused on reconditioning transformers.
- Joe Watson felt we should lay guidelines for condition assessment in C57.140 and gave the example of how DGA was introduced in 1980 but analytical tools were not available until much later.

- Bill Whitehead and Emilio proposed a motion to close this TF and open up C57.140 to add knowledge. Joe Watson felt we could add the chapters to C57.140 to fill the gaps with A2.49. Jim Graham suggested we move that the TF has completed its work and let the SC make this recommendation.
- Tom Prevost made the motion that the TF recommend to the SC that a new WG be started to develop a new condition assessment guide. Luiz seconded it. Sue asked if we to consider if C57.140 should also be revised. The motion passed with 44 votes in favor and 7 opposed to it.
- Jim Graham thought that we could make more than one recommendation to the SC
- David Wallach (seconded by Craig S) moved a second motion to open C517.140, perform gap analysis and make recommendations to the SC. Joe Watson and Tom Prevost objected to this motion.
- Bill Griesacker, the SC chair, felt that we need to make only one recommendation from the TF. After some discussion, David W withdrew his motion (seconded again by Craig S).
- Conclusion reached is to make the recommendation to the Power Transformers SC, to begin the process of developing a new Guide for the Condition Assessment of Power Transformers.
- The TF, having completed its task has now disbanded
- The TF meeting was adjourned after this discussion.

SUBSEQUENT TO THE TF meeting, additional information became available at the Power Transformers SC meeting,

- 1) During the discussion in the Power Transformers SC, the Chairman was informed by Gary Hoffman, that our task has not been completed.
- 2) Though we did discuss a scope and title in previous meetings, the TF must come up with a revised Title and Scope and a Purpose that focusses on condition assessment, and recommend a new PAR to the PTSC, to move forward.
- 3) Therefore, there will be a meeting of the TF for Condition Assessment at the Spring meeting in Anaheim. The objective of the meeting will be the development and approval of the items detailed above.
- 4) Between now and the spring meeting, Kumar Mani and I will be arranging some WEB or conference call meetings for the TF members to have some preliminary discussions on the above noted points

Brian Sparling Chair

Kumar Mani Secretary