

## TASK FORCE FOR REVISION TO LOW FREQUENCY DIELECTRIC TESTS

Virtual Meeting – April 27, 2021 12:55 pm CDT

Chair: Bill Griesacker

Vice Chair: Daniel Blaydon

Secretary: Myron Bell

1. The meeting was called to order at 12:55 PM.
2. A poll was conducted via Webex to determine whether a quorum was present. Based on the preliminary results, a quorum was achieved.

Attending members were counted and quorum was verified by the Webex Report, which is provided in summary below:

### Attendance

	Webex
Total Attendees	80
Total # Of Members	56
Members Present	49
Quorum Present	YES

3. The chair requested the working group to approve the the meeting agenda. There were no objections to unanimous approval of the agenda.
4. The chair requested the working group to approve the meeting minutes from the 2020 Spring Transformers Committee meeting held virtually. There were no objections to unanimous approval of the meeting minutes.
5. Task Force on PD Testing of Class 1 Power Transformers report by Don Ayers (Appendix A – Meeting Minutes)

Don provided a summary report on the Task Force meeting that occurred on Monday, April 26<sup>th</sup>. A quorum was achieved at the meeting. A motion was made to “Establish a section on C57.12.00 to express the agreed acceptance levels for PD for Class I Power Transformers as those contained in C57.12.90-2015 (500 pC for Max Acceptable, and 150 pC for Max Increase)”.

Don Ayers agreed to draft language and proposed section numbering in both C57.12.00 and C57.12.90. The draft language will be circulated to the voting membership for comments and vote for approval.

6. PD Limits in Factory Testing

Language for factory PD limits was sent to the C57.12.90 members for comment.

A study group will be formed for the further development of the Class II power transformer partial discharge testing procedure and limits. These additional developments would be for the next revision of the C57.12.90 standard after the current revision is published. The chair asked for volunteers for this new study group.

## 7. Review of Survey Results for PD in Bushings During Transformer Factory Testing

The chair reviewed the history of this survey and provided a detailed summary of the results and comments received. A discussion was held with various individuals providing feedback on their experience with venting bushings during factory testing, with proposed wording to be added to standards.

The proposed wording was as follows:

“If the partial discharge is observed during the induced testing of the transformer and appears to be generated within an OIP bushing(s), it is permissible to “vent” the bushing(s) to the atmosphere using the bushing manufacturer’s instructions to allow for the dissipation of gas bubbles in the oil. Gas bubbles sometimes form following a temperature rise test during cool down or may be present for other reasons. Reestablishment of the bushing gas space blanket and resealing of the bushing must also be performed in accordance with the bushing manufacturer’s instructions following completion of the induced test.”

Eric Weatherbee, Bushing SC chair, joined the meeting at 2:59 PM and was read a synopsis of the discussion, along with proposed wording for addition to standards. Eric suggested Bill Griesacker should present the wording to the Bushing SC on Thursday, 4/28/21. This proposal was accepted.

Further discussion was tabled until feedback is received from the Bushing SC.

## 8. Old business

None.

## 9. New business

C57.12.90 Ballot Comment resolution

- 14 comments were received, regarding low frequency tests

Raj Ahuja made a motion to, “Form a study group to resolve all ballot comments for low frequency dielectric tests.”

A 2<sup>nd</sup> for the motion was received from Akash Joshi.

This motion passed without objection.

The chair asked for volunteers for this study group, and for the comment resolution to be completed within the next 30 days.

10. The meeting was adjourned at 2:08pm CDT

11. Our next meeting will occur in October of 2021, during the fall committee meeting.

## Meeting Attendance

First Name	Last Name	Company	Member?
Raj	Ahuja	Raj Ahuja Consulting	Yes
Tauhid Haque	Ansari	Hitachi ABB Power Grids	Yes
Elise	Arnold	SGB	
Javier	Arteaga	Hitachi ABB Power Grids	
Donald	Ayers	Ayers Transformer Consulting	Yes
Suresh	Babanna	SPX Transformer Solutions, Inc.	
Christopher	Baumgartner	We Energies	Yes
Myron	Bell	Delta Star Inc.	Yes
Daniel	Blaydon	Baltimore Gas & Electric	Yes
William	Boettger	Boettger Transformer Consulting LLC	Yes
Jeffrey	Britton	Phenix Technologies, Inc.	Yes
David	Calitz	Siemens Energy	Yes
Juan	Carrizales	Prolec GE	
Nikolaus	Dillon	Dominion Energy	
Thomas	Eagle	SPX Transformer Solutions	
Megan	Eckroth	EATON Corporation	
Feras	Fattal	Manitoba Hydro	
Reto	Fausch	RF Solutions	Yes
John	Foschia	SPX Transformer Solutions, Inc.	Yes
Anthony	Franchitti	PECO Energy Company	Yes
Eduardo	Garcia Wild	Siemens Energy	
Shawn	Gossett	Ameren	Yes
Bill	Griesacker	Duquesne Light Co.	Yes
Detlev	Gross	Power Diagnostix	Yes
Kyle	Heiden	EATON Corporation	
Sergio	Hernandez Cano	Hammond Power Solutions	Yes
John	Herron	Raytech USA	Yes
Philip	Hopkinson	HVOLT Inc.	Yes
John	John	Virginia Transformer Corp.	Yes
Stephen	Jordan	Tennessee Valley Authority	Yes
Akash	Joshi	Black & Veatch	Yes
Anton	Koshel	Delta Star Inc.	
Axel	Kraemer	Maschinenfabrik Reinhausen	
Mark	Lachman	Doble Engineering Co.	Yes
Fernando	Leal	Prolec GE	Yes
Yaquan (Bill)	Li	BC Hydro	
Weijun	Li	Braintree Electric Light Dept.	Yes

Dennis	Marlow	DenMar TDS Transformers	
James	McBride	JMX Services, Inc.	
Matthew	McFadden	Oncor Electric Delivery	
James	Mciver	Siemens Energy	
Vinay	Mehrotra	SPX Transformer Solutions, Inc.	Yes
Thomas	Melle	HIGHVOLT	
David	Murray	Tennessee Valley Authority	Yes
Hossein	Nabi-Bidhendi	ABB Inc.	
Ali	Naderian	Metsco	Yes
George	Partyka	PTI Transformers	Yes
Sanjay	Patel	Royal Smit Transformers	
Monil	Patel	Pacific Gas & Electric Company	
Brian	Penny	American Transmission Co.	
Harry	Pepe	Phenix Technologies, Inc.	Yes
Mark	Perkins	D4EnergySolutions LLC	
Sylvain	Plante	Hydro-Quebec	
Bertrand	Poulin	Hitachi ABB Power Grids	Yes
Ulf	Radbrandt	Hitachi ABB Power Grids	
Ion	Radu	Hitachi ABB Power Grids	Yes
Pierre	Riffon	Pierre Riffon Consultant Inc.	
Leopoldo	Rodriguez	Transformer Testing Services LLC	Yes
Marnie	Roussell	Energy	Yes
Hakan	Sahin	Virginia and Georgia Transformers	Yes
Daniel	Sauer	EATON Corporation	Yes
Markus	Schiessl	SGB	Yes
Jeffrey	Schneider	Power Partners/Spire Power Solutions	Yes
Christopher	Slattery	FirstEnergy Corp.	Yes
Steven	Snyder	Hitachi ABB Power Grids	Yes
Sanjib	Som	Pennsylvania Transformer	Yes
Mike	Spurlock	Spurlock Engineering Services, LLC	Yes
Kyle	Stechschulte	American Electric Power	Yes
Janusz	Szczechowski	Maschinenfabrik Reinhausen	Yes
Ajith	Varghese	SPX Transformer Solutions, Inc.	Yes
Krishnamurthy	Vijayan	PTI Transformers	Yes
Dharam	Vir	SPX Transformer Solutions, Inc.	Yes
Pragnesh	Vyas	Sunbelt-Solomon Solutions	
Loren	Wagenaar	WagenTrans Consulting	
Michael	Warntjes	American Transmission Co.	

Dr. Alexander	Winter	HIGHVOLT Pruftechnik Dresden	Yes
Baitun	Yang	R.E. Uptegraff	Yes
Anand	Zanwar	Siemens Energy	
Michael	Zarnowski	Carte International	
Kris	Zibert	Allgeier, Martin and Associates	Yes

## Appendix A

Minutes for Task Force on PD Testing of Class 1 Power Transformers  
Document: Partial Discharge Testing of Class 1 Power Transformers  
Chair: Don Ayers  
Vice Chair: Javier Arteaga  
Secretary: Israel Barrientos  
Meeting Date: Monday 26th of April 2021  
Time: 10:45 CDT

Attendance:  
Members: 23  
Guests: PENDING  
Guests Requesting membership: PENDING  
No answer: PENDING  
Total attendance: 96

The meeting was called to order at 10:45 AM and attendance was recorded via a Poll.  
Membership requirements were explained.  
The Patent and Copyright Slides were presented, no comments were made.

Current TF Membership is 35.  
Quorum is 18, or more TF Members.  
As the Member attendance reached 23, Quorum was attained.

The Chair then presented the Meeting Agenda, and was shown in the screen  
Ajith Varghese moved to approve the Agenda as shown. James Cross seconded.  
After no further discussion, the Agenda was approved as submitted.

The Nov 2020 Meeting Minutes as published were presented.  
James Cross moved for them to be approved. Peter Kleine seconded the motion.  
After no further discussion, the Meeting Minutes were approved as submitted.

The Chair presented the Scope of the TF, and a list of Subjects to Consider.

After some initial discussion, a motion was made by John Foschia:  
"Classify PD Tests for Class I Power Transformers as Other Tests".  
Pougazhenth Selvaraj seconded.  
After a brief discussion and some explanation by Don Ayers and Bertrand Poulin,  
John Foschia withdrew his motion.

Some additional discussion ensued on the Need for Notes for Bushings or other items.  
No motion was made.

Discussion moved to the topic of how to further define the PD acceptance values in C57.12.90-2015, as Don Ayers indicated that the newest C57.12.90-2021 Draft 4, included different (reduced) values to those agreed by TF.

Phil Hopkinson made a motion to:

“Establish a section on C57.12.00 to express the agreed acceptance levels for PD for Class I Power Transformers as those contained in C57.12.90”

As Phil Hopkinson was not a member of the TF at this time, Ajith Varghese made an identical motion and after some discussion, he agreed to a friendly amendment as follows:

“Establish a section on C57.12.00 to express the agreed acceptance levels for PD for Class I Power Transformers as those contained in C57.12.90-2015 (500 pC for Max Acceptable, and 150 pC for Max Increase)”.

Sergio Hernandez seconded the motion.

After some discussion, a call for opposition was made, hearing none, the motion passed.

Don Ayers indicated that based on the motions passed that he would draft some language and proposed section numbering in both C57.12.00 and C57.12.90. The draft language will be circulated to the voting membership for comments and vote for approval.

At 11:59 Peter Kleine moved to adjourn the meeting.

Onome Avanoma seconded.

A request for those against was made, hearing non, the motion carried unanimously.

The meeting was adjourned at 12:00 CDT.

Respectfully submitted  
Israel Barrientos  
TF Secretary.