

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 19th of October 2020

Time: 15:45

Attendance:

Members: 19

Guests: 43

Guests Requesting membership: 11

No answer: 03

Total attendance: 76

The meeting was called to order at 15:45 and attendance was recorded via a Poll.

As the Member attendance reached 19, Quorum (>18) was attained.

At this time, the TF heard notice of the recent decease of Member Jitka Fuhr.

The Patent and Copyright Slides were presented, no comments were made.

The Agenda was presented and approved as submitted.

The Ohio Meeting Minutes as published were presented and approved.

A name correction of the minutes was requested (Foscia -> Foschia).

The Bushing Subcommittee help had been requested and the attendance of Stephen Shull (Chair of the WG PC57.19.02 Standard for the Design and Performance Requirements of Bushings Applied to Liquid Immersed Distribution Transformers) was gratefully acknowledged.

When asked for help with the question of Bushing Ratings, Stephen requested some clarification on the Class I Power Transformer Definition.

D. Sauer, P. Hopkinson, D. Ayers, B. Poulin, D. Gross participated in a lively discussion that ensued.

No conclusion was reached on this item.

A. Joshi indicated that Black & Veatch tests PD in transformers in a one-per-batch basis and assumes the same performance for the batch.

D. Sauer indicated his concern that the Transformer Components can produce high levels of PD and do not represent a test failure for the transformer.

Z. Weiss indicated that he sees customer requests for PD testing requesting Class II method but carried out at 130% Voltage and 150 pC as limits. And having a 115% Extinction Level.

D. Gross questioned what happened to nuisance trips of PD-affected fuses.

J. Arteaga indicated that the components are manufactured to meet standards other than transformers, and that in particular to PD, they do not meet Transformer PD requirements.

D. Sauer indicated that Load Break Switches are not damaged by fairly high levels of PD's.

B. Forsythe indicated that the goal of the TF has been to have a procedure to test a transformer with, in case a PD test is specified for Class I PT's.

A. Varghese indicated that due to the Induced test at 1.8 times the Voltage, this PD test will require a 2x times test time. And he would rather change the Induced Test spec.

D. Ayers indicated that this was outside of our scope but may need to be investigated by others.

O. Avonoma, J. Arteaga, D. Sauer and P. Hopkinson debated over the Class I definition

L. Dix questioned why not use 5001 kVA as a lower limit for Class I Power Transformer Definition.

A. Varghese made the following motion:

When PD testing is specified for Class I Power Transformer, this test should be carried out as defined in C57.12.00-2015

D. Gross seconded the motion.

Discussion:

D. Ayers questioned O. Avonoma how was the transformer excited during testing, and if modifications were needed.

O. Avonoma indicated that the unit was excited thru LV and measured on HV, with no modifications.

J. Foschia requested the following friendly amendment to A. Varghese earlier Motion. "PD limits shall be as stated in C57.12.90-2015."

A. Varghese, agreed to this request for amendment.

The motion was then rephrased:

When PD testing is specified for Class I Power Transformer, this test should be carried out as defined in C57.12.00-2015, and the PD limit shall be as stated in C57.12.90-2015.

When no further discussion was made, a vote was held.

Motion PASSED 16 votes in favor, 2 opposed, and 7 abstentions.

Discussion started on the topic of which terminals to test.

J. Foschia made a Motion:

"Measure PD on the Primary Terminals only"

S. Hernandez seconded the motion:

Discussion:

B. Forsythe requested a more formal definition of Primary Terminals and argued that they are usually the ones connected to the supply of power and could be lower voltage terminals.

D. Ayers indicated that John perhaps was referring to the HV terminals.

D. Gross indicated that if the LV terminals have a high enough voltage, they should be tested too.

J. Foschia amended his earlier Motion to:

“Measure PD only on the Terminals with the Highest Voltage rating”

D. Gross then proposed measuring all terminals.

D. Sauer did question how do we measure them all.

D. Sauer then questioned the definition of Class I PT again.

P. Hopkinson proposed to do a write-up.

After no further discussion, a vote on the motion was held.

The motion carried with 16 votes in favor, 1 against and 6 abstentions.

At 17:00 P. Hopkinson moved to adjourn the meeting.

O. Avaname seconded.

A request for those against was made, and the motion carried unanimously

The meeting was adjourned at 17:02.

Respectfully submitted  
Israel Barrientos  
TF Secretary.