

7.3. Insulating Fluids Subcommittee (R.K. Ladroga, Chair; Susan McNelly, Secretary)

7.3.1. Introduction/Attendance

The Insulating Fluids Subcommittee met in Dallas, Texas on Wednesday, March 14, 2007 with 19 members and 41 guests present. The following 9 guests requested membership:

Roberto Asano Jr.	Shawn Galbraith
Mark Cheatham	Robert Ganser
Luiz Cheim	Andreas Garnitschnig
Don Duckett	Jeremy Kriska
Norman Field	

Meeting Agenda

1. Introductions
2. Patents
3. Minutes Approval
4. WG Reports
5. New Business
6. Old Business
7. Adjourn

Introductions were made.

Sue McNelly informed the group of the sad news of Frank Gryszkiewicz's death on February 19th.

7.3.2. Approval of Meeting Minutes and Patent Disclosure

As required in IEEE SA Standard Boards by-law, Section 6.3.2, the IEEE patent disclosure requirements were discussed and a request was made for disclosure of any patents that may be related to the work of the WG. No new disclosures were forthcoming.

The Minutes of the Montreal, Quebec, Canada meeting were approved as written.

7.3.3. Subcommittee Membership

There were no changes to report in the Subcommittee Roster.

7.3.4. Current Subcommittee Business

7.3.4.1. C57.104 – IEEE Guide for the Interpretation of Gases Generated in Oil – Immersed Transformers

**Tuesday, March 13, 2007
Dallas, Texas**

The meeting was called to order by Secretary Susan McNelly at 1:50 pm, Tuesday, March 13, 2007. Rick Ladroga the Chair and William Bartley the Vice-Chair were unable to attend. There were 29 members, 61 guests, and 15 guests requesting membership.

Guests requesting membership were:

Jim Antweiler	Dong Kim
Ray Bartnikas	Alexander Kraetge
Luis Cheim	Tom Lundquist
Alan Darwin	Paul Mushill
Norman Field	Scott Reed
Mary Foster	Kirk Robbins
George Frimpong	Jim Thompson
Robert Ganser Jr.	

Approval of minutes from the Fall 2006 meeting in Montreal, Quebec, Canada was requested. The minutes were approved as written.

Introductions of attendees were made.

The IEEE Patent disclosure requirements were discussed and a request was made for disclosure of any patents that may be related to the work of the WG. There were no responses to the request for disclosure.

Susan updated the Working Group on the status of the present C57.104 Ballot process. The document was updated as discussed at the last meeting, sent through editorial review, and submitted to IEEE for ballot. The ballot pool process is now complete and the Guide should be out for ballot shortly.

As background, the PAR for revision was established in 1996, and was extended in 2000, 2002, and 2004. There were some significant negative ballots during the balloting process. Due to the comments that were outstanding, a decision was made at the Memphis meeting to withdraw the standard. A decision to withdraw the 1991 Guide was made at the same time because of the disagreement over the values and to stress the importance of moving ahead. Therefore, at this time, there continues to be no approved guide available. The intent of the impending Ballot is to get a valid Guide out and available for use in the interim while work on more complete revisions is underway.

A new PAR will be filed to start over with an immediate revision to the guide to address the remaining issues that have been raised as soon as the ballot process with the existing document is complete.

At the Montreal meeting, several Task Forces were formed to begin the work on the next revision to the Guide. Those Task Forces were:

1. Framework

Jim Dukarm - Chair
Tim Raymond
Dave Hanson
Jim Graham

2. Data

Tom Prevost – Chair	Claude Beuchemin
Dave Hanson	Jim Dukarm
Paul Boman	Dave Wallach
Paul Mushill	Jim Graham
Bob Ganser Jr	Joe Kelly

3. Case Studies

Brian Sparling –Chair
Kent Haggerty
Dave Wallach
Dave Hanson
Tim Raymond
Norman Field

Jim Graham
Paul Bowman
Bob Ganser Jr.
Paul Mushill
Joe Kelly

4. Diagnostic Methods

Tim Raymond – Chair
Michel Duval
Jerry Corkran

Lance Lewand
Joe Kelly
Norman Field

Status reports from Task Forces:

Framework:

Presentation by Jim Dukarm – “A revised framework for the transformer DGA Guide.



S07-Dukarm-FrameworkPresentation.pdf

General consensus was that this was a good approach to revising the Guide.

Data:

Tom reported that work is in progress and he requested that anyone that has data to send this data to him. He was requested to provide a format for which he would want the data provided.

Other Business:

Acknowledgement was given to Paul Boman for the thirteen gas profiles that he recently provided.

Arc Furnace Transformers – Tom Lundquist indicated that he is collecting data for Arc Furnace transformers for inclusion most likely as an Annex to the revised guide. The issue is that the manufacturers of Arc Furnace transformers are concerned that what is considered normal for these types of transformers is considered abnormal for normal power transformers. Jim Dukarm indicated that he would not rule out that this information could be within the Guide itself rather than as an Annex. Tom indicated that he had three labs providing data and that anyone else with data should please contact him.

The meeting was adjourned at 3:05 pm.

Susan McNelly
PC57.104 Working Group Secretary

7.3.4.2. C57.106 – IEEE Guide for Acceptance and Maintenance of Insulating Oil in Equipment

The Working Group for the revision of the IEEE Guide for Acceptance and Maintenance of Insulating Oil in Equipment (or IEEE C57.106) did not meet in Dallas.

The PC57.106/D6 document was successfully re-balloted in October, 2006 and then approved by the IEEE Standards Board in December, 2006. Michelle Turner, IEEE Standards Activities, reported to the Chair that the document is currently going through a copy editor for review according to the IEEE Standards Style Manual. Publication of the revised standard is projected for June 2007.

James A. Thompson
PC57.106 Working Group Chair

7.3.4.3. C57.139 - Draft IEEE Guide for Dissolved Gas Analysis Of Load Tap Changers

**Tuesday, March 13, 2007
Dallas, Texas**

Fredi Jakob called the WG meeting to order at 11:05 am, Tuesday, March 13, 2007. WG Secretary Susan McNelly was also present. There were 27 members and 40 guests present with 4 guests requesting membership.

Guests requesting membership were:

Norman Field
Robert Ganser Jr.
Rowland James
Jim Thompson

Agenda:

1. Welcome and Introduction
2. Patent considerations
3. Approval of Fall 2007 minutes
4. Update on LTC-DGA data Analysis – by Dave Wallach
5. Adjourn

The IEEE Patent disclosure requirements were discussed and a request was made for disclosure of any patents that may be related to the work of the WG. There were no responses to the request for disclosure.

Approval of minutes from the Fall 2007 meeting in Montreal, Quebec, Canada was requested. The minutes were approved as written.

An announcement was made regarding the passing of Frank Gryszkiewicz on February 19, 2007. He will be missed.

Update on LTC-DGA Analysis – by Dave Wallach, Jim Dukarm, and Shuzhen Xu

Dave presented a report of the work that he and a subcommittee also made up of Jim Dukarm, and Shuzhen Zu have done to date.



S07-C57.139-DJW_P
resentation.pdf

Shuzhen Xu presented the preliminary results of the LTC DGA data analysis that she had performed. She reviewed her statistical analysis on the Ethylene/Acetylene ratio, discussed issues with the collected data, and the statistical methodologies used.



S07-ShuzhenXu-LTC
_DGA_DataAnalysis.p

Conclusion is that we may be able to lump several models together into one basket. More detailed review would be required to determine this.

Fredi indicated that we should wait to see what numbers (quantity of data) that we have by the Fall 2007 meeting. If we do not have enough, then move forward with a generic guide to provide direction on how users can obtain the data and how to evaluate it.

Fredi agreed to send out a letter to the utilities requesting data be submitted. Comments were made that many utilities just don't have the data or the manpower to extract the data from the records that they do have.

The meeting was adjourned at 12:19 pm.

Fredi Jakob
Chair

7.3.4.4. C57.147 - IEEE Guide for Acceptance and Maintenance of Natural Ester Fluids in Transformers

**Tuesday, March 13, 2007
Dallas, Texas**

The WG meeting was called to order at 8:00 am, on Tuesday, March 13, 2007 by the working group Chair, Patrick McShane. Vice Chair, Clair Claiborne, and Secretary, Susan McNelly were also present. There were 16 members present and 50 guests, with 3 guests requesting membership. Since the Guide is essentially complete and ready for ballot, no additional membership requests will be entertained.

Meeting Agenda

1. Introductions
2. Patents
3. Minutes
4. Update
5. Review last revisions
6. Vote to Submit for Balloting
7. New Business
8. Adjourn

As required in IEEE SA Standard Boards by-law, Section 6.3.2, the IEEE patent disclosure requirements were discussed and a request was made for disclosure of any patents that may be related to the work of the WG. No new disclosures were forthcoming.

The minutes for the Fall 2007 meeting were approved as submitted and recorded on the website.

Patrick McShane announced the sad news of the passing of Frank Gryszkiewicz on February 19, 2007.

Update:

There are only a few updates, primarily editorial, that were made since the Montreal meeting.

Main changes to the Guide since the Fall 2006 meeting:

- o NRTL was removed from the list of acronyms and abbreviations.
- o Oxidation Inhibitor – added note that the user is to contact the specific fluid manufacturer for oxidation inhibitor content. Question was raised as to how does a user necessarily know years later whose oil was used. This could probably be more effectively dealt with in the new application guide that will be proposed at the Fluids SC meeting on Wednesday.
- o Corrosive Sulfur – added a section indicating a corrosive sulfur test and that Natural Ester Fluids naturally do not contain corrosive sulfur. Question was raised as to whether this should be included in Table 2. Again this is probably more appropriate in an application guide.
- o Discussed the removal of the “sampled from bulk tanker” and “sampled from drums or totes” levels from Table 2. It was decided to leave it as shown in the Draft 10 that was posted.
- o Table 3 – Patrick suggested that we should consider making the Water Content (mg/kg value) 150 for both less than or equal to 69 kV and for greater than 69kV but less than 230 kV. There was discussion and it was decided to leave the levels as shown in Draft 10 as 300 and 150 respectively.
- o Annex B – reviewed the additions. Suggestion was made that since the figure for dielectric strength was left out maybe a note indicating that there would be no change in dielectric strength values in B5, Examples of key properties of mixtures of a new natural ester with a new mineral oil should be added. Discussed if any other key properties needed to be considered.

Additional comments received from the floor:

Volumetric expansion rate, etc. – In Annex B there will be comments on thermal properties added.

Low temperature viscosities should be extended to lower temperatures in Table 2. Note: ASTM D3487 does not have properties for viscosity below 0 Celsius.

Table 2 – harmonize the order of Table 2 with C57.106. This was previously discussed and deemed not necessary.

Clause 4.4 defined the word “longer” in the last paragraph. The words “(equal to or greater than 15 minutes at room temperature)” after the word “longer.” Also add the words “at room temperature” to Clause 4.3.

Percentages of efficiency and cooling - Not identified in the oil guide, so why would we include in this guide? These are design issues.

ASTM is working on an oxidation stability test that is more suited for natural ester fluids.

This concluded the review of Draft 10. The WG officers will review the discussion and make revisions as appropriate. The revised draft will be submitted for formal balloting as soon as possible.

The Chair thanked all the WG and other participants contributing to this proposed guide. With a successful balloting, the work of this WG is deemed finished.

The Chair mentioned that there was discussion at the Fall 06 meeting for the possible formation of TF/WG for initiating DGA and Retrofill Guides for Natural Esters, and will be subjects of new business at the Sub Committee meeting.

The meeting was adjourned at 9:00am.

Respectfully Submitted,

Patrick McShane
PC57.139 Working Group Chair

Clair Claiborne
PC57.139 Working Group Vice-Chair

7.3.5. Old Business

C57.130 – IEEE Trial-Use Guide for the Use of Dissolved Gas Analysis During Factory Temperature Rise Tests for the Evaluation of Oil-Immersed Transformers and Reactors - The PAR expires at the end of this year. Tom Prevost and Rick Ladroga will work together to will try and obtain the ballot resolution information and to determine what is required to move forward with this Guide.

7.3.6. New Business

The Insulation Life SC had a discussion regarding the creation of a Task Force to determine whether a new Guide for Furan Testing is needed. There was some discussion as to whether this TF would better belong under the Insulation Life SC or the Insulating Fluids SC. A motion was made to start a TF to study the Furan issue with Kent Haggerty as Chair and passed. The two SC Chairs will make a decision as to which SC this will reside under, however, the general consensus of the Insulating Fluids SC members was that it belonged under the Fluids SC.

Two new orders of business in regards to Natural Ester fluids were also raised. A motion was made for the creation of a TF to determine the need and scope of a Guide for the interpretation of DGA in transformers filled with Natural Ester fluids. The motion passed, however, no Chair was assigned.

A second motion was made to form a TF to investigate the need for an application guide for NE fluids. The motion passed, however, no Chair was assigned. The TF force would investigate, among other things, retro fill of transformers with NE fluids.

Jim Thompson brought up that the IEEE Std 637 – IEEE Guide for the Reclamation of Insulating Oil and Criteria for its Use is due for either revision or reaffirmation. He volunteered to Chair a WG for reaffirmation of this Guide. The exact Standard number was not known during the meeting, therefore a motion for this was not made, however, Jim is requesting the he be allowed to begin this process.

7.3.7. Adjournment

The Subcommittee adjourned at 12:00 pm.

Next Meeting:

The Insulating Fluids Subcommittee and its Working Groups will next meet in Minneapolis, Texas during the period of October 14 – 18, 2007.

Respectfully Submitted

Susan McNelly
Fluids SC Secretary