C57.147 - IEEE Guide for Acceptance and Maintenance of Natural Ester Fluids in Transformers
Tuesday, March 18, 2008
Charlotte, North Carolina
WG Meeting Minutes

The WG meeting was called to order at 8:00 am, on Tuesday, March 18, 2008 by the working group Chair, Patrick McShane. Vice Chair, Clair Claiborne, and Secretary, Susan McNelly were also present. There were 12 members present and 49 guests, with 6 guests requesting membership. Since the Guide has been balloted, no additional membership requests will be entertained.

Meeting Agenda

1. Introductions
2. Patents
3. Approval of Fall 2007 Minutes
4. Update on Status of Recirculation
5. New Business
6. 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 in Minneapolis, Minnesota were approved as submitted and recorded on the website.

Update:

Patrick indicated that the recirculation ballot had closed and that there were two editorial comments and one negative ballot received. The negative ballot was in regards to Annex B of the Guide. An excerpt from the guide is provided below.

B6 Relative Cooling Performance Properties

Four cooling performance properties of the dielectric coolant are often used for transformer design. These include viscosity, coefficient of expansion, thermal conductivity, and heat capacity. As viscosity is the most significant, limits are listed within the main section of this guide. However, for thermal design optimization, it is useful to have the values of the other three properties. Specific typical values of thermal properties for each brand of fluid should be obtained from the fluid manufacturer

The negative comment was submitted by Don Platts and is included below:

"This clause points out that there are issues to be dealt with in terms of cooling performance. There are no details provided, it merely states that there are issues.[1] That is not helpful to any of the readers, whether user or manufacturer. Since this guide discusses retrofills in several locations, this annex clause should discuss the increased temperatures to be expected after a retrofill.[2] There is sufficient experience in the industry to document this, at least in general terms.[3] If there is a significant impact on the oil and winding temperatures then the topic of retrofill should be expanded in the guide, not an annex. Then this issue, and all of the others, should be addressed in detail."

Comments by Chair to initiate discussion:

There appears no obligation for action, as the section in question was not challenged in the first balloting nor was the wording changed from the initial ballot wording.

While there is some merit in the comment, our discussion is whether or not it is sufficiently important to cause further delay in issuing the Guide.

1. The draft does acknowledge the issue and makes a recommendation for action.
2. Increase temperature is implied by discussion in Section 4.8 (main body) and the current wording of Annex Section B6.
3. There is little field data on field retrofill temperature rise delta. The data available is essentially limited to a few comparative heat runs of new units, and outputs from design programs using the key fluid thermal properties listed in current annex section B6.

Other Notes:

* It has been recognized by the SC for Insulating Fluids that there is a probable need for obtaining guidance for retrofilling of Natural Ester fluids, and a task force has been formed for field application of natural esters.
* Two manufacturers of natural ester dielectric fluids have published papers that cellulose insulation systems have a lower aging rate when impregnated with natural esters that essentially offsets or minimizes the issue of increased temperature rise.

Don Platts was asked for additional comment and indicated that he had no additional comments to what he had already provided. He did acknowledge that he understood that the committee had no obligation to address his negative.

Matt Ceglia from IEEE indicated the correctness of Patrick's discussion point that since there were no comments on Annex B in the original ballot and no changes were made in the recirculated ballot, there was no obligation to reopen the annex for additional recirculation.

However, the Chair opened up the floor for discussion and a vote was taken whether or not to revise Section B6 to address the issues raised by the negative commentor. The overwhelming consensus was not to make the revision, it should be reconsidered during the first revision cycle of the Guide Standard in the future.

Therefore, the WG agreed that the Section B6 wording shall be as written in the now approved recirculation draft as recirculated (Draft 12). The draft will be submitted to IEEE Standard Committee for publication, accepting the two minor editorial comments from the recirculation vote (neither a "disapproval" or negative vote):

Section 8.3 - Test limits for service-aged natural ester fluids, Table 5: Removal of extraneous footnote letters b & c in the cell "dielectric strength".

Section 8.5 Reclaiming: Removal of the year for IEEE Standard 637 to match the format used in the reference section.

There was a question from the floor concerning why density was not included in the key thermal properties listed in Section B6. This issue was discussed at length, with opinion ranging from that density was not needed, to a very minor factor, to relatively important. Due to the lack of consensus, the fact that the main body does set a limit for relative density in Table 2, and the stage of the approval process, density will not be added to Section B6. It was recommended it should be reconsidered during the first revision cycle of the Guide Standard in the future.

Patrick expressed his gratitude to the working group members and all who contributed to the development of the Guide.

There was no new business other than dissolving the WG.

The meeting was adjourned at 8:30 am.

Respectfully Submitted
Patrick McShane
Working Group Chair

Clair Claiborne
Working Group Vice-Chair

Susan McNelly
Working Group Secretary