

**IEEE Working Group D-7
Atlanta Meeting Minutes (January 15, 2009)**

Summary

The meeting began with introductions. An attendance list was passed around the room. There were 18 members and 10 guests in attendance.

Members In Attendance

D. Lane Garrett	Richard Keil	Curt Stidham	Martin Havelka
Dennis DeCosta	Keith Wallace	Brian Story	Gary Ditroia
Stan Arnot	Steve Greenfield	Donald N. Laird	Will Sheh
Mike Noori	Alexander Wong	Bryan Beske	Marcia Eblen
Peter Palmer-Buckle	Dustin Fox		

Guests In Attendance:

Robert Nowell	Gregory Ante	Louis Bernadas II	Daniel Jendek
Gary Engmann	William Chisholm	James Cain	Giang Tran
Mike Hulse	Rob Hobbs		

***** Requests Membership**

Rich Keil presented the latest revision of the IEEE Obligatory Statement regarding patents in standards and inappropriate topics for working group meetings. Rich gave a brief update of the proceedings from the previous meeting and the minutes were approved.

Survey Update:

Steve Greenfield gave an overview on the status of the survey which he has been leading the work on revising the survey. Steve has been in contact with 10 different on-line survey services. Only one of the organizations (Key Survey) would customize the survey to our format. They offer programming, hosting, and data collection & analysis. Total cost would likely be around \$7K or \$8K, of which about \$3K was programming.

Steve Greenfield, Will Sheh, and Curt Stidham will work to see if we can format the survey to work with one of the standard on-line services.

There was a lengthy discussion on securing a distribution list for the survey as well as different formats and services for conducting the web-based survey.

- From the previous meeting Gary Engmann said that he would contact TC99 members. They told Gary they would be delighted to fill out the survey. That would provide about 20 to 25 countries. Gary said that he has the list and will provide it to the WG.
- Lane Garrett recommends we try and get the list of members for the Southeast Electric Exchange if possible. Lane volunteered to try and get a list from them.
- Marsha Eblen said that we should try and get the client lists from the software vendors. Curt volunteered to solicit Sakis and Rich said that he would contact Farrad.
- Bob Nowell said that he would provide the list of members from the IEEE 123 site. Bob will provide that information to the Secretary.
- Gary will talk to Hanna about getting a list from CIGRE.
- Don Laird recommended that we advertise the survey to generate interest in getting participants.

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- Bob recommends that we contact Melvin Olken the edit in Chief of IEEE's Power and Energy Magazine about promoting the survey in the publication.

Review of IEEE Std80

Rich led a discussion of the review and comments submitted by participants on the standard.

Clauses 1-6

Martin Havelka – had no significant edits or comments.

Clauses 7-10

Hamed Sharifnia – had a few editorial comments.

- He had comments about Figures 7 & 8 regarding the Thevenin Equivalent. Rich thinks that the text in the clauses does not represent the figure content accurately.
- Lane volunteered to take a look at Clause 7.3 and evaluate the circuit figures and make sure the text matches the figures intent. Lane suggested that we add the following sentence after Equation 11.
 - “For most practical cases, the effects of the Z_{sys} , grid resistance and the mutual resistance between the grid and the person's feet can be neglected on the total circuit Thevenin equivalent impedance. Thus, Z_{Th} is represented by the equivalent impedance of the person's feet.”

Clauses 11-13

Curt Stidham – one technical and a number of editorial comments

- In 11.3.1.2 the result should be a ¾” ground rod and not a 7/8’

Steve Greenfield – two technical and a number of editorial comments

- 11.2.5 Other Considerations. Steve to provide a short write-up for inclusion into this section regarding tin plated copper conductor used for ground grids.
- Table 2 add a foot note on limiting temp of hard drawn to 250 C.
- 12.4 Figure 18 – Rich recommends we identify and reference the original source for this graph instead of referencing IEEE Std-142.

Clauses 17-20

Lane Garrett – numerous technical and editorial comments

- 17.1 add “The service area might be enclosed by a separate fence that is not grounded and bonded to the substation grid. Possible transfer voltage issues are addressed in 17.3.”
- 17.2 Can we add an arrow pointing to the braidless (brush) ground in figure 36.
- 17.3 Add – “Fences around substations are usually metallic. In some cases, the fence might be made of masonry materials or non-conductive materials. For those cases, the fence is not grounded, except possibly at exposed metallic hardware or sections, such as gates. The following discussion pertains to metallic fence grounding.”
- 17.3 Change “This metal fence grounding requirement may be accomplished by bonding the fence to the substation grounding grid or to a separate underground conductor below or near the fence line.” To “This metal fence grounding requirement may be accomplished by bonding the fence to the substation grounding grid or to a separate ground electrode(s),

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which might consist of one or more ground rods and a buried conductor, or both, inside or outside the fence.

- 17.5 Lane proposes the following questions: What is the available fault current here? The total fault current? Should we say it should be sized to have equivalent ampacity as the sheath? The recommendation is to delete the last sentence of the first paragraph. “The wire or strap used to connect the cable shield ground connection to the permanent ground must be sized to carry the available fault current”
- 17.5 Dennis De Costa volunteered to take a look at this section as it relates to IEEE-Std.525 and make a recommendation as it relates to safety.
- 17.7 Lane proposes adding the following after the first sentence”. “Bends in the arrester phase or neutral end leads can add significant impedance and reduce the protective level of the arrester.”
- 17.9 Lane proposes adding the following after fourth sentence: “It might also occur when a person within the substation touches a conductor that leaves the substation and is remotely grounded.”
- 17.9.1 Change first sentence to make more general in regards to protective devices.
- 17.9.1 Add optical isolators to this section.
- 17.9.3 Lane’s comment: “HUH? Has this really been in here all this time? THIS IS ABSURD! This is what Zipse has been proposing to the NESC – do away with 4-wire grounded wye distribution. If you isolate the neutral from the grounded wye transformer in the sub, you create all kinds of problems. While I agree that the feeder neutral does transfer voltages outside the sub, we rely on the fact that there are many, many grounds along the feeder to make this practice safe, as described in the IEC grounding document where it refers to a “multi-earthed neutral” to be treated as a “global earthing system.”” Lane will go back and edit this section.
- 19.1 Lane suggests removing test methods covered in 19.1.1 through 19.1.3. We should just make reference to IEEE-Std.81.

Next Meeting

Next meeting will be the Annual Substation Meeting to be held in Kansas City, May 2009.

Curt Stidham
D-7 Secretary