

Meeting Minutes
Working Group on Voltages at Publicly and Privately Accessible
Locations (P1695)
January 07, 2008 San Antonio, TX

Chuck DeNardo, Chair, outlined Meeting
Need to update Jim Bouford's contact information

Slides on IEEE SA Standards & Inappropriate Topics were discussed
No one had any questions regarding the slides.

Introductions, Attendance sheets sent around

Tampa meeting minutes reviewed motion to approve, so moved.

Web meeting minutes reviewed motions to approve, so moved.

Craig Frommelt (AmerenCILCO) Presentation

Stray & Contact Voltage Case Studies Topics, Goals, Review of Terminology,
Review of Stray & Contact Voltage Sources, Anatomy of a Case Study, Case
Studies

Terminology

- Normal may not be optimal
- Abnormal
 - Open conductors, phase, neutral
 - Shorted or faulted conductors

High Neutral to Earth Voltage

Focus on Ground return current (NOT looking at induced voltages)

One possible source.

Reviewed basic electric model of multi-grounded system

Neutral impedance is not zero

Model must include the "Multiple Grounded Neutral"

Return current divides between neutral and earth return paths.

High impedance neutral (loose connections/missing strands)

Conductor sizing

Contact Voltage (Ground Fault) Low impedance connection.

Anatomy of a Case Study (Straw Man)

Details of a Customer Complaint

Previous Action/Findings

Engineering Diagnostic actions & findings

Problem Cause (Classification)

Remedial actions taken

Results

Next Steps

4 Case Studies

Outdoor Faucet

Source of perceptible voltage determined to be elevated NEV.

Installed MOV Arrester to isolate neutral in pad mounted
transformer.

Dropped faucet to earth voltage to less than 1.0V (Questions regarding CATV & Telco) (NESC committee 7 looking at size of bonding conductor)

Unintentional bypass of isolators a major concern

Basement Shower

Source of perceptible voltage determined to be hot & neutral leads recently reversed at neighbor's farm, current going into ground. Corrected wiring successfully addressed customer concern

Backyard Pool

Source of voltage determined to be normal NEV. Violation of NEC equipotential pool bonding requirement resulted in perceptible voltages. Customer asked to comply with code to remedy concern.

Municipal Pool

Source of voltage determined to be normal NEV. Mitigation measures difficult at this system location. Code compliant isolation installed to address customer concern.

During the case study presentation brief discussions took place regarding Induced Voltage, Magnetic & Electric field impacts on humans, and use of a shunt resistor when making stray and contact voltage measurements

Section 4 (General Discussion): Chuck DeNardo presented the beginnings of a first draft of this section of the proposed Guide, and asked for feedback that would be incorporated prior to the next meeting.

Section 6.3 (Contact Voltage Investigation): Dave Kalokitis put together some initial verbiage for this section that was e-mailed to the group. The following feedback was provided.

Triangle – Animal & Human

Comments – did not follow outline

IEEE legal will not pass some of the harsh words.

The written responses of Mark Voigtsberger and Sashi Patel to the Section 6.3 draft were provided to the group.

Chuck DeNardo and Frank Doherty indicated they would take the lead on, and continue to refine Section 4 (General Discussion). DeNardo asked for volunteers to take the lead on the remaining individual sections of the proposed guide.

Dave Kalokitis agreed to continue leading the effort on Section 6 (Contact Voltage), and Craig Frommelt and Ed Kamiab volunteered to lead the effort on Section 7 (Stray Voltage).

Additional Discussion:

There will be a stray and contact voltage special interest session, at the T&D conference, April 21-24th.

Jim Bouford will be presenting at a panel session concerning Stray Voltage Analysis Techniques at the 2008 PES General Meeting in July.

Jim Burke will be presenting at the IEEE Rural Electric Power Conference in April.

There will likely be a working group web meeting in June (details to follow).

The next face to face meeting of the working group will be at the 2008 PES General Meeting in July in Pittsburgh, PA.

Meeting Adjourned