

**Stray and Contact Voltage Working Group**  
**Matthew Norwalk, Chair**  
**Sal Martino, Vice Chair**  
**Scott Kruse, Secretary**

**2022 IEEE PES General Meeting**  
**Sheraton Denver Downtown Hotel**  
**Denver, Colorado**

**July 18, 2022**  
**3PM – 5PM MDT**

**Approved Meeting Minutes**

**Attendees**

**Voting Members**

Bryan Beske – Safearth	David Kalokitis - Osmose
Masoud Davoudi - PGE	Scott Kruse - Osmose
Doug Dorr - EPRI	Sal Martino – Duke Energy
Kevin Grant – Con Edison	John McDaniel – National Grid
Joe Grappe – Duke Energy	Chris Mullins – Power Monitors, Inc
Stuart Hanebuth – Safety Management Group	Matt Norwalk– SCE
Tyler Jones – Technosylva	Rob Schaerer – Power Engineers

**Non-Voting Members**

Jesse Benjamin – IEEE SA	Robert Naphen – National Grid
Hung-Ming Chou – Dominion Energy	Al Powers – P&E Engineering
Jonathan Goldberg – IEEE SA	Jeremy Wright - Osmose
David Martinez – PNM	David Zech – Duke Energy
Brian McMillan – Natural Resources Canada	

The Stray and Contact Voltage Working Group met Monday, July 18, 2022. There were 23 people in attendance.

The meeting began with the presentation of the IEEE patent and copyright slides. There were no patents mentioned. The slides were followed by attendee introductions.

The chair reviewed the agenda and confirmed that we had quorum. There were no additions to the agenda, and it was approved with a motion by Kevin Grant and seconded by Joe Grappe.

The group reviewed the meeting minutes from the WebEx in January and there were no changes. The minutes were approved with a motion by Sal Martino and seconded by David Kalokitis.

Doug Dorr presented some slides on the new NEC updates regarding pool grounding requirements and key items where he feels the working group could help the industry. He believes the working group could create a task force to write an informative annex and/or make handouts. There are three areas of confusion that the group could address: equipotential bonding for farms and pools, scenario specific shock levels of concern, and post construction inspections. To address equipotential bonding the group could consider measurement and test electrode criteria, pass/fail criteria, tutorials and informative text on interpreting data. Scenario specific shock levels could be addressed by adding body resistances for varied positions and scenarios such as a body lying on the pool deck with feet in the water and fresh vs saltwater. One suggestion was to write a paper and get it published, then reference the paper in the guide. Another suggestion was to find documents to cite or use the figure that Doug showed from a JP Riley book that presented lower body resistances depending on parts of body and number of sweat ducts. Finally, post construction inspections might be addressed by adding a requirement for a grounding test point and a protocol for testing a pools grounding system. Doug mentioned that EPRI will be doing testing in August at the test facility in Lenox to demonstrate that 6 fatalities listed in the US Coast Guard Electric Shock Incidents and Fatalities report could have been avoided by having a grounding grid around the pool. The results from the testing could be put in an annex of the guide.

The Chair mentioned that he will be submitting a request for a 2yr PAR extension. He reviewed some of the edits he had been working on to make the clauses and terms more consistent throughout the guide. One thing he did was apply exposure voltage throughout, he would like everyone to review the definition and sections to make sure they agree with the term and use within the guide. It was mentioned that in clause 7.2.1.4 24/48 Hour Test there should be an additional bullet for choosing a resistor for diagnostic measurements to eliminate capacitive coupling. The chair encouraged the members to review the latest draft by downloading it from iMeet. He mentioned that any non-members who wish to contribute should contact him for access. An IEEE standards representatives informed the group that the guide needs to be updated to the latest template and that one of the new requirements is that standards not use commercial terms.

The Chair mentioned discussion topics for future versions to include creating a task force for pools and publishing a paper.

There was no new business.

Round Table:

Kevin Grant and the case study team will start referencing case studies to the applicable clauses.

Jeremy Wright mentioned it might be time to get the IET to do a European version of the Guide.

The Chair will get the 2yr PAR extension submitted and send out a link to a reference book he uses often titled "Electric Shock Drowning". The IEEE SA representative mentioned there is a form that needs to be filled out and submitted for an extension. The form can be obtained from a representative and they can assist with filling it out.

John McDaniel motioned to adjourn, and Masoud Davoudi seconded, meeting adjourned at 5:00 MDT.

A web meeting will be held in early November to review the progress of the guide revisions before a draft is circulated for approval. An invitation will be sent out within the next few weeks.

The next in-person meeting is scheduled to be held at the IEEE Joint Technical Committee Meeting, January 2023 in Jacksonville, FL.