

## **IEEE SWITCHGEAR COMMITTEE**

Minutes: IEEE High-Voltage Fuses Subcommittee Place: Wyndham Grand Orlando Resort Bonnet Creek, Orlando, FL Date: Wednesday, April 9, 2025

Presiding officer: Jim Wenzel – Chair

Recorder: Gary Haynes – Acting Secretary

### **VOTING-MEMBERS PRESENT (13)**

Gary Haynes ABB Inc.

Eric Li PowerTech

Pete Marzec S&C Electric Co

Carlos Nieto S&C Electric Co

Caryn Riley GT/NEETRAC

Randy Ward Aluma-Form

Jim Wenzel Eaton (Chair)

Danish Zia UL LLC

### **VOTING-MEMBERS ABSENT (6)**

Brennen Fleming Hubbell Power Systems

Chris Morton Morton Consulting

Aaron Motes ABB Inc.

Jon Spencer Utility Solutions

Charles Worthington Hubbell Power Systems

Jonathan Deverick^ Dominion Virginia Power

Chris Borck Eaton

Sterlin Cochran G&W

Jeramie Cooper Eaton

Travis Johnson Xcel Energy

John Leach Consultant/self-affiliated

^ correspondence only

### **NON-VOTING MEMBERS (6)**

Dustin Sullivan Hubbell Power Systems

Harrison Stevens Hubbell Power Systems

### **HONORARY MEMBERS**

John Angelis, L. Ron Beard, Glenn Borchardt, Ray Capra, Steve Hassler, Frank Ladonne,

Chris Lettow, Jim Marek, Frank Muench, Don Parker, R. Neville Parry, Herb Pflanz, R (Kris) Ranjan, Tim Royster, John Schaffer, Mark Stavnes, Alan Yerges, Jan Zawadzki.

**1. Call meeting to order** – 1:34 pm (EST)

**2. Member/guest introduction** – There were 8 members present, with 11 members not in attendance and 2 guests.

**3. Approval of Agenda** – The agenda was approved by consensus.

**4. Roster check** – Sign-in Sheet circulated.

**5. Approval of October 17, 2024, minutes** – The Fall 2024 minutes were approved by consensus.

**6. Report from the chair** –

a. Sterlin received back C37.41 from REVCOM with some editorial comments. He will go over those in the next few weeks and send it back for final publishing. Document is now an approved draft.

b. C37.45 par approved; work will start in Fall 2025.

c. C37.48 par approved; work will start in Fall 2025.

**7. Standards status report**

a. No further updates than listed above.

**8. Working Group Reports -**

a. No working group work done in Spring meeting.

**9. Report of liaison to other committees -**

a. ER&P Committee – Jim W.

1. ERP is looking for interest if facility tours were to be offered. This would be limited to 50 or so participants and would carry a cost.

2. They have created 4 awards at the switchgear level. Young Professional, New Contributor, Switchgear Service and Humanitarian Award. Definitions will be shared before Fall meeting in Reno.

b. T&I committee – Caryn R.

Dear IEEE Switchgear Subcommittee Chairs:

Due to considerable conflicts with working groups and restricted travel at this meeting, we did not have enough standing members at the Technology and Innovation subcommittee this morning to meet quorum. The following is a T&I Liaison Report for the Spring 2025 Meeting for your subcommittee meetings:

At the T&I Subcommittee meeting, the following actions were taken.

1. The task force addressing “Addressing NFPA 70B 2023: Alignment and Adaptation Strategies for IEEE Switchgear Standards” is actively searching for experts from each subcommittee to review the relevant ANSI C37 standards within their subcommittee’s scope in comparison to the NFPA 70B maintenance requirements. Contact Caryn Riley at [carynriley@ieee.org](mailto:carynriley@ieee.org) if interested in participating.
2. The task force addressing “T&D Switchgear Special Applications” is also looking for members. Potential topics include arc furnace switching, Gen synch application with HV circuit breakers in the absence of generators circuit breaker, and Influence of renewables on HV circuit breakers in terms of harmonics, SC rating, and X/R ratios. Contact Caryn Riley at [carynriley@ieee.org](mailto:carynriley@ieee.org) if interested in participating.
3. We are looking for volunteers to help write the project proposal for TRV parameters and their history within each subcommittee. Please contact Sterlin Cochran @ [Sterlin.cochran@ieee.org](mailto:Sterlin.cochran@ieee.org) if interested in assisting.

Caryn Riley, Secretary

Switchgear Technology & Innovation Subcommittee

2. Dustin to give TRV presentation on C37.41 TRV task force work at Thursday afternoon presentation.

**10. IEC Report – Jim W. –**

a) Next meeting in May 2025. Sterlin will represent at meeting. Further notes listed in Annex at the end.

**11. Unfinished business – nothing to report**

**12. New business –**

a. No new business brought up

**13. Future meetings -**

Fall 2025 (October 5<sup>th</sup> – 9<sup>th</sup>) Peppermill Resort, Reno NV

Spring 2026 (April 26<sup>th</sup> – 30<sup>th</sup>) Sheraton Sand Key Resort, Clearwater Beach FL

Fall 2026 (October 4<sup>th</sup>-9<sup>th</sup>) Catamaran Resort, San Diego CA

Spring 2027 (April 3<sup>rd</sup>-8<sup>th</sup>) Hyatt Regency, Orlando FL

Fall 2027 Waikiki Beach, Hawaii

**14. Adjournment – 2:05 pm EST**

Motion to adjourn by Caryn R. with second by Pete M.

Submitted by Gary Haynes, HVF Subcommittee Acting Secretary

Annex:

# TC32/SC32A - U.S.A. Technical Advisory Group

Dr. John G. Leach, Technical Advisor ♦ [j.g.leach@ieee.org](mailto:j.g.leach@ieee.org) ♦ 828-256-3744

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## **IEC Report 2024-2 March 31<sup>st</sup> 2024 to October 13<sup>th</sup> 2024**

From: Dr. John G. Leach, US Technical Advisor TC32 and SC32A, October 13<sup>th</sup> 2024

### **Summary**

Since the March 2024 report there have been two on-line meetings of SC32-MT6 and an in-person meeting of TC32-WG1. A preliminary CC from the circulation of the CD produced by WG1 (HV DC fuse-links) has been made.

### **SC32A MT3 - HV current-limiting fuses**

There has been no activity as there have been no requests for additions or changes to the documents covered by this MT (IEC 60282-1, and IEC 60644). The MT is scheduled to meet at the next plenary meeting (still unofficial, but planned for April 22<sup>nd</sup> 2025 in Paris).

### **SC32A MT4 - HV expulsion fuses**

There has been no activity as the primary area for discussion is the Test Duty 4 changes to IEEE. When this has been finalized, information will be supplied to MT4 members and discussed at the next plenary meetings (still unofficial, but planned for April 23<sup>rd</sup> 2025 in Paris). An on-line meeting of the TAG for SC32A will be planned to establish a US position before the meeting.

### **SC32A MT6**

In response to the CD (32A/360/CD), a CC was prepared and circulated on 2024-04-19. Observations “to be discussed by the MT6” were addressed at on-line meetings on May 23<sup>rd</sup> 2024, and July 17<sup>th</sup> 2024. Resolving most of the comments required only modest effort. However, the primary cause of discussion and concern involved the requirements of the 2021 version of the IEC Directives Part 2 (Ed 9). In this it is made clear that only certain types of IEC documents can contain “guidance” and only certain types can be called “guides”. The title guide is reserved for a particular type ISO/IEC document related to international standardization, so our document title must contain only the word “guidance” rather than “guide”. The main problem faced is that it is no longer possible for a Technical Report (TR) to contain normative material, which is defined as “requirements...recommendations...or permissions”. Since a guidance document with no

recommendations would be of little use (no use of “should” or its equivalents), the only viable document for us it therefore an International Standard” (IS), or one of its variants, like a Technical Specification (TS). Since a TS is not meant to be a permanent document (it is used for a failed enquiry – e.g. CDV with insufficient support – or a matter still under technical development) we cannot use this. The problem with an “IS”, is that document references have to be requirements in the form of “shall” statements (e.g., “current rating shall be selected in accordance with X.Y of IEC XXXXX-X:2024”). Guidance can seldom have requirements. One comment to the CD suggested that all references in the document be moved to a bibliography. While this seems logical (the bibliography is “informative”), the Directives require that the bibliography shall not contain “permissions or recommendations” so it would seem that we could not use a “should” in connection with a referenced document. This requirement (Directives 2, 21.2) is somewhat contradicted by the example in 21.5 that uses “should”! We are awaiting clarification on this from our Technical Officer.

The next stage of the project is to request a new work item to create an International Standard for publishing our document, but we are presently unable to circulate the revised CC as we cannot respond to the CC comment on using Normative References or Bibliography entries.

The MT is scheduled to meet at the next plenary meeting (still unofficial, but planned for April 22<sup>nd</sup> 2025 in Paris).

## **TC32/WG1**

HV DC fuses. The CD (32/265/CD) had a closing date for comments of May 17<sup>th</sup>, 2024. A substantial number of comments (approximately 175) were received, and a CC was issued 2024-07-12 with most comments being designated as requiring discussion by the WG. John Leach prepared discussion points to most of the comments and an in-person meeting was held in Velbert, Germany on October 8<sup>th</sup> – 10<sup>th</sup> 2024. Ten members attended from the US, Germany, UK, France, Slovenia, and Austria. Many of the comments (approximately 90%) were discussed, including certain fundamental issues involving the document (which continues to be somewhat controversial). An on-line meeting is planned for January 28<sup>th</sup> 2025 to finish examination of the comments. It is anticipated that a new CD will be prepared before the next in-person WG1 meeting, planned for the plenary meetings (April 23<sup>rd</sup> 2025).

Significant decisions are listed below:

To the question as to whether the document should use primarily LV or HV structure and methods, it was decided to limit the voltage to 2.5 kV DC for type “g” fuses (full-range) and 4 kV DC for type “a” fuses (backup). This limits the fuse types covered by the standard to “extended LV” fuse technology, and so testing requirements will be based on LV standards.

The fuses will be limited to types used in low time constant circuits ( $\leq 3\text{ms}$ ). The title will therefore be changed to “Fuse-links with DC rated voltage above 1,5 kV for the protection of DC circuits having a low time constant”. This will therefore limit applications to semi-conductor, photo-voltaic, and battery fuse-links. This will be stated in the scope.

The standard will be limited to fuse-links so no dielectric requirements are needed (except for maximum arc-voltage requirements). An Annex discussing fuse-bases may be added.

The previously agreed “modern” approach of testing fuses at their rated voltage (with tolerance only for testing convenience) will be maintained. The demonstration of rated current will be based on cycling tests at rated current as well as conventional fusing and non-fusing currents for “g” fuses, rather than temperature rise tests (which will be removed from the standard).

It was felt that the above approach should deflect many criticisms from the “HV” fuse community as only specialist applications, at relatively low values of voltage, will be included. It is believed that the voltages will therefore be limited to values below those at which there is a fundamental change in the way LV and HV fuses behave (primarily at lower currents, where there is no significant current-limiting action).

The Secretary of SC32B, Michael Altenhuber, who has been the primary person responsible for developing the DC fuse document is retiring from his IEC role at the end of 2024 and will be no longer take part in any IEC activities. While John Leach was listed as project leader for the project on the NP the technical leadership has come primarily from Michael. It is anticipated that his successor will continue to fulfill this role.

#### **JMT 441**

There have been no meetings of this joint maintenance team for the Electropedia section 441 (IEC 60050-441 Switchgear, controlgear and fuses). John Leach has been unable to achieve any input or participation from SC32B or SC32C.

#### **TC21 CAG**

The Chair’s advisory Group (chairs and secretaries of TC32, SC32A, SC32B, and SC32C) have not met but after expressing a desire to meet in Paris in Spring 2025, and initially being told that this would not be possible, further work has led to the anticipation of an official invitation to meet in Paris from April 22<sup>nd</sup> 2025 to April 24<sup>th</sup> 2025. An official invitation from the French NC is awaited.

**Plans for future meetings** – A plenary meeting of TC32, SC32A, SC32B, and SC32C (and their WG/MT) is anticipated for April 2025 in Paris, France.

John Leach, 10/13/24