IEEE SWITCHGEAR COMMITTEE CORRESPONDENCE

Minutes:	IEEE High-Voltage Fuses Subcommittee
Place:	Portland, Maine
Date:	Wednesday, October 11th 2017
Presiding officer:	John Leach – Chair
Recorder:	John Leach

MEMBERS PRESENT

Sterlin Cochran	Hubbell Power
Rodolfo Elizondo	Peakdemand.com
Gary Haynes	ABB Inc.
Blake Henard	Hubbell Power
Frank Lambert	GT/NEETRAC
John Leach	Consultant - Hi-Tech Fuses/ABB (Chair)
Chris Lettow^	S&C Electric Company
Sean Moody	Mersen
Bobby Moorhead	Dominion
Jon Spencer	Utility Solutions
Jim Wenzel	Eaton

MEMBERS ABSENT

Glenn Borchardt	S & C Electric Company
Jonathan Deverick^	Dominion Virginia Power
Brad Lewis	AEP
T. E. Royster	Dominion Energy
Mark Stavnes	S & C Electric
Charles Worthington	Hubbell Power
Alan Yerges	Eaton (Secretary)

^ correspondence only

GUESTS

Chris Ambrose	Federal Pacific
Chris Borck	Eaton
Casey Darden	Hi-Tech Fuses/ABB
Travis Johnson	Xcel Energy
Alex Lizardo	ABB
Chris Morton	PowerTech
Randy Ward	Alumaform
Emily Witcher	Hubbell Power
John Willis	Maclean Power Systems
Danish Zia	Underwiters Laboratories

HONORARY MEMBERS

John Angelis, L. Ron Beard, Ray Capra, Steve Hassler, Frank Ladonne, Herb Pflanz, R (Kris) Ranjan, John Schaffer, Frank Muench, Don Parker, Jan Zawadzki. R. Neville Parry, J. R. Marek

1. **Call meeting to order -** at 1:30 PM
2. **Approval of Agenda** – No changes requested, agenda accepted.

3. **Member/guest introduction** – 11 members, 10 guests. Bobby Moorhead met the requirements for membership with this meeting (i.e. to attend four of six meetings) and was welcomed to the subcommittee. Apologies were received from Tim Royster, Alan Yerges, Mark Stavnes and Bradley Lewis (whose wife had a baby this week – congratulations!) It was noted that Glenn Borchardt had been injured on the way to the meeting and wishes are expressed for his speedy recovery.

4. **Roster check–**

    a. Roster circulated for correction.

    b. The death earlier in the year of our longest serving member, Jim Marek was noted – his name was added to the "honorary member" status. His name would have been added earlier but it was noted that, until relatively recently, he had continued to play an active role in the Subcommittee and its working groups such that full member status had been maintained. His service is remembered with much thanks.

    c. Bobby Moorhead was moved to member status.

5. **Approval of April 26th 2017 minutes –** No errors reported, so approved.

6. **Standards Document Status Report: (see Annex B)**

    a. C37.41: an errata sheet was published in April 2017 and a PAR for C37.41 Corrigenda 1 was issued in May 18th 2017.

    b. C37.42: published May 2017.

    c. C37.43, C37.46, C37.47 are shown as superseded on the IEEE website, but C37.40 is still being shown as current (in error).

    d. C37.48 is now in revision. PAR has been approved from 2017 to 2021.

    e. C37.48.1 will be combined into C37.48.

7. **Working Group Reports**

    a) Revision of Fuse Standards – J. Leach

    a. The Working Group met on October 10th and 11th, 2017, at 8am. There were 21 members and 6 guests present on Tuesday (with one new member) and 20 members and 5 guests on Wednesday.
    b. The ballot for the corrigenda to C37.41-2016 was completed shortly before the meeting with no negatives and 11 comments. The WG reviewed the comments (most were from members) and it was decided that all that would have required a significant change to the document could be rejected (most were misunderstandings).
    c. As a result, it was possible to submit the Corrigenda 1 to RevCom (deadline October 16th) on Wednesday October 11th after the WG meeting.
    d. The draft of the revision to C37.48/48.1, based on the IEC Technical Report 62655 was examined and some changes proposed. Certain members of the WG agreed to review specific sections and report at our next meeting in April 2018.
    e. It was decided to maintain our Tuesday time slot in order to be able to respond should problems with the Corrigenda arise with RevCom, as well as move along with the large task of reviewing the PC37.48 draft.

8. **Report of liaison to other committees**

    a) ER&P Committee – John Leach

    a. John reported that the ER&P committee met at 12:00 pm on October 11th to review possible awards. It was clarified that 15 student days of free meetings would be provided to IEEE student members to attend Switchgear Committee meetings on Monday or Tuesday.
    b. A volunteer media/publicity person has been added to the ER&P roster.
    c. A vote to approve a payment of $2,500 for the PES Scholarship program was made.

9. **IEC Report – John Leach:** (for full report see Annex A)
    a. WG8 (polymer insulators) and MT3 (CL Fuses) met in Bilbao, Spain, in May 2017.
    b. The CD that MT3 prepared did not produce too many comments and after the May meeting a second CD should be circulated this week.
    c. A CD for an amendment to IEC 60644 (motor circuit fuses) should be circulated in November.
10. **Unfinished business**
    a. No unfinished business.
11. **New business**
    a. No new business.
12. **Next meetings**:

    Spring 2018 (April 22-27) Disney's Contemporary Resort, Lake Buena Vista, FL

    Fall 2018 (14 Oct – 18 Oct), Kansas City Marriott Downtown, MO

    Spring 2019 (April 28-May 1) Hilton, Burlington, VT

    Fall 2019 (Oct 6-10) Catamaran Resort, San Diego, CA

13. **Adjournment – 2:05 PM**

Annex A

SC32A - U.S.A. T echnical A dvisory G roup

Dr. John G. Leach, Technical Advisor ◆ j.g.leach@ieee.org ◆ 828-256-3744 ◆ Fax 828-322-2376

IEC Report 2017-1 April 2017 to October 2017

From: Dr. John G. Leach, Technical Advisor TC32 and SC32A, October 5th 2017

Summary
Since the April 2017 report there have been meetings of SC32A/WG8 and SC32A/MT3 in Bilbao, Spain (May 10th – 12th). These were attended by John Leach and Sterlin Cochran from the USA.

a) Meeting of WG6

The first meeting of WG8 (WG to develop a new standard IEC 60282-4 "Additional testing requirements for high-voltage Expulsion fuses utilizing polymeric insulators") was held in Bilbao, Spain on Wednesday 10th of May 2017, in a conference room of the Ercilla Hotel. Present were Sterlin Cochran, US, (Convenor), Harold Handcock, GB, and John Leach, US, (member and Chair SC32A). Not present were members Trevor Blackburn, AU, and Weijian Shi, CN.

The convenor informed the group that copyright issues with IEEE had still not been adequately addressed. John gave more details, namely that IEEE wished there ultimately to be a dual logo standard and so only gave permission to use IEEE material for the first edition. John said that, as Chair of the IEEE HV Fuses Subcommittee, he considered such a development unlikely based both on the stated objectives of IEEE and IEC being different and previous problems developing dual logo standards. While the IEEE HV fuses subcommittee seeks to minimize the number of active fuse documents (hence not wanting a free-standing document) IEC require

that, for a subcommittee to appear viable, they have as many separate documents as possible. SC32A secretary, Didier Fulchiron also expressed concern with the IEEE position as he felt that by the time a revision of IEC 60282-4 was necessary no one would remember these restrictions and IEEE copyright could be infringed.

The group therefore examined the IEEE clause for "uniqueness" and discovered that much of the material had been adapted from CSA C310-09 and existing IEC standards for polymer insulators. Since it was also felt that the hot and cold interrupting tests may not be needed in the IEC standard, it should be possible to write much of the standard without using IEC material.

Members studied various proposals from Sterlin for changes to the document circulated as a New Work Item Proposal (which was similar, but not identical, to the IEEE testing). It was agreed that a dye-penetration test should be added to the regular cutout interrupting tests.

After the meeting, John Leach continued to work with IEEE on the basis of not adopting the bulk of the IEEE material but only a small portion (perhaps 20%) and allowing use in subsequent revisions. After a protracted negotiation IEEE has recently (October) granted permission to use material just from subclauses 18.1.2 "Long-term deformation/creep testing" and 18.4 "Interrupting tests at temperature extremes", most of the all the other testing already appearing in other IEC standards.

A first CD has to be circulated by December 2017 according to the agreed timetable (although the problems with the IEEE copyright has delayed progress somewhat).

b) <u>Meeting of MT3</u>

MT3 met on Thursday 11th of May, 2017 and the morning of Friday the 12th, in Bilbao, Spain in the offices of Manufacturas Eléctricas, S.A.U. (MESA). Present were members: Ulrich Haas, DE, Harold Handcock, GB, Pierre Lavaud, FR, John Leach, US, (Convenor IEC SC32A/MT3), Viktor Martinčič, SI, (Chair TC32), Stephane Melquiond, FR, Juan-Carlos Perez-Quesada, ES, (Convenor IEC SC32A/MT4), and Thomas Schaefer, DE. Also present were guests: Thierry Rambaud, FR, (Member MT6), and Sterlin Cochran, US, (Convenor WG8).

Convenor John Leach reported that, since the NP from the USA, and the approval of WG8, the SC will not be in jeopardy of being dissolved for three years, providing it meets in 2018. The first Committee Draft for the revision of IEC 60282-1 (32A/323/CD) was circulated on January 20th 2017 and closed 2017-04-14. A Review Report (32A/322/RR) was issued with project dates: CD: 2017-09-29, CDV: 2018-12-31, FDIS 2019-06-28, and IS: 2019-12-31. The comments had been received and there were only 41 to be considered. Over half of these were minor editorial corrections. John reported that we had to agree on a meeting time and place for the SC meeting in 2018. We had not yet been invited to Busan S. Korea (fall) and members were asked if they would attend. Many said that they would probably not receive corporate permission to travel due to political tensions in the area. This plus the desire to meet earlier in 2018 resulted in a decision to accept Viktor's invitation to meet in Slovenia in May 2018. There has to be an official invitation from the NC of Slovenia, but unofficially the dates have been set for May 29-31 for the SC, MT3/6 and WG8 to meet.

Due to lack of participation Norway's membership in SC32A has been changes to "O" (observer). Mexico, also threatened with a change of status has named a member to MT3/MT4 Roger Teuscher.

Comments from the CD were discussed. The primary source of significant comments was the new section on thermally operated strikers. Overnight, John proposed an extensive re-write which was adopted on Friday morning.

An amendment to IEC 60644 (motor circuit fuses) was discussed. This is to address the removal of application information. Subsequent to the meeting this has been done, although changes were more extensive than anticipated as new rules regarding what is and is not acceptable in notes and scope are now in place. Since notes must be a statement of fact and are not allowed to contain requirements (“shall”) advice (“should”) or permission (“may”), there has also been additional changes made to the second CD of 60282-1 Ed 8.

It is anticipated that the second CD of 80282-1 will begin circulation the week of October 8th, and the CD of the amendment to 60644 the first week of November.

Date and place of next meetings: Our next meetings are planned for Slovenia in May, unofficially May 29-31 for the SC, MT3/6 and WG8.

John Leach, 10/05/17

Annex B: Document Status – October 2017

Document	Title	Sub-Committee	WG Chair	PAR	IEEE Status	Activity/Plans
C37.40	Standard Service Conditions and Definitions for High-Voltage Fuses, Distribution Enclosed Single-Pole Air Switches, Fuse Disconnecting Switches, and Accessories.	HVF			Approved 2003 R2009 TO BE WITHDRAWN	None - Combined with C37.41
C37.41	IEEE Standard Design Tests for High-Voltage (> 1000 V) Fuses and Accessories	HVF	John Leach 828 256 3744 j.g.leach@ieee,org	Corrigendum 1 approved 2017 Expires 2021	Approved 2016	Errata published April 2017. The corrigenda has been submitted to RevCom
C37.42	IEEE Standard Specification for High-Voltage (> 1000 V) Fuses, and Accessories.	HVF	John Leach 828 256 3744 j.g.leach@ieee,org		Approved 2016	Published (May 2017)
C37.43	Standard Specifications for High-Voltage Expulsion, Current-Limiting and Combination Type Distribution and Power Class External Fuses, with Rated Voltages from 1kV through 38kV, Used for the Protection of Shunt Capacitors	HVF			Superseded	None - Combined with C37.42
C37.45	IEEE Standard Design Tests and Specifications for High-Voltage (> 1000 V) Distribution Class Enclosed Single-Pole Air Switches	HVF	John Leach 828 256 3744 j.g.leach@ieee,org		Approved 2016	Published 2016, Errata published April 2017
C37.46	Standard for High-Voltage (>1000 V) Expulsion and Current-Limiting Type Power Class Fuses and Fuse Disconnecting Switches.	HVF			Superseded	None - Combined with C37.42
C37.47	Standard Specifications for High-Voltage (>1000 V) Current-Limiting Type Power Class Fuses and Fuse Disconnecting Switches	HVF			Superseded	None - Combined with C37.42
C37.48	Draft Guide and Tutorial for the Application of High-Voltage Fuses and Accessories.	HVF	John Leach 828 256 3744 j.g.leach@ieee,org	Approved 2017 Expires 12/31/2021	Approved 2005 R2010	Revision started - Good to 2020
C37.48.1	Guide for the Application, Operation, and Coordination of High Voltage (>1000 V) Current-Limiting Fuses.	HVF	John Leach 828 256 3744 j.g.leach@ieee,org		Approved 2011	None – Good to 2021 To be combined with C37.48.