Minutes for Working Group C37.30.1
October 15-16, 2018
Kansas City, MO

- The working group met for three sessions; two sessions on Monday October 15th, and one on Tuesday October 16th.
- 30 participants were in attendance with one member excused.
- Attendees introduced themselves with their affiliations.
- WG Chair Carl Reigart addressed the members and guests of the WG to identify any patent conflicts.
    - There were no members or guests that brought up any patent conflicts to the WG.
- WG member Jim Houston proposed that AWS D1.1 (Steel) and D1.2 (Aluminum) Steel and Aluminum welding standards be added to document as normative reference or construction requirements.
    - Jim Houston motioned to include in document and then Brett Boles seconded. It was voted on and majority voted approval for this addition in document.
- WG went through new draft document Table 5 to determine where footnote b came from. Note was "test performed on load and source side only".
    - WG Chair Carl Reigart volunteered to sort it out outside of the meeting.
- WG reviewed 5.4.2.2 to combine into single paragraph.
    - Jim Houston motioned to make into one paragraph and Donnie Swing Seconded. Majority of working group stated approval.
- WG reviewed 5.4.2.4 to combine into one paragraph:
    - Donnie Swing motioned to make into one paragraph and Dave McMullen seconded. The majority of WG voted approval.
- WG reviewed 5.4.4 to combine into one paragraph:
    - Jim Houston motioned to make into one paragraph and Donnie Swing seconded. The majority of WG voted approval.
- WG reviewed Table 2 - Temperature Limitations for air switches:
    - WG Chair Carl Reigart proposed to add verbiage from 100.1. Point 6 from 100.1 "The quality of the coated contacts shall be such that a continuous layer of coating material remains in the contact area. A) after the making and breaking test (if any) b} After short time withstand current test c) after the mechanical endurance test."
        - The group proposed to add amendment 30.1.A verbiage to A) after the making and breaking test (if any) b) After short time withstand current test c) after the mechanical endurance test. Proposal to WG was to add 100.1 verbiage under temperature rise table and under each test section including the addition of Peak withstand to b) short time withstand current test.
        - Pete Kowalik motioned to carry the 100.1 note under Table 2 – Temperature Limitations for air switches and each individual section and Danny Hoss seconded.
- WG reviewed several editorial revisions that were approved to revise.
- Pete Kowalik proposed idea to remove no visible requirement from 5.8 Visible Corona Free Voltage. Point was that before visible corona was found in his experience, the RIV values were well over the limit.
    - WG Chair Carl Reigart informed the WG that he has seen visible corona before the RIV limit was reached in higher kV levels.
    - Utilities were polled in the room to determine their opinion on proposed removal. Jim Houston and Dave McMullen said that the customers would be upset.
    - The conversation was tabled to remove visible corona.
- WG reviewed Rated Ice Breaking Ability section.
    - Added indoor and enclosed switches have no ice breaking requirements.
- WG reviewed 6.2.5 and 6.3.5.
    - WG approved following editorial change: "Full open switch" was changed to "fully open switch".
- WG reviewed how we define the current requirement for fault initiating switch.
    - WG voted on keeping wording for 5.16, but Danny Hoss objected and stated that it was a different function for a fault initiating switch.
    - Dave Lemmerman recommended having peak current there. "The expected switching endurance of a fault-initiating switch is the number of closing operations, at rated peak current, that a switch is

capable of performing when it is new and tested at its rated peak current.

- WG Chair Carl Reigart proposed to agree with IEEE Std. 4 to revise 1.2X50 µs to 1.2/50 µs.
    - WG voted approval.
- WG Chair Carl Reigart proposed to remove clause references from IEEE Std. 4 and just keep IEEE Std. 4 as an undated reference, with the clause title, just in case clauses change.
    - WG voted approval.
- Danny Hoss proposed to remove up and down method since there is a reference to IEEE Std. 4.
    - Vote was taken and approved. Majority approved and WG member Devki Sharma abstained due to not knowing what document IEEE Std. 4 contains.
- WG reviewed and voted approval to clarifying wording for Temperature Rise Test: Determination of Ambient Temperature.
    - WG added clarifying verbiage to add specific ambient thermocouple locations for the horizontal and vertical mounted temperature rise tests.
    - Dave Lemmerman proposed to have the ambient temperature for all switch parts shall be the average of the three ambient temperature readings at the beginning paragraph to cover horizontal and vertical mounted switches.
        - Motion was brought forward to approve the wording by Dave Lemmerman and Bill Hurst seconded.
        - Vote was taken by WG and carried forward.
- WG Chair Carl Reigart proposed to have the ice loading test General section combined into single paragraph.
    - Two sentences were deleted "Under certain circumstances, an ice storm can cause a deposit of ice of such thickness that overhead lines fail and operation of specific switching equipment is impaired". "This test is to demonstrate that the equipment will operate successfully under iced conditions."
    - General section was combined into one paragraph. Ice loading tests are design tests performed to determine the rated ice breaking ability for outdoor switching equipment. The procedure for producing controlled coatings of ice (comparable with those encountered in nature) is defined in 7.6.2.
    - WG voted approval.
- WG reviewed where partial discharge stood and if it was under study.
    - It entered the document in the 2011 version and Jim Houston motioned to remove the section and Danny Hoss seconded.
    - Motion carried after WG voted approval.
- WG reviewed Table 13 and to change "values not yet established" back to footnote d as in C37.30.1-2011.
    - Jim Houston reviewed current standard table. Informed WG that BSL (Switching impulse) is typically used instead of BIL values by utilities.
    - Proposal to WG was to add Note 2 – Values not yet established. Refer to IEEE 1427, clause entitled "Clearances based on Lightning Impulse conditions" for guidance.
    - Motion carried.
- WG reviewed 7.6.6 Criteria for Acceptance for Ice Testing.
    - WG discussed criteria if there is doubt about the successful performance of the switch. Sterlin Cochran recommended that the wording from the amendment C37.30.1A get added Pete Kowalik motioned to accept Jim Houston seconded.
        - The first proposed wording was the following: If there is an increase in resistance of more than 20%, a temperature rise test is required. Resistance measurements of the main circuit shall be made in accordance with 6.4.1 of IEEE Std C37.100.1-2007.
        - Donnie Swing motioned to remove clause number and dated reference. Jim Houston seconded. Motion carried.
        - Final wording where motion carried was the following: If there is an increase in resistance of more than 20%, a temperature rise test is required. Resistance measurements of the main circuit shall be made in accordance with of IEEE Std C37.100.1™.
- WG reviewed section 7.8.4 Frequency and Wave Shape of Test Voltage. The frequency of the test voltage shall be the rated frequency of the device tested. A sine wave of acceptable shape shall be applied.
    - Frank DeCesaro volunteered to look into a sine wave of acceptable shape shall be applied. No objections were noted.
- WG reviewed Direction of loading in Mechanical Endurance tests.
    - Devki Sharma commented and questioned if the testing is simultaneous. He proposed to change

how the forces F1, F2, F3, and F4 are individually applied to help simulate real world application. Jim Houston said he hasn't seen issue. Devki suggested revising test method to apply simultaneously.
        - Donnie Swing motioned to leave it as is and Pete Kowalik seconded.
        - Motion carried to leave mechanical operations testing as is.
- Eric Lee questioned about side break short time current withstand testing.
    - WG agreed it would be good to define how to test and arrange the return bus for a side break where the orientation could be more onerous in certain positions.
        - The following wording was added: The return bus shall be arranged such that magnetic forces will tend to open a switch as in center and side break switches.
        - Motion approved.
- WG Chair Carl Reigart informed the working group that he would get the draft ready and make the changes and allow the WG to review before sending out for ballot.
- Meeting adjourned.
- Next meeting will be April 28 - May 2, 2019 in Burlington, VT.

Jacob Blake
WG Secretary

Name	Affiliation	Member/Guest	M Request	Sign In
John Paul Adigwu	Southern California Edison	G		A
Edwin Almeida	Southern California Edison	G		A
Chris Ambrose	Federal Pacific (Div. of Electro-Mechanical Corp.)	G		A
Jacob Blake	Hubbell Power Systems	Secretary		P
Brett Boles	Southern Company	M		P
Christopher Borck	Eaton's Power Systems Division	G		A
Kelly Cannon	Hubbell Power Systems	G		P
Russell Carter	Pascor Atlantic	G		P
Sterlin Cochran	Hubbell Power Systems	G		P
Timothy Cook	Pascor	M		P
Philippe Corriveau	Mindcore Technologies	G		P
Frank DeCesaro	Eaton's Power Systems Division	G		A
Steven Donohue	Royal Switchgear Manufacturing	G	X	P
Glenn Dorsey	Siemens	G		A
Randall Dotson	Lakeland Electric, City of Lakeland, FL	G		A
Rodolfo Elizondo	Peak Demand Inc.	G		P
Ilya Glinsky	Southern California Edison	M		P
Francisco Guzman	Southern California Edison	M		A
John Hall	Tennessee Valley Authority	M		A
Kenneth Harless	Pascor Atlantic	Corresponding M		
Gary Haynes	ABB Inc.	M		P
Danny Hoss	Southern States	M		P
James Houston	Southern Company	M		P
Bill Hurst	GE	M		P
John Kaminski	Siemens	G	X	P
Thomas Kohler	Ameren	Vice Chair		P
Peter Kowalik	Cleaveland/Price Inc.	M		P
Patrick Lalonge	Mindcore Technologies	G		A
Gustavo Leal	Dominion Energy	M		A
David Lemmerman	PECO/Exelon	G		P
Marc Lesperance	S&C Electric Cananda Ltd.	G	X	P
Bradley Lewis	AEP	G		A
Eric (Qian) Li	Powertech Labs	G		P
Wangpei Li	Eaton	G		A
Alex Lizardo	ABB	G		A
Nathan Loucks	Hubbell Power Systems	G		A
David McMullen	Georgia Power Comapny	M		P
Peter Meyer	S&C Electric Company	M		A
Federico Di Miqiele	Cesi Italy	G		P
Jordan Oliver	Hubbell Power Systems	G		A
Ted Olsen	Retired (Siemens Industry)	G		P
Laura Reid	Hubbell Power Systems	M		E
Carl Reigart	CDR Technical Services LLC	Chair		P
David Rhein	Hubbell Power Systems	G		A
Brent Richardson	Hubbell Power Systems	G		A
Andrew Roberson	Siemens	G		A
Tim Rohrer	Exiscan LLC	G		P
James Ruebensam	S&C Electric Co.	G		A
Devki Sharma	Entergy	M		P

Name	Affiliation	Member/Guest	M Request	Sign In
Jon Spencer	Utility Solutions	G		A
Kyle Stechschulte	AEP	Corresponding M		A
Donald Swing	Powell Industries	M		P
Joseph Usner	AEP	G	X	P
Randy Ward	Aluma-Form	G		A
James Wenzel	Eatons Cooper Power Systems	G		P
John Willis	Maclean Power Systems	G		A
Kevin Wood	Southern California Edison	G		A
Francois Trichon	Schneider Electric	G	X	P