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A Journey in Advancing Electrical Safety Culture

I was happy to once again attend the IEEE Industry Applications Society (IAS) Electrical Safety Workshop (ESW), this year held from 13 to 17 March in Reno, NV, USA. Once again, we had another well-run and well-attended IAS Conference (more than 500 registered attendees), thanks to the many IAS Electrical Safety Committee volunteer leaders who made this a successful event. Be sure to read the “Society News” column [A1] on page 76 of this issue, which features highlights from this event.

There is no question that electrical workplace safety is one of our Society’s core knowledge competencies across the globe. Beginning with the Safety Technical Subcommittee in 1991 by the IAS Petroleum and Chemical Industry Committee (PCIC), the first-ever ESW was held in 1992 with 35 attendees. In 2012, the IAS Executive Board approved the creation of the IAS Electrical Safety Committee and moved the responsibility for the ESW to this new technical committee. Since its founding in 1991, the ESW has served to accelerate the dispersion of information and knowledge impact-

ing electrical safety. I also encourage you to read the excellent article “Reflections on a 50-Year Journey in Electrical Safety” [A2] in this issue beginning on page 59. This was written and presented at the 2022 IEEE IAS PCIC conference by my editor-in-chief predecessor, friend, and colleague, H. Landis (Lanny) Floyd. It is an excellent summary of the history of electrical safety in IAS, authored by Lanny, who is one of the founding members of the PCIC Safety Subcommittee.

Curious to learn more about our Society history in electrical safety, I queried the IEEE *Xplore* library, searching for the word “Journey” in the article title. The search helped me find another article, also published by Lanny: “Continuing Journeys in Arc-Flash Injury Prevention: IEEE Standard 1584” [1]. This one dates back to the May/June 2003 issue of *IEEE Industry Applications Magazine*. The referenced IEEE 1584

Standard, titled “IEEE Guide for Performing Arc-Flash Hazard Calculations,” was first published more than 20 years ago in 2002. This standard, sponsored by the PCIC, was an industry first, establishing a model based on laboratory testing that could estimate the heat energy emitted during an arc-flash event based on a specific node in an electrical system. The next version of the IEEE 1584 Standard was not published until 2018, more than 16 years later.

A 2020 *IEEE Industry Applications Magazine* article, authored by Daleep Mohla, Wei-Jen Lee, Jim Phillips, and Albert Marroquin, offered details outlining changes in the updated standard [2]. Why did it take more than 16 years to update this IAS-sponsored IEEE standard? Daleep, our recent past Standards Department chair, and Wei-Jen, our recent past Society

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was first published in 1967. Since then, it has been reaffirmed in 1972, revised and reissued in 1975, and revised and approved by the IEEE-Standards Association (SA) Standards Board for a 1983 reissue.

- IEEE Standard 499-1974, *IEEE Recommended Practices for Cement Plant Drives and Related Equipment*. (SHO 4994.) This standard was revised and approved by the IEEE-SA Standards Board for a 1983 reissue.
- IEEE Standard 625-1979, *IEEE Practice for Improved Maintenance and Safety in Industry*. (SHO 7401.)

- IEEE Standard 277-1983, *IEEE Recommended Practice for Cement Plant Power Distribution*.
- IEEE Standard 499-1989, *IEEE Recommended Practice for Cement Plant Electric Drives and Related Electrical Equipment*. This standard was approved by the IEEE-SA Standards Board on 14 April 1989. It was then published on 6 October 1989. ANSI approval was on 13 September 1989.
- IEEE Standard 625-1988, *IEEE Recommended Practice for Improved Maintenance and Safety*. The revision on this standard took place from 1988 to 1990. The standard was approved by

the IEEE-SA Standards Board on 12 December 1990. ANSI approval was on 21 May 1991.

Conclusion

The IAS CIC continues to be the leading resource for new technologies, processes, and electrical equipment information to the cement industry. Our yearly conference is the premiere technical conference in the industry. The emphasis of the conference has changed many times over the years and will continue to adapt to the needs of the industry and the environment in which we operate.



FROM THE EDITOR'S DESK

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president, know the answer. Daleep served as the Standards Working Group chair, and Wei-Jen led a 10-plus-year effort to complete laboratory testing. Testing was funded by more than US\$4.5 million in donations from industry and sponsored by a collaborative effort between IEEE and the National Fire Protection Association (NFPA). Nearly 2,000 tests were performed at voltages from 208 V to 15 kV with variations on fault current, enclosure size, electrode configuration, electrode gap, and other parameters, creating a new and more accurate model.

Looking forward, new revisions to IEEE 1584 Standard have been published, and further revisions are in the works.

Though quite a long journey in support of a single IEEE standard, Society volunteer leaders, including Lanny, Daleep, and Wei-Jen along with many others, are testimony that the IAS Electrical Safety Committee tagline “Advancing the Electrical Safety Culture” is indeed working. Looking back, this is quite an impressive body of work. Looking forward, new revisions to IEEE 1584 Standard have been published, and further revisions are in the works (see

Ray Crow's article on standards [A3] on page 78 of this issue). I see a promising journey into the future.

Appendix: Related Articles

[A1] “The 2023 IEEE IAS electrical safety workshop was a success [Society News],” *IEEE Ind. Appl. Mag.*, vol. 29, no. 4, pp. 76–77, Jul./Aug. 2023, doi: 10.1109/MIAS.2023.3267989.

[A2] H. L. Floyd, “Reflections on a 50-year journey in electrical safety,” *IEEE Ind. Appl. Mag.*, vol. 29, no. 4, pp. 59–65, Jul./Aug. 2023, doi: 10.1109/MIAS.2023.3261107.

[A3] R. Crow, “Take action to improve electrical safety [Standards News],” *IEEE Ind. Appl. Mag.*, vol. 29, no. 4, p. 78, Jul./Aug. 2023, doi: 10.1109/MIAS.2023.3268000.

References

[1] C. Wellman and B. McClung, “Continuing journeys in arc-flash injury prevention: IEEE standard 1584,” *IEEE Ind. Appl. Mag.*, vol. 9, no. 3, p. 8, May/Jun. 2003, doi: 10.1109/MIA.2003.1195676.

[2] D. Mohla, W.-J. Lee, J. Phillips, and A. Marroquin, “Introduction to IEEE standard 1584: Guide for performing arc-flash hazard calculations, 2018 edition,” *IEEE Ind. Appl. Mag.*, vol. 26, no. 5, pp. 64–76, Sep./Oct. 2020, doi: 10.1109/MIAS.2020.2982574.

