



# SUBCOMMITTEE D

## GENERATING STATION AND INDUSTRIAL CABLES

Art Maldonado – Chairman  
Doug DePriest – Vice Chairman





## Subcommittee D

# Agenda

- ▶ Introductions
- ▶ Standards Review
- ▶ Announcements
- ▶ Presentations



## Subcommittee D

# Introductions

- ▶ Name
- ▶ Affiliation
- ▶ Any Comments



## Subcommittee D

### Scope

- ▶ **Scope:** *Subcommittee D is tasked with cable systems for power, control, signal, data, communication, and fiber optic applications for use in generating stations, substations, industrial facilities, shipboards, military installations, submarines, mining, and transit/locomotive cars. These cables are direct buried, pulled in duct banks, conduits, ducts or wire ways, or installed in trays, air handling plenums, cabinets, enclosures and other non-T&D applications of insulated conductors. Testing and installation guidance for these applications is also within the scope of this group. The group develops standards and guidelines and provides opportunity for technical discussion. Specifically excluded are T&D cables for use on land or underwater applications.*



## Subcommittee D

# Mission

- ▶ ***Generating Station and Industrial Cables Subcommittee's mission is to continually advance the understanding and improve the application of insulated conductors and fiber optic cables.***



## Subcommittee D

- ▶ **Summary:**
- ▶ 22 Discussion/Working Groups
- ▶ 17 DG/WGs are active, the most in ICC
- ▶ 4 are either In balloting or going to Ballot in 2015
- ▶ 1 Standard Approved in 2015
- ▶ 2 New Standards Being Developed



## Subcommittee D

DG/WG	IEEE Std	TITLE	ACTIVE
D01D	45.8	IEEE Recommended Practice for Electrical Installations on Shipboard - Cable Systems	√
D02D	NA	Industrial/Commercial Cables (Liaison with UL) - Standards Update	
D03W	1242	IEEE Guide for Specifying and Selecting Power, Control, and Special-Purpose Cable for Petroleum and Chemical Plants	√
D04D	NA	Compendium - Smoke, Toxicity, and Corrosive Products of Cable Combustion	√
D05W	1185	IEEE Recommended Practice for Cable Installation in Generating Stations and Industrial Facilities	√
D06D	1428	IEEE Guide for Installation Methods for Fiber-Optic Cables in Electric Power Generating Stations and in Industrial Facilities	√
D07D	1186	Evaluation of Installed Cable for Class 1E Circuits In Nuclear Power Generating Stations	√
D08D	634	IEEE Standard Cable-Penetration Fire Stop Qualification Test	√
D09D	NA	Ampacity Derating of Installed Cables	
D10W	383	IEEE Standard for Qualifying Electric Cables and Splices for Nuclear Facilities	√
D11W	1143	IEEE Guide on Shielding Practice for Low Voltage Cables	
D12D	NA	Plant Life Extension (NA)	√
D13W	848	IEEE Standard Procedure for the Determination of the Ampacity Derating Factor For Fire-Protected Cable Systems	√





## Subcommittee D

DG/WG	IEEE Std	TITLE	ACTIVE
D14W	422	IEEE Guide for the Design of Cable Raceway Systems for Electric Generating Facilities	
D15W	1202	IEEE Standard for Flame-Propagation Testing of Wire & Cable	√
D16D	1682	IEEE Standard for Qualifying Fiber Optic Cables, Connections, and Optical Fiber Splices for Use in Safety Systems of Nuclear Power Generating Stations	√
D17W	1717	IEEE Standard For Testing Circuit Integrity Cables Using A Hydrocarbon Pool Fire Test Protocol	
D18W	1810	IEEE Guide for the Installation of Fire-Rated Cables Suitable for Hydrocarbon Pool Fires for Critical and Emergency Shutdown Systems in Petroleum and Chemical Industries	√
D19W	1844	IEEE Standard Test Procedure for Determining Circuit Integrity Performance of Fire Resistive Cables in Nuclear Facilities	√
D20D	NA	Guide for the Selection of Cables for Nuclear Facilities	√
D21W	2412	IEEE Standard Test Procedure for Circuit Integrity of Fire Resistive Cables in Tunnels and Transit Applications	√
D22D	NA	IEEE Standard for the Design, Performance, and Installation of Electrical Cables and Cable Systems Less than 1000 Volts for Use in Class I, Division 1 and Zone 1 Hazardous Locations in Onshore and Offshore Petroleum and Chemical Facilities (NA)	√





## Subcommittee D

### Sub D Working/Discussion Groups

- ▶ D01D: Savage/Maldonado “Shipboard Cables”
  - IEEE 45.8 in Revision - Liaison with IAS/PCIC  
Active – In Revision: Par to December 2015
  
- ▶ D02D: Vacant “Industrial and Commercial Cables” - Liaison with UL
  - Not Active: UL Presentation Requested



## Subcommittee D

### Sub D Working/Discussion Groups

- ▶ D03W: Maldonado/Bow "Guide for Selecting and Specifying Cables for Petrochemical Plants (IEEE 1242-1999)"
  - Active – Going to Balloting
  
- ▶ D04D: Durland/Vacant "Smoke, Toxicity & Corrosive Products of Cable Combustion"
  - Looking For Vice Chair



## Subcommittee D

### Sub D Working/Discussion Groups

- ▶ D05W: Merando/Vacant "Station Cable Installation Criteria (IEEE 1185-2010)"
  - Issued: 2020 Expiration. Restarted 2015 Spring. Looking for Vice Chair
  
- ▶ D06D: Stratton/Vacant "Installation Fiber Optic Cables (IEEE 1428-2004)"
  - Reactivating. Active Standard –2020 Expiration.



## Subcommittee D

### Sub D Working/Discussion Groups

- ▶ D07D: "Evaluation of Installed Cable for Class 1E Circuits In Nuclear Power Generating Stations"
  - Reactivating – Chair: Stephanie Walker - NIST
  
- ▶ D08D: "Cable Penetration Fire Stop Qualification Test (IEEE 634-2004)"
  - Active Standard –2020 Expiration –Will start revision  
Gabe Taylor-NRC, Chair/Herb Stansberry–ETL, Vice Chair



## Subcommittee D

### Sub D Working/Discussion Groups

- ▶ D09D: Vacant " Ampacity Derating Factors for Typical Station Installations
  - Not Active
- ▶ D10W: Konnik/Gwal " Class 1E Cables for Nuclear Plants (IEEE 383-2003)" - Jointly with NPEC/SC2
  - In Balloting



## Subcommittee D

### Sub D Working/Discussion Groups

- ▶ D11D: Bow/Bayer “Shielding Practice for Low Voltage Cables (IEEE 1143-2012)”
  - Issued
  
- ▶ D12D: Vacant “Plant Life Extension”
  - Reactivating – Doug DePriest – Chair, Eric Rasmussen – Vice Chair



## Subcommittee D

### Sub D Working/Discussion Groups

- ▶ D13W: Spear/Gwal " Ampacity Derating of Fire Protected Cable (IEEE 848-1996)"

- Approved

D14D: Merando/Bloethe " Guide for the Design of Cable Raceway Systems for Electric Generating Facilities (IEEE 422-2012)" - Jointly with PGC

- Issued





## Subcommittee D

### Sub D Working/Discussion Groups

- ▶ D15W: Hills/Taylor "Standard for Flame Propagation Testing of Wire & Cable (IEEE 1202-2006/Cor 1-2012 )"
  - PAR Approved
- ▶ D16D: Pirrong/Foley "Qualification of Fiber Optic Cables, Connectors & Splices (1682)" - Jointly with NPEC/SC2
  - Active
  - White Paper To Be Done



## Subcommittee D

### Sub D Working/Discussion Groups

- ▶ D17D: Maldonado/Smith "Cable Circuit Integrity Testing Using Hydrocarbon Pool Fire Test Protocol (1717-2012)"
  - Issued
- ▶ D18W: Shoshani/Bayer "IEEE Guide For Installation of Fire Rated Circuit Integrity Cables in Petroleum and Chemical Industries (P1810)"
  - Liaison with PCIC. Balloting in 2015



## Subcommittee D

### Sub D Working/Discussion Groups

- ▶ D19W: Taylor/Shoshani "Standard For Testing Fire Resistive Cables For Use In Nuclear Facilities" (P1844)
  - Balloting in 2015
- ▶ D20D: DePriest/Fleming "Standard For Submergence Testing of Cables For Use in Nuclear Facilities"
  - Will change scope to Develop a Cable Guide for Nuclear Power Plants



## Subcommittee D

### Sub D Working/Discussion Groups

- ▶ D21W New standard being developed:
- ▶ IEEE-2412, "Standard Test for Determining Circuit Integrity Performance of Fire Resistive Cable Systems in Passenger Rail and Road Tunnels "



## Subcommittee D

### Sub D Working/Discussion Groups

- D22D - New Discussion Group - Laudicina/Bayer
- IEEE Standard for the Selection, Performance, and Installation of Electrical Cables and Cable Systems Less than 1000 Volts for Use in Class I, Division 1 and Zone 1 Hazardous Locations in Onshore and Offshore Petroleum and Chemical Facilities



## Subcommittee D

# Standards to Ballot

- ▶ This Year and Next, The Following to Ballot:
- ▶ D03W: IEEE 1242
- ▶ D18W: IEEE P1810
- ▶ D19W: IEEE P1844



INSULATED CONDUCTORS COMMITTEE

*Established 1947*

Subcommittee D

Best Presentation Award

Kent Brown - Consultant

“State of the Nuclear Industry”







## Subcommittee D

# Call for Presentations

- ▶ The Chairman requested that any individual or company who has material to present to please contact Vice-Chairman Doug DePriest [dsdepriest@tva.gov](mailto:dsdepriest@tva.gov) or any of the Subcommittee D Working Group chairmen



## Subcommittee D

# Presentations

- ▶ 8:00 – 8:15 PM - Opening remarks
- ▶ 8:15 - 9:15 AM - “Formulation and Long-Term Performance of Low Voltage Cable Materials”, Joe Groeger - Mantis Associates, Inc
- ▶ 9:15 – 9:45 PM “Smoke Measurements in Conjunction with Flammability Testing”, Herb Stansberry – Intertek
- ▶ 9:45 – 10:00 – Break
- ▶ 10:15 - 11:00 “An Update on Equipment Qualification per IEEE-383, Eric Rasmussen - RSCC



## Subcommittee D

# Presentations

- ▶ 11:00 - 11:45 "Custom Testing and Accessories Over the Years", Bill Taylor - 3M