
Guidance for Running Successful Workshops

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Topics

- Overall workshop goals
- Workshop goals for each group
- Resources available
- Guidance for workshops
- Member distribution

Overall Workshop Goals

- Share methods and successes in electrical safety across the complex.
- Contribute to DOE complex electrical safety by
 - Providing tools for assessing facility arc flash and choosing correct PPE
 - Developing a consistent approach for dealing with legacy code violations, share CFR 851 issues
 - Develop methods to assure 851 flowdown to subcontractors
 - Expedite the release of the revised DOE Electrical Safety Handbook
 - Develop a process for Handbook revision and upkeep
 - Study and summarize issues with DC, battery, and capacitor electrical safety. Issues include shock protection, arc flash, high current

Venues for Products

- Current revision of DOE Electrical Safety Handbook (must be finished and reviewed)
- Future revision of DOE Electrical Safety Handbook
- Center of Excellence website
- EFCOG best practices
- Submission to ISA standards committee

Working Groups

Topic	# members
1) Arc Flash Hazards in the Facility	33
2) CFR 851 Electrical Issues	26
3) DOE Electrical Safety Handbook	25
4) DC Electrical Hazards	23

Workshop 1

Facility Arc Flash Hazards

Jackie McAlhaney and Mark McNellis

Backups - David Powell, Scott Gilmore

#1 - Facility Arc Flash Hazards

- The goal of this group is to review challenging issues in the protection of facility workers from arc flash hazards, and develop guidance for sites.

#1 – Facility Arc Flash Hazards Suggested Goals

- Summarize current issues.
- Review codes and standards, experience, etc.
- Develop guidance for consistent complex wide use

#1 - Possible Topics

- Pros and cons of various methods of arc flash boundary calculations
- Tasked based analysis and PPE selection
- Calculations for various parts of the body
- Mixed PPE issues (e.g., respirator and FR)
- Labeling issues
- ??

#1 - Resources

- 2004 NFPA 70E
- 2004 NFPA 70E
- 2009 NFPA 70E draft (Bobby Gray)
- NFPA 70E committee members
 - Bobby Gray
 - Keith Schuh
 - Bryan Drennan
 - Mark McNellis

#1 - Product

- Guidance for uniform implementation of facility arc flash protection and NFPA 70E.

Workshop 1: Registrants

Baca, Rick (LANL)	Hiller, Bev (NREL)	Powell, David (LANL)
Carr, Franklin (Eng)	Hicks, Mike (DOE)	Robertson, Mike (■ D)
Cerutti, John (SNL)	Huie, Andrew (NTS)	Soderquist, Charles (Stg)
Childers, Tom (UL)	King, William (SNL)	Swyers, Paul (NREL)
Coddington, Michael (RL)	Kujawa, Todd (JNL)	Vyas, Nancy (Army)
Cremona, Kirsten (RMH)	Logue, James (SNL)	Watson, Lance (LANL)
Dubbin, Melvin (RL)	Matthewson, Chris (OSHA)	Whipple, John (INL)
Enomoto, Kevin (NREL)	Otto, Joe (Honeywell)	Williams, Mark (BNL)
Frisch, Mike (SNL)	Patterson, Bernard (URS)	Wright, Bill (OSHA)
Gilmore, Scott (KCP)	Perrotta, Frank (ANL)	Zona, Patrick (AMWTP)
Gutmaniz, Arnold (Wash)	Pearson, John (ORNL)	

Workshop 2

CFR 851

Bryan Drennan

#2 - CFR 851

- The goal of this group is to review issues with implementation of CFR 851 for electrical codes and standards, and develop guidance for sites.

#2 – CFR 851

Suggested Goals

- Summarize current issues.
- Review codes and standards, experience, etc.
- Discuss legacy code violation issues.
- Discuss how to deal with “interpretations”
- Develop guidance for consistent complex wide use

#2 - Possible Topics

- Legacy code violations
- A consistent electrical safety program
- Sharing issues between sites
- Developing a consistent methodology for all sites
- Alternate methods
- Using the ESTG for “guidance”
- ??

#2 - Resources

- CFR 851 and associated documents (on CD)
- 2004 NFPA 70E
- 2004 NFPA 70E handbook
- 2008 NEC
- 2009 NFPA 70E draft (Bobby Gray)

#2 - Product

- Guidance for dealing with CFR 851 issues across the complex.

Workshop 2: Registrants

Adkins, Michael (LANL)	Harwood, Russell (DOE)	Searfoss, Skip (DOE)
Bauman, Thomas (Paduc)	Inskeep, David (INL)	Sykes, Carl (DOE)
Candelario, Robert (LBNL)	Irwin, Jeff (??)	Tran, Pat (DOE)
Coll, Rafael (Fermi)	Legard, Robert (Fluor)	Ufferfilge, David (???)
Connors, Mike (LANL)	Lyons, Patrick (LLNL)	Wang, Y.T. (DOE)
Davis, Clay (LANL)	Magers, Daryl (NSTec)	Wright, Max (Pantex)
Dierkes, John (Schneider)	Morton, Glenn (DOE)	
George, Jack (DOE)	Nii, Robert (CH2M)	
Gomez, Herman (??)	Romero, Chris (LANL)	
Gwal, Ajit (DNFSB)	Saunders, Clyde (CH2M)	

Workshop 3 - DOE Electrical Safety Handbook

Bobby Gray
Lloyd Gordon

Backups - Greg Krumdick, Bob Weiss

#3 - Handbook R&D and Future

- This working group will focus on the content and expansion of the R&D sections of the DOE Electrical Safety Handbook. The existing Chapters 9 and 10, as well as proposed new Chapters on Electrical Hazard Classification and Unlisted Electrical Equipment Approval will be discussed and worked upon. The goal is to finalize products for inclusion in a significant revision of the DOE Electrical Safety Handbook, expected later this calendar year. This workshop should be of particular interest to those members of the AHJ and others interested in R&D Electrical Safety.
- This working group will also brainstorm ideas for future Chapters and material for including in a future revision of the DOE Electrical Safety Handbook, which could occur as early as 2008, if the need is determined. Ideas so far include
 - Vital Safety Systems
 - Standards and guidelines for R&D controls
 - and more

#3 - Handbook Chapters 1-8

- This working group will focus on the scope and purpose of the overall DOE Electrical Safety Handbook, and the intent and usefulness of Chapters 1 - 8, which largely focus on basics and facility issues. The goal of the workshop will be to determine what content should remain in the handbook, what should be updated, and what should be added. This workshop should be of particular interest to those members of the AHJ and others interested in facility code issues.

#3 - DOE Handbook R&D and Future Suggested Goals

- Review progress to date
- Determine what is needed to publish
- Discuss dates for release of current revisions
- Discuss possible delays in current publication
- Review new drafts from 2006 and 2007 workshop
- Discuss future of Handbook
- Discuss purpose, scope and content of handbook
- Develop plan and process for future revisions
- Brainstorm future topics

utilize participants from last year's working groups

#3 - Resources

- 2004 DOE Electrical Safety Handbook
- 2006 R&D Workshop #1 - Unlisted Electrical Equipment Approval - new chapter
- 2006 R&D Workshop #2 - Electrical Hazard Classification
- 2006 R&D Workshop #5 - Engineering Controls
- Input gathered by Keith Schuh

3 - Product

- Edited drafts of Handbook Chapter 9, 10, 12, 13
- A proposed path forward, with dates, for final versions of above
- List of ideas for future revisions

Workshop 3: Registrants

Anderson, Glenn (PPPL)	Moore, Robert (WSRC)
Bischoff, Todd (Bechtel)	Ormond, Eugene (SNL)
Ferguson, Dave (INL)	Patchell, Kathy (WAPA)
Garcia, Eddie (SNL)	Perez, Michael (NREL)
Gray, Ken (Fluor)	Perkins, Larry (DOE)
Gwal, Ajit (DNFSB)	Petts, Mark (DOE)
Jacobson, Jim (Battelle)	Pittner, Bruce (Fluor)
Jensen, Jeff (INL)	Reedy, Robert (NREL)
Kilar, Joe (ANL)	Smith, Darin (NREL)
Krumdick, Greg (ANL)	Tran, Pat (DOE)
Luhring, James (SRS)	Weiss, Bob (LANL)
Martinez, Randy (LANL)	Wilde, Marion (SNL)

Workshop 4 - DC Electrical Hazard

Keith Gershon
Martin Iedema
Gary Dreifuerst

#4 - DC Electrical Hazards

- The goal of this group is to develop guidance and propose areas of future development for managing electrical hazards in DC power supplies, battery banks, and capacitors.

#4 – DC Electrical Hazards

Suggested Goals

- List the electrical hazards for DC power supplies, batteries and battery banks, and capacitors.
- Summarize what is relevant in the codes and standards.
- Review what has been developed at previous workshops.
- Compare methods of DC/capacitor arc flash calculations.
- Discuss hazards and PPE issues for batteries.
- Discuss design issues for battery banks and capacitor banks.
- Propose areas of needed development, testing, and research.

#4 - Possible Topics

- Arc flash calculations for:
 - Capacitors
 - DC power supplies
 - Battery banks
- PPE requirements for DC
- DC shock boundaries
- Ground hook issues
- Mixed PPE for Battery work
- ??

#4 - Resources

- Previous workshop products
- DOE Electrical Safety Handbook
- 2004 NFPA 70E
- 2004 NFPA 70E handbook
- Cassell's paper (SLAC)
- Gordon's training (LANL)

#4 - Product

- Guidance for uniform implementation of DC electrical hazard management, and
- List of needed testing, research, theoretical study.

Workshop 4: Registrants

Ashley, Cliff (DOE)	Hunt, Kraig (Pantex)	Smith, Dexter (Pantex)
Barnhart, Chip (INL)	Hjortshoj, John (Ames)	Stafford, Byron (NREL)
Chesney, Edward (LLNL)	Kinz, Jerald (Fluor)	Wrigley, H. (DOE)
Dreifurst, Gary (LLNL)	Lacenere, John (PPPL)	
Durnan, Jim (BNL)	Legge, Joe (Fluor)	
Follansbee, James (PNNL)	O'Brien, Heather (Army)	
Garrison, Heath (Pantex)	Parsons, Wyatt (INL)	
Gonzales, Jackie (LANL)	Ribaud, Lynn (ANL)	
Gwal, Ajit (DNFSB)	Schuh, Keith (Fermi)	
Haller, Carl (Fluor)	Sferrazz, Sal (NREL)	

Workshop Working Sessions

- Wednesday 1:00 - 1:30
 - Workshop overview and guidance
- Wednesday 1:30 - 2:30 1 hour
 - Set goals, break up into subgroups
- Wednesday 2:30 - 5:00 2.5 hours
 - WORK
- Thursday 8:00 - 12:00 4 hours
 - WORK
- Thursday 1:00 - 3:00 2 hours
 - Develop presentations
- Thursday 3:00 - 4:30
 - Presentations

Workshop Presentations

- Each workshop will present their group accomplishments and strategy for future completion within the group
- 3:00 – 3:20 Workshop #1
- 3:20 – 3:40 Workshop #2
- 3:40 – 4:00 Workshop #3
- 4:00 – 4:20 Workshop #4
- 4:20 – 5:00 Wrapup

2008 Workshop Guidance

- Participants will break out into 4 working groups
- Each group will have 2 co-chairs to assist with the continuity, scope, and direction
- All participants are encouraged to contribute to a workshop group
- Participants will remain in the same group Wednesday and Thursday
- End result is to produce usable product(s) and present the product(s) on Thursday afternoon
- Manage the discussions, keep on track for a deliverable.

Guide for Chairs

- Set goals and schedule
- Determine product
- Establish subgroups and facilitators
- Keep groups focused
- Develop presentation, pick presenter
- Plan for followup, set deadlines

Resources Available

- 2004 NFPA 70E Handbook - 5 copies
- 2004 NFPA 70E - 5 copies
- 1995 NFPA 70E - 1 copy

- 2008 NEC - 3 copies

- 2004 DOE Electrical Safety Handbook - 1 copy
- 1998 DOE Electrical Safety Handbook - 1 copy

- CD for each group, with many codes, standards, CFR 851, etc.

Facilitators

- | | |
|--------------|------------------------------|
| 1) Arc Flash | Rick Baca |
| 2) 851 | Michael Adkins, Chris Romero |
| 3) Handbook | Bob Weiss, George Glass |
| 4) DC | Jackie Gonzales |

Facilitators are members of your group

Working Groups - Member redistribution

Topic	# members	Room(s)
1) Arc Flash	33	Here, salons A-D
2) CFR 851	26	Aspen/Snowmass (dwnstr)
3) Electrical Safety Hndbk	25	Vail/Beaver (downstairs)
4) DC Electrical Hazards	23	Keystone (nxt to Biz center)