

Electrical Safety Subgroup Spring Meeting Minutes March 11, 2013

The EFCOG Electrical Safety Subgroup Spring Meeting was held on March 11, 2013, in Dallas, Texas. Attendees included:

Marc Williams, SNL	Mike Hicks, INL	Keith Laforga, LBNL
Lucille Roybal, SNL	Dennis Tuckness, ICP	Robert Spang, Bechtel-WTP/Hanford
David Inskeep, INL	John Whipple, INL	Richard Waters, INL
Mark Scott, LBNL	Joe Kilar, ANL	Bobby Sparks, PNNL
Lloyd Gordon, LANL	Gary Dreifuerst, LLNL	Bobby Gray, K-25
Jim Wright, BNL	John Edwards, BNL	Greg Christensen, INL
Sal Sferraza, NREL	Nancy Vyas, DOD	

The meeting was formally called to order at 8:05 by the Chair.

The charter was reviewed with no comments.

Greg presented information on the effects of molted salt on arc flash clothing, noting that the arc rating, while it does prevent the clothing from catching fire, does not protect workers against the high heat present when working with molten salts, and alternative clothing should be identified and worn.

2012 Accomplishments were reviewed:

- The Fall Conference in Los Alamos had approximately 120 attendees from 25+DOE sites, as well as participants from DOE HQ, Office of Enforcement, DOD, and DNSFB. The total cost estimate was approximately \$95,000 – just under the DOE limit for additional approval requirements. Lloyd Gordon noted that the new DOE conference regulations created severe problems for the conference, and almost resulted in its cancellation. Lloyd cited the excellent support received from LANL management and the associated DOE site office for the success of the workshop.

2013 Goals

Greg reviewed the 2013 goals (see attached).

- NFPA 70E support: Lloyd noted that the NFPA 70E 2015 edition is open for comments on proposed changes until May 3, and encouraged every site to submit comments on the change that is changing the 100 VDC limit back to 50 VDC. Additional information will be provided to sites. Bobby Gray noted that any comments can only address what has already been submitted – no new material, which somewhat limits the options available for submitting comments.
- Electrical Severity Measurement Tool (ESMT): Mike Hicks stated that the Electrical Severity Measurement Tool would be submitted for review to all sites later this month, and that it was updated to align with the 2012 edition of NFPA 70E.

Electrical Severity Measurement Tool – ORPS Proposal: Mike Hicks discussed the history of the ESSG attempts to get the ESMT into the ORPS reporting criteria, noted that there is now a

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lot of energy surrounding reporting events based on severity. We are waiting for the survey results in order to determine a path forward.

Sandia Electrical Performance – Marc Williams reviewed the turnaround in electrical events and sharp reduction in severity due to a specific plan of action over several years that reduced both numbers and severity of events within the laboratory.

Working Group Status Reports

- Hazardous Energy Control – Marc Williams noted that the group was on track for Electrical Safety Month events, but that the effort around the LOTO updates had languished due to personnel changes. The website will be updated with information as it comes in.
- DC Systems – Gary Driefurst reported that work continues, and that there is high level interest at DOE in energy storage systems.
- ESMT – Mike Hicks noted that the changes to the tool were minor, and will not change existing scoring models.
- Lightning Safety – Greg Christiansen reported that the best practice on lightning protection was posted.
- Mobile Application – Nancy Vyas provided an update on the mobile hazard classification tool. Once changes are complete, the tool will be available on line for the committee to review. For the soldier application, the app was updated to address some of the concerns raised by the working group. An initial app release will include areas agreed upon by all concerned, with additions to be made in the future. No specific target date has been set for the release of the app.

Fall workshop

The Fall Workshop will be October 7-11 at NREL in Golden, CO. Sal Sferraza is the NREL point of contact, and has asked for assistance in organizing the event. Mike Hicks has updated the event dates in the DOE iPortal, and notes that people who intend to go should register as soon as possible.

There will be 6 working groups, with appointed chairs, as follows:

- Hazardous Energy Control (Marc Williams)
- DC Systems (Gary Dreifurst)
- Uniform AHJ Acceptance Policy for all DOE sites (interlaboratory equipment approval) (Doug Coffland / Joe Kilar)
- Generation, Transmission, and Distribution – NESC / 70E / 1910.269 Reconciliation (LANL tbd)
- Arc Flash Protection Compensatory Measures for Inadequate Maintenance (Greg Christiansen)

The meeting adjourned at noon.

Following the main meeting, a few members met after lunch to discuss some additional issues:

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- 1) Best practices for administrative control
- 2) When a piece of equipment is locked out and verified (i.e. an electrically safe work condition is established), do the various boundaries (limited approach, restricted approach, and arc flash) remain in effect for workers not part of the lockout?
- 3) When electrical equipment is not maintained, what, if any, additional mitigations are used to mitigate the potentially increased arc flash hazard?

Item 1 – Best Practices for administrative control.

The group in attendance agreed that there were generally 3 distinct lockout/tagout processes – the formal lockout/tagout process for protection workers, the CONOPS process for applying caution tags (and in some cases, locks) for the protection of equipment, and the general catch-all administrative locking and tagging program. Several sites had examples of each process. ACTION: send various administrative control processes to group and add to agenda to discuss at next teleconference.

Item 2 – LOTO application and NFPA 70E boundary applicability.

The discussion centered around one major issue, and the group was fairly equally divided. One side believed that the boundaries did not exist for anyone who was part of the LOTO process, had applied their lock(s), and had performed or witnessed the zero energy verification (or appropriate documentation of such in a group LOTO procedure per Art. 120.2(D)(2). The other side believed that once an electrically safe work condition was established, the boundaries no longer existed because the equipment was safe. No resolution was achieved. ACTION: contact NFPA 70E committee for a formal interpretation. (NOTE: Bobby Gray believes that the 70E committee will not provide a formal interpretation for this question, and suggested we contact Michael Fontaine, who may provide appropriate and suitable guidance.)

Item 3 – Compensatory arc flash protection measures for working on equipment that has not been properly maintained.

This discussion was headed by Greg Christensen, who provided some information on how INL treats arc flash hazards. A formal consensus process will aid all sites, especially in the D&D area, where equipment has not been maintained for several years before the facility is taken down. Some measures that Greg discussed were: adding time to the arc flash calculation and increasing PPE levels by one category. However, it was unclear whether or not these measures were adequate to compensate for the potentially increased arc flash hazard, as the amount of the increase in the hazard levels could not be quantified. Additional discussion at the fall conference will occur, as this is a specific working group.

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ESH Subgroup Report

Subgroup Name:	Electrical Safety SG
Subgroup Officers:	Jackie McAlhaney, SRNS – Chair Greg Christensen, INL – Vice Chair Heath Garrison, Pantex - Secretary
DOE Sponsor:	Mike Hicks, ID

Subgroup Activities

Best Practices: (Title of practices completed or planned to be completed during FY13)	Estimated or Actual Completion Date:	Posted on Website (Y/N):
Electrical Severity Measurement Tool, Revision 3	January 2013 (E)	N
Lightning Safety, Maintenance and Inspection Best Practice	March 2013 (E)	N
Working Safely with Capacitors	August 2013 (E)	N

Projects: (List the top 2 to 5 projects with a time line to completion and updates)	Estimated or Actual Completion Date
Completed 3 ½ day Electrical Safety Workshop at Los Alamos with over 120 participants including DOE HQ, Enforcement, DOD, DNFSB and 45 contractor personnel representing over 25 DOE sites. Presented NFPA 70E tutorial, technical presentations and continued development of new best practices	Oct 2012 (C)
Draft a new ISA Standard for an electrical hazard classification system using the EFCOG electrical severity measurement tool and submit to ISA Standards Board	Mar 2013 (E)
Plan annual EFCOG Electrical Safety Workshop and identify technical presentations and working groups (NREL has volunteered to host workshop in September 2013 and provide video conferencing capability)	Sept 2013 (E)
Develop awareness campaign materials (posters, presentations, videos, etc.) to promote “May Electrical Safety Month” focus for complex in conjunction with DOE HSS	May 2013 (E)
Complete review and disposition of comments for the DOE Electrical Safety Handbook revision to support publication by March 2013	Mar 2013 (E)

DOE Requests: (List reviews or requests from DOE you	Support review and disposition of RevCom comments for a major revision to the DOE Electrical Safety Handbook. EFCOG is working with Pat Tran, DOE HSS to finalize Handbook for publication by March 2013.
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have responded to)	
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Additional Activities: (Planned or Completed Meetings, assessments, benchmarking, collaboration with other Working Groups etc)	<p>Conduct Spring ESSG meeting in Dallas Texas at the IEEE Electrical Safety Workshop and participate in the IEEE workshop technical presentations and safety expo</p> <p>Continue to support the NFPA 70E Technical Committee for the 2015 NFPA 70E code cycle revision</p> <p>Continue to work with DOD with development and implementation of a mobile application for electrical hazard classification</p>
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Issues: (Items you need the WG Leadership or EFCOG Board to assist in resolving)	
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(Reporting period 10/1/2012 – 9/31/2013)