

Safety, Shock, and Arc-Flash

Notes from the NETA Safety Committee



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Report on the Safety Panel Discussions at the March 2008 Power Test Conference

In the future each quarterly issue of NETA World will have an article on Electrical Safety. The focus will be topics regarding shock and arc flash and will be written by different members of the NETA Safety Committee. NFPA 70 E, Article 130, *Working On or Near Live Parts*, will be the primary referenced document. The goal for each issue is to select a specific small part of Article 130, and discuss it. Wish us luck and skill.

At the March Power Test Conference in New Orleans, the Tuesday morning safety panel provided some interesting dialogue. The goal, of course, was to share good safety ideas to take back to the workplace. The room was crowded and there was standing room only in the back. The attendees were an excellent cross-section of electrical personnel from industrial facilities, utilities, and testing companies.

Both sessions were started with three questions:

1. How many of you use NFPA 70E, at least in part? (Approximately 90% answered yes.)
2. Is 70E difficult to understand? (Approximately 90% answered yes.)
3. Is 70E difficult to implement? (Approximately 100% answered yes.)

The percentages are not exact, but you get the idea.

It is an accepted fact that 70E is an important document to follow and violating its contents could lead to injuries and financial loss. Since it is accepted that 70E is important and difficult, what is a person/company to do?

According to the attendees, training is a critical tool. When you are done training, do more training. It was discussed that most injuries today are caused by personnel violating a clear, established company safety rule. Is it possible we do not do enough training? A good discussion followed on how difficult it is to change human behavior.

It was brought up during the panel discussion that approximately 20 percent of electrical fatalities and serious arc-flash injuries are the result of improper use of a voltage meter. These injuries are not all happening to the new and young. Many of the personnel involved in the incidents were older and experienced.

When is the last time your company had extensive and comprehensive training on


1. the types of voltmeters (voltage detectors or voltmeters, analog or digital, high or low impedance, etc.)?
2. the advantages and disadvantages of each type?
3. the hazards of each type?

Another problem is changing human behavior. It is very difficult! A powerful tool here is consequences. Without the employer enforcing consequences for not following safety procedures, you do not have a safety program. There should be positive consequences for good behavior and negative consequences for poor behavior.

How do you monitor behavior? One way is by having a written JHA (job hazard analysis) at the start of each day and job. Management can review these at the end of the day or week. Regular on-site safety checks are also a part of management's encouragement for a safe workplace. It shows that managers really care about safety.

Several people mentioned that they thought 70E was written by and for engineers. It seems too complicated and too complex. There were many heads nodding in agreement. The panelists suggested using a risk matrix with the JHA prior to starting a job. Several types of risk matrices were provided as handouts. There are several advantages of using a risk matrix. It provides a written documentation of a thought process. It also allows qualified, experienced personnel to use their talents in providing for a safe job.

A simplified example is: 70E says wear a 40 cal suit to open a switch. A risk matrix says use a rope.

Keep working hard on your safety program. Read and study our quarterly articles, and you will be rewarded with less injuries and better crew morale. 

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