From the NETA Safety Committee



by Tony Demaria Tony Demaria Electric, Inc.

Wednesday, April 15, 2009

or those of you who were in attendance at the recent PowerTest Electrical Maintenance and Safety Conference and attended any of the safety offerings, thank you very much for your participation. For those of you who were unable to attend, we hope to see you next time. It is great to share experience and knowledge with so many talented people.

As little as ten years ago the offerings of safety information and training in our industry were slim to minimal. Some good news is that NETA continues to be a leader for safety in several ways.

The first example is the conference that was held in March 2009 in San Antonio, Texas. The safety track on Monday with the six presenters, the safety panel discussion that was led by Jim White on Tuesday, and the safety seminars on Wednesday and Thursday were all very well attended and received at the conference. This demonstrates the excellence offered by the conference planners and the interest by the attendees.

NETA is extremely interested in the safety of every worker. Many of the NETA Accredited Companies offer safety training classes and engineering services to calculate electrical hazards. One NETA Accredited Company introduced a low-voltage (LV) transformer fault calculator/slide rule to assist technicians in the field, in a real world working environment. This tool, with the right knowledge, can help determine the flash hazard to a person working in the field. This can be accomplished in a fairly short amount of time.

As a result of the conference and its many presentations, the NETA Safety Committee wishes to share additional information with regard to two particular topics. This will hopefully continue further dialog and foster additional NETA World articles to make our workplace safer:

Labels

What is going on in the real world with labels? What percentage of the equipment in the USA and Canada is currently labeled? If it is labeled, is the information correct? The conference attendees guessed that probably less than five percent of equipment installed has labels. How long will it take until we see the widespread use of labels? More importantly, what do we do to understand the arc-flash hazard until we reach that day? These are very serious questions

to ponder, and the Safety Committee is brainstorming on how to improve these issues.

Risk/Hazard Analysis

NFPA 70E, Standard for Electrical Safety in the Workplace does not differentiate between a risk and a hazard. The fact that 70E does not present a difference between them has been a source of confusion for some people. The following definitions are presented as one way to clarify the similarities and differences between a risk and a hazard. These definitions are derived from several dictionaries and the internet. Following the definitions is a table that will help workers better assess the risks that are associated with a specific task.

A hazard is a situation which poses a level of threat to life, health, property or the environment. Most hazards are inactive or merely a possibility, with only a hypothetical chance of causing harm. Once a hazard becomes active, it can create an emergency situation.

The safety committee proposes definitions for three types of hazard. They are:

1. A Dormant Hazard- This is a situation that has the potential to be hazardous, but no people, property or the environment are currently affected. For instance, a volcano next to a city

П

www.netaworld.org Summer 2009 **NETA WORLD**

may erupt with the potential of killing many people and destroying a significant amount of property, but the volcano is currently quiet with no signs of an eruption.

- 2. A Potential Hazard This is a situation where the hazard may affect people, property or the environment. This type of hazard is likely to require further risk assessment. For instance, a volcano next to a city is venting steam and causing earthquakes.
- **3. An Active Hazard** This is a situation where the hazard is certain to cause harm, and no intervention is possible before the incident occurs. For instance, a volcano next to a city is erupting.

Risk denotes the specific probability of a particular event occurring. Specifically, the idea of risk is independent from the idea of value and, as such, the risk may have either beneficial or adverse consequences. However, in general usage the custom is to focus only on the potential of a negative impact that may arise from a future event. The risk is then assessed as a function of three variables:

- 1. The probability that there is a threat.
- 2. The probability that harm to life, health, property or the environment will occur.
- 3. The potential impact to a business.

Here is a situation where an electrician would use these concepts to make a job safer:

- The electrician is preparing to rack out a 4000 ampere 480 volt circuit breaker fed by a 3000 kVA transformer.
- The hazard (using NFPA 70E formulas) can be calculated and the resulting incident energy will most likely be over 40 calories/cm2.

• To reduce the risk (the probability of being harmed), a logical process is to open the load interrupter switch on the primary side of the transformer.

This is a simple example. Hopefully, it leads to further dialog and a better education process for all of us.

The following Risk Assessment Matrix is one possible tool that can be used in the field to better assess the risks associated with a specific task.

RISK ASSESSMENT MATRIX			
Date:		PROBABILITY THAT THERE IS RISK	
Name:		RISK =	
Job No		(probability of being harmed) x (degree of harm received)	
TASKS:		SCALE OF RISK IS 1 TO 5	SCALE OF HARM IS 1 TO 5
		No probability of harm	No probability of harm
		2.	2.
		3.	3.
		4.	4.
		5. You will be harmed	5. Death
PERTINENT DOCUMENTS:		ASSESS THE RISK	ASSESS THE HARM
		1.	1.
		2.	2.
		3.	3.
		4.	4.
		5.	5.
TASK RISK	FREQUENCY OF PERFORMING THE TASK	RISK = (probability of being harmed) x (degree of harm received) Product of the numbers equals: 1 - 4 Proceed with the task 5-11 Proceed with caution 12-19 Reassess the plan to see if there is a better plan 20-25 Make new plan	
HIGH	HIGH LOW		
MEDIUM	HIGH LOW		
LOW	HIGH LOW		

Tony Demaria worked for the Los Angeles Department of Water and Power in substation maintenance prior to starting his own company. He has owned and operated Tony Demaria Electric for over 25 years, specializing in maintenance and testing of switchgear and large motors for industrial facilities. Tony Demaria Electric is a NETA Accredited Company, and Tony serves as Chair of the NETA Safety Committee..

NETA WORLD Summer 2009 www.netaworld.org