Tutorials for the 2011 Doble Conference

February 2, 2011 Update

Station Battery Tutorial

Sponsored by the Circuit Breaker Committee

Sunday, March 27, 2011 1:30 PM 5:30 PM
America Center & South Ballroom of the Westin Hotel Copley Place

There has been an increased importance on the reliability of the station dc supply since new North American Electric Reliability Corporation (NERC) standards were released that require maintenance to be performed on batteries. This tutorial will focus on battery types that are typically used in the utility industry. An overall explanation of the two most common types of batteries will be covered including battery design, operation and maintenance. The complete list of topics is below.

**** Lead Acid Batteries –Mr. John Kim, C&D Technologies***

This presentation will contain VLA (Flooded) batteries applications, battery glossary, different alloys, sulfuric acid, water addition, jar material differences, temperature affect, and various factors affecting battery life and reliability.

**** Nickel-Cadmium Batteries – Mr. Roy Gates, ALCAD***

This presentation will outline the main distinctions of the prismatic nickel cadmium cell, construction techniques, design considerations, and misperceptions users are often faced with. Safety, sizing, installation / maintenance practices are also discussed, as well as common threads Ni-Cad batteries have with their counter-parts, the industrial lead acid battery, will also be explored.

**** Battery Monitoring – Mr. Mike Phillips, BTECH Inc.***

This presentation will cover a brief history of battery monitoring technology; maintenance standards and industry regulations along with justifications for incorporating a monitoring system. There will be case studies presented which will give graphical presentations of the benefits of battery monitoring. Typical applications and a review of available technologies will be included and the importance of ohmic measurements will also be discussed.

**** Battery Chargers – Mr. Matthew C. Theriault, HindlePower***

The purpose of this presentation is to ensure that certain basics are understood by anyone desiring to provide a battery charger for a typical utility application. Discussions will include:

Determining charger size per IEEE Std 946-2004
Describe basic charger considerations in respect to NEMA PE5

i. Input power considerations
ii. Basic protective devices
iii. Battery System Voltage
iv. Brief Discussion of Enclosure types,
v. Brief discussion of other relevant standards,
vi. Metering types
vii. Alarms

Following this a second presentation will provide an overview of different configurations of dc circuits for stationary applications and ease of use, planning layout and control equipment for long term ease of maintenance. The monitoring features will be described for each application as well. The focus throughout the presentation includes the need to maintain the equipment and how layout affects those repairs.

**** Testing and Maintenance of Lead Acid Batteries from a Utility perspective – Mr. Tony Picagli, United Illuminating***

Medium Voltage Power Cables and Accessories Tutorial
Sponsored by the Arresters, Capacitors, Cables and Accessories Committee

Thursday, March 31, 2011
7:30 AM - 12:00 PM, America Center of the Westin Hotel Copley Place

The ACCA committee will provide a medium voltage (MV) cable and accessory tutorial. The tutorial will be presented by experts in the cable and accessory industry. A representative from the Insulated Cable Engineers Association (ICEA) will discuss cable standards, Mr. Michael J. Smalley from the Association of Edison Illuminating Companies Cable Engineering Committee (AEIC CEC) will address cable specifications that supplement the ICEA standards and Mr. Bill Taylor from 3M Company with talk about IEEE termination, splice, and separable connector standards. The installation of cable accessories, cable preparation, stress control, and techniques that will ensure proper cable and accessory performance will also be addressed. Mr. Joseph S. Zimnoch, Jr. from The Okonite Company will address cable manufacturing, cable testing, cable handling and installation techniques. The goal is to tie all of these components together to show how each impact the selection, installation and performance of a MV cable system. The presentations will be as follows:

1. An overview of ICEA cable standards
2. An overview of AEIC CEC specifications and how these documents complement the ICEA documents
3. An overview of cable manufacturing from start to finish including testing and handling
4. An overview of IEEE accessory standards, accessory design fundamentals, and accessory installation practices

Biographies of the Presenters

Michael J. Smalley
Association of Edison Illuminating Companies Cable Engineering Committee

Michael J. Smalley received a B.S. degree in Electrical Engineering Technology from the Milwaukee School of Engineering in 1991 and a M.S. degree in Engineering (Electrical) from the University of Wisconsin-Milwaukee in 2000. He has been employed at We Energies in Milwaukee, Wisconsin since 1991. He is currently a Senior Engineer in the electric distribution standards and materials group where he has responsibility for underground medium voltage cable and joints. He has previously held engineering positions in the nuclear power department and the transmission engineering group. He is a member of the IEEE and is a Senior Member of the IEEE Insulated Conductors Committee. He is a registered Professional Engineer in the state of Wisconsin.

Bill Taylor
3M Company

Graduated from the University of Texas at Austin in 1975 with a BSEE degree. Spent 14 years as a plant electrical engineer for several petrochemical plants on the Houston ship channel. Went to work for 3M in 1989 as a product development engineer in the cable accessories area, and continues in that capacity at the present time. Member of IEEE/IAS and PCIC, IEEE/PES and active in the ICC. Vice chairman of the ICC in 2002 & 2003 and chairman in 2004 and 2005. Have written and presented numerous papers for IEEE and other conferences.

Joseph S. Zimnoch, Jr.
The Okonite Company

Has been employed with The Okonite Company for 25 years. For the past 15 years he has worked in the Applications Engineering Dept where:

1. He works on cable design, ampacity, pulling tension, impedance, and other various calculations.

2. When not in the office he spends time in the field with cable pulls, splicing and terminating and Hipot tests.

3. He also has responsibility for coordinating cable accessories.

4. He also participates on Panel #6 of the National Electrical Code which is mainly responsible for cable designs and ampacity

Before that he worked in the Okonite HV Lab testing and qualifying both medium and high voltage EPR and paper cables. Joe Zimnoch received a B.S. in Physics from Richard Stockton State College in 1984.