

NFPA/IEEE Joint Work Group Research and Testing Planning Committee

NETA is represented on the NFPA/IEEE Research and Testing Planning Committee (RTPC), which is studying not only the thermal effects of the electric arc, but other hazards of faults such as the pressure wave and acoustical effects. The first meeting of the RTPC was conducted in Upper Marlboro, Maryland at the offices of the National Joint Apprenticeship Training Council (NJATC) during December 1 - 4, 2004. Seventeen members were in attendance with two others using conference calling to participate. Mike Callanan, NJATC, is the Chairman, and Daleep Mohla, a consultant, is Vice-Chairman. Some of the representatives present were from Ontario Power Generation, OSHA, Dow Corporation, Underwriters Laboratories, Square-D, DuPont, Duke Power, NIOSH, and, of course, NETA. Independent consultants were also in attendance.

The first day of the committee meetings was used to outline issues that concern those in the electrical industry. A short list of these concerns includes:

- Inadequate test data for 208-volt equipment
- Accuracy of the data, since Europeans and Australians have arrived at different values
- Whether inherently-safe equipment reduces the hazard
- Effects of the lack of maintenance on many power systems
- How people interact with equipment
- Effects of being in the plasma as opposed to being outside it
- Other hazards such as blast and projectiles.

The committee was broken into separate task groups in order to work more efficiently and to expedite the specific issues surrounding various subject matters. The task groups and their respective responsibilities include:



Jim White
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Ron Widup
Shermco Industries

Task Group No. 1 – Test and Testing Process: Coordinate between the other task groups to make sure all groups stay on track. Develop consistent formatting guidelines for all task groups. Develop the methodology for the final report.

Task Group No. 2 – Arcing Fault Hazard Analysis: Survey existing data and develop a physics-based model. Determine if existing data is adequate to develop that model.

Task Group No. 3 – Arc Fault Test Protocol: Survey existing protocols to measure all thermal effects (hot gasses and plasmas included) and determine if existing protocols are adequate for testing. Determine the

limitations of calorimeters that are used to measure incident energy. Develop specifications for new test instruments and protocols where needed.

Task Group No. 4 – Thermal Energy Transfer: Determine what percentage convection, conduction, and radiation make up the incident energy from a fault. Determine the effects of this energy on clothing and human tissue. Survey and summarize available data related to electrical injuries.

Task Group No. 5 – Research and Test Plan: Determine hazards (other than thermal) that may be created during a fault, including pressure waves, sound, ballistics, or toxic products. Does not include thermal or electromagnetic as other task groups are looking at these. Develop the necessary test protocols.

Task Group No. 6 – Arc-Flash Safeguard: Determine the impact of various electromagnetic-radiated bandwidths during a fault. Develop the necessary test protocols.

Task Group No. 7 – Arc in a Box: Recommend enclosure sizes for use in testing. Determine the impact of devices in the enclosure. Determine the enclosure shape, the types of doors and openings. Develop test protocols for these issues.

Since committee members are located all over the country, the NFPA has set up a web board so members can exchange information and materials easily.


Very aggressive deadlines were set at the RTPC meeting, including:

- February 18 – Preliminary research defined
- February 25 – All task group minutes posted on web board
- March 11 – Summary reports of all task groups posted on web board
- March 18 – Comments due from RTPC members
- March 30-31 – Next RTPC meeting at the NJATC.

Additional participants will be recruited by each task group to add whatever expertise is needed. Telephone conference calls have been conducted by many of the task groups already, and the process is moving forward. The March meeting will determine where the RTPC needs to go, and we will be able to assess how well we have been able to meet our goals.

Summary

The RTPC is an important event in that it brings the two most prominent electrical safety organizations together to address electrical hazards. Although this committee will not perform the actual testing, it will be responsible for establishing the requirements and guidelines for that testing. It may be a number of years before all the testing is completed and all the questions answered. However, we have a great start on the problems and issues, with people dedicated to resolving these safety issues and saving lives.

With NETA's involvement in this important process, we should be on the leading edge of understanding and involving the Association with electrical safety issues. 

Ron A. Widup and James R. White are NETA's representatives to NFPA Technical Committee 70E (Electrical Safety Requirements for Employee Workplaces). Ron is past president of NETA and currently a member of the Board of Directors and Standards Review Council. Both are employees of Shermco Industries.