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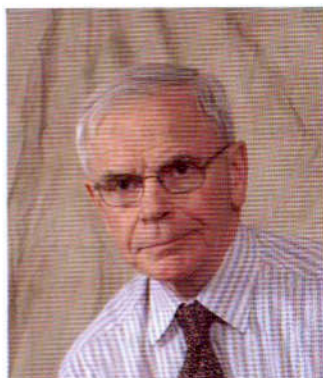
Aerial view of Vancouver, site of 2008 ISEI. Photo courtesy of Tourism Vancouver.

Featured in this Issue:

- **HVDC Cable Design and Space Charge Accumulation. Part 3: Effect of Temperature Gradient**
- **Manufacturing and Performance Criteria for Medium Voltage Power Cable Semiconducting Shields**
- **Lifetime Characteristics of Nanocomposite Enameled Wire Under Surge Voltage Application**
- **Development of RTV Silicone Coatings in China: Overview and Bibliography**



The EIC Goes It Alone



**Bill McDermid,
President, DEIS**

After 16 joint conferences, the Electrical Insulation Conference (EIC) and the Electrical Manufacturing and Coil Winding Association (EMCWA) have decided to go their own ways. The 2007 conference held in Nashville, TN, was the last joint expo effort.

Because of the trend since 2001, the EIC Board of Governors decided that the 1999 agreement with EMCWA should be terminated and offered to negotiate a new agreement more in keeping with the present conditions.

EMCWA was content to simply terminate the agreement. Thus, the two organizations will be holding separate events in 2009. As is usual with the Coil Winders, they will hold their own show in 2008.

The EIC was born in 1956 as the Bedford Springs Conference under the leadership of Walter Hugger of Sun Chemical. The first official EIC was held in 1958 in Cleveland with Joseph Perkins of DuPont as chairman. It has taken place every 2 years since that time. A history of the EIC appeared in the IEEE Transactions on Dielectrics and Electrical Insulation (Vol. 9, no. 5, pp 655–665, Oct. 2002). A history also appeared in the Electrical Insulation Magazine authored by Tom Castaldi and John Tanaka (IEEE EI Magazine vol. 19, no. 4, pp 20–32, July/Aug. 2003). As noted in the histories, the EIC was born big. The first EIC had so many papers that the conference proceedings was referred to as the “Manhattan Phone Directory” by some. From the outset, NEMA and IEEE were partners in this venture. Along the way, the EIC co-located with other organizations such as EASA and IPC. In 1975, the first association with the Coil Winding organization took place. Over the years, this association was beneficial for both organizations.

Work is now underway to organize the 2009 Electrical Insulation Conference. A well-balanced program of technical papers, exhibits, short courses, and standards development meetings will be offered. There will be more on this in the next issue of the magazine.

E I C V O L U N T E E R P R O F I L E

Dr. Howard W. Penrose is the President and owner of SUCCESS by DESIGN, the Executive Director of the Institute of Electrical Motor Diagnostics, Inc., and a member of the National Writers Union. SUCCESS by DESIGN, founded in 2001, focuses on the diagnostics, evaluation, and research related to electrical system reliability with an emphasis on rotating machines and transformer applications.

Howard has over 20 years in the reliability and maintenance industry with experience from the shop floor to academia and manufacturing to the military. Starting as a U.S. Navy electric motor repair journeyman, he followed a family tradition dating back to his great grandfather. He then was involved in



Howard W. Penrose

the U.S. Department of Energy’s Motor Challenge program in the early 1990s while becoming involved in the IEEE Chicago Section and the Electrical Insulation Conference, setting up the Chicago Chapter of DEIS in 1995. He frequently published his work related to electric motor repair, diagnostics, motor systems, inverter application insulation systems and predictive technologies including publishing the books *Repair Specification for Low Voltage Polyphase Induction Motors Intended for PWM Inverter Applications*, in 1996, and *A Novel Approach to Electric Motor System Maintenance and Management for Improved Industrial and Commercial Uptime and Energy Costs*, in 1997. He also served as the IEEE Region 4

Energy Representative to USAB and was elected as the Chair of the Chicago Section IEEE from 1997 to 1999, with a platform of including the student chapters in regular Chapter activities.

In 1997, he made the jump from industry to academia when he joined the University of Illinois at Chicago (UIC) as an Adjunct Professor of industrial engineering and as a Senior Research Engineer with the UIC Energy Resources Center (UIC-ERC). In this capacity, he brought his work within industry and the US Department of Energy together with his students and UIC-ERC and published, *A Novel Approach to Industrial Assessments for Improved Energy, Waste Stream, Process, and Reliability*, in 1999, in which the R and D won numerous process design and engineering academic awards. In 1998, a project with Pacific Gas and Electric led Dr. Penrose into research comparing a number of low-voltage, inter-turn insulation technologies with high voltage technologies such as surge comparison testing and opened opportunities into Time-to-Failure-Estimation techniques for electric motor insulation systems. During this time, he remained active in both the Chicago Section and DEIS and EIC activities, which included his work with EMCWA, of which he was a professional member.

In 1999, his research into low-voltage electrical insulation testing, motor current signature analysis, and electrical signature analysis brought him back into industry when he joined BJM Corp's ALL-TEST Pro division as the General Manager. This move brought him to Old Saybrook, Connecticut, where he continued to develop the materials necessary to make recommendations for motor circuit analysis standards development, including practical field research in the USA, Canada, Australia, and China. He started SUCCESS by DESIGN in 2001 as a technical book publisher with the first book on low voltage testing entitled, *Motor Circuit Analysis: Theory, Application and Energy Analysis*, which was later translated into Korean and Chinese. Dr. Penrose also became involved in related standards development, including IEEE Std. 1415-2006 "IEEE Guide for Induction Machinery Testing and Failure Analysis," while also continuing to work on EIC committees, and he was the Treasurer for ISEI 2004. Starting in 2000, he began working with General Motors on the development of their motor diagnostics program for GM's assembly plants and started working on the development of the motor diagnostics program for the U.S. Coast Guard in 2003. In 2003, Dr. Penrose headed up the "Motor Diagnostic and Motor Health Study," which was the definitive study on end-user rotating machine insulation diagnostics. He published the first work on electrical signature analysis in 2004, *Electrical Motor Diagnostics*, which empha-

sized continued research on the differences between high- and low-voltage testing techniques.

The GM and U.S. Coast Guard focus continued when Dr. Penrose joined T-Solutions, Inc. on January 1, 2005, which also was the incorporation date of the Institute of Electrical Motor Diagnostics, Inc. (IEMD). He was elected as the Executive Director of IEMD and completed his certifications in NAVSEA Reliability-Centered Maintenance and became a Certified Maintenance and Reliability Professional. He also refocused his efforts and involvement in insulation testing standards.

On January 1, 2006, Dr. Penrose expanded SUCCESS by DESIGN from a publishing company to a publishing and reliability services consulting firm. His efforts in bridging communications between corporate management and asset management and maintenance resulted in the rolling out of motor management and motor diagnostics programs throughout all of General Motors and U.S. Steel, including the development of motor diagnostics best practices as the Subject Matter Expert for the Joint UAW and GM Worldwide Facilities Group. He also coordinated and won the People Make Quality Happen Award from UAW-GM in 2006 for energy and environmental savings through the U.S. Department of Energy's Save Energy Now program, which involves U.S. DOE energy surveys being performed in 19 GM facilities. From 2001 to the present, Dr. Penrose has been one of the primary speakers on electric machinery insulation testing and prognostics through such organizations as Uptime Magazine, ReliabilityWeb, and the Society for Maintenance and Reliability Professionals, and he has performed training on these technologies world-wide. In 2008, he was invited to join the National Writers Union (UAW Local 1981) as a journalist and author on merging technology and management, became listed in the Journal of Experts for multimedia on the same topic and is releasing four new books including *Physical Asset Management for the Executive*, and *Electrical Motor Diagnostics*, 2nd Edition.

"2008 is going to be an interesting year," states Dr. Penrose. "Corporate managers are just discovering that the number one business opportunity relates to physical asset management. The number one opportunity within that arena is electrical motor systems, in particular insulation degradation in motors, generators, cables, and transformers. Companies such as General Motors, U.S. Steel, Monsanto, Amtrak, and others are just discovering these opportunities and are taking an active role in developing strategies that include electrical insulation testing, diagnostics, and prognostics. The reliability and maintenance industry and academia must be poised to assist. Our respective countries' economies require it."

