

EARTHING, LIGHTNING AND SURGE PROTECTION SEMINAR

9th & 10th
April 2019

Mercure Hotel
PERTH, AUSTRALIA

WHAT WILL YOU GAIN FROM THIS EVENT:

- Update your knowledge on best practice and find practical solutions in earthing, lightning and surge protection technologies
- Discuss compliance to standards with experienced electrical engineers
- Learn how optimal electrical earthing, lightning and surge protection design can improve production and reduce costs
- Discuss safe & effective lightning protection earthing
- Understand IEC surge protection standards and how to protect valuable electrical equipment from surges
- Discuss the pitfalls of isolated earthing and the effects of poor bonding practices
- Learn the fundamentals of designing a lightning protection system
- Hear relevant local case studies from the Australian electrical industry
- Network with specialists in the field and your peers
- No sales pitches – non commercial presentations

WHO SHOULD ATTEND:

- Electrical Engineers and Technicians
- Engineering Managers
- Project and Design Engineers
- Instrumentation and Control Technicians and Engineers
- Plant Operators
- Safety Facilitators
- Process Safety and Loss Prevention Managers
- Government Safety Regulators/Inspectors
- OHS/Training Managers who want to better understand best practice in earthing and lightning
- Risk Assessors

And all other Engineering Professionals who have an interest in earthing, lightning and surge protection

DISCOUNTS
EARLY BIRD OFFER!
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INTRODUCTION TO **EARTHING, LIGHTNING:**

Few topics generate as much controversy and debate as that of earthing and the associated topics of surge protection, shielding and lightning protection of electrical and electronic systems. Poor earthing practices can be the cause of continual and intermittent difficult-to-diagnose problems in a facility. This seminar will explore these issues from a fresh yet practical perspective to help delegates reduce expensive downtime in their plant and/or equipment by identifying the correct application of these principles.

Based on reported fatalities on a long-term average basis, lightning is often considered the second most dangerous of all natural phenomena

(the first being flash floods). Lightning can cause extensive damage when it strikes buildings and facilities. Electrical systems are exposed frequently to lightning induced surges and the effects may be felt in locations that are several miles away from the actual point of strike.

The aim of this seminar is to demystify the subject of earthing, lightning and surge protection and present the subject in a clear, straightforward manner. Earthing as a subject has been under-represented over the years and this event will attempt to remedy the gaps in technical knowledge and improve practices in the industry.

SEMINAR PROGRAM – DAY ONE – Tuesday 9th April 2019

WORKSHOP 1

8:30am – 12:00pm

Lightning Protection

With increasingly complex and sophisticated facilities & equipment, a single lightning stroke can result in physical damage and catastrophic failure. It can cause death or injury, initiate fire, cause major failures to electrical, telephone and computer services and simultaneously cause substantial loss of revenue through down time. With this in mind, the design and implementation of an effective lightning protection solution can seem like a daunting task for an engineer or asset manager. This seminar will outline both the theory and practical application of all the accepted contemporary protection solutions for modern facilities.

DISCUSSION TOPICS

- The History of lightning protection
- Basic lightning theory; how does it happen?
- Relevant design standards & norms
- The “tried & true” Traditional Design Methods
 - Application of the Australian standard
 - Bonding versus isolation
 - Typical design challenges
- Safe & effective lightning protection earthing
- Modern design method
 - Extension of the “tried & true” ideas
 - How increased knowledge has led to more comprehensive protection
 - Recent science & third-party validation
- Contemporary lightning protection case studies

WORKSHOP 2

1:00pm – 4:30pm

Static Electricity and Lightning – Case Studies and Investigations

Lightning is arguably one of the most dangerous and frequently encountered weather hazards in Australia. There are between 5 and 10 deaths and over 100 severe injuries caused by lightning in Australia yearly. Damage to Australian oil & gas and mining infrastructure due to lightning is estimated at \$1B per year. How big is the issue in Australia and what causes an explosion, fire or death? Is it lightning or the ignorance surrounding lightning? This three hour workshop will cover two recent explosions specific to static electricity and lightning and what was involved in these investigations/ forensic studies. Cem will take the attendees on a journey through the investigations and isolate some of the risks and poor control methodology to better understand why static electricity and lightning are so insidious.

Investigation 1 will focus on static electricity and show how common materials can accumulate a potential of such significance that a small discharge can result in an explosion and subsequent fatality. Cem will highlight why poor earthing controls were a major factor in why the explosion took place and what could have been done to prevent this incident. Investigation 2 will cover static electricity and lightning and explain their role specific to an explosion and subsequent injury. Poor earthing controls will be highlighted and why culture, ignorance and lack of knowledge contributed to the explosion. Also covered will be how poor design and specification on a significant Australian industrial site led to the installation of an inappropriate system. The role of poor bonding practices will be explored and the lack of appropriate down conductors, terminations and surge impedance.

The workshop will delve into the below lightning related topics and highlight some of the issues specific to the investigations.

- Protection design
- Non-conventional lightning systems
- Side flash and preventive measures
- Down conductor installation and termination
- Grid design
- Surge impedance
- EPR due to lightning
- Bonding
- Probabilistic risk factors
- Pitfalls of isolated earthing



WORKSHOP PRESENTER:

PHIL JONES

Principal Engineer, ERICO

Phil Jones holds BE (Hons) and MTech, and has nearly 30 years' experience in Facility Electrical Protection. Phil is Chairman of Standards Australia's Surge Arrester Committee EL007-03 and is the Australian representative on the International IEC SC37A Surge Protection committee. Phil is an active member of the Australian Standards Lightning Protection committee EL024, responsible for producing the Australian Standard for Lightning Protection, AS1768, in 2007, and presently under revision.

In his current role as Principal Engineer, in the ERICO Engineering Department, Phil serves as a Surge and Lightning Protection field expert and as a technical contact for key customers for product support, in addition to working on new product developments. His previous experience includes Product Development, Product Management for 7 years travelling extensively throughout Asia and a three year assignment in China.

Phil spent 6 years in the USA as Engineering Manager of ERICO's electrical business, where he managed the design of lightning protection, surge protection, and grounding products and the provision of application engineering services. During that time he was an active member of the IEEE committees and working groups for surge protection, culminating in the release of the surge protection trilogy: IEEE C62.41.1, C62.41.2, and C62.45 in 2003. His early experience was gained with Telecom Australia.



WORKSHOP PRESENTER:

CEM NOVELLA

Managing Director | Static Electricity Control (SEC) & Meech Australia Static Control (MASC)

Cem is the current chair for the Centre for Static Electricity & Lightning Protection (CSELP) and provides technical support and guidance to various industry groups and committees in relation to static electricity control and lightning protection. As static electricity and lightning affects a wide spectrum of global industrial and manufacturing processes, Cem has worked on a diverse range of static electricity and lightning protection control programs for applications in locations as far away as Mawson Station in Antarctica, Saudi Arabia, Chile and PNG.

In Australia Cem continues to raise awareness of static electricity and lightning amongst the broader industrial and manufacturing sectors in the hope that in the not too distant future, every site in Australia will be required to adopt an appropriate static electricity and lightning protection control plan.

REGISTER NOW:

Email: conferences@idc-online.com

Web Site: www.events.idc-online.com

Mail: IDC Technologies, PO Box 1093, West Perth, WA 6872



SEMINAR PROGRAM – DAY TWO – Wednesday 10th April 2019

WORKSHOP 3

8:30am – 12:00pm

Surge Protection

Surge protection is important. More commercial & industrial projects than ever before are now actively considering ways they can protect valuable electrical equipment from electrical surges, which can cause significant financial loss. The IEC surge protection standards provide direction and guidance for the selection and installation of surge protective devices (SPDs) as well as setting the industry benchmarks for SPD performance. This seminar will discuss the key performance yardsticks contained in within the IEC 61643 series and demonstrate practical ways of implementing a comprehensive site-wide surge protection plan.

DISCUSSION TOPICS

- Background/history of the current Australian SPD standards (AS/NZS 1768, AS/NZS 3000, AS/NZS 4070, AS/NZS 3100, TS009 etc.), their scope and limitations
- Relevance of international standards in Australia and the obligations for engineers to adhere to them
- The consequences of the changes in IEC 61643-11 & UL1449 to SPD design, safety & quality
- How to apply the IEC Test Classes for SPD selection, coordination & application
- Effective surge protection installation
- Surge protection for signal lines
- SPD product testing facilities

WORKSHOP 4

1:00pm – 4:30pm

Earthing & Power Systems

In the past, earthing systems were designed to perform for the “whole of life” of the associated assets (let us say 20 to 100 years). To ensure that different parts of an earthing system will remain functional and intact, not only in interconnected form but also in standalone arrangements, provision for the separation of discrete earthing systems might be included in the design.

This presentation will give a quick overview of a power earthing system design and commissioning. The ongoing monitoring requirements for the earthing systems will be reviewed including the influence of real field limitations, interferences and alternative earthing practices. Case studies will be discussed to demonstrate whether the measurement/assessment of a standalone earthing system is achievable while it is interconnected.



WORKSHOP PRESENTER:

HOOMAN DEHBONEI

Principal Electrical Engineer, PowerEarth Technologies

Hooman started his career in areas of power system as electrical engineer following different leadership roles. He performed various detailed academic research and industrial projects over the last 20 years. He has specialised in power systems earthing, lightning designs, mitigations, commissioning and provides end-to-end solutions to the clients. By implementing innovative and cost-effective solutions and secure control measures, he has successfully managed risk and saved many projects' mitigation costs.

Hooman's novel studies on both renewable energy and power electronics earned him his PhD and the Curtin University Chancellor's Award in 2003, Perth. He is the author of patents, book chapters and different journal and conference papers.



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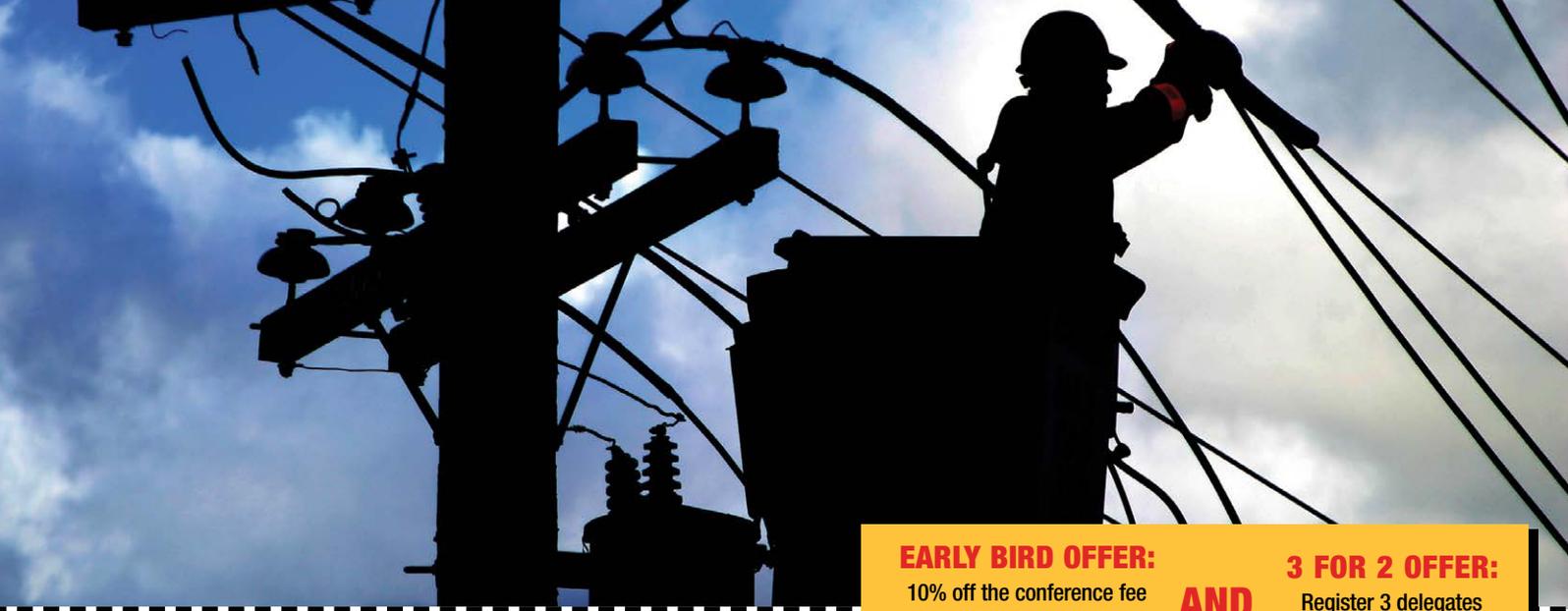
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Sponsorship Opportunities

Representing your business at the Earthing, Lightning and Surge Protection Seminar in 2019 will provide you the opportunity to reach key decision makers from a multitude of industries. For more information on sponsorship and exhibition opportunities please contact Sarah Montgomery via email conferences@idc-online.com



EARLY BIRD OFFER:
10% off the conference fee for registrations received by 12th March 2019
– SAVE \$179.50

AND /OR

3 FOR 2 OFFER:
Register 3 delegates and only pay for 2
– SAVE UP TO \$1795

REGISTRATION FORM:
EARTHING, LIGHTNING AND SURGE PROTECTION SEMINAR
9th & 10th April 2019, Mercure Hotel Perth

Simply complete this registration form online or return by email

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2. HOW DID YOU HEAR ABOUT THIS EVENT?

- Received an email from IDC Received a brochure in the mail Searched online (Google, Yahoo etc)
- Recommended by a friend/colleague Magazine advertisement/insert (please specify which magazine below)
- Other (please specify) _____

3. REGISTRATION & PAYMENT DETAILS Prices shown are inclusive of GST

EARTHING, LIGHTNING AND SURGE PROTECTION SEMINAR – 9th & 10th April 2019

- OPTION 1: Early Bird Discount 10% OFF**
– Book before 12th March (SAVE \$179.50) \$1615.50 x _____ delegates = \$ _____
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PLEASE NOTE: Full payment is required prior to the commencement of the conference. **TOTAL DUE = \$ _____**

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GENERAL INFORMATION

Confirmation Details
A confirmation email and invoice will be sent to delegates within 3 days of receiving the registration.

Cancellation Policy
A fee of 20% cancellation will apply for cancellations received 7 – 14 days prior to the start date of the conference. Cancellations received less than 7 days prior to the start date of the conference are not refundable, however substitutes are welcome.

Venue
Mercure Hotel Perth
10 Irwin St, Perth WA 6000 AUSTRALIA
Phone: +61 (08) 9326 7000

Accommodation
The conference venue has accommodation available. Each conference guest that books direct to the hotel gets 19% off the best available rate of the day. Please note this rate will be based on availability.
Please book through our reservations team on 08 9326 7000 or h1754@accor.com.

Food and Beverages
Lunch plus morning and afternoon refreshments are included.

Unable to Attend
If you are unable to attend the full conference program, contact us for details to attend individual sessions or to purchase the Conference Resource Kit.

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