

30th Electrical Engineering Safety Seminar

9-10 November 2022, Sofitel Wentworth Sydney

resourcesregulator.nsw.gov.au





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Welcome

Welcome to the NSW Resources Regulators' 30th Electrical Engineering Safety Seminar.

For 30 years EESS has been a respected forum for electrical engineering safety across the mining community in NSW. Over the last 32 years (2 years lost due to COVID-19) the forum has focused on a broad range of topics from specific electrical engineering safety issues in mines and general safety concepts, to personal health and wellbeing issues. This has included examples from outside the mining industry that help to broaden our knowledge.

The forum focuses on activities and events that affect electrical safety within the mining industry and looks to provide guidance on the electrical engineering and the human factors that are necessary to enable effective control of these risks. This requires involvement of all stakeholders, including designers, manufacturers, suppliers, contractors, hirers, and mine operators, not just the electrical engineer at the mine site.

Fundamentally, electrical hazards in the mining industry have not changed over the years. However, our understanding of those hazards, and the manner in which the hazards are realised and are managed has changed. In particular, technology is changing at an ever-increasing rate. The quantity of information and the ways in which we access the information is changing, as is the legislation that regulates our activities. It is crucial we keep abreast of these changes to ensure that safety in our workplaces continually improves.

Over the past 32 years in NSW we have seen many safety improvements in the mining industry. This has been driven through improvements to engineering standards and the experience, skills, and technical knowledge of the people involved.

This seminar brings together speakers who will cover a broad range of topics that will assist attendees to improve their understanding and awareness of lessons learnt from past incidents, emerging technologies and challenges faced along with the management of plant over its lifecycle.

Many of you have been part of this journey and although our 30th event has been delayed for the last 2 years due to the ongoing threat of COVID-19, I am excited that we can be here today to share our experiences and insights.

Thank you to all for your support of the 30th Electrical Engineering Safety Seminar.

Owen Barry
Principal Inspector Electrical Engineering
NSW Resources Regulator
Department of Regional NSW

Information

Registration

The registration desk will be open during the following hours:

- Wednesday 9 November: 8:00am-5:00pm
- Thursday 10 November: 8:00am-2:00pm

Please see the seminar staff for any requests regarding sessions and the seminar dinner.

Telephone: 0417 459 327 (Bronwyn Hodges)

Guest parking

Car parking is available at the venue, subject to availability, through Wilson Parking.

Name badges

It would be appreciated if delegates wear their name badges at all times as this identifies them as eligible for catering, seminar access and entry to the seminar dinner.

Seminar dinner

The seminar dinner is available for those delegates who have registered and paid for the dinner.

The dinner is held at the Wentworth Ballroom, Sofitel Sydney Wentworth.

- 6:30pm Pre-dinner drinks
- 7:00pm Conference dinner
- 8:15pm Guest speaker Paul Carter
- 10:00pm Close

Dress: smart casual

Mobile phones and pagers

Please ensure your phones and pagers are on silent mode during all seminar presentations.

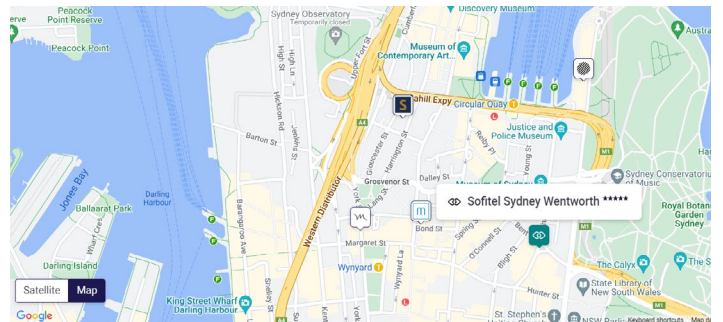
Venue

Sofitel Sydney Wentworth
61-101 Phillip St, Sydney NSW 2000
(02) 9228 9188

Seminar Wifi

Complimentary wifi is available for EESS attendees. Please use the details below:

Sofitel Conference
Password: Sofitel2022



Program

Wednesday 9 November 2022

8:00am-9:00am	Registration
9:00am-10:30am	Session 1 Welcome and opening address –Garvin Burns, NSW Resources Regulator Interactive session -Steve Bentham, NSW Resources Regulator NSW mining industry performance –Owen Barry, NSW Resources Regulator Earthing considerations of installing solar plants at mine sites -Joshua Bowman, Safearth
10:30am-11:00am	Morning tea
11:00am-12:50pm	Session 2 Operating transformers with ester fluids –Phil Reilly, Cargill and Peter Gellert, Rutherford Electrical Engineering Services Hazardous areas on the surface of a mine -David King, Crown Technologies Detecting the warning signs of failure: The Anglo Grosvenor Mine Explosion –Jodi Goodall, Brady Heywood
12:50pm-1:50pm	Lunch
1:50pm-3:40pm	Session 3 Lighting as a conduit for technological disruption –Andrew Orkin, Coolon Mental health kickstarter –Steve Gamble, Gotcha4Life
3:40pm-4:10pm	Afternoon tea
4:10pm-5:10pm	Session 4 The Regulator’s incident prevention strategy and compliance and enforcement approach –Garvin Burns, NSW Resources Regulator
5:15pm	End of day 1
6:30pm-10:00pm	Conference dinner with special guest speaker Paul Carter

Thursday 10 November 2022

8:00am-8:30am	Registration
8:30am-11:15am	Session 1 Training –Where do we start? –Murray Timpson, Slam Engineering Lightning protection at mines –Bill Schlesinger, nVent ERICO The reality of investigations –Andrew McColm, NSW Resources Regulator Underground protection relay testing –Michael Falkiner, Rutherford Electrical Engineering Services Snowy Hydro 2.0 -Sisira Karunaratne, Snowy Hydro Limited
11:15am-12:00pm	Brunch
12:00pm-2:15pm	Session 2 Journey to replace an ancient motor in an ancient winder –Greg Campbell, South32 A loss of control –When large mining machines don't respond –Greg Lloyd, Hunter Valley Operations High voltage for dummies –Peter Armstrong, High Voltage Training Solutions Do we train or do we educate? –Mark Fogarty, Safe For Engineering
2:15pm	End of day 2

*Program may be subject to change

Guest speaker



Paul Carter

Conference dinner Wednesday 9 November 2022

Twenty years in the making, this story teller has 3 international bestselling books and has amassed over 2 million book sales world-wide.

Born in the UK, Paul lived in a fairly rough part of Aberdeen, Scotland's Oil Capital; his neighbourhood was on occasion like a cold wet version of Beirut. Most of the kids he hung around with were not the academic type, neither was Paul, in fact by the time he and his mates had all grown up, anyone who wasn't drug addicted, hadn't been charged with assault, or done serious time was considered a high achiever.

At the age of 15, Paul moved to Perth Western Australia with his mum who had secured employment working for an American Oil Company. This move was to change Paul's life in so many ways.

By the time Paul was 16 he was working on drilling tools (thanks to his Mother getting him his first job). At 18 he moved to land rigs and then offshore overseas in third world countries at the age of 23. His formative years spent largely trying not to get killed during a Coup, Jihad, Up-rising, Insurrection or flat out War, all in the name of hydrocarbons.

In 2001 he was tasked with a 7 year drilling campaign in Northern Russia. Securing that work post 9/11 involved a long and convoluted psychiatric evaluation that Paul promptly failed. Paul appealed and a subsequent re-evaluation saw him pass. This was largely as a result of a letter he wrote in his defence. This letter was later sent to a friend in Sydney (just for a laugh), who in turn sent it to another friend who works in publishing and he was offered his first book deal with Allen and Unwin.

Paul Carter was discovered in 2005 by accident. His works are still on shelves today, now published globally in foreign languages, audio books and e-books. To his credit he remains the same funny, often self deprecating down to earth man, and the nicest alpha male you'll ever meet.

By Sue Hines
Trade Publishing Director Allen and Unwin

Seminar speakers



Garvin Burns

Chief Inspector NSW Resources Regulator

Garvin started his career as an apprentice electrical fitter/mechanic at Shortland County Council in 1983.

Garvin commenced working as an electrical engineer in the underground coal industry in 1996 and was employed in a variety of engineering and management roles in NSW and Queensland surface and underground coal mines prior to joining the NSW Mine Safety Operations in 2013 as an inspector.

Garvin was appointed to the position of deputy chief inspector of mines in 2016, before moving to his current role of chief inspector in 2017.

Welcome and opening address

The Regulator's incident prevention strategy and compliance enforcement approach

This presentation will provide an overview of the Regulator's incident prevention strategy and how the reforms have been implemented, together with an overview of our regulatory approach.



Owen Barry

Principal Inspector Electrical Engineering NSW Resources Regulator

Owen commenced his electrical apprenticeship in 1980 with Elcom Collieries. He completed his electrical apprenticeship in 1983 and his engineering certificate in 1984 and gained his mine electrical engineer's certificate of competence in 1985. He has worked as an electrical tradesman, leading hand, shift engineer, projects engineer and electrical engineer in charge at different underground coal mines in both NSW and Queensland.

Owen joined the Resources Regulator in January of 2007 as an inspector of electrical engineering. He was appointed to the role of principal inspector electrical engineering in 2014.

NSW mining industry performance

Slido will be used for this presentation - please go to the inside cover of this program to access the app/webpage via your mobile phone.



Joshua Bowman

Consulting Engineer Safearth

Josh joined the Safearth team full-time in 2017 as an engineer, after completing his engineering degree at the University of Newcastle, during which he initially did some undergraduate work for Safearth.

He has been involved in some hardware development during his time at Safearth, but primarily works as an earthing consultant.

Josh has had experience across a wide range of industries including utilities, mining, transport, construction, and renewables, and the various types of earthing systems utilised within these industries.

Earthing considerations of installing solar plants at mine sites

There has been some uptake of the installation of PV plants in the mining industry in recent years. The installation of these systems at mine sites can reduce operations costs, by significantly reducing the amount of imported energy during peak production times of solar generation. However, with the uptake of solar plants at mine sites there is the introduction of new electrical earthing hazards that need to be considered.

With the local generation of solar energy, the electrical earthing hazards introduced may be different to those typically seen on a mine site. This presentation focuses on solar plants installed at mine sites, and the hazards introduced from an earthing and bonding perspective.



Phil Reilly

Business Development Manager Cargill

Phil has worked with transformer dielectric fluids since 2011. He is particularly interested in their chemical properties, laboratory testing and transformer condition assessment, LIMS development, filtration and use of ester fluids to achieve improvements in operation.

As Business Development Manager for Cargill, Phil's role is to increase knowledge of the benefits of use of natural and synthetic ester dielectric fluids in transformers throughout the ANZ region. He achieves this through a range of respectful activities that include dissemination of published research papers, the organisation of training events and site visits to provide technical presentations relating to operating transformers with ester fluids.

Phil is also working on a separate project - the study of transformer oil diagnostics and the development of a condition monitoring system to identify and monitor faults & deterioration of the liquid & solid insulation in transformers. This is a research activity only and he invites EESS guests to please share oil test reports & photos of internal inspections that identify problems.

Phil is a member of the IEEE, Royal Society of Chemistry and the Royal Microscopical Society. Committee member & Secretary for the Electric Energy Society of Australia (EESA) NSW / ACT Chapter and a former Biochemical scientist.

Phil is co-presenting with Peter Gellert.



Peter Gellert

Business Development Manager Rutherford Electrical Engineering Services Pty Ltd

Throughout his 30+ year career, Peter has held the roles of electronics technician, service manager and business owner. He joined Rutherford Electrical Engineering Services in 2005 and over the past 17 years has held the position as Manager and now Business Development Manager.

Peter is co-presenting with Phil Reilly.

Operating transformers with ester fluids

This presentation focuses on natural ester retro-filling of transformers and ongoing condition monitoring by oil analysis.

Content discussed includes:

- Reasons to retrofit - fire safety, improved asset aging profile, enhanced load capacity & environmental footprint.
- The retro fill process – considerations.
- Ongoing condition assessment with annual oil analysis. Testing and interpretation of results to evaluate the condition of the liquid and solid insulation. Appropriate actions available to further investigate & manage faults to ensure safe operation.



David King

Director/Electrical & Hazardous Area Consultant Crown Technologies

David has more than 40 years experience specialising in designing and manufacturing electrical equipment for the coal mining industry, with a focus on hazardous areas.

David joined Crown Technologies in 2012 and is the Electrical and Hazardous Area Consultant, a role where he has earned a reputation for a practical, common sense approach to achieving customers' objectives.

Hazardous areas on the surface of a mine



Jodi Goodall

Head of Organisational Reliability Brady Heywood

Jodi works with boards and senior leaders in high hazard industries to prevent major accidents. She brings 20 years' operational experience in mining, heavy manufacturing, munitions, chemical process plants and logistics. Her approach is based on the theory and practice of High Reliability Organisations.

She is currently the Head of Organisational Reliability at Brady Heywood, in Brisbane.

Detecting the warning signs of failure: The Anglo Grosvenor Mine Explosion

Queensland's Grosvenor underground coal mine explosion in May 2020, left 5 men with severe burns and the mine closed for 20 months.

This presentation explores the events and leadup to the Grosvenor explosion through the lens of *chronic unease*. Chronic unease is a way of thinking that helps leaders and workers detect the warning signs of failure well before a major accident, and know when to act. We will look at some of the practices that help (and hinder) organisational-level chronic unease.



Andrew Orkin

Product Development Manager Coolon

As a Product Development Manager for Coolon LED Lighting, Andrew Orkin has spent over a decade in the lighting industry, focusing on making products that improve the safety and productivity of the mining sector.

Andrew has travelled across many mine sites around the world to learn about their specific operational challenges. This knowledge together with experiences gathered in the field allows Coolon's teams of engineers and product designers to create revolutionary, award-winning lighting products that have been widely recognised and appreciated by both Australian and international mining customers.

Lighting as a conduit for technological disruption

Mine sites invest in digital transformation in the pursuit of cost reductions, productivity gains and safety improvement. While some areas of today's mine site are already automated, the processing plant has not entered the digitisation era yet - it is too hard to digitize conventionally. Running cables is costly and disruptive to operations, signal propagation is greatly reduced by steel superstructures and equipment that generates electromagnetic noise, and qualified IT specialists are extremely difficult to come by.

But what if it wasn't so hard...

This presentation will focus on the hypothetical benefits to site if the barrier to IIOT technologies could be removed.

A mine site of the future could have any number of solutions that have thus far been out of reach:

- personnel locating to send help directly to those in need
- response time
- emergency implications
- weather / critical alerts
- lightning alerts
- safety alerts
- asset tracking to instantly locate equipment on-site
- cost savings
- productivity vs time waste.



Steve Gamble

Founder of Man Anchor Gotcha4Life

Steve Gamble, founder of Man Anchor, is a trusted program delivery partner for the Gotcha4Life Foundation offering a variety of mental fitness workshops, talks and educational courses. He is a master mental health first aid instructor and resilience coach.

Steve's passion is to increase the mental health literacy level of all Australians and support generational change in the way we address mental health within our community, family units and workplaces. All with the ultimate aim of reducing the suicide rate in both youth and adults.

Gotcha4Life is a not-for-profit foundation with a goal of zero suicides, taking action by delivering mental fitness programs that engage, educate and empower local communities. Our programs create meaningful mateship, build emotional muscle, and strengthen social connection in local communities. We focus on early intervention and the power of prevention through connection because we know we are all stronger, together.

Gotcha4Life Kickstarter

This session will:

- focus on normalising the conversation around mental fitness like we do physical fitness and look at simple skills we can use to deal with challenges at every age and stage of life
- cover how a simple conversation can save a life and how to have that conversation
- provide the knowledge to recognise challenges and stresses and learn the tools to keep yourself on the healthier side of the mental fitness spectrum.



Murray Timpson

Director Slam Engineering

Murray has 27 years' engineering experience and has led the Slam Engineering group for the last 7 years delivering electrical and mechanical consultancy along with compliance and training. He gains career satisfaction by taking years of knowledge and practical experience and developing training packages to train others in these special skills.

Prior to founding Slam Engineering, Murray held leadership positions with Idemitsu, Rio Tinto, Vale and BMA.

Murray is a Chartered Professional Engineer having attained dual degrees Bachelor of Engineering (Electrical) and Bachelor Business from the University of Southern Queensland, he also maintains Electrical Engineers Certificate of Competency (Underground) for NSW and QLD. Murray has attained a Certificate IV in Training and Assessment and holds Engineers Australia committee position on Standards Australia EL-023 Electrical Equipment in Mines and Quarries. He is also the Co-President of MEMMES (Mining Electrical Mining Mechanical Engineering Society)

Training – Where do we start?

Over the past two years I have been on an intense journey of establishing a business in the Vocational Education and Training sector. I would like to share the learnings and the eye opening experience with electrical engineers in NSW and how this dovetails into Order 34.

This presentation will cover:

- How Australia's Vocational Education and Training (VET) framework offers competency based training by either qualifications, skill sets, units of competency or an accredited course.
- An explanation of Coal Services Order 34 Training & Competency Management Systems and how it provides the need to recognise units of competency from relevant Industry Training Packages or recognised units of competency that are customised to suit requirements at a coal site.
- A discussion on how mine sites undertake mechanical and electrical engineering based training relating (not limited) to diesel engine flameproof, electrical equipment in hazardous areas, high voltage switching, MDG15 and TR Hot Works (old MDG 25).
- Outline the gaps mines face in ensuring when recognised units of competencies are used, in-house training and refresher requirements.

This presentation aims to provide a background in competency based training and how engineers can choose the appropriate package to the mine site's and personnel needs.



Bill Schlesinger

Regional Sales Manager nVent ERICO

Bill Schlesinger has been working for ERICO for 32 years as an electrical engineer in the field of surge protection, lightning protection & earthing. His experience includes research and development, new product development, and consulting in many countries.

After 15 years working for ERICO in Europe and Asia, Bill has now returned to his hometown of Hobart and is a member of the Australian Standards Lightning Protection committee EL024, responsible for producing the recently updated Australian Standard for Lightning Protection, AS1768.

Lightning protection at mines

Exposure to the forces of lightning is unavoidable in the mining environment. The effects of lightning damage due to direct strikes and overvoltage transients cause significant financial losses to mining operations every year as well as posing a very real threat to mining staff. To mitigate the threat of lightning a structured approach to the assessment of the lightning risk and application of suitable protection measures is required.

This presentation will explain the risk assessment process provided by the recently updated Australian Standard for lightning protection, AS 1768, which can be used to calculate the level of risk for mining assets. It will also provide an outline of contemporary lightning protection design methods which protect both mining assets and staff, as well as providing engineers with some practical examples of mining-specific lightning protection solutions.



Andrew McColm

Chief Investigator NSW Resources Regulator

Andrew joined the regulator as Chief Investigator in November 2020.

His background includes 30+ years regulatory, WHS consulting and investigative experience with regulatory authorities, government instrumentalities and businesses across Australia as well as an internal role as Principal – Investigations and Learning with a global oil and gas company.

Andrew developed a strong grounding in investigation with the NSW Police Force as an operational police officer and prosecutor. That grounding provided a platform to extend his expertise into the field of WHS as Senior Prosecutor (lawyer) with a WHS regulatory authority. There he was responsible for providing advice to investigators, compliance & enforcement decision making and carriage of WHS prosecutions before courts and coronial inquests into workplace deaths.

Subsequently, as General Manager, Principal Consultant and Director with national WHS consultancies for over 20 years, Andrew investigated and case managed over 50 complex workplace incidents (mostly fatalities) on behalf of businesses and provided WHS investigation, compliance and enforcement support to WHS regulatory authorities across Australia including the NSW Resources Regulator.

The reality of investigations

The Regulators' Major Safety Investigations (MSI) unit undertakes investigations into complex, serious and high-risk safety incidents including workplace fatalities and serious injuries. The team also manages escalated enforcement actions such as prosecutions and enforceable undertakings.

This presentation will provide an overview of MSI's structure, the background of its investigators, what it does and how it is done, priorities, governance and decision making and the types of investigations and prosecutions currently underway. It will also highlight the roles and responsibilities of mine operators and mine workers before, during and after a major safety investigation.



Michael Falkiner

Manager Rutherford Electrical Engineering Services

Michael has 15 years mining experience and is an electronics and communications trade technician with a Diploma of Electrical Engineering.

Michael has worked in the electronics industry for over 18 years providing specialist services in the high voltage, electronics and communications technologies.

Underground protection relay testing

This presentation will explore some challenges and solutions when conducting underground protection testing.



Sisira Karunaratne

Project Engineer (Electrical) Snowy Hydro Limited

Sisira is a senior Electrical Engineer and currently working for the Snowy 2.0 Project. He was the asset engineer for low voltage and medium voltage equipment in Snowy Hydro Limited for the last 12 years. He is a Chartered Member of Engineers Australia and a member of the Institution of Electrical Engineers (IEEE). He has more than 30 years of experience in low voltage and high-voltage electrical assets in Power Generation facilities.

Sisira's experience includes operations, maintenance, designing, preparing specifications and standards, testing, and inspecting quality assurance, commissioning of plant and equipment, and electrical safety in electrical assets. He has led the arc energy risk assessment study in Snowy Hydro Limited recently and is well-versed in electrical safety.

Snowy Hydro 2.0



Greg Campbell

Electrical Engineering Manager South32

Greg Campbell is the Electrical Engineering Manager of Appin Mine, a large underground metallurgical coal mine which consists of the merged Tower, Appin and West Cliff Collieries. Appin Mine is located approximately 37 kilometres northwest of Wollongong and is part of the Illawarra Metallurgical Coal (IMC) group, which is 100% owned by South32 Limited.

Greg is degree qualified in Electrical Engineering and Business, is working towards completing a qualification in Law in 2023, and holds qualifications in Risk Management, Reliability Centred Maintenance, Hazardous Areas and Power Systems.

Greg has worked at open cut coal mines, underground coal mines and coal processing plants for Glencore, Yancoal and South32 throughout the last 10 years. He obtained his competency as an Electrical Engineering Manager of Underground Coal Mines in 2016, and has held the statutory Electrical Engineering Manager position at Moolarben Underground Mine, West Cliff Coal Preparation Plant and Appin Mine.

Journey to replace an ancient motor in an ancient winder



Greg Lloyd

Senior Electrical Engineer Hunter Valley Operations

Greg has been involved in the mining industry for more than 11 years following a lengthy career in Defence. He has extensive experience in underground, open cut and coal handling preparation plant operations. He completed both his Electrical Apprenticeship and Electrical Engineering Advanced Diploma in 2019 and gained his Certificate of Proficiency in 2020. Greg currently holds the position of Statutory Electrical Engineer at HVO Open Cut, having previously held the same position at Liddell Open Cut and CHPP.

A loss of control – when large mining machines don't respond

This presentation is a synopsis of the actions taken after an incident, examining who was in the investigating team, how the investigation led to the root cause and the subsequent actions taken to ensure it does not happen again.



Peter Armstrong

Director, Trainer/Assessor High Voltage Training Solutions

Peter started his career with Shortland County Council in 1989 and is an electrical fitter/ mechanic by trade and a qualified engineer.

He has a strong background in high voltage testing, substation construction to 332kV as well as protection systems, oil pressure cables, transmission and distribution, transformer installation and refurbishment.

He has held the position of primary trainer and assessor for Energy Australia, Newcastle and Hunter Region for several years and is a qualified and experienced systems operator within the Energy Australia Network.

Peter is a Director of High Voltage Training Solutions Pty Ltd, a Registered Training Organisation formed in 2010, that provides generalised training in High Voltage Operations, specific onsite training and procedure development for The Royal Australian Navy across their electric LHD platforms. Their other clients include BHP, Westrac, Local Councils, Federal Defence contractors, Yancoal, Glencore, Bloomfield Group, Hunter Water Corp, Mid Coast Council, Stowe electrical, Star Electrical, Centennial, Rio Tinto, Yurika, Energex, Ausgrid Plue-ES, Infrabuild, Komatsu, Liebherr, Hitachi, and multiple State Utilities.

Peter is also involved in incident investigation, substation/switch yard design (Mount Arthur Coal), specialised operational equipment development and compliance/certifications. He is also an accomplished and published author.

High voltage for dummies

Peter's presentation will outline how easy it is to link WHS with the new National Safety Code and onsite operational requirements.



Mark Fogarty

Director/Senior Mechanical Engineer Safe For Engineering

Since beginning in the Industry as a naive apprentice plant mechanic, Mark has been willing to learn from any and all who were prepared to educate.

He spent several years honing his skills as a tradesman and gaining an invaluable insight into the surface operation aspects of the mining industry. Along the way he picked up on how to do things the right way, the wrong way and most other ways in between.

In the September of 1998, after leaving the surface and heading underground, his passion for mining was unlocked. Mark was home. Combined with the honour and privilege of working for and alongside some of the industry's most unique characters, working underground provided Mark with an education that no institution can provide. People have the ability to make a lasting impression on others. The engineer he is today is a direct result of the interaction of the people he had the pleasure of working with over the years.

Having worked at over 20 underground and surface operations in the coal and metalliferous sectors, holding positions ranging from fitter/operator through to senior mechanical engineer, Mark has received a diverse education in the industry. He has also had the unique opportunity of being actively involved in the commencement of not one but 2 underground mines.

After 29 years, after starting out as an apprentice, then going from a tradesman to a supervisor, to obtaining an advanced diploma in mechanical engineering and certificate of competence to senior engineer, Mark is honoured with the privilege of being in a position to educate the next generation of mine engineers.

Do we train or do we educate?

Do we simply teach our teams what we need them to know or do we take the time to impart our knowledge on what and why we are teaching them?

We as engineers, know why hazard control measures are in place and rather than just teach what these control measures are, we should educate as to why they are in place.

But why stop at our own teams? Do we, as engineers, take the time to educate our mining brothers on why we do what we do? Why be frustrated with how little they understand, when we can pose scenarios as a learning based exercise to better understand not just what we do, but why we do it.

This presentation aims to challenge engineers on whether or not they are educators based on how well we convey our knowledge to the workforce. History has provided us with an endless number of learning opportunities. We shouldn't waste them.

Notes

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