Midland Institute of Mining Engineers

18th Safety Seminar

"Challenges and Solutions for Mining Safely"

Crowne Plaza
Victoria Station Road
Sheffield, S4 7YE
Friday 11th April 2025

MIMinE
c/o 74 Newsam Road
Kilnhurst
Mexborough
South Yorkshire S64 5UN
Tel 07305 255606
www.themime.org.uk
office@themime.org.uk

Registered Charity No 1177100. Affiliated to the Institute of Materials, Minerals and Mining (IOM³)

The event is supported by HSE Health & Safety Executive

Contents

Speakers

Welcome Message

On behalf of the Midland Institute of Mining Engineers, I would like to welcome you to our 18th Annual Safety Seminar.

Midland Institute of Mining Engineers (MIMinE) is a Charitable Incorporated Organisation, registered Charity No 1177100 and is affiliated to the Institute of Materials, Minerals and Mining (IOM3).

Mining has a chequered past when it comes to safety, and it was this past from which our institute was incepted. Our Institute was originally formed as the South Yorkshire Viewers' Association in 1857 following a spate of gas explosions in the Barnsley & Silkstone seams which resulted in many people unfortunately being severely injured or losing their lives. When we look back 'Change' was likely a major contributing factor of these firedamp explosions, the miners were reaching greater depths to access the coal seams & the greater demand for coal drove higher production levels & ultimately greater gas emissions from the coal seams.

Our founding members realised back in 1857 that they needed to act, and their objectives were “the more general diffusion of Practical and Scientific Knowledge on the Working and Ventilation of Coal Mines” and this action undoubtedly prevented many incidents as ventilation went on to become one of the core subjects for all UK mining engineers during their training & education.

'Change' is something which cannot be underestimated in safety and is often difficult to control as it is often unexpected & the consequences of change are not always apparent. Hence the title of our event today is “Challenges and Solutions for Mining Safely”. Hopefully this message and what you see and learn at our annual safety seminar makes everyone stop, think, and assess the impact of change and what needs to be done to manage 'Change' safely.

Our aim whilst compiling today's programme, was to provide a range of topical and relevant subjects which will benefit everyone regardless of your age, qualifications, role, or industry as safety is critical to everyone. I hope that everyone here today will take something away with them that they have heard, seen, or learnt and realise that events like this are so important to share safety knowledge.

The day is split into two sessions each session with a variety of presentations. Time has been allotted at the end of each presentation for questions, and I would encourage you all to take advantage of this opportunity, we also have a break which is a great opportunity to network with the speakers, other attendees, and the exhibitors.

As one of the founding objectives of the South Yorkshire Viewers' Association was the spreading of best practice, especially in relation to mine safety, I feel that events like this continue to meet this objective which is just as relevant today as it was over 160 years ago. And although the mining industry has changed so much over the last 160 years with the mechanisation, automation & advancements in technology the need to share our safety knowledge is still as important as ever.

Your presence here today shows the determination to consider the safety aspects and implications of necessary changes and shows continued determination to succeed in a constantly changing and challenging environment we all face.

The Midland Institute of Mining Engineers encourages membership of The Institute of Materials, Minerals and Mining (IOM3) to enhance professional status within the mining and minerals industry.

Many events, including this held today, count towards an individual's Continual Professional Development (CPD) as well as giving an excellent opportunity for networking amongst colleagues within similar spheres of activity. And I would encourage you to visit the Midland Institute of Mining Engineers, Institute of Materials, Minerals and Mining and other trade stands during the break periods to find out more.

I would like to thank our sponsors & supporters for their continued involvement in this important event. As President, I would also like to thank the speakers for the presentations you will see today, members of the organising committee for their contributions and of course, you the audience for making this Safety Seminar a success year after year.

Stuart Walker 2024/2025

A Warm Welcome to the Midland Institute of Mining Engineers

A brief history, our objectives, aims and our membership benefits :

Our history:
We were founded a long, long time ago . . . 1857 as the South Yorkshire Viewers Association and merged to become the Midland Institute of Mining Engineers in 1869.

Our prime objectives are:
The advancement in the public interest of the engineering, science and practice of the extraction and processing of natural resources, and the education of those involved in such activities and of the general public.

Our aims are:
- To promote science and mineral extraction engineering
- To encourage and foster skills in mineral extractive engineering
- To provide a forum for discussion of mineral extraction and related issues
- To arrange publication of papers and disseminate information
- To promote safe working practices within mineral extraction industries
- To enhance members' appreciation of new practices, technologies and techniques used in mineral extraction
- To provide assistance to members in advancing their professional development

Membership Benefits

Trust Funds
The Midland Institute of Mining Engineers, (MIMinE), has three Trust Funds, who's funds are aimed at proving support to our members.

Two of these funds are primarily aimed at younger members which include students as well as apprentices in developing their knowledge, skills, and experience in the mineral extractive industry, the funds are :

- **The Peake Fund** – A similar Travelling Scholarship no age limit to applicants
- **The Webster Fund** – A Travelling Scholarship aimed at applicants up to the age of 35 years
- **The AMCO Bursary** – aimed at short term work-based learning for students and engineers

These Trust Funds can from time to time be used to make additional awards for activities such as field trips, attending seminars and conferences.

The MIMinE also encourages and pays the student membership fees of the IOM3 for those students who join the MIMinE for a three to four years course dependent on the course length and the subject being studied.

Please refer to the Annual Yearbook or online at www.themime.org.uk for more information and the rules that apply.

Our Regular Meetings
Between the months of October and May, the MIMinE holds monthly General Meetings where an invited presenter gives a paper on a mining or minerals related subject.

The date is usually the second Thursday in the month at 4.00pm, the meetings last 45 - 60 minutes.

Participation can be in person or made remotely via our Video Conferencing platform.
If you wish to attend in person, the meetings are held at the at the MRS Training & Rescue Centres at:

Knottingley, W Yorks WF11 0BU
Or
Mansfield, Notts NG19 9AQ.

Young Persons Lecture Competition (YPLC)

The Midland Institute of Mining Engineers hold a round of IOM3 YPLC in mid February, alongside its own J F Tunnicliffe/C S Littlewood paper competition. Further details can be obtained from the MIMinE office at office@themimr.org.uk

Safety Seminar

Our Annual Safety Seminar takes place each year in April and is usually held at the Crowne Plaza Hotel in Sheffield, S4 7YE.

Annual General Meeting

Our AGM and Dinner takes place each year in October which incorporates the Presidential Address.

Our General Contact Details are

Email - office@themime.org.uk
Web - www.themime.org.uk
Social Media – https://www.linkedin.com/groups/12740674/
Tel - 07305 255606

Professional Recognition

The Midland Institute of Mining Engineers is an affiliated local society of the Institute of Materials, Minerals and Mining (IOM3)
We can provide mentoring to all MIMinE members who apply through IOM3 for the professional qualifications listed below.

1. Engineering Technician (EngTech)
2. Incorporated Engineer (IEng)
3. Chartered Engineer (CEng)

Anyone wishing to join the MIMinE can also, as well as receiving the above benefits, have their names published in the annual yearbook, and become part of our wider network of members and volunteers who can assist others in developing their careers and professional standing.

Membership conditions

Applicants must fully complete the Application form (available from the web site www.themime.org.uk)
The membership year runs from 1st of January to the 31st of December.

Annual Subscription Fees are:

Voting Members. (Fellow and Member) £40.00

Non-Voting Member, (Associate) £10.00

Programme of Events

TIME	TITLE	NAME	ORGANISATION
8.15 am	Registration and Coffee		
Morning	Session Chairman	John Hind	Vice President of MIMinE
9.00am	Welcome Introduction	Stuart Walker	President of MIMinE
9.10am	Performance rather thanParalysis	Sarah Gordon	Satarla
9.40am	Faster (safer) and more detailed Mine Surveys using integrated LiDAR survey systems	Adrian Wilkinson	Land and Minerals Consulting Ltd
10.10am	Functional Safety in Mining- A Case Study	Simon Burwood	Environmental Resources Management
10.40am	Coffee Break		
11.10am	Goal setting legislation for the extractive industries– an enabler to innovation and new technologies for controlling mining hazards"	Mark Godden	HSE
11.30am	Woodsmith Project- Challenges and Opportunities	Phillipa Starmer	Anglo American
12.00pm	STEM	Sharon Strugnell	WSP
12.10pm	IOM3 – Benefits of Membership	Jim Shields	BAM Ritchies/IOM3
12.20pm	Presentations	Stuart Walker	President of MIMinE
12.30pm	Lunch – Breakout Session with CSIRO will be held at the front of the ballroom for anyone wishing to join		
Afternoon	Session Chairman	Vince Fowler	Junior Vice President of MIMinE
1.40pm	Sector Collaboration– Solutions to the Challenges	Christine Blackmore Gary Sinclair Peter Hetherington Kevin Sabin Andrew Fulton Stuart Hoult	IOM3 MILG MIMinE & UKCEF ABMEC MAUK MQC
2.10pm	Woodsmith Project- Shaft Sinking Ground Support/Shaft Lining "Top to Bottom" Tubbing Installation	James Stokes & Thomas Burford	Redpath Deilmann UK
2.30pm	It's all about Water! Mine water and it's critical role in mining and mine safety	Grace Yungwirth	WSP
2.50pm	Comfort Break		
2.55pm	A review of independent verification and validation (IV&V) of critical mine winding assets in the context of characterising system RAMS.	Dom Barraclough	Tautus
3.20pm	Application and Experiences of Ventilation Modelling at Boulby Mine (Making the Most of Your Model).	Joel Miller	ICL Boulby
3.50pm	Enhancing Mining Safely: Challenges and Solutions in the Design & Construction of the Woodsmith Project's MTS Station Chamber & Roadways	Justyna Wroblicka	Dr Sauer & Partners
4.10pm	Closing remarks	Stuart Walker	President MIMinE

Aims & Objectives

The Midland Institute of Mining Engineers (MIMinE) was formed toward the end of 1868 and amalgamated with the South Yorkshire Viewers Association (1857) during 1869. The inaugural address of the President, Mr T W Embleton of Methley, was reported to have dealt almost entirely with the problems of safety in the Yorkshire Coalfield and he was quoted as saying:

“We must try to decide calmly and deliberately under what conditions will it be possible to work the Barnsley coal – the great staple of this district, and on which the prosperity of the neighbourhood mainly depends – with safety and comfort of the men.”

In this simple phrase Embleton identifies two issues, namely, the economic advantages of working the Barnsley coal, together with the need to consider the health and safety of the workforce whilst doing so. He appears not to view these as two separate issues, but to regard them as being mutually desirable objectives for long term commercial viability.

Organisations and individuals may or may not recognise a connection between business efficiency and health and safety, but there appears to be difficulty in integrating these issues in a meaningful and constructive manner. Health and safety issues appear to be reliant on annual initiatives, do not generally appear to be self-sustaining, and focus on outcomes not procedures (i.e.: what is done not how it is done).

The purpose of this Safety Seminar is to consider the synergy between health and safety management and business efficiency. Root cause investigation of health and safety incidents invariably highlight deficiencies which are impacting, usually more frequently, upon an organisation's ability to deliver its outputs in a predictable manner. It is therefore the intention of this seminar to consider those matters that link health and safety management and the challenge of changes that are necessary to maintain business efficiency.

The opinions, conclusions and other information expressed in this publication are those of the individual presenters and may not necessarily be those held by the Midland Institute of Mining Engineers.

Organising Committee

Vince Fowler (Chairman)	HSE
Stuart Walker	President, MIMinE
John Hind	MIMinE Vice President
Peter Hetherington	Honorary Treasurer, MIMinE
Steve Straw	Honorary Secretary, MIMinE
Wyn Griffith	MIMinE
Neil Jackson	Anglo American
Kevin Sabin	Brownlee Cale Ltd
Paul Bradley	HSE
Neil Battison	HSE
Andrew Fulton	Mining Association of the UK (MAUK)
Joe Flack	British Gypsum
Nick Hardie	Hard Rock Mining
Richard Severn	ICL Boulby
Claire Stapleton	Administrator, MIMinE

Biographies of President, Vice President, Honorary Secretary, and Junior Vice President

Stuart Walker - President

Stuart Walker joined Redpath Mining in 2023, as Deputy Engineering Manager for mine shaft sinking at the Woodsmith Mine in North Yorkshire. Previously, Stuart has held technical and operational positions with UK Coal, The Coal Authority and British Gypsum. Career highlights include implementing the first 'live' deep mine wide computerised risk assessment system; developing ground support strategies for safe and economic multi-seam mineral extraction in deep mines and leading the licensed mines team of the Coal Authority to regulate all opencast and underground coal mining in Great Britain.

Stuart is a Chartered Mining Engineer, a Fellow of the Institute of Minerals, Materials and Mining and the current President of the Midland Institute of Mining Engineers.

Steve Straw – Honorary Secretary

Stephen is a Fellow of IOM3 and the Midland Institute of Mining Engineers.
Stephen started his career with the National Coal Board as a Mechanical apprentice in 1977, going on to have a career as a Mechanical Engineer holding senior managerial positions at numerous mines gaining extensive experience of d installing, commissioning and maintaining of fully integrated mining systems.

Stephen then joined the Woodsmith Mine Project in August 2023 as a Mechanical Training & Competency Facilitator, he oversees the mechanical staff on site who are employed by Redpath Mining.

Stephen has been a member of the Midlands Institute of Mining Engineers since 1990, becoming Honorary Secretary in 2017 a position he still holds. Stephen is fully committed to the advancement of engineering, science and the practice of the extraction and processing of natural resources, along with the education, training, and competence assurance of all involved in those activities.

Stephen is the Secretary of the Mining Technology Group and the Secretary of the BACM section of the Prospect Trade union.

John Hind - Vice President

John started his career with British Coal as an apprentice surveyor. He worked at several mines and progressed to Unit Surveyor at Welbeck Colliery before becoming Company Surveyor and Minerals Manager for UK Coal. John holds an MBA, is a Chartered Surveyor and a Chartered Engineer and is a Fellow of IOM3. After three decades in the mining industry John joined Harworth Group as Associate Director and more recently as Head of Risk and Compliance. His current role includes responsibility for Health & Safety along with other risk assurance roles. The Harworth portfolio is diverse and Health and Safety issues across different site types must be managed. The portfolio includes legacy mining and brownfield sites undergoing transformation as they are regenerated.

Vince Fowler - Junior Vice President

Vince is a Chartered Engineer, and a Fellow of IOM3. He started his career with the NCB as an electrical apprentice in 1980, progressing to holding senior managerial positions at several large mines in the Midlands.

He joined the Health and Safety Executive in 2008, as a HM Principal Inspector in Mines. The Mines Inspectorate regulates a range of major hazard sectors.

Vince is fully committed to the advancement of engineering, science, education, training, and competence of those involved in the sectors he regulates.

He remains passionate about developing engineers of the future, many of the apprentices he mentored now hold senior engineering posts. He also introduced the first women electrical apprentice into deep coal mining.

He is committed to sharing best practice and equipping engineers to deal with challenges, having chaired stakeholder committees, including the Engineering Liaison, NTLC SMIM and the MIME annual safety seminar.

Sarah Gordon
CEO/Research Director
Sataria

Sarah is the co-founder and CEO of Satarla sustainability and risk management, co-founder of the not-for-profit Responsible Raw Materials and production company Critical Productions. She is also a Professor of Practice at Imperial College London.

Having started her career as an exploration geologist before moving into risk management and sustainability, Sarah has always been passionate about ensuring that we make sustainability a reality. Sarah is regularly invited to advise organisations and governments on raw materials and is a member of the UK Government Expert Committee on Raw Materials. She is also a Trustee of Geology for Global Development, Women in Mining UK, is an Industry Advisor to iCRAG and the University of Leicester Institute for Environmental Futures, and is a Research Associate at the University of Johannesburg.

Synopsis

Risk management is a core skillset that allows us to mine safely. Proactive identification and management of risks is crucial to keeping our teams safe. However, our eagerness to undertake the perfect risk assessment, using whatever tool we prefer, can sometimes lead to 'paralysis by analysis' rather than true safety performance.

Learning from recent evolutions in Enterprise Risk Management, specifically the move to viewing risks as a true interconnected network of dependencies and opportunities, we can embed safety orientated risks in the core of the business. This, combined with a sense check of what constitutes a true control, allows us to ensure budgets support us in delivering on a safe workplace.

This session will be practical and pragmatic, exploring some easy-to-use tools and techniques drawn from a multitude of different approaches to risk management as well as a range of sectors. The aim is to support one another in delivering on performance, rather than get stuck in the rabbit hole of analysis.

Adrian Wilkinson

Managing Director
Land and Minerals Consulting Ltd

Adrian Wilkinson is a Chartered Geologist and Fellow of The Geological Society of London, a Member of the European Federation of Geologists and a Fellow of the Institute of Quarrying. He holds an honours Degree in Applied and Environmental Geology awarded from The University of Birmingham in 1993 and a Post Graduate Diploma in Applied Geotechnics awarded from Camborne School of Mines in 2011.

He was formerly employed by RMC (now Cemex) and then Tarmac before forming Land and Minerals Consulting Ltd in 2004.

He is a 'Geotechnical Specialist' under the Quarries Regulations 1999, a 'Competent Person' as defined by the Pan-European Reserves & Resources Reporting Committee for the Reporting of Exploration Results, Mineral Resources and Minerals Reserves (“PERC Standard”), has advised on due diligence for mergers and acquisitions of aggregate quarries and has acted as an Expert Witness on minerals related matters.

Since 2010 when the Company invested in its first long-range high-resolution LiDAR scanner, and in 2013 when it invested in its first Uncrewed Aerial System ('drone'), Adrian has developed (and overseen the Company's development of) a specialism in obtaining point-cloud surveys of hazardous or difficult to survey landforms, undertaking geological, geomorphological and geotechnical mapping on those 3D surveys and assessing the stability of those landforms.

He also holds a General Visual line of sight Certificate (GVC) to fly Uncrewed Aerial Systems in the Specific Category and is the company's Accountable Manger to the CAA.

Synopsis

Since the beginning of 2022, Land and Minerals Consulting Limited (LMCL) and Bath Stone Company's Stoke Hill Mine Manager (Matthew Hawker) have been collaborating in the development of a rapid survey technique to reduce the residence time that the mine surveyors spend in the mine. At the same time, the techniques adopted have produced far more detailed surveys than previously produced.

Prior to 2022, the Stoke Hill Mine surveys were undertaken by total-station and took 2 days to complete. The surveys now use multiple survey techniques including a high-resolution LiDAR scanner of the active working areas (which provides the basis for the mine plan updates and collects and records all the roof support data) and a backpack wearable LiDAR / 360º video survey of the whole mine (which provides a record of the whole mine on the day of the inspection). The quarterly surveys are now captured in just 2 hours (as opposed to the 2 days previously), with additional survey control being updated by total station on the fourth quarter survey to ensure the point-to-point LiDAR registration precision is maintained throughout the mine. The survey data is also uploaded to an online viewer that can be interrogated by the mine management (and any other professionals that require high quality 3d modelling of the mine).

This paper presents the techniques and the results of these surveys, culminating in a survey by a remotely operated vehicle (ROV) of historical, narrow and low height mine workings.

Simon Burwood

Partner
Environmental Resources Management

Simon is a Chartered Engineer (CEng), Registered Functional Safety Engineer (RFSE) and TÜV Rheinland Functional Safety Expert (both SIS and PH&RA) with extensive experience in safety-related applications.

He has worked in the specification, design, management, and assessment of safety-related systems for over 20 years. His early years were spent 'hands-on', working in manufacturing designing electrical and programmable electronic safety-related control systems for high volume machines.

He then took the role as a Functional Safety Consultant, working globally chairing and facilitating HAZOP and SIL Determination studies. He specialises in IEC61508/61511-compliance and reliability analysis for multiple sectors. He is also UK expert representative on international committees for development and maintenance of Functional Safety standards: IEC 61508 & IEC 61511 (MT61508-1-2 & MT61511).

Synopsis

According to IEC 61508-4 (IEC 61508 is the international standard that applies to 'safety-related control systems'), Functional safety is 'part of the overall safety relating to the Equipment Under Control (EUC) which depends on the correct functioning of the Electrical / Electronic /Programmable Electronic safety-related systems, other technology safety-related systems and external risk reduction facilities.' Or to put it another way: Part of the overall safety that depends on a control system or equipment operating correctly in response to its inputs.

How does this apply to the mining sector?

In May 2020, a methane gas explosion at a coal mine led to five workers suffering life changing injuries. One of several measures employed was a real-time methane concentration monitoring and control system, which may have lacked the required safety integrity to prevent or mitigate this event. This paper aims to outline to process employed to specify a new instrumented methane detection safety function solution that ensured compliance with international Functional Safety standards, as well as sufficient safety integrity.

Mark Godden

H M Principal Inspector of Health and Safety (Mining)
HSE

My name is Mark Godden. I work as a Mines inspector with HSE and have spent 40 years employed within the extractives industry, first in quarrying and then in mining.

I am a member of the MIMinE, a Fellow of the IOM3 and a Chartered Mining Engineer, a Fellow of the Geological Society and a Chartered Geologist. I am also Fellow of the Institute of Quarrying.

I am based in the southwest of England and work out of HSE's Bristol Office.

Phillipa Starmer

Woodsmith Manager
Anglo American

Phillipa Starmer graduated from the Queensland University of Technology in Australia, with a Bachelor of Engineering degree. She started her working career with Anglo American's steel making coal business in central Queensland as an electrical engineer. She has worked in underground and surface operations and major expansion projects both in Australia and Canada.

Phillipa is the Woodsmith Manager and is responsible for the development of the Woodsmith site including two (2) deep shafts and the Mineral Transport System (MTS) shaft. Phillipa joined the Anglo American Woodsmith project from Canada.

Synopsis

The Woodsmith Polyhalite Project is the largest mining project in the UK and is being constructed in the North York Moors National Park. Either of these facts alone present challenges, however, together they afford a unique opportunity to develop innovative solutions to mine safely.

Two distinct challenges have faced the project over the last 12 months - the technical engineering requirements associated with sinking through the Sherwood Sandstone water-bearing ground and the personnel changes related to the project slowdown.

There are two deep shafts at Woodsmith being sunk with Shaft Boring Roadheader (SBR) technology. The innovative SBR technology, developed by Herrenknecht, has only been used to sink four shafts prior to those at the Anglo American Woodsmith Project. This technology was developed to improve the safety and efficiency of shaft sinking as compared to traditional drill and blast processes. The Anglo American Woodsmith Project deep shafts, will encounter significantly hard ground for extended depths through the upcoming Sherwood Sandstone geology. In response to the change in cutting conditions, the team has been working with construction and technology partners to develop new approaches to safely sink through this hard ground whilst maintaining the SBR means of sinking and lining.

In May 2024, Anglo American announced that although the Crop Nutrients business was a key growth pillar, there was a requirement to slowdown the mine construction to strengthen the company's balance sheet. This resulted in the Mineral Transport Shaft (MTS) and Production Shaft being placed in care and maintenance, with tunnelling progressing at a slower rate and an associated personnel reduction of approximately 1000 across the project. This significant reduction required careful management of competencies to ensure the operations could continue through this transition safely.

This presentation will outline these challenges, the innovative approaches applied, and in some cased lessons learned, to address these head on and demonstrate Anglo American's commitment to safety and the Woodsmith Project.

Sharon Strugnell

Technical Director
WSP

Sharon Strugnell is a chartered engineer and professional project manager who has a background in both civil and mining projects, globally. She currently leads the WSP Mine Waste UK and Ireland team.

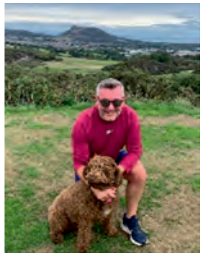
She is an active STEM ambassador where she regularly visits local schools and colleges to promote Civil Engineering and Mining and recently was awarded ICE Yorkshire and Humber's STEM Ambassador of the Year in 2024.

Synopsis

It is widely recognised that educating school-aged children about the significance and importance of mining is essential. Given that the mining industry forms the foundation of the global economy, it is crucial to effectively communicate this message to young learners.

Sharon Strugnell, with the backing of the Midland Institute of Mining Engineers (MIMinE) and various industry partners, has developed a STEM activity booklet targeted at primary school children. This booklet aims to raise awareness about the necessity and reasons for mining and its related activities in today's modern society. Discover Sharon's journey in creating this educational resource and the future steps involved.

Jim Shields
Operations Manager
BAM Ritchies
Chair of Membership Committee IOM3



After completing a BSc in Geology at the University of Glasgow in 1984, Jim completed his MSc in Geomaterials at the University of London in 1985. He returned to Scotland and joined Fugro as a junior geologist on various ground investigations throughout the UK. He joined BAM Ritchies (then Ritchies Equipment Ltd) in 1986 as a Contracts Engineer mainly on Rock Anchoring / stabilisation projects as well as assisting in the development of the newly created Ground Investigation Department. He became Ground Investigation Contracts Manager in 1992 and then Geotechnical Manager in 1996, covering all Scottish, Irish and North East of England geotechnical contracts.
Jim has also undertaken numerous field visits overseas to advise on rock sources for armour and aggregates primarily for group company BAM International which include St. Vincent and the Grenadines, Chile, Ethiopia, Ghana, Turkey, Libya, Tunisia, Ecuador and India.

Jim is now Operations Manager Ground Engineering with responsibility for all BAM Ritchies Ground Investigation, Geotechnical, Laboratory and Spray Concrete Operations both UK and Overseas.
In addition, Jim has taken on the responsibility to provide support and direction for the training and development of all BAM Ritchies staff towards professional qualifications. He is a chartered engineer, chartered geologist, chartered scientist and a UK Registered Ground Engineering Adviser.

He is Chair of the IOM3 Membership Committee, is a committee member of the Mining Institute of Scotland, the Ground Forum and has recently taken over as Chair of RoGEP. Jim is also a Trustee of the Engineering Council.

Synopsis
Professional recognition and registration is becoming even more important in this age of legislation, regulation, and litigation. It is independent proof of your "competence" as a professional. Professional recognition personal and it is an international benchmark of professional competence which cannot be disputed or devalued.

At the MIMinE Annual Safety Conference, IOM3 will focus on current routes to membership and the benefits that provides for both employers and individuals. We will discuss trends in membership and a focus on developments in the mining sector.

We will also focus on the importance of Continuing Professional Development (CPD) and why there is a requirement for audits, the need for ongoing development, particularly in the light of the Grenfell disaster.

James Stokes & Thomas Burford

Planning Engineers (Mining)
Redpath Deilmann UK

James is a Mining Engineer who, since graduating from the Camborne School of Mines in 2020, has worked across the sector at SRK Consulting, British Gypsum and currently Redpath Deilmann in the role of Planning Engineer (Mining) at Woodsmith Mine.

His undergraduate degree in Exploration & Resource Geology and postgraduate degree in Mining Engineering led James into specialising, initially, in mineral economics, project evaluation and feasibility studies, which was the focal point of his CSM thesis and work at SRK Consulting. Employed at British Gypsum, gaining experience at the production face in both drill-and-blast and continuous cutting mines as a Mining Engineer and shotfirer, James has since moved onto Woodsmith Mine, where he works in the Engineering Department for the project. Here, he is involved in all shaft-sinking activities on-site, drawing up technical plans, design engineering and implementing engineering works for the service and production deep shafts.

James is an Associate of the Institute of Materials, Minerals and Mining and is an active member of the Midland Institute of Mining Engineers.

Thomas is currently working on the Woodsmith Polyhalite Project, as a Planning Engineer (Mining) for Redpath Deilmann UK, where he is involved in all aspects of the sinking of both the service and production deep shafts.

He holds a post graduate degree in Mining Engineering from the Camborne School of Mines, class of 2019 and started his career as a site engineer working at a ventilation shaft for HS2.
In 2022 he moved to Scotgold Resources, as a Mining Engineer, with a focus on drill and blast design for long hole open stoping.

Thomas is an Associate of the Institute of Materials, Minerals and Mining and is an active member of the Midland Institute of Mining Engineers.

Synopsis

Situated in the North Yorkshire Moors National Park, Woodsmith is a deep polyhalite mine under construction. The Service Shaft and Production Shaft will facilitate access to the shelf polyhalite seam at approximately 1500mBGL.

The water-bearing hard rock Sherwood Sandstone aquifer, lying approximately 800 to 1000mBGL necessitates the need for innovative engineering solutions to enable high-productivity shaft sinking at Woodsmith Mine, whilst maintaining safe working conditions.

Redpath Deilmann has developed efficient engineering solutions to enable the installation of the tubbing lining to overcome the hydrogeological conditions at these depths. Historically, tubbing segments have been installed in a “Bottom-to-Top” manner, however, the methodology of “Top-to-Bottom” installation enables permanent support/lining to the shaft, and continual sinking.

To achieve construction of the tubbing lining in a “Top-to-Bottom” manner, Redpath Deilmann has designed and developed a new hydraulic curb ring and a tubbing manipulator that aligns tubbing's by remote control. This curb ring consists of hydraulic climbing jacks, that raise the tubbing rings into the correct position and retractable drawers that seal off the shaft wall prior to pouring of concrete. The remote-controlled tubbing manipulator increases safety and reduces risk to operatives as a clear exclusion zone can be maintained. Two rings of tubbing's will be installed, before the drawers are extended to seal off the shaft walls and then concrete is poured. This installation cycle is repeated until approximately 15m above the next grouting cover.

The tubbing column is a safety critical feature to ensure the longevity of the shaft lining, from construction to production, for the duration of the life of mine.

Grace Yungwirth
Director – Mining, Mine Water & Sustainability
WSP

Grace Yungwirth (P.Eng, C.Eng, MIMMM) is a leading technical advisor to mining companies and finance institutions with a deep understanding of the commodity extraction industry and experience bridging the gap between technical, corporate, and investment segments of the mining industry. With over 20 years' experience in the industry, she is currently in the role of Director of Mining, Mine Water & Sustainability in WSP Mining's Global Mining Business where she advises on technical risk management, new project development/growth, engineering studies, operational efficiency, and project life cycle strategies (early development through construction to mine closure).

Grace has extensive industry experience in metals & mining with complimentary experience in construction & infrastructure. She is the Global leader of one of WSP's largest client accounts with a remit to align strategy and delivery through collaborative Global partnership. She has authored numerous mine water focused technical publications and is a leader in DE&I and innovation initiatives. Grace is WSP's regional ESG in Mining Leader supporting advancements in ESG strategy and innovation across the business.

Synopsis
When you think of mines and mining operations, often the image of water is not the first that comes to mind. This often-forgotten aspect of mining and mine infrastructure design is critical to mine safety, efficient mine operations and production.

This paper provides a high-level introduction to the critical role of mine water in mine planning and operations. It covers the basic engineering considerations of mine water in effective engineering and management of open pit slopes, underground mines, and associated large infrastructure like mine waste facilities.

Focusing on mine water management, this paper presents an introduction to some critical considerations in development of mines and mine infrastructure:

- Introduction to pore pressures and basic engineering principles;
- Mine water and open pit slopes;
- Considerations in underground mining with a spotlight on cave mining; and
- Mine Waste facilities and water related stability concerns.
- Environmental Considerations.

Dom Barraclough

Managing Director
Tautus

Dom Barraclough is a Chartered Engineer with extensive experience in mechanical, electrical and control systems. He started working nearly four decades ago as a junior fitter on large agricultural machinery and infrastructure. Since then, he has risen through positions in various sectors while gaining extensive management and leadership experience. He obtained three patents in drive systems while in the materials handling industry and then as a drive-train systems designer. Dom has been fortunate to have worked with some great mining professionals over the last sixteen years on various projects, including winder testing and process hazard assessments.
For the last 20 years, he has worked with business angels, private equity and banks to invest in engineering, health and safety businesses that have great people at the centre. He heads a world class team across a group of three interrelated businesses covering engineering, health and safety test, inspection, certification, consulting and forensics services.

Dom has been instructed as an expert witness in nearly two hundred civil personal injury and technical disputes, police and HSE prosecutions and arbitrations. He has given evidence in arbitrations and the High Court. As well as supporting rising stars as a judge for the IET and the FDF and as a professional registration assessor for the IET, he is completing his MBA at Aston University. As Chair of the National Safe Man Riding in Mines (SMIM), he is focused on doing his part in modernising and building mining capability in the UK.

Synopsis

The mining industry relies on mine winding systems as critical components for efficient and safe operations. These systems demand high levels of reliability, availability, maintainability, and safety (RAMS) to minimise business and operational risks. This paper presents a summary of IV&V processes used to assess critical mine winding assets, in the context of RAMS and such aspects as organisational objectivity and cognitive biases that may be framed as “marking your own homework”.

Modern automation control and safety systems claim performance for reliability, redundancy, diagnostic coverage, fault mitigation, etc. However, no matter how sophisticated the system, the safety standards require independence. This paper explores the necessity of IV&V in all stages of the winding asset lifecycle, identifying system vulnerabilities, ensuring compliance with industry standards, and mitigating risks associated with system failures, sometimes under extreme conditions.

Some real-world applications of independent verification processes in enhancing the RAMS of mine winding systems are presented. The paper also raises commercial and operational challenges such as balancing cost-effectiveness with thoroughness, integrating verification processes into existing operations, and managing the complexities of aging assets and infrastructure, rapidly advancing technology and their integration.

By emphasising the importance of rigorous IV&V, the paper underscores its role in maintaining confidence in the performance and safety of mine winding systems. It concludes with recommendations for good practice and future study that contributes to “RAMS” mine winding practices.

Joel Miller

Ventilation Engineer
ICL Boulby

Joel is a Chartered Engineer, specialising in underground mine ventilation in the only polyhalite mine in the world (Boulby Mine, in North Yorkshire). On gaining a Master of Engineering in Mining Engineering, he entered the UK mining industry in 2008. Since then, he has developed a wide range of skills within the discipline Mine Ventilation Engineering and was appointed Ventilation Engineer in March 2016. In this role he is actively involved with all aspects of operations at Boulby Mine, such as short-term planning, developing solutions to complex ventilation issues such as minimising dust exposure during retreat mining, life of mine ventilation modelling and vital involvement in multi-departmental emergency response planning.

He strives to develop and progress mine ventilation in innovative ways to meet the demands of an expansive, deep evaporite mine.

Synopsis

Ventilation modelling in mining is a critical tool for optimising air flow underground, ensuring worker safety, and enhancing operational efficiency. By simulating underground airflows, contaminant dispersion and thermal loading, ventilation models allow Engineers to design systems to control hazards associated with the working environment. Furthermore, ventilation modelling can reduce energy cost by optimising fan performance and airflow distribution.

Boulby Mine has a long and varied history of ventilation modelling as an early adopter of the University of Nottingham / McPherson ventilation modelling tools in 1978, to Mine Ventilation Services VNet software and the current model iteration utilising Ventsim Design. The paper will focus on the application of Ventilation modelling as part of an integrated mine planning process (LOM Planning, Ventilation / Fan Optimisation) as well as alternative applications of the ventilation model and modelling software. Such as the assessment of wind blast potential in the event of a retreat panel collapse, high fidelity scenario planning for mine rescue exercises, and development of the dust control ventilation layout for retreat mining.

Justyna Wroblicka

Tunnel Engineer
Dr Sauer & Partners

Justyna Wróblicka is a Tunnel Engineer with 8 years of professional experience, having worked at Dr. Sauer & Partners for the past four years. She has gained practical experience through her involvement in high-speed rail, airport infrastructure, water and energy infrastructure, transportation, and mining projects. Her expertise includes feasibility studies, preliminary and detailed design, as well as finite element modelling.

Justyna has worked on international tunnelling and mining projects, contributing to both design and construction phases. During her internship with SRK Consulting, she was involved in major mining projects in Western Australia, gaining valuable insight into underground design and construction processes.

Prior to joining Dr. Sauer & Partners, she worked at the Coal Authority, where she dealt with coal mining legacy issues, including subsidence damage, mine gas emissions, and mine entry collapses. She is currently working as a Tunnel Engineer, providing design and site support to a number of UK and international projects.

In 2024, Justyna was part of Dr.Sauer & Partners' designer's representation team on site for the Woodsmith Mine project, overseeing the progress of the works and compliance with the design. In this role, she facilitated coordination and communication between the client and contractor during the execution of the works.

Synopsis

Mining safety presents significant challenges, particularly when designing and constructing underground structures. The Mines Regulations 2014 and the General Principles of Prevention outlined in the CDM Regulations 2015 place critical responsibilities on the Mine Operator and the Designer to ensure safe practices throughout the project.

Dr Sauer & Partners provided design of the excavation and ground support measures for the MTS Shaft Inset, MTS Station Chamber and associated MTS roadways as well as site representation during construction on the Woodsmith Project.

This paper explores the challenges faced in safely designing and constructing the underground structures, and outlines the solutions implemented to overcome these challenges, based on the technical site support provided over the recent years.

A primary focus in the project was managing and minimizing the risks through the design process. The design itself serves as a solution to mining safety. Special emphasis is placed on the application of finite element modelling as a tool to assess and address risks, taking into account constructability, ground support selection, and the specific ground conditions encountered. Specific examples will be provided from the modelling of breakout from the MTS Shaft and roadway junctions, where the analysis informed critical decisions on ground support and the structural integrity of the junctions.

Additionally, the numerical modelling helped to determine the monitoring trigger values. This allowed to optimize the design of support systems, offering a more precise approach to managing risks and ensuring safety. A comparison of the predicted monitoring trigger values against the actual monitoring data from the site played a key role in assessing the accuracy and reliability of these predictions. Coordinated workshops between the client, design an construction teams enabled the implementation of an appropriate safety response and possible counter measures in an event of reaching or exceeding the trigger values.

The finite element models were initially optimized to provide the most conservative and low risk design solutions. As construction progressed, the contractor was able to raise technical queries that allowed for the design to be updated in alignment with practical construction requirements. These updates not only improved the constructability and feasibility of the design but also ensured that the safety standards were maintained throughout the project. This dynamic approach facilitated both the refinement of the design and the continuous management of risks on-site.

Future Events

MIMinE AGM & Dinner Friday 10 October 2025

Mount Pleasant Hotel, Great North Road, Rossington, Doncaster DN11 0HW. Please book accommodation directly with hotel.

5.45pm	AGM & Presidential Address (All welcome)
6.30pm	Bar Opens
7.30pm	Dinner
12.00pm	Bar closes

As this is a social event, partners and/or friends of guests are more than welcome to attend.

There will be a raffle for guests and a general raffle.

Dress code: Smart casual

To register please email office@themime.org.uk

General Meetings

Date	Time	Speaker	Title
8 May 2025	4.00pm	Alan Dolan President of Irish Mining & Quarrying Society	Mine and Mill operations at Boliden Tara Mines

Unless otherwise stated, the speaker will be at either of the two MRS Training & Rescue addresses:

Leeming Lane South, Mansfield Woodhouse, Mansfield, Nottinghamshire NG19 9AQ

Rescue House, A1 Business Park, Knottingley Road, Knottingley, West Yorkshire WF11 0BU

Other venues may join the video conference.

If you wish to join the meetings, please contact Claire at office@themime.org.uk

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