AIOH25 Evolution, Insights Into Impacts

ANNUAL SCIENTIFIC CONFERENCE AND EXHIBITION

Continuing Education Sessions Program

SATURDAY 29 NOV
SUNDAY 30 NOV

ICC SYDNEY

aioh.org.au/conference

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Continuing Education Sessions

Location: International Convention Centre (ICC) Sydney
Dates: Saturday 29th November - Sunday 30th November

Pricing
(Includes GST)

Full Day CES:
- Member Rate - $660
- Non-Member Rate - $780

Morning tea, lunch and afternoon tea are included.

Half Day CES:
- Member Rate - $330
- Non-Member Rate - $390

Morning tea or afternoon tea and lunch are included

Career Development Pathway (CDP)

The AIOH **Career Development Pathway (CDP)** assists members and aspiring occupational hygienists progress through their career.

For more information on the AIOH Career Pathway for Occupational Hygienists, please click here.

CDP Level
1. Allied Professional
2. Early Career
3. Practitioner
4. Professional
5. Senior Professional

Certification Maintenance Points
If you are a COH you will receive CM Points for a half or full day CES. CM Points and certificates will be sent out digitally post conference.

Half Day: 0.5 CM points
Full day: 1 CM point

To register for the full conference and your continuing education sessions scan the QR code or click here.

For registration or conference enquiries, please reach out to AIOH Events.

AIOH Australian Institute of Occupational Hygienists

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CES 1: The Evolving Practice of Biological Monitoring

Saturday 29th November
Half Day: 8:30am - 12:30pm

Speaker: Dr Martin Mazereeuw, TestSafe, SafeWork NSW & **Archana Venkateshan,** Quality Assurance Manager, TestSafe, SafeWork NSW
CDP Level: 1/2

Biological and workplace environment monitoring are complementary approaches to determine occupational exposure to hazardous materials. In some cases, biological monitoring is the only practical option for testing. Usually, biological monitoring analysis is part of a health monitoring programme managed by a medical professional. However, increasingly biological monitoring is used by occupational hygienists to assess and manage exposure. Over the last decade we have seen a broad acceptance and increased use of biological monitoring in exposure risk management. This session is a practical introduction for occupational and medical professionals who are new to biological monitoring and covers the basics of biological monitoring, practical examples, and where to start with setting up a monitoring programme.

On completion, participants will be able to:

- Understand the basics of biological monitoring
- Review cases which directly relate to exposure levels
- Understand the format for a monitoring programme.

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CES 3: Planning and Deployment of Realtime Particulate Monitoring Programs

Saturday 29th November
Full Day: 8:30am - 5:00pm

Speaker: Dustin Bennett, Innovation Director/Principal Hygienist & **Luke Di Corleto** (MAIOH, COH) Hygiene Innovation Consultant, GCG
CDP Level: 3

Real-time particulate monitoring (RTPM) is reshaping how occupational hygienists apply our craft, helping to modernise a profession long built on traditional methods. In Australia, increased awareness of airborne hazards such as RCS, DPM and welding fume has driven strong interest in tools that provide real-time (/ near real-time) insights into worker exposures and controls. While this technology is advancing quickly, practical guidance and standards lag behind. Hygienists therefore play a critical role in adapting traditional practices to apply RTPM in a manner that is scientifically sound, ethically robust and aligned with regulatory frameworks.

This course will guide participants through the effective planning and deployment of RTPM programs, using a structured “plan–do–review–act” lifecycle. Drawing on grassroots experience from over 1,000 assessments, as well as the latest peer-reviewed literature and emerging practice, the course highlights how RTPM supports exposure assessment, risk communication and control strategies. Examples will be presented from a range of Australian workplaces, with discussion of both opportunities and common pitfalls.

By the end of the course, participants will be able to:

- Explain the principles of real-time particulate monitoring and sensor operation
- Establish the purpose and objectives for a RTPM program
- Select fit for purpose devices and understand their limitations
- Develop and execute a RTPM program
- Apply basic concepts for data interpretation, reporting and worker engagement.

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CES 4: Finding the Balance Between Professional Expertise and AI

Saturday 29th November
Half Day: 8:30am - 12:30pm

Speaker: Tim Stewart, Hearing and Noise at Work
CDP Level: 3/4

Screening for Noise Induced Hearing Loss is typically seen as a perfunctory process resulting in numbers, a chart and a calculation.

Imagine instead, if the appointment was more impactful - like a one on one toolbox talk with workers given written objective advice and have hearing queries answered on the spot by a quality assured process.

This session is about utilising a software solution that takes much of the time and stress out of the process of audiometric testing and providing instant reportage to WHS managers, practitioners and test candidates.

We challenge the "AI-first" narrative, demonstrating actual "humans and privacy first" approaches where technology increases rather than reduces transparency, maintaining clinical standards while amplifying professional decision-making for all stakeholders.

Through live system demonstrations, participants explore when to automate quality checks, when to augment human expertise with AI validation and when to preserve human judgment entirely - examining real workflows that streamline operations without compromising the meaning or intent of WHS legislation and the auditory testing standards underpinning them.

We also showcase experimental AI features that provide deeper insights for all stakeholders—helping practitioners spot patterns they might miss, giving workplaces clearer understanding of hearing conservation program effectiveness, and offering workers more transparent explanations of their hearing health. All processing uses local models to keep sensitive health data secure and under user control.

Attendees will see how AI handles the ‘admin noise’ so WHS teams and clinicians can focus on what matters - preventing hearing loss.

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CES 5: Underground Mining, Health, Hygiene and Medical Management

Saturday 29th November
Half Day: 1:00pm - 5:00pm

Speaker: Andy McCarthy, Certified Occupational Hygienist, **Anthony Bamford,** Senior Manager Health and Hygiene, South 32
CDP Level: 3/4

This session emphasises the importance of collaboration between Occupational Hygienists, Ventilation Engineers, and Occupational Physicians to ensure that workplace exposures are effectively controlled and that proactive health strategies are in place to minimise long-term health risks.

The course examining the increasing reliance on underground mining both locally and globally, particularly as surface mineral deposits become more difficult to access. Participants will explore common underground mining and mineral processing methods, with special attention to high-risk chemical processes involving substances such as cyanide, mercury, and radiation.

The session will provide a detailed understanding of major occupational hygiene hazards, including exposure to respirable dust, diesel particulates, and hazardous chemicals. Participants will also be introduced to modern data management practices and statistical analysis techniques to support the effective interpretation of exposure results.

Health surveillance will be explored in depth, focusing on regulatory requirements, monitoring strategies, and the early identification of occupational diseases. The training will also cover practical control measures and explore future-focused solutions like battery electric vehicles and ventilation on demand.

On completion, participants will be able to:

- Overview of underground mining in Australia and internationally
- Introduction to common underground mining methods
- Common mineral extraction and processing techniques
- Occupational hygiene hazards in underground mining
- Data management practices
- Health surveillance requirements and practices
- Control measures across the hierarchy of control
- Emerging technologies and future controls.

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CES 6: Calibrating Direct Reading Dust Instrumentation – The Past, Present & New Developments

Saturday 29th November
Half Day: 1:00pm - 5:00pm

Speaker: Dr David Noi, Lecturer, University of Wollongong & **Dr Brian Davies AM,** Director, DEAS Pty Ltd
CDP Level: 3/4/5

Real-time dust measurement instrumentation has become a valuable tool for Occupational Hygienists in the control of workplace dust exposures. Although these instruments can yield rapid measurements of workplace dust concentrations, the degree of accuracy and usefulness of the recorded values for Occupational Hygienists may give rise to concern.
This CES aims to provide an insight into the calibration methods of dust monitoring instrumentation, its history, current methods, potential issues and new novel approaches.

On completion, participants will be able to:

- Understand the dynamics of a dust cloud and how this influences dust measurement
- Have an insight as to how mass-based instruments are calibrated in the factory and the importance of user calibrations
- Understand what data is being recorded and how it is reported
- View a novel approach to in-field calibrations of dust measurement instrumentation using examples of several common instruments.

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CES 7: Translating Risk: Insight-Driven Communication for Hazardous Exposures

Saturday 29th November
Half Day: 1:00pm - 5:00pm

Speaker: Jackii Shepherd, Principal Occupational Hygienist, Robson Environmental &
Marcus Brooks, Occupational Hygiene Manager, Robson Environmental
CDP Level: 3/4

Clear and effective risk communication is essential for protecting health and guiding informed decisions in the face of hazardous exposures—whether or not these exposures are real or perceived.

This session provides practical tools and strategies for communicating risks associated with asbestos, respirable crystalline silica, lead-based paint, and other hazardous chemicals.

What you will learn:

- Techniques for translating complex technical data into clear, actionable messages
- Communication strategies for various scenarios, including workplace exposures, public health alerts, and emergency responses to natural disasters (e.g., bushfires, floods, building collapses)
- Approaches for tailoring messages to different audiences, for example government agencies, PCBUs, workers, emergency personnel, parents, and the general public
- Methods for managing uncertainty, countering misinformation, and fostering trust in high-stakes environments.

Interactive learning:

- Case studies and scenario-based exercises to apply learned strategies
- Group discussions to explore real-world challenges and solutions.

On completion, participants will be able to:

- Translate complex or inconclusive data into clear, accessible language for non-specialist audiences
- Adapt communication strategies to suit a variety of situation, including occupational settings, public health alerts, and emergency responses
- Tailor risk messages to meet the needs of your stakeholders
- Maintain accuracy, empathy, and transparency when delivering sensitive or high-stakes information
- Manage uncertainty and ambiguity including emerging hazards and incomplete data.
- Identify and address misinformation effectively to implement protections that are comparable to the risk and maintain credibility
- Build and sustain trust with your stakeholders through consistent, honest, and empathetic communication
- Apply learnings to real-world scenarios using case studies and interactive exercises.

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CES 8: Mise en Place: Cleaning, Tidying, and Automating OH Data for AI Applications

Sunday 30th November
Half Day: 8:30am - 12:30pm

Speaker: Mwangi Ndonga, Senior Manager, Regional EHS, Ball Corporation
CDP Level: 3/4

This interactive professional development course introduces participants to the essential steps of preparing occupational hygiene (OH) data for use with artificial intelligence (AI) tools.

Using widely available Microsoft tools, such as Excel, Forms, Power Automate, Power Query, and Power BI, we will demonstrate practical methods for collecting, cleaning, and organizing data. Through hands-on exercises and real-time guidance, participants will work with sample OH datasets to understand the importance of structured, high-quality data. The course also includes a beginner-friendly introduction to AI concepts, ensuring participants gain a solid foundation in how these technologies apply to OH data.

On completion, participants will be able to:

- Identify Microsoft tools (e.g., Forms, Power Automate) to ease data entry and collection
- Use Power Query to clean and tidy data, including date/time manipulation and data type selection
- Create a simple Power BI report using an OH sample data set
- Define key terms, including big data, internet of things, machine learning, natural language processing, and generative artificial intelligence
- List the limitations of AI when applied to OH data
- Distinguish between generative AI tools (e.g., Gemini, ChatGPT, Claude).

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CES 9: Structured Deterministic Model 2.0 (SDM 2.0)

Sunday 30th November
Half Day: 8:30am - 12:30pm

Speaker: Dr Susan Arnold PhD, CIH®, Associate Professor, University of Minnesota School of Public Health
CDP Level: 4/5

In this session, participants will be introduced to the Structured Deterministic Model (SDM), a user-friendly tool to guide exposure judgments involving pure chemicals, chemical mixtures, particulates and aerosols, through a series of interactive real-world case studies involving chemical mixtures and complex scenarios. Working through case studies, participants will learn how to provide effective and efficient assessments that inform solutions for managing health risk across a range of frequently encountered occupational hygiene scenarios. This hands-on workshop will build practical skills that the participant can take back to their workplace and apply immediately. Participants will receive the software and a robust set of guidance materials as part of this session.

On completion, participants will be able to:

- Summarise the factors contributing to poor exposure judgment accuracy
- Describe the structure, algorithms and uses of the Structured Deterministic Model (SDM)2.0
- Apply the SDM2.0 to real-world occupational exposure and risk scenarios.

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CES 10: Workplace Particulate Exposure Assessment: Setting the Standard

Sunday 30th November
Full Day: 8:30am - 5:00pm

Speaker: Steven Verpaele, Industrial Hygienist, Nickel Institute
CDP Level: 2/3

This CES aims to provide a framework for exposure assessment related to aerosols and their elemental compositions. It covers the general exposure assessment framework depending on the toxicological endpoints to consider. Within the framework following aspects are considered:

- The importance of standardization and specifically the impact of international standards on the exposure risk assessment framework
- Information and application of several tools, like prioritisation, hazard banding and modelling tools will be provided
- The history of particulate sampling and the impact on the exposure risk assessment and choices to make when measurements are needed to evaluate workers exposure
- Sampling train requirements for measuring particulate matter, and requirements regarding sampling and analysis of elemental composition
- The role of real time particulate matter measuring devices on future exposure assessment strategies.

On completion, participants will be able to:

- Explain the history of aerosol sampling and its impact on exposure data
- Recognise the importance of standardized procedures in exposure assessment
- Develop an exposure assessment strategy
- Prepare a fit for purpose sampling train for aerosol exposure measurement
- Implement the effect of the sampler and sampling substrate used on the results in data assessment
- Describe the effect of environmental parameters on the results
- Evaluate a method for its suitability
- Manage the requirements of new aerosol sampling technologies.

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CES 11: Turning Up the Volume: Advanced Tools and Techniques in Noise Exposure Assessment

Sunday 30th November
Half Day: 8:30am - 12:30pm

Speaker: Dusty Ott, Corporate Industrial Hygienist, SKC Inc & **Derrin Hadfield,** Territory Manager, Active Environmental Solutions Australia & Andy Bragg, National Sales Director, SKC Inc
CDP Level: 3/4

This advanced session on noise dosimetry is designed for professionals who already understand the basics and want to take their skills to the next level. The class will dive deeper into the capabilities of modern dosimeters, with a focus on software integration, audio recording features, and advanced data analysis. Attendees will explore how to effectively use these tools to identify problem sources, correlate noise levels with specific tasks, and generate more meaningful reports for compliance, training, and engineering control evaluation. The session will also cover techniques for manipulating and integrating data from multiple sources to support a more strategic approach to noise exposure assessment.

Attendees are encouraged to bring a computer that will allow 3rd party software uploads. If possible, download the software ahead of time here. Noise dosimeters and docking stations for downloading noise data will be provided for all attendees to use.

This is a hands-on class. Please come prepared to participate, learn, and (most importantly) have fun!

On completion, participants will be able to:

- Use advanced dosimeter features like audio recording and event markers
- Analyze noise data to identify high-exposure tasks and sources
- Generate clear, task-specific reports for compliance and training
- Combine data from multiple sources for a more complete exposure picture
- Evaluate control effectiveness using detailed dosimetry data
- Conduct more strategic and defensible noise assessments.

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CES 12: Risk Analysis, Risk Management and Economic Analysis for Decision Making

Sunday 30th November
Half Day: 1:00pm - 5:00pm

Speaker: Frank Hearl, Consultant, Hearl Environmental Consulting LLC, Frederick, Md, U.S.A.
CDP Level: 3/4/5

This CES will introduce the basic elements of risk analysis for the occupational hygienist (OH). In the most basic form, an OH understands that if the measured exposure, C, is greater than the occupational exposure limit (OEL), then controls are needed. Often described as the Hazard Index (HI) > 1 where HI = C/OEL. A more refined analysis might examine the statistical distributions and choose a more restrictive criterion than HI>1, such as when the upper 95th percentile of the concentration is over the OEL. However, there are also cases where there are no OELs, or where there are multiple OELs that have been proposed by various professional and regulatory bodies. Strategies exist under these circumstances, including using exposure and control banding, to enable the OH to make appropriate recommendations for controlling risk.

This CES will provide attendees with a background on “risk” from several perspectives: risk characterization for populations using attributable risk, personal risk from dose-response, and risk perceptions. The CES will also explore techniques for valuing risk and risk management strategies through combining economic costs from quantitative risk analysis. The combined approach will provide a tool for identifying acceptable and unacceptable risks, and for communicating the economic value of risk management through prevention.

On completion, participants will be able to:

- Understand the terminology of risks, hazards, and consequences along with an appreciation of the terms acceptable risk and unreasonable risk
- Describe the four-step process for a risk assessment
- Understand how to compute risk at a specified OEL, and how to compute an OEL from a target level of risk
- Develop strategies to find sources of data for doing risk analysis calculations
- Apply risk analysis to economic measures to compare relative costs for risk management options.

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CES 13: Understanding and Managing Occupational Risks from Blue-Green Algae (BGA) Blooms

Sunday 30th November
Half Day: 1:00pm - 5:00pm

Speaker: Steven Delides, Partnership Director and Principal Water Quality Consultant, Ecosafe International
CDP Level: 1

Blue-Green Algae (BGA), or cyanobacteria, present a growing occupational health challenge in industries where workers may be exposed to contaminated water or aerosolised toxins. Under favourable conditions, BGA can rapidly multiply, forming blooms that release harmful toxins capable of causing respiratory, skin, and systemic health effects. This session provides Occupational Health professionals with the knowledge and practical tools needed to recognise and manage the risks associated with BGA bloom events through effective risk assessments, exposure control strategies, and worker education.

Participants will learn to identify harmful BGA species, understand the types of toxins they produce, and assess the environmental factors influencing their persistence or degradation. The session also covers common exposure pathways such as direct contact or inhalation and the potential health impacts for at-risk workers. By combining environmental awareness with occupational health expertise, this training supports a proactive, evidence-based approach to minimising health risks and improving workplace safety during bloom events.

On completion, participants will be able to:

- Understand the role of Occupational Health professionals in managing and responding to Blue-Green Algae (BGA) bloom events through risk assessments and exposure controls
- Recognise harmful BGA blooms in the field, identify key species, and understand the types of toxins they produce
- Identify health risks and exposure pathways for workers in contact with BGA-contaminated water or aerosols
- Gain insight into the environmental behaviour and persistence of BGA toxins, including factors that affect their degradation or accumulation.

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CES 14: Are We Really Protected? Rethinking LEV Testing in Australian Workplaces

Sunday 30th November
Half Day: 1:00pm - 5:00pm

Speaker: Julie Sullivan CIH®, Principal Consultant Occ Hygiene, RED OHMS Group
CDP Level: 2/3

Engineering controls such as on-tool extraction that rely on H-class vacuums, and other local exhaust ventilation (LEV) systems, are critical components in controlling exposure to respirable crystalline silica and other hazardous dusts. However, the presence of these systems alone does not guarantee protection. Without proper verification, we risk operating under a false sense of security.

This session will explore the current gaps in LEV testing practices in Australia, where there is no nationally mandated framework for routine LEV performance testing. This is unlike the UK where Thorough Examination and Testing (TExT) is a legal requirement and is guided by the Health and Safety Executive (HSE) UK document HSG258. Additionally, while there is a requirement for annual recertification of HEPA filters (per AS 60335.2.69) to ensure their effectiveness in reducing toxic contaminants, this practice is generally not consistently implemented in Australia for all H-Class vacuums and negative pressure units (NPUs).

On completion, attendees for this CES will gain knowledge and understanding of:

- The basic components of local exhaust ventilation (LEV) systems (i.e. inlets, ductwork, air cleaners, air movers, ventilation hoods and discharges). *Note the focus of this CES due to time limitation will be for H-Class vacuums and NPUs*
- What is involved in a Thorough Examination and Testing (TExT) process, including:
  - Qualitative visualization techniques (smoke release/'dust lamp' etc)
  - Quantitative measurement techniques (anemometers, Pitot tubes etc)
  - What frequency, documentation, logs and markings are required
- How Dispersed Oil Particulate (DOP) testing of HEPA filters verifies the performance of HEPA filters to ensure effective contaminant control
- What should hygienists look for when doing site assessments which require or utilise these engineering controls.