



## OCCUPATIONAL HYGIENE MATTERS

Welcome to the April 2019 edition of Occupational Hygiene Matters.

A quarterly newsletter from

The Australian Institute of Occupational Hygienists Inc (AIOH).

Australia's premier professional association representing the interests of occupational hygienists and allied professionals.

Our mission is to promote and preserve the health and wellbeing of Australian workers through application of the knowledge, practice and standing of occupational health and occupational hygiene.

## FROM YOUR PRESIDENT



Julia Norris - AIOH President 2019

Wow what a whirlwind start to the year! Council kicked off 2019 after the AGM on the 22nd of January, with a strategic planning day. This was a hugely successful day incorporating feedback from council members and several committee chairs, to help set the strategic direction of the AIOH in 2019.

Based on our 2018-2023 strategic plan, we developed an action plan that will keep us focused on our major objectives for the year, and help us work more efficiently and collaboratively with our committees and members.

**Our five major strategic themes are:**

1. *Business minded approach*
2. *Professionalism*
3. *Enhanced profile*
4. *Advocacy and influence*
5. *Improved AIOH organisational efficiencies*

**Advocacy and Influence:** On an external affairs front we have been actively advocating for a preventative approach to be incorporated into the national response to the emergence of accelerated silicosis in the manufactured stone benchtop industry.

On the 21st January we met with Senator di Natale, the leader of the Greens to discuss our concerns about the lack of focus on prevention in the initial government response to the emergence of accelerated silicosis. This meeting focused on the importance of awareness and education targeted at employers and employees (the Breathe Freely Australia program) as well as the need to ensure accurate and appropriate

advice is given by a suitably qualified occupational hygienist. The outcome of this meeting was that the AIOH worked with the Senator to draw up a motion that was tabled in Parliament on the 14th of February and further debated on the 2nd April, 2019. This motion called on the Government to:



(i) Fund an initiative to educate workers in at-risk occupations on the dust control measures used in their industry, including:

- Independent monitoring of dust levels,
- Training in the selection, maintenance and use of respirators; and,
- Use of measures to control airborne dust including enforcing an immediate prohibition on dry cutting techniques.

(ii) Conduct comprehensive enforcement of hazardous substances regulations related to silica dust exposure;

(iii) Recognise the need for qualified and competent occupational hygienists to be involved in the recognition, evaluation and control of silica exposures;

(iv) Recognise the need for establishing a multi-disciplinary Institute of Occupational Health.

We have also met with Safe Work Australia as well as representatives from the Department of Jobs and Small business as part of our advocacy.

In addition, the AIOH was invited by the Queensland Office of Industrial Relations, to nominate member/s to the reference group established to develop a clinical guideline for the ongoing monitoring of workers exposed to Respirable Crystalline Silica (RCS). We are fortunate to now have two members on this working group.



**Enhanced Profile:** As many of you know, the UK BOHS launched it's '*Breathe Freely*' initiative on 28 April 2015 in partnership with UK HSE, Land Securities, Mace and Constructing Better Health. In its first year, Breathe Freely attracted unprecedented levels of support with over 60 partners and sponsors, including employers, trade unions and other influential people and organisations within the construction sector and elsewhere.

In 2019, the BOHS generously offered AIOH their Breathe Freely documents and website design to enable us to develop a Breathe Freely Australia campaign for Australian workers and industry. This will include a website of plain language resources for workers and industry together with a series of roadshow presentations to promote the Breathe Freely message. We have made good progress towards development of the materials for the Breathe Freely Australia website which will have three major themes focused on mining, construction and engineered stone/manufacturing. We wish to acknowledge the excellent contribution of the BOHS to this project.

We have also begun speaking with major stakeholders including legislators, industry and advocacy groups to engage them in the development and delivery of the Breathe Freely Australia campaign. If you would like to know how your organisation can get involved, please contact the AIOH office on [admin@aioh.org.au](mailto:admin@aioh.org.au) (<mailto:admin@aioh.org.au?subject=I'd%20like%20to%20support%20BFA>).

**Professionalism:** The AIOH have been coordinating a collective comment to Safe Work Australia in response to the recently released proposed silica WES of 0.02mg/m<sup>3</sup>. If you would like to make an individual comment, please do so via the Safe Work Australia website by the closing date of 31st April.

The AIOH have also recognised the need for the establishment of a respiratory fit testing accreditation program in Australia, to ensure the competence of people performing respiratory fit testing. As the experts in occupational hygiene and respiratory protection, we have committed to establishing a working group to progress the development of this program and expressions of interest are currently open.

The certification board has also been working tirelessly to enable midyear certification exams due to the increasing number of people wishing to sit for certification. The coordination of examiners, venues and candidates for these exams is a huge task and I would like to thank the certification board for their efforts in organising the midyear exams.

There are a whole lot of other projects currently underway, and the new council has hit the ground running, so stay tuned for further updates.

Kind Regards

Your President

Dr Julia Norris

[president@aioh.org.au](mailto:president@aioh.org.au) (<mailto:president@aioh.org.au?subject=OH%20Matters%20April%202019%20>)

## AIOH Treasurer's Update



Aleks Todorovic - AIOH Treasurer

After completing the purchase of the new office late last year, the office staff finally settled into their new home in February. We are currently finalising the plans for the fit out to complete the moving process. We hope to have the office completed and functioning smoothly by the end of May this year.

The terms of reference for the Risk, Audit, Finance, Quality (RAFQ) committee have been remodelled over the past two months and expressions of interest for those wanting to join this committee for 2020 and beyond will be open towards the end of this year.

First half results for this financial year are strong with the conference in Melbourne being hugely successful not only from a technical and turn out perspective, but also from a financial standpoint. Currently the Institute is on track to realise an operating surplus for the full year ending in June 2019.

Work continues to strengthen the financial position of the Institute through careful budget planning and expense monitoring as well as the introduction of robust measures to ensure that programs that are launched are fully vetted to ensure maximum success.

Your Treasurer

Aleks Todorovic

[treasurer@aioh.org.au](mailto:treasurer@aioh.org.au) (mailto:treasurer@aioh.org.au?  
subject=0H%20Matters%20April%202019)



partner  
program  
2019

Interested in partnering with the AIOH?

[Click here to start the conversation \(mailto:kerrie@aioh.org.au?subject=I'd%20like%20to%20know%20more%20about%20the%20](mailto:kerrie@aioh.org.au?subject=I'd%20like%20to%20know%20more%20about%20the%20)

## AIOH 2019 CONFERENCE: CALL FOR PRESENTERS



**CALL FOR PRESENTERS**



**THE POWER OF MANY 2019 AIOH Conference** theme is a call to action. There is proven strength in collaboration and immense opportunity in embracing a challenge to reflect on our contribution and how we are perceived by others, both as a profession and individually.

The 2019 Conference Committee is actively seeking potential speakers, including those working in the field of occupational hygiene and allied professions, as well as leaders or stakeholders with insight to share with an audience committed to achieving better worker health outcomes.

It is anticipated that all presentations will include content that aligns with aspects of one or more of the Power of Many subthemes - **ReCalibrate, ReSynergize and ReBrand**.

If our theme and its subthemes resonate with your work, knowledge or experience, please submit an abstract to present a paper or poster presentation. By stepping up and sharing as a presenter at AIOH 2019, you become part of realising THE POWER OF MANY.

Click here (</events-public/events-docs/aioh-2019-conference>) for more information.

## AIOH 2019 CONFERENCE: KEYNOTE SPEAKER



The image is a promotional graphic for the AIOH 2019 conference. On the left, a man in a blue suit and tie is speaking on a stage. The background is dark blue with a glowing, abstract pattern. In the top left corner, the AIOH logo is displayed, consisting of a globe icon and the text 'AIOH AUSTRALIAN INSTITUTE OF OCCUPATIONAL HYGIENISTS'. Below the logo is the 'DUPONT' logo in red. In the top right corner, the conference title 'AIOH THE POWER OF MANY' is written in white, with '2019' in a red box below it. To the right of the title, the dates 'CROWN PERTH, 30 NOV TO 4 DEC 2019' and the subthemes 'RECALIBRATE · RESYNERGISE · REBRAND' are listed. The main text in the center reads 'We're delighted to announce our first keynote speaker' followed by 'RENÉ RODRIGUEZ' in large blue letters. Below this, a bulleted list of his credentials is provided. At the bottom right, the location and dates 'Crown Perth 30 Nov – 4 Dec 2019' are listed, along with the tagline 'You won't believe the value we've packed into 3 days!'. At the bottom left, there are two lines of text: 'To learn more about René visit: [www.SeeReneSpeak.com](http://www.SeeReneSpeak.com)' and 'TEDx - Harnessing the Power of Courage: <https://youtu.be/NSm...gKF...>'.

**AIOH** AUSTRALIAN INSTITUTE OF OCCUPATIONAL HYGIENISTS

**DUPONT**

**AIOH** | **THE POWER OF MANY**  
CROWN PERTH, 30 NOV TO 4 DEC 2019  
2019 | RECALIBRATE · RESYNERGISE · REBRAND

We're delighted to announce our first keynote speaker

**RENÉ RODRIGUEZ**

- World class change agent
- Behavioural and neuroscience focus
- International reputation
- Actionable outcomes
- Consults with Microsoft, Nestle and Coca-Cola

Crown Perth  
30 Nov – 4 Dec 2019

You won't believe the value we've packed into 3 days!

To learn more about René visit: [www.SeeReneSpeak.com](http://www.SeeReneSpeak.com)  
TEDx - Harnessing the Power of Courage: <https://youtu.be/NSm...gKF...>

AIOH2019 is delighted to announce our first keynote speaker: Rene Rodriguez. Rene will advance your personal power with tools that you can unpack immediately. **Click here** (</events-public/events-docs/aioh2019-leadership-ces-rene-rodriguez-eoi-form>) to register your interest in Rene's pre-conference workshops. Dupont Australia - Proud

sponsors of the AIOH Leadership, Communication and Management Skills Program. Click here (<https://www.seerenespeak.com/>) to learn more about René or watch his TEDx (<https://www.youtube.com/watch?v=N5mUoqKFf60>) on Harnessing the Power of Courage.

## NATIONAL UPDATE

### The Asbestos Register - Issue 3



Asbestos cement sheet isn't the only cladding material that should be listed in some registers - COHLABS had some recent chrysotile finds in plasterboard joint cement in NSW and QLD buildings. Also known as filling, finishing, spackling, taping or patching compounds, they were used on walls, ceilings and soffits to around the mid 1970's. In some cases, the products were used as a skim coat that covered an entire surface.

Philip Turner, COH

[philipturner@optusnet.com.au](mailto:philipturner@optusnet.com.au) (mailto:philipturner@optusnet.com.au?subject=AIOH%20The%20Asbestos%20Register%20-%20issue%203)



Michael Shepherd, COH

m.shepherd@cohlab.com.au (mailto:m.shepherd@cohlab.com.au?  
subject=AIOH%20The%20Asbestos%20Register%20-%20issue%203)

Please share your photos of any important, unusual, interesting, quirky, hard-to-find, or just easy-to-miss asbestos finds

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## Regulating occupational hygiene in Queensland's mining industry

Samantha Forster COH

Queensland's mine sites are regulated independently of the work health and safety legislation that applies to other workplaces. This legislation is currently enforced by the Queensland Mines Inspectorate (QMI) of the Department of Natural Resources, Mines and Energy (DNRME).

The coal mining industry is regulated by the:

- Coal Mining Safety and Health Act (1999)
- Coal Mining Safety and Health Regulation (2017)

The minerals mines and quarries industries (MMQ) are regulated by the:

- Mining and Quarrying Safety and Health Act (1999)
- Mining and Quarrying Safety and Health Regulation (2017).

For financial year 2018, the Queensland mining industry is characterised as having:

- 55 operating coal mines and 169 mineral mines, and 216 quarries
- 36 532 coal mine workers, 14 514 mineral mine workers, and 1 728 quarry workers

Both coal mines and MMQ legislation have a third tier of supporting documentation to aid implementation of the respective Acts. These are referred to as recognised standards (RS) and guidance notes (GN) in the coal sector and in MMQ there are guidelines (GL) and guidance notes (GN).

Standards and guidelines provide ways of achieving an acceptable standard of risk for people working in coal mines and MMQ. Operators can manage the risk in a different way, but must be able to show that the method used is at least equivalent to the method in the standard or guideline.

RSs and GLs are endorsed by tripartite committees, chaired by the Commissioner for Mine Safety and Health (<https://www.business.qld.gov.au/industries/mining-energy-water/resources/safety-health/mining/commissioner/role>) (an independent advisor to the government, who is appointed by the Governor in Council). The statutory coal mining safety and health advisory committee (<https://www.business.qld.gov.au/industries/mining-energy-water/resources/safety-health/mining/commissioner/advisory-committees/cmshac>) (CMShAC) review and endorse RSs and the mining safety and health advisory committee (<https://www.business.qld.gov.au/industries/mining-energy-water/resources/safety-health/mining/commissioner/advisory-committees/mshac>) (MShAC) review and endorse GLs. Each committee comprises tripartite representation of government, industry and relevant unions.

Recently, the QMI introduced supporting documentation for the management and measurement of respirable dust and respirable crystalline silica (RCS).

### **Supporting documentation for managing respirable dust and RCS**

Two recognised standards have been released for measuring and managing respirable dust and respirable crystalline silica in the coal mining industry. These are:

- RS14 Monitoring respirable dust in coal mines ([https://www.dnrme.qld.gov.au/\\_\\_data/assets/pdf\\_file/0012/978879/recognised-standard-14.pdf](https://www.dnrme.qld.gov.au/__data/assets/pdf_file/0012/978879/recognised-standard-14.pdf))
- RS15 Underground respirable dust control. ([https://www.dnrme.qld.gov.au/\\_\\_data/assets/pdf\\_file/0018/1242225/recognised-standard-15.pdf](https://www.dnrme.qld.gov.au/__data/assets/pdf_file/0018/1242225/recognised-standard-15.pdf))

RS14 states ways to achieve an acceptable level of risk to persons arising out of coal mining operations. It outlines the minimum requirements that need to be included in a coal mine's safety and health management system (SHMS) in relation to monitoring, preparing records and reporting concentrations of respirable dust levels. These requirements are specified under sections 49, 89 and 89A of the Coal Mining Safety and Health Regulation 2017.

It also outlines the minimum competency standards required of someone to develop and review respirable dust monitoring programs. This must be a person with a recognised competency as a certified occupational hygienist (COH)—or an equivalent competency under an international certification scheme (e.g. certified industrial hygienist). Their role is to review the adequacy of and endorse the coal mine's respirable dust monitoring program, and specifically:

- establish similar exposure groups (SEGs)
- develop a respirable dust sampling plan that is representative of worker numbers, workers, shiftwork, tasks performed and conditions at the mine
- estimate exposure of a SEG using descriptive statistics
- submit their review of the respirable dust monitoring program to the site senior executive.

Respirable dust sampling at a coal mine must be conducted in accordance with 'AS2985: Workplace atmospheres - Method for sampling and gravimetric determination of respirable dust' (AS2985). This is a prescribed task under section 76(3)(a) of the Coal Mining Safety and Health Act 1999. Only a person who

has a competency recognised by CMSHAC for the task, and adequate knowledge and understanding of mining activities (such as operating methods, conditions, and environment) may conduct respirable dust sampling at a coal mine.

Competencies recognised by the CMSHAC are listed in the below table and available at [https://www.dnrm.qld.gov.au/\\_\\_data/assets/pdf\\_file/0018/240633/coal-competencies.pdf](https://www.dnrm.qld.gov.au/__data/assets/pdf_file/0018/240633/coal-competencies.pdf) :  
([https://www.dnrm.qld.gov.au/\\_\\_data/assets/pdf\\_file/0018/240633/coal-competencies.pdf](https://www.dnrm.qld.gov.au/__data/assets/pdf_file/0018/240633/coal-competencies.pdf))

No.	Act/Regulation	Position	Required competency	Required from
29	Regulation – section 371 (sch 7(9))	Persons carrying out respirable dust sampling at a coal mine in accordance with AS 2985	<ol style="list-style-type: none"> <li>1. BSBWHS409 delivered by SIMTARS or (b) competency based training equivalent to BSBWHS409 delivered by Coal Services NSW</li> <li>and</li> <li>2. competency based training delivered by SIMTARS or Coal Services NSW that addresses each of the following:               <ol style="list-style-type: none"> <li>i. sampling to AS 2985—2009 Australian standard: workplace atmospheres—method for sampling and gravimetric determination of respirable dust</li> <li>ii. appropriate data to be collected during sampling, including observations</li> <li>iii. use and applications of real-time monitors</li> <li>iv. use and application of an anemometer</li> <li>v. dust observation methods and best practices for underground mines</li> <li>vi. dust observation methods and best practices for surface mines</li> </ol> </li> </ol>	01/07/2017

The COH must establish a personal exposure monitoring plan for the site which includes minimum sample numbers for the number of workers and establishment of SEG's. Baseline and periodic monitoring is required with limits prescribed in RS14. Single exceedances are reported to the Inspectorate on occurrence with all data reported quarterly to the inspectorate classified into the inspectorates SEGs. RS14 includes notification and investigation requirements.

Dust monitoring data is then reported back to industry (<https://www.business.qld.gov.au/industries/mining-energy-water/resources/safety-health/mining/hazards/dust/monitoring-data>) using dashboard static images and interactive graphs. Data is de-identified once it is received and mine sites can then interrogate the data received from their site.

RS15 outlines how the site senior executive (SSE) can meet their safety and health obligations, and develop their mine's SHMS, for the control of respirable dust in an underground coal mine.

This is a practical document which details examples of current practices for dust control. The coal legislation highlights the hierarchy of controls with a focus on elimination of the hazard, rather than the use of PPE.

A third RS is scheduled for release in June 2019. This standard will focus on the control of respirable dust in surface coal mines. Similar to RS15, it will provide risk-based practical advice for controlling dust in all parts of surface coal mines.

MMQ released GL02 Guideline for the management of respirable crystalline silica in Queensland mineral mines and quarries in May 2018 ([https://www.dnrm.qld.gov.au/\\_\\_data/assets/pdf\\_file/0006/1263669/qgl02-guideline-mines-quarries.pdf](https://www.dnrm.qld.gov.au/__data/assets/pdf_file/0006/1263669/qgl02-guideline-mines-quarries.pdf)).

This GL

- provides guidance to the SSE and other persons on:

1. how to manage the monitoring of workers' exposure to RCS and
  2. to manage their health surveillance to achieve an acceptable level of risk from the hazard of exposure to RCS associated with mining silica bearing minerals and rock, and
- adopts the recommendations from the Monash Review 1 (refer Appendix 4 of QGL02) that are applicable to mineral mines and quarries as defined by the Mining and Quarrying Safety and Health Act 1999.

QGL02 also states that an SSE is required to evaluate the RCS risk at their site and detail that sources of RCS has been considered. The SSE is obligated to ensure that controls to reduce exposure to RCS are applied in line with the hierarchy of controls with the focus on upper order controls rather than PPE.

Measuring the risk at a mine is to be undertaken in consultation with an occupational hygienist. An exposure monitoring program for baseline monitoring and periodic monitoring is to be developed using SEGs.

Sampling to measure worker exposure to RCS must be undertaken by an occupational hygienist or a person who has a competency recognised by MSHAC for the task, in addition to adequate knowledge and understanding of mining activities (Appendix 5 of QGL02). Sampling needs to be conducted in line with AS2985.

### **Minimum competency standards required for exposure monitoring activities**

An occupational hygienist must, as a minimum, be recognised as:

- a full member of the Australian Institute of Occupational Hygienists (MAIOH)
- or hold an equivalent competency under an international certification scheme (e.g. Certified Industrial Hygienist)
- or have an Australian Qualifications Framework (AQF) Level 8 or above in occupational hygiene with a minimum of 5 years' experience.

The occupational hygienist is deemed competent to carry out the following work at a mine or quarry:

- develop or review a mine's workgroups or SEGs
- estimate worker, workgroup or SEG exposure using qualitative analysis
- develop a sampling plan for RCS, representative of worker exposure as well as environmental and operating conditions
- conduct exposure monitoring at a mine
- determine exposure of workgroups or SEGs using descriptive statistics
- review and update the RCS monitoring plan.

### **Occupational hygiene technician**

An occupational hygiene technician must:

- have completed competency-based training that is recognised by the MSHAC for the task
- have adequate knowledge and understanding of mining activities (e.g. operating methods, conditions and environment)

- ensure that sampling is carried out in line with AS2985.

The competencies recognised by MSHAC are listed in the table below and available at [https://www.dnrm.qld.gov.au/\\_\\_data/assets/pdf\\_file/0020/240635/recognised-mining-competencies.pdf](https://www.dnrm.qld.gov.au/__data/assets/pdf_file/0020/240635/recognised-mining-competencies.pdf) .  
([https://www.dnrm.qld.gov.au/\\_\\_data/assets/pdf\\_file/0020/240635/recognised-mining-competencies.pdf](https://www.dnrm.qld.gov.au/__data/assets/pdf_file/0020/240635/recognised-mining-competencies.pdf))

11	Guideline for Management of Respirable Crystalline Silica in Queensland Mineral Mines and Quarries (QGL02)	Persons carrying out respirable dust sampling at a mineral mine or quarry in accordance with AS2985	<ol style="list-style-type: none"> <li>1. BSBWHS409 delivered by SIMTARS or competency based training equivalent to BSBWHS409 delivered by Coal Services NSW</li> <li>and</li> <li>2. competency based training delivered by SIMTARS or Coal Services NSW that addresses each of the following:               <ol style="list-style-type: none"> <li>i. sampling to AS 2985—2009 Australian standard: workplace atmospheres—method for sampling and gravimetric determination of respirable dust</li> <li>ii. appropriate data to be collected during sampling, including observations</li> <li>iii. use and applications of real-time monitors</li> <li>iv. use and application of an anemometer</li> <li>v. dust observation methods and best practices for underground mines</li> <li>vi. dust observation methods and best practices for surface mines</li> </ol> </li> </ol>	18/05/2018
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Baseline and periodic monitoring is required with limits for resampling based on dust exposure prescribed in QGL02. All data is reported to the QMI, under defined reporting classes, within 28 days of a site becoming aware of the results.

Dust monitoring data (<https://www.business.qld.gov.au/industries/mining-energy-water/resources/safety-health/mining/hazards/dust/monitoring-data>) is then reported back to industry at the Department of Natural Resources and Mines (<https://www.business.qld.gov.au/industries/mining-energy-water/resources/safety-health/mining/hazards/dust/monitoring-data>) website using a dashboard with interactive graphs. Data is de-identified and mine sites have their de-identified details to be able to interrogate the data on the web in relation to their site and compare their site's performance with the broader industry (this is currently being developed for the MMQ industry for anticipated release in the first quarter of 2019).

There are also health surveillance requirements for workers based on their exposure profile (if the MVUE is greater than 50% of the adjusted exposure standard for a SEG). A template respiratory assessment questionnaire and assessment report is provided in QGL02 – Appendix 8 or at <https://www.business.qld.gov.au/industries/mining-energy-water/resources/safety-health/mining/legislation-standards/recognised-standards> (<https://www.business.qld.gov.au/industries/mining-energy-water/resources/safety-health/mining/legislation-standards/recognised-standards>)

Health surveillance must be conducted under the supervision of an appropriate doctor and must conform with the requirements listed in Appendix 8 of QGL02, which include conducting:

- a respiratory questionnaire
- a lung function test – such as spirometry
- a chest x-ray (reviewed against the ILO International Classification of Radiographs of Pneumoconioses)
- any other test deemed relevant by the appropriate doctor\*.

\*An appropriate doctor is a doctor registered with the Australian Health Practitioner Regulation Agency (AHPRA) as a specialist in occupational medicine or have met AQF Level 8 or above in occupational medicine. The appropriate doctor must have demonstrated knowledge of the risks associated with activities performed by the mine's workers.

To support industry to meet its obligations, QMI has also provided a list of occupational hygiene consultancies that meet the competency requirements detailed in QGL02. This is not an exhaustive list and sites are able to source their own consultants.

QMI believes that by mandating competencies for occupational hygienists and occupational hygiene technicians the risk of sampling and exposure assessments being undertaken by underqualified or unqualified consultants is significantly reduced and the integrity of sampling data and industry statistics is enhanced.

QMI recommends that other jurisdictions consider mandating these competencies following the re-identification of mine dust lung disease in the Queensland mining and quarrying industry and in light of the reported increase in occupational silicosis cases nationally.

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## Asking the impossible

Clients who don't understand health risk can place occupational hygienists in an awkward position which challenges their professional ethics. DEREK MILLER explains.

Professional occupational hygienists are often challenged by clients or employers to take as few samples as possible and in a short time, often on only one day of the year. Then they expect the hygienist to be able to say if the company is managing health risk. This can create a dilemma for everyone concerned.

Many people erroneously believe that WorkSafe's published Workplace Exposure Standards (WES) can be used as a measure of compliance. They cannot. Except for 1080 and methyl bromide, the WES are intended as guidelines. So when we look at workers' exposure to chemical agents we should all be looking at the risk to their health and not simply above or below the WES.

Many factors which influence the uptake of chemicals are not accounted for by this simple idea of compliance or non-compliance. Furthermore, in most workplaces there is simultaneous exposure to multiple agents; hence an important issue is that of combined exposures and agent interactions, because the health consequences of exposure to a certain agent alone may differ considerably from the consequences of exposure to this same agent in combination with others. (There are many other factors that can influence exposure levels such as seasonal variation, day/night shift and other factors spatial or temporal.)

Keep in mind that evaluating a health risk (eg by monitoring against a WES) is not an end in itself. It is a part of the risk management picture and must be considered as part of a much broader procedure that starts with the realisation that a certain agent, capable of causing health impairment, may be present in the work environment. It then concludes with the control of this agent so that it will be prevented from causing harm. In other words, risk evaluation paves the way to, but does not replace, risk prevention.

### **Representative data**

Ideally, every worker's exposure would be monitored every minute of every day throughout their working life; in reality this is impossible and cost prohibitive. Therefore, when hygienists carry out sampling they

want to ensure that the data is representative of the worker's real exposure, that resources are not wasted, and that the sampling strategy is adequate and accounts for all possible sources of variability.

Taking only one or two samples limits our ability to understand a worker's real exposure. There are procedures that should be followed to help determine an appropriate number of samples with a good degree of confidence while also keeping costs of sampling down<sup>1</sup>.

A trained hygienist will normally want to do an initial site visit. From this they must determine whether sampling is necessary. If exposures are obviously high they will typically recommend going straight to controls, followed by sampling to check the controls work. Workers can thus be protected more quickly, rather than continuing to work in a harmful atmosphere while awaiting analysis and a report that says they need more control. We do not always need to sample.

### **Clarity of purpose**

Note that sampling should be performed only if the purpose is clear. The occupational hygienist must ask: what will be made of the sampling results and what questions will the results answer? It is relatively easy to sample and obtain numbers; it is far more difficult to interpret them, have confidence in the results, and answer the questions about health risk.

This is a basic principle of good risk management but it can be a difficult idea to understand as it relies on the professional judgement, knowledge and experience of the hygienist. There are other times when exposures are so low that personal sampling is not required; again, a trained hygienist can make this call and advise accordingly.

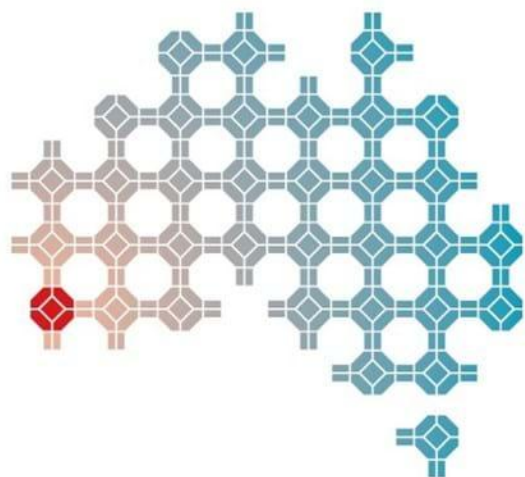
When monitoring is needed, can anyone honestly say that the substance of concern is under control based on one or two samples on one day of the occasional year? If you are concerned about health risks then your answer should be no. Heed the advice of the professional occupational hygienist you engage. They are giving you real answers around risk, even if not the 'compliant/non-compliant' (non-risk-based) answer you think you need.

Professional occupational hygienists acknowledge that the life, health and wellbeing of individuals depend on their professional judgement and that they should conduct their work in accordance with agreed standards of quality assurance. They will provide you the best advice on your situation – if you listen to them.

<sup>1</sup> More information on performance-based exposure assessment strategies can be found in Technical Report No. *05-03 Performance Based Exposure Assessment Strategies for TWA Exposure Limits: Author Paul Hewitt CIH*: Published January 2005.

Derek Miller is president of the New Zealand Occupational Hygiene Society.

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INTERNATIONAL UPDATE

INAUGURAL SUE DAVIES PRIZE AWARDED AT  
BOHS

Congratulations Pinky!







**Left: Dr Brian Davies AM and Sue's sister Jane presenting Pinky with her award.**

**Right: John Dobbie**

**(BOHS President), Pinky Bhatt and Brian Davies AM**

The inaugural Sue Davies Prize was awarded to Ms Pinky Bhatt of Vadodara India at the British Occupational Hygiene Society conference in Brighton England on Wednesday 3 April 2019. The prize is awarded to a person from a developing country that has completed the Occupational Hygiene Training Association (OHTA) modules ([www.OHLearning.com](http://www.OHLearning.com) (<http://www.ohlearning.com>)) and has successfully completed the International Certificate in Occupational Hygiene (ICertOH).

In her application Pinky stated that "This award will enable me to contribute to my country by raising standards of Industrial Safety & Hygiene which is a dire need as my country is still developing and passing through cultural change phase in terms of Safety & Health standards".

The award was established to honour the memory of Sue Davies who played a major support role in the development and compilation of the OHTA training modules as well as providing critical advice on the language and consistency of the documentation.

# ANOH 2019



Find out More (<http://www.hkioeh.org.hk/Documents/ANOH%209-12%20%20Nov%202019.pdf>)

## OHSAfrica 2019 Conference



### Important Dates

**Early Registrations**  
**Closes - 28 March 2019**

**Regular Registrations**  
**29 March - 04 September 2019**

**Abstract Submissions**  
**Closes - 21 February 2019**

**Scholarship Submissions**  
**Closes - 28 March 2019**

Register (<http://www.oshafrica2019.com>)

# History of Occupational and Environmental Health International Conference



The next edition of the History of Occupational and Environmental Health International Conference will take place in Durban, South Africa from 27-29 May 2020. The conference will be held at the University of KwaZulu-Natal, and we hope that you, your colleagues and research collaborators will join us at this meeting, the first on the African continent. Registrations are now open and we also invite you to submit abstracts for the Conference.

Registration (<https://icohhistory2020.ukzn.ac.za/registration-information/>)

Submit an abstract (<https://icohhistory2020.ukzn.ac.za/abstracts-guidelines/>)

## NZOHS Conference 2019

The banner for the NZOHS Work-Related Health Conference 2019 features the NZOHS logo (New Zealand Occupational Hygiene Society) on the left. The main text reads 'BIGGER. Better. Bolder.' in large, bold letters. Below this, the dates '6 & 7 May 2019' and the location 'Trusts Arena, Henderson, Auckland' are listed. At the bottom, it says 'Visit <https://nzohs.org.nz/conference-2019/> and REGISTER NOW!'. The background of the banner shows a stylized city skyline with a bridge and a tower, all reflected in water.

Find out More (<https://nzohs.org.nz/conference-2019/>)

# IIHA Connect 2019

**IOHA** **INDONESIAN INDUSTRIAL HYGIENE ASSOCIATION**

**IIHA CONNECT 2019**  
in conjunction with  
**IOHA BOARD MEETING**

Bali-Indonesia, 8<sup>th</sup> – 11<sup>th</sup> September 2019

*Sunday, 8<sup>th</sup> September 2019*  
**IOHA Board Meeting**

*Monday and Tuesday, 9<sup>th</sup> – 10<sup>th</sup> September 2019*  
**Professional Development Courses\***

PDC-1	Heat Stress Assessment Using TWL Method
PDC-2	Noise Control
PDC-3	Industrial Hygiene Data-Statistical Analysis
PDC-4	Chemical Risk Assessment
PDC-5	Industrial and Office Ventilation
PDC-6	Human Factor Engineering
PDC-7	Fatigue Assessment and Management
PDC-8	Health Risk Assessment

\*To be confirmed. Class will be opened if number of participant more than 10 people

*Wednesday, 11<sup>th</sup> September 2019*  
**IIHA Conference**

**Abstract Submission is Opened**

**Prizes for best paper and poster**

For more information, keep an eye of our website [www.iiha.id](http://www.iiha.id) (will be updated soon)

Contact person: Mahmuda Soraya, email: [iiha@gmail.com](mailto:iiha@gmail.com)

Find out More

## Industrial Hygienist Association of the Philippines

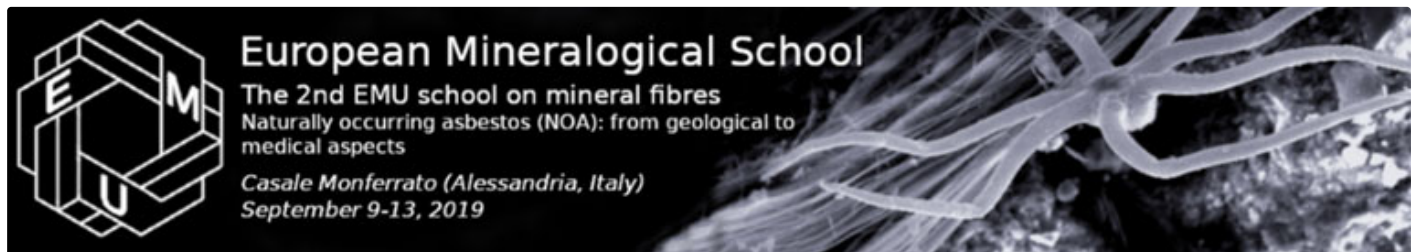
update by Philip Hibbs



I was privileged to be invited to present a seminar to the Industrial Hygienists Association of the Philippines (IHAP) in association with the AIOH and ANOH. The seminar was titled an “Introduction to Asbestos Assessment, Management & Control” and was presented on 07 March 2019 in Manila. The seminar was attended by approximately 60 people and was well received.

IHAP is a young and small association and needs our support in the form of training. We are currently in discussions with IHAP regarding the presentation of a seminar on respirable crystalline silica (RCS). If you are available to volunteer your time to present on a topical issue on occupational hygiene in an emerging nation, please contact Brian Eva, the AIOH representative to the Asian Network of Occupational Hygiene.

## Naturally Occurring Asbestos (NOA): From Geological to Medical Aspects



**International Conference:** European Mineralogical Union (EMU) School on Mineral Fibres – 2019

## **Location:** Casale Monferrato (Alessandria, Italy) - 9-13 September 2019

Following the success of the 1st EMU school on mineral fibres organized in Modena (Italy) in June 2017, we are pleased to announce that the 2nd EMU school will focus on Naturally Occurring Asbestos (NOA) from a geological to a medical point of view. It covers different multidisciplinary aspects related to the study of natural fibres and is aimed at students with different backgrounds.

The presence of NOA in the environment affects all the human activities aimed at its modification and all engineering/geological actions in the natural environment. The school will cover different multidisciplinary aspects and is aimed at students with a background in Biology, Chemistry, Geology, Material Science, Medicine, Physics who strive for working in this challenging research field of environmental protection.

The following topics will be covered:

- Crystal chemistry and occurrence of mineral fibres and naturally occurring asbestos (NOA)
- Definitions (asbestos, fibre, NOA, NOMF, NOE ...)
- Identification of the occurrence, formation and associated host rock types of the various NOA minerals
- Geological assessment and field sampling methods for NOA in rock and soil
- Experimental methods for the investigation of mineral fibres with special attention to optical and electron microscopy
- Lab rock and soil testing sample preparation and analysis protocols
- Selected examples of NOA
- Protection of workers and the public from large and small construction projects
- Surface and bio-chemical properties of mineral fibres
- Asbestos related diseases and bio-chemical mechanisms inducing adverse effects in the human body
- In vitro and in vivo tests to assess cyto/genotoxicity and carcinogenicity of mineral fibres
- Epidemiological studies of asbestos related diseases and genetic factors

During the school, there will be afternoon practical sessions to let the students face with the experimental methods for the study of mineral fibres, two field trips and an educational visit. At the end of each day, there will be time for open discussions. The distinguished Italian and international lecturers will be delighted to share their outstanding scientific and life experience with the students and interested colleagues.

Each participant will receive a copy of the EMU Notes Volume 18 (2017) (<https://www.minersoc.org/emu-notes-18.html>) to be used as textbook during the school. Registrations close on 8 May 2019.

Register online at [www.emu2019.unimore.it](http://www.emu2019.unimore.it) (mailto:<https://www.minersoc.org/emu-notes-18.html>).

The attendance fee: €150 (euro).

Max number of attendees: 60 so get in quick or you will miss out.

We look forward to welcoming you to the 2019 EMU school and Casale Monferrato!

For further information, please contact the 2019 EMU School Chairs: Ruggero Vigliaturo and Alessandro F. Gualtieri:

ruggero.vigliaturo@gmail.com (mailto:ruggero.vigliaturo@gmail.com); alessandro.gualtieri@unimore.it (mailto:alessandro.gualtieri@unimore.it).

## Welcome to IOHA 2020



The 12th International Occupational Hygiene Association Scientific Conference will be held 16 – 20 October 2020 in Daegu, South Korea. The theme “Bridging Gaps in OH Development, Opening New Horizons” will provide a wide range of interactive symposiums and case studies exploring emerging occupational hygiene issues in developing and developed countries. IOHA 2020 promises to be an exciting event that features inspiring plenary sessions and addresses the latest occupational health topics. The conference will bring together researchers, regulators, and other experts from around the world to discuss both traditional and emerging occupational hygiene issues affecting the various global regions.

Brian Eva and I have both visited the host city, Daegu, and it is a beautiful and safe city, and very accommodating for business travellers. It is also an exciting tourist destination and has eight UNESCO World Heritage sites within an hour’s driving distance. Daegu is a technological centre and the birthplace of Samsung, one of the world’s leading electronics companies. Daegu is also the cradle of traditional Korean culture with roots going back 3,000 years.

Visitors can also sign up for a tour of the demilitarised zone (DMZ) on the border with North Korea.

Because this strip of land has been undisturbed for over 60 years, it has the most astonishing wildlife, in particular the various species of crane that migrate annually from Siberia.

# RESEARCH BITES

Philip Hibbs and Brian Eva

by Sharyn Gaskin

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I came across some interesting articles out recently in the **Heat and Work** area.



An article by Ricco et al. (1) describes the importance of considering cultural and religious factors such as the practice of Ramadan fasting in Islamic tradition as it relates to occupational injuries. This retrospective data analysis study assessed the impact of Ramadan fasting on occupational injuries among migrant workers in Italy. Their results suggest that during Ramadan, migrant workers exhibited a small but significant increased risk for occupational injuries during the hottest hours of the summer days, particularly during heat waves.

(1) *Int. J. Environ. Res. Public Health* 2019, 16(4), 673;

<https://doi.org/10.3390/ijerph16040673> (<https://doi.org/10.3390/ijerph16040673>)

Ricco et al., Migrant Workers from the Eastern-Mediterranean Region and Occupational Injuries: A Retrospective Database-Based Analysis from North-Eastern Italy.

<https://www.mdpi.com/1660-4601/16/4/673> (<https://www.mdpi.com/1660-4601/16/4/673>)

This then led me to a review by Moyce & Schenker (2) on Migrant Workers and Their Occupational Health and Safety. An interesting resource.

(2) *Annual Review of Public Health* 2018, Vol. 39:351-365;

<https://doi.org/10.1146/annurev-publhealth-040617-013714>

(<https://doi.org/10.1146/annurev-publhealth-040617-013714>) .

<https://www.annualreviews.org/doi/full/10.1146/annurev-publhealth-040617-013714>

(<https://www.annualreviews.org/doi/full/10.1146/annurev-publhealth-040617-013714>)

And closer to home, a thought-provoking commentary from Matt Brearley (3), asking Are recommended heat stroke treatments adequate for Australian workers? I would welcome any commentary in response to this article – let's see what you think?!

(3) *Annals of Work Exposures and Health* 2019, Volume 63, Issue 3, 263–266,

<https://doi.org/10.1093/annweh/wxz001> (<https://doi.org/10.1093/annweh/wxz001>) .

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## PROFESSIONAL DEVELOPMENT UPDATE

# AIOH BASIC PRINCIPLES OF OCCUPATIONAL HYGIENE 2019 COURSE: BOOK NOW!



The Basic Principles of Occupational Hygiene course provides an introduction to occupational hygiene and is an ideal first step for professionals looking to further their knowledge in this area. The course is designed to be delivered as a 5-day taught programme including student assessment.

## WHY CHOOSE AIOH

- Course conducted for over 15 years and successfully trained over 1000 students from across Australasia.
- Course is based on the internationally approved OHTA W201 Foundation Level Basic Principles in Occupational Hygiene course outlining the broad principles of Occupational Hygiene as the basis for anticipation, recognition, evaluation and control of hazards that can be encountered in the workplace.

- Course is taught using multimedia by professional, trained, practicing occupational hygienists, who are Members of AIOH, which is the pinnacle of the profession in Australia

ONLY A FEW

SPOTS LEFT

20 - 24 May 2019

Adelaide ( Only 4 spots left)

03 – 07 June 2019

Melbourne ( Only 4 spots left)

05 - 09 Aug 2019

Sydney

**CLICK HERE (</events-public/basic-principles-of-occupational-hygiene-2021>)** for more information and to register.

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## UNIVERSITY UPDATE

Edith Cowan University

update by Sue Reed



It was a great start to 2019 to hear that Patrick Gannon, an ECU student, was a recipient of one of the NZ Occupational Hygiene Scholarships funded by WorkSafe New Zealand.

It has been a busy start to the year with ECU academic staff undertaking a number a number of projects, including:

- The Classification of selected chemicals according to the Globally Harmonised System of Classification and Labelling of Chemicals (GHS).
- Identification of exposures to airborne contaminants faced by Western Australian firefighters during different fire scenarios.
- Australian Centre for Research into Injury in Sport and its Prevention (ACRISP), International Olympic Committee.
- Minimisation of adverse incidents through the development of optimal operational leadership risk management skills and competency.
- Staff member Dr Martyn Cross assisted Terry Elms and John Henderson with presentations at the Perth AIOH Basics Course.

ECU has a number of PhD Students completing a range of projects such as:

- An assessment of risks associated with the use of water misting systems as a cooling intervention in public places in the Pilbara region of Western Australia;
- An Assessment of Nurses' Experiences of Work Related Stress Through Self-Reporting and Hair Cortisol Analysis, in a Typical Metropolitan Hospital Setting in Western Australia.

2018 has seen the development of a new unit on OHS Leadership which can also be undertaken as a short course.

Papers published in 2019 include:

Nunfam, V., Oosthuizen, J., Adusei-Asante, K., Van Etten, E., Adams, S., & Frimpong, K. (2019). Perceptions of climate change and occupational heat stress risks and adaptation strategies of mining workers in Ghana. *Science of the Total Environment*. 657, 365-378.

More information about studying occupational hygiene at ECU can be found at:  
<http://www.ecu.edu.au/degrees/courses/master-of-occupational-hygiene-and-toxicology>  
(<https://www.ecu.edu.au/degrees/courses/master-of-occupational-hygiene-and-toxicology>), or by  
contacting A/Prof Sue Reed ([s.reed@ecu.edu.au](mailto:s.reed@ecu.edu.au)) (<mailto:s.reed@ecu.edu.au>) or at 08 6304 2243.

# The University of Wollongong

update by Jane Whitelaw



## Breaking News!

We are pleased to announce that in 2020 we are launching a dedicated Master of Occupational Hygiene degree and reintroducing a Graduate Certificate in Occupational Hygiene as a stand alone qualification, or as an alternate entry pathway to the Masters.

These courses will allow students even more practical hands on time to concentrate on Occupational Hygiene techniques and apply skills and knowledge to a broader range of workplace issues. A big thank you to students, alumni, industry partners and employers who gave us constructive and valuable feedback.

So, why study at UOW? As well as our outstanding reputation for our learning environments, we produce graduates who are recognised for their capability, quality and success in the global workplace. Employers have ranked our graduates as some of the most career-ready in the world for nine years in a row; and we are consistently ranked in the top 1% of universities in the world for the quality of our graduates (2019 QS Graduate Employability Rankings). UOW has also been recognised among the world's best institutions for teaching excellence, receiving a Spotlight Award in the 2018 Global Teaching Excellence Awards.

Here's what our alumni say:

"The UOW course was great because it was less about just memorising technical information, rather it taught us to apply critical thought to complex challenges that we face in our careers as occupational hygienists" Kate Cole, Occ. Health & Hygiene Manager, Sydney Metro.

“The UOW course connected me with a huge number of professionals working in and around the Occ. Hygiene field in Australia. The program has instilled in me valuable skills and knowledge, which I apply every day at my workplace” Chris Aebi, Occupational Hygienist, Boral.

Applications for 2020 are open now.

Contact the Occupational Hygiene Course Co-ordinator: Jane Whitelaw, CIH, COH, FAIOH, for more information: [jane\\_whitelaw@uow.edu.au](mailto:jane_whitelaw@uow.edu.au) (mailto:jane\_whitelaw@uow.edu.au)

Commonwealth Supported Places are available for domestic students.

## REGIONAL UPDATE

### WA CHAPTER UPDATE



An impressive sell-out crowd of over 120 attended the WA Chapter's most recent Sundowner at the ChemCentre in February, with registrations forced to close early when it became clear the event would reach capacity.

Dr Barry Chesson was the evening's presenter, providing background and expanding on issues relating to fire-fighting foams containing per- and poly-fluoroalkyl substances (PFAS).

Clearly, the combination of topical subject matter with this widely recognised, skilled presenter was a significant drawcard. However, before getting things underway, Barry made the important announcement that Kelly Hey would be taking over the reins from him as WA SLO, and also acknowledged the attendance of newly-appointed WorkSafe WA Commissioner, Darren Kavanagh.

Kelly then proceeded with an update of AIOH activities, supplemented by some words from AIOH President, Julia Norris, who was also at the event. Finally, Candice Dix, AIOH 2019 Conference Committee Chair, announced the first keynote speaker engaged for the December conference. For details, check out and follow #AIOH2019 on LinkedIn.

Barry then returned to the podium to step through the story of “Fire Fighting Foams – Controversy, Concerns, Carbon Chains and Controls”. The acronym PFAS applies to a broad family of manufactured chemicals that have been used in Australia for over 50 years in a range of consumer and industrial applications. They are extremely stable and tend to be water soluble due to their chemistry, and so can now be found widely in the environment, plants, animals and the human population. It is also accepted that PFAS have negative health impacts on certain animal species, with various studies also suggesting links to undesirable human health outcomes. Recent national media and political attention has centred around fire-fighting foams as a source of PFAS in the environment and the resulting community concern for both human and environmental health.

It follows that there have been a number of developments at both state and federal levels. These include the provision of health based guidance values for use in health risk assessments and a related amendment to the Australian Drinking Water Guidelines. Other resources for interested parties to review include the NICNAS topic page, the PFAS National Environmental Management Plan, and the Australian Government PFAS information website.

Barry also touched on the importance and purpose of effective risk communication in potentially controversial areas like this, reminding listeners that risk is multi-dimensional. Efforts to address dimensions such as fairness and voluntariness can therefore be as important as the size of the risk, in communications where one’s focus needs to be on establishing and maintaining trust and credibility.

The presentation concluded with some practical recommendations for organisations that need to manage fire-fighting foams, both legacy stocks and new inventory. Checking PFAS levels in groundwater and potable water associated with operations is one aspect. Choosing quality C6 purity-compliant or fluorine-free foams when replenishing foam stocks is another. Consideration should also be given to developing a management plan for fire-fighting foams, detailing these and other aspects like application and disposal of foams, along with roles and responsibilities.

The WA Chapter is extremely grateful to Barry for sharing his presentation and insight on this topic. It was fitting that this sundowner’s unprecedented high attendance coincided with Barry stepping down from the SLO role, as so many were present to acknowledge his outstanding contribution to that over recent years. With a warm welcome to Kelly as his successor, members are asked to save and share the following dates for upcoming Sundowners, each on a Monday evening.

- May 27, August 26 and November 18.

Sincere thanks also is extended to the ChemCentre for providing the venue, related support and continued contributions to ensure the success of our sundowners. Finally, thanks to Daniel Cronje for recording the session, and assisting at the registration desk with Tanja Koeberle-Troy and Greg Payne.



## VIC CHAPTER UPDATE





The VIC Chapter visited the Spotswood Glass Manufacturing Plant on 1 April, which has been manufacturing glass at this plant since 1872!

Great to see the processes, plant, as well as how health and safety has moved on some since then! A massive thank you to Prue Elms & Matthew Fisher for an educational and exciting tour.

So much to see, hear and feel: history, sustainability & safety all in one spot!

Plenty of occupational hygiene issues to discuss... and a whole new appreciation for the 'humble' beer bottle!

Thanks to all the AIOH Inc attendees too!





# AIOH COMMITTEE UPDATES

Mentoring Committee



Mentoring Committee – Mentoring our members - We need your help!

Thank you to our wonderful AIOH members who have been acting as mentors for a period, and those who have recently joined as mentors. Most of our new mentors have already been allocated mentees in the past few months.

As per the 'The AIOH Mentoring Program needs YOU!' Broadcast on the 7/02/19 we have had a few mentors and mentee come on-board which has been great! BUT, we still need more Mentors. Please think about it and if you can spare a few hours a month, a mentee from our AIOH family would really really appreciate it!

A continued thanks to all in the current Mentoring Committee (Deborah Glass, Chris Aebi, Anthony Bamford, Dave Collins, Jason Green, Kerri Ann Jessep, Andrew Bennett, Samantha Forster and Brett Young).

Being a Mentor is often a rewarding experience for the mentor ([https://www.youtube.com/watch?v=wtr--uo\\_WM\\_c](https://www.youtube.com/watch?v=wtr--uo_WM_c)) (click hyperlink to You Tube video), as well as the mentee (<https://www.youtube.com/watch?v=Atme26C0I5E>) (click hyperlink to You Tube video). See how the American Industrial Hygiene Association (AIHA (<https://www.aiha.org/get-involved/AccoladesandAwardPrograms/Pages/Become-a-Mentor.aspx>)) (click hyperlink to site) does their Mentoring!

**For further information and to join please select from the following:**

- **Click HERE (<https://www.aioh.org.au/education-cpd/mentoring-program>) for further information on the AIOH mentoring program.**
- **Click HERE (<https://www.aioh.org.au/static/uploads/files/mentoring-information-package-240518-wfqeyjassawk.pdf>) for the AIOH Information Package. (login first)**
- **Click HERE (<https://www.aioh.org.au/education-cpd/mentoring-program>) for the AIOH Mentor Form to become an Mentor.**

## Professional Development & Education (PD&E) Committee

The Professional Development and Education (PD&E) Committee have been busy developing a survey of members' continuing professional development needs, which we hope to administer to members soon. We have a number of seminars planned for this year, including seminars on silica dust, diesel particulate matter, and the thermal environment.

The committee has also started work on a project to develop a core competency framework and mapped learning pathways for the Occupational Hygiene profession in Australia.

The Committee would appreciate any feedback members have on professional development needs or preferences.

Please contact the Committee Chair, Dr Kelly Johnstone: [k.johnstone2@uq.edu.au](mailto:k.johnstone2@uq.edu.au)  
(<mailto:k.johnstone2@uq.edu.au>)

## Ethics & Constitution (E&C) Committee

The E&C committee understands the need to make certain there are relevant and available ethics training opportunities for our members. The committee are in dialogue with the AIOH council to review the current status in this regard.

David Chambers, Committee Chair

## Certification Board

COH Exams – The COH Board are currently offering COH exams for members in Brisbane in June. Members who are unable to make it to Perth in Nov-Dec are encouraged to sign up as soon as possible as exams spots are strictly limited.

My COH Website & Audits – All active COH's should login into the member site and update their COH activities with evidence. This is to become familiar with the site since the look and feel was updated during the 2018 website upgrades. Note the Board uses the website submissions to conduct Audits and minimizes time spent chasing down members for evidence at the last minute via email.

It has also been recognized that some users are finding it challenging to use the My COH so members so please provide any objective feedback on suggested improvements so we can continue to update the user interface.

Regards

Neil Goulding, Certification Board Chair

[coh@aioh.org.au](mailto:coh@aioh.org.au) (<mailto:coh@aioh.org.au>)

## Exposure Standards Committee

# Diesel Particulate Matter (DPM)

In March 2019 a recommendation was made by the Health Council of the Netherlands (<https://www.healthcouncil.nl/documents/advisory-reports/2019/03/13/diesel-engine-exhaust>) to the Minister of Social Affairs and Employment in regards to their diesel particulate matter (DPM) exposure standard:

'The Committee estimates exposure concentrations of Respirable Elemental Carbon (REC) in the air, a parameter for exposure to diesel engine exhaust powered by petroleum-diesel fuels, which correspond to:



- 4 extra death cases of lung cancer per 100,000 (target risk level), for 40 years of occupational exposure, equals to  $0.011 \mu\text{g}/\text{m}^3$  REC (TWA 8 hour)
- 4 extra death cases of lung cancer per 1,000 (prohibition risk level), for 40 years of occupational exposure, equals to  $1.03 \mu\text{g}/\text{m}^3$  REC (TWA 8 hour)'

The Dutch decision is based on risk outcomes from the 2010 NCI / NIOSH DEMS study along with the further derived risk assessment by Vermeulen & Portengen (2016) and meta-analysis of two other previously published and analysed epidemiological studies.

The reviewers of the 2018 Draft of the Netherlands exposure standard questioned the methodology by which exposures were to be monitored, as the detection limit of the EC method has been reported by NIOSH to be  $2 \mu\text{g}/\text{m}^3$  ( $\mu\text{g}/\text{m}^3$ ), along with studies in Australian coal mines at around  $1 \mu\text{g}/\text{m}^3$  (Rogers, 2005), with the level of quantitation (LOQ) higher. Reviewers also questioned how it would be possible to distinguish such low exposure levels of  $1 \mu\text{g}/\text{m}^3$  or less, against a background environmental level of  $1-2 \mu\text{g}/\text{m}^3$ .

Measurements of elemental carbon made by the Occupational Hygiene Unit in the National Occupational Health & Safety Commission (Worksafe Australia) in the mid 1990's at NSW EPA fixed monitoring sites, found levels of 2- 8  $\mu\text{g}/\text{m}^3$  (submicron fraction EC, TWA over a 4 to 6-hour sampling period).

The risk studies quoted by the Dutch are not new. The AIOH Exposure Standards Committee reviewed the same studies and the published criticisms they attracted in the 2017 AIOH DPM Position Paper and concluded:

'There are differences of opinion and interpretation regarding the degree of potential for cancer effects of DPM, with most contention on derivation of past exposures.'

'In the absence of any more definitive data, the AIOH supports the maintenance of DPM levels (measured as submicron elemental carbon) as low as reasonably practicable (ALARP) below an 8-hour TWA guidance exposure value of 0.1  $\text{mg}/\text{m}^3$ , with the provision of applying a TWA value of 0.05  $\text{mg}/\text{m}^3$  as an action level which triggers investigation of the sources of exposure and implementation of suitable control strategies. The AIOH is of this opinion, as such a limit is a balance between the factors of minimising irritation and minimising the potential for risk of lung cancer to a level that is not detectable in a practical sense in the work force.'

Also noted in the AIOH DPM Position Paper, the most modern diesel engine assessed in the epidemiology studies, was built in 1983, whilst the exhaust produced by new technology diesel engines is totally different to that from old engines.



Reference documents:

- Health Council of the Netherlands. Diesel Engine Exhaust. No 2019/02 Health Based Recommended Exposure Limit, 13 March 2019.
- Vermeulen, R & L Portengen (2016). Is diesel equipment in the workplace safe or not? *Occup Environ Med*; pp 1–3. doi:10.1136/oemed-2016-103977.

- Rogers A. Exposure Measurement and Risk Estimation from Diesel Particulates in Underground Coal Mines, Coal Services H&S Trust Project No. 2000, September 2005.
- Rogers A & B. Davies. "Diesel Particulate Standard Setting and Research in Australia". ACGIH International Symposium on Carbon Black and Diesel Particulate, Seattle, March 1998 (including discussions with the ACGIH TLV Committee).

Q&A on the AIOH Technical Papers (NATA Referenced)

The AIOH provide a variety of valuable documents for members in the Resources section of the AIOH website. Included in the AIOH Library are the AIOH Technical papers (NATA Referenced) documents for:-  
Flowmeters,

## Asbestos & Sampling Equipment

Asbestos and Sampling Equipment, accessed via the following link: [AIOH Library \(/resources/aioh-library\)](/resources/aioh-library)

'Through its Technical Papers, the AIOH seeks to provide relevant technical information on equipment and methodologies with regard to ensuring the integrity of the process of evaluating workplace hazards.'

Following recent questions raised by AIOH members regarding the AIOH Technical Papers (NATA Referenced), the following Questions and Answers have been shared by the Exposure Standards Committee to provide additional clarification to members.

### **Asbestos Analytical Equipment: Calibration Requirements**

**Question:** On page 7 of this document, it discusses the requirements for the equipment checks and calibrations of phase contrast microscopes (PCM). The section concerning the Walter-Beckett Graticule (WBG) states that it is "Measured on installation in PCM and then every 12 months and whenever interpupillary distance, objective, intermediate magnification, or on stage microscopes embodying a magnification change, the graticule must be measured prior to counting each batch of slides". Could you please answer the following questions regarding the quote above?

- When this document says " whenever interpupillary distance, objective, intermediate magnification, or on stage microscopes embodying a magnification change", does this mean that the Walter-Beckett graticule has to be measured if the magnification is changed from X100 to X400, the eyepieces are adjusted, or there is an adjustment in focus?
- Secondly, there is no reference to the use of a centring telescope to check and/or adjust the position of the phase rings in the condenser relative to the objective lens. Does the AIOH have any recommendations with regards to the use of this equipment, and how often it should be done?

**Answer:** Any mechanism which can change the magnification of the microscope can impact the diameter of the WBG, and hence the size of fibres which can be measured and the analytical results. The factors include the interpupillary distance (on some microscopes when the interpupillary distance is changed, it changes the tube length within the microscope and unless adjusted correctly, the magnification will be



impacted) and any other factors which can change the magnification. The microscope system must be set to ensure that the WBG is measured at 400x and that the diameter at that magnification is  $100\mu\text{m} \pm 2\mu\text{m}$ . There is no requirement to measure the WBG at 100x.

Regarding your second query, the auxiliary telescope is a tool which allows the microscopist to easily see if the phase rings are perfectly aligned, and assists when re-aligning the rings when setting up the microscope. The telescope should be used whenever the phase rings are checked, ideally this must be conducted every time the microscope is used to ensure the mechanism used for phase contrast microscopy work is functional and to allow the fibres to become visible.

Additional information on use of the telescope, changes in magnification and the WBG is provided in the Membrane Filter Method (MFM).

**Question:** For clarification, as you have stated the alignment of the phase rings should be checked every time the microscope is used. If this is so, shouldn't this be included in the document Asbestos Analytical Equipment: Calibration Requirements? I am asking because as I understand it, NATA will be assessing against the AIOH document. I don't want there to be confusion if there is a discrepancy between this document, and the MFM.

**Answer:** Checking the phase rings is about ensuring the microscope is set up correctly for analysis. It is in the MFM, Section 10.3.3. This document overtakes the AIOH document. In that section, it says the phase rings need to be checked as part of the daily counting routine.

The AIOH document is designed to supplement the MFM and provide clarity and supplementary information regarding the equipment requirements for calibrations and checking.

## Air Sampling Pumps: Equipment Calibration Requirements Technical Paper

**Question:** We are currently reviewing our procedures in relation to pump flow compensation checks and using the Air Sampling Pumps: Equipment Calibration Requirements, Technical Paper as a reference.

On page 6 of the document, Chapter 6, Section 6.1b), it states that "No other flow resistance should be in the circuit." Regarding the pump-magnehelic setup. Currently our procedure includes a prepared filter, either 25mm or 13mm, to be attached between the pump prior and the magnehelic. Seeking clarification, should the test be undertaken with or without a filter in the air flow path?

Further, Section 6.1c) outlines that 2 kPa pressure drop should be applied for each litre/minute of flow assuming the use of a 25mm filter. To help improve our understanding of the procedure, we would like to know from where the 2 kPa per litre/minute originates.

**Answer:** The requirements detailed in Section 6 of the AIOH Technical Paper have not changed from those previously published by NATA as Annex K: Workplace pump calibration checks. The purpose of this pump calibration is to check that the pump can sustain the set flow rate to within  $\pm 5\%$  with the appropriate back pressure applied using the needle valve of the magnehelic.

By adding a filter between the pump and the magnehelic gauge, you are applying a restriction (flow resistance) which will not be measured by the reading on the gauge (i.e. the gauge will read zero). This backpressure will be added to the backpressure applied by the needle valve. For example, if the backpressure exerted by the filter is 2kPa at a flow rate of 2 l/min and then the valve on the magnehelic is set to 4kPa (2kPa/l/min), the total backpressure on the pump will be 6 kPa (24" of water), not 4kPa as indicated by the gauge. This may cause the pump to erroneously fail its flow compensation test, especially at higher flowrates.

If the magnehelic gauge is connected between the pump and the filter, the gauge will register the backpressure exerted by the filter (e.g. 2kPa) and then if the needle valve is adjusted so that the reading on the magnehelic is 4 kPa at 2 l/min (i.e. an additional 2kPa of backpressure is exerted by the needle valve on top of the 2kPa from the filter) then the correct backpressure is being applied in accordance with the technical note. In order to avoid this problem, it is best not to use a filter at all, but instead to use the needle valve on the magnehelic gauge to set the correct backpressure for the set flowrate.

The 2 kPa/l/min requirement has been a NATA requirement for the past 20+ years. We understand that it is the maximum anticipated backpressure for a loaded filter which is within the capability of modern flow compensation pumps (i.e. it takes into account any extra backpressure exerted by dust loading on the filter).

It should be noted that for a 13mm filter, this requirement increases to 10 kPa/l/min as the effective filter area of a 13mm filter (approx. 100mm<sup>2</sup>) is approximately 5 times smaller than a 25 mm filter (approx. 484mm<sup>2</sup>) and hence exerts 5 times more backpressure.

Most flow compensated pumps struggle to pass the backpressure test based on the 10kPa (40" of water) requirement at flow rates above 1 litre per minute and therefore 13mm filters are generally unable to be used much above this flow rate (which somewhat defeats the purpose of using the smaller filter as the sampling time to collect 100 litres will be 100 minutes which can be achieved over the same period by collecting 400 litres with a 25mm filter at 4 l/min and only 8 kPa/32" water backpressure).

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# EDITOR IN CHIEF - OH MATTERS



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