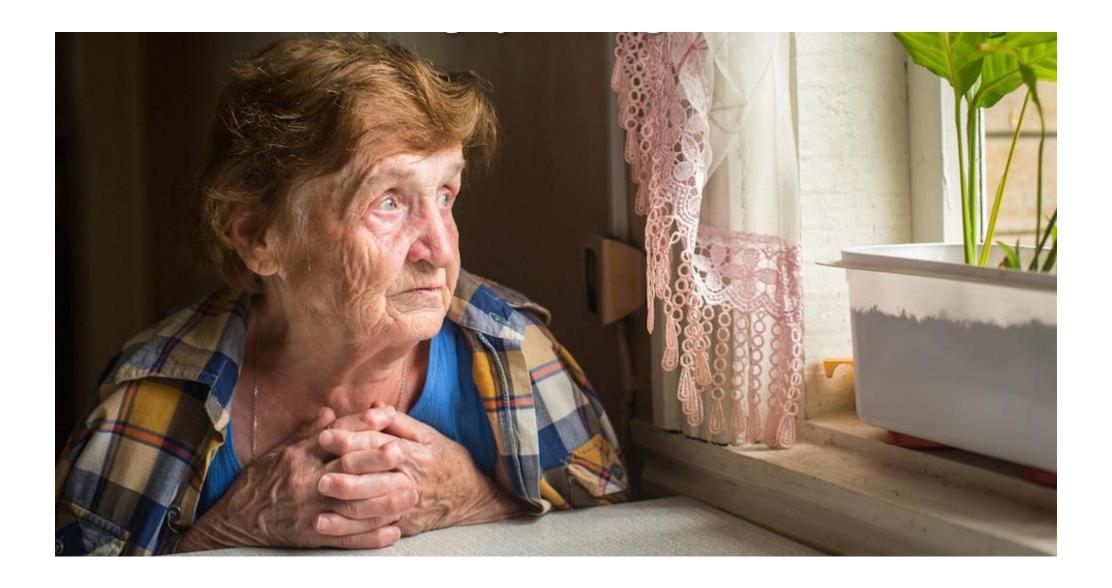
DO IT FOR GRANDMA

Dr Mary Obele

Occupational and Environmental Physician

IOQ conference 2021



NZ 268021 km², 5 million people

1100 registered quarries, 2000 workers

- Truckload aggregate for every NZer each year
- 250 tonnes for average house
- 14000 tonnes for 1 km of two-lane highway
- Cost doubles every 30 km further away

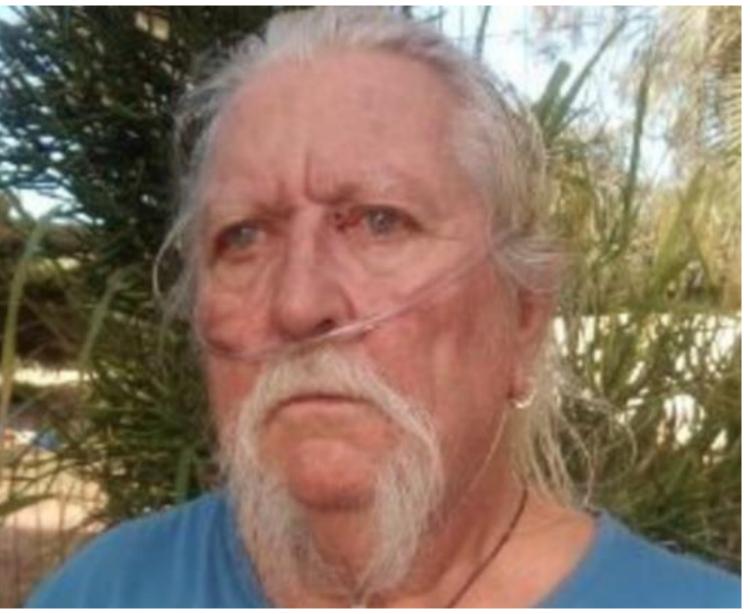












- Work-related health deaths are estimated at **750-900** a year.
- There are an estimated **5,000**-**6,000** hospitalisations each year due to work-related ill-health.
- A worker is **15** times more likely to die from a work-related disease than from a workplace accident.

FATALITIES

56 fatalities

From Apr 2020 to Mar 2021

Summary of Fatalities \rightarrow

MOST COMMON FACTOR
INVOLVED IN INJURIES
RESULTING IN MORE THAN A
WEEK AWAY FROM WORK

Muscular Stress
While Lifting,
Carrying or
Putting Down
Objects.

From Sep 2019 to Aug 2020

Summary of injuries \rightarrow

INJURIES RESULTING IN MORE THAN A WEEK AWAY FROM WORK

30,612 injuries

From Sep 2019 to Aug 2020

Summary of injuries \rightarrow

WORK-RELATED HEALTH DEATHS ARE ESTIMATED AT

750-900 a year

WorkSafe has revised its workrelated health estimates, and has also worked on a measure of the quality and length of life lost to injuries and illness

Find out more →

Work-related health data

THE REVISED ESTIMATE FOR WORK-RELATED HEALTH DEATHS IS

750-900



Of all estimated 750 deaths



Are caused by cancers

APPROXIMATELY

250 DEATHS (approximately 35% of all deaths

Lung cancer

Asbestos related lung cancer accounts for about half of these deaths. Other important causes are silica dust and diesel engine exhaust.

APPROXIMATELY

90 DEATHS (approximately 10% of all deaths)

Mesothelioma

Asbestos related cancer of the lining of the lungs and other organs.

APPROXIMATELY

25 DEATHS (approximately 3% of all deaths)

Breast cancer

(from exposure to shift work)

Type of user by region - year to date

Type of road user	2017	2018	2019	2020	2021
Driver	96	101	92	76	90
Passenger	42	49	47	28	32
Motorcycle riders	17	26	28	22	30
Motorcycle pillions		2	2		1
Pedestrian	25	18	14	14	17
Cyclist	7	3	8	7	5



The Aggregate and Quarry Association of New Zealand (Inc.)

36th ANNUAL COMBINED CONFERENCE

Taupo 2004

RESPIRATORY HEALTH AND SILICA DUST LEVELS IN THE EXTRACTIVE INDUSTRY

The Extractive Industry

The extractive industry consists essentially of coal mining, gold mining and quarrying. Coal mining involves both open cast and underground activities, gold mining includes open cast, hard rock and alluvial sources and quarrying encompasses a range of sand and rock quarries for building, roading and dam construction, limestone for agriculture, roading and cement manufacture and special rocks such as Oamaru stone used in building.

Most New Zealand rocks contain some quartz and with the effects of erosion and quarrying the resulting quartose sands – because of the resistant nature of quartz – tend to contain a higher content of quartz than the parent material ⁵.

A range of rock types are quarried including rhyolite, diatomaceous clays, serpentine, bentonite, perlite, basalt, greywacke and zeolite. Overall there are some two hundred and fifty quarries and sixty-three lime works throughout New Zealand ranging in employee size from less than five to more than twenty.

Foreword

The Extractive Industry Study 1999/2000 had as it's main purpose to identify whether dust levels in this diverse industry posed a risk to health. That is was the dust a significant hazard as defined in the Health and Safety in Employment Act 1992.

To answer this question the results of dust sampling carried out as part of the National Dust Project (1995-1999) were reviewed together with the results of the Respiratory Symptoms and Lung Function Survey carried out as part of the Extractive Industry Strategy 1999/2000.

The National Dust Project targeted those operations where high dust levels and particularly quartz based rock were present and as a consequence are not representative of average dust levels in the industry.

The Respiratory System Survey results were based in general on workers at sites which were easily accessible to the OSH branch staff and were as representative as possible.

The results indicated that 13% of the work sites sampled for dust had levels of respirable silica in excess of the current New Zealand workplace exposure limit. The lung function results showed a non statistically significant decline in the mean expiratory flow, a sensitive indicator of diffuse airway disease, with increasing years of dust exposure among workers who had never smoked.

The two separate studies indicate the need for improved dust control, health surveillance and respiratory protection in this industry.

R. J. M. Hill

Bob Hill General Manager Occupational Safety and Health April 2003

Dust is everywhere

Silica is not in all quarries – depends on process, operations, types of rocks, controls, etc



The current interim Workplace Exposure Standard (WES) for the dust, technically known as respirable crystalline silica (RCS), is 0.05mg/m3 over an 8-hour time-weighted average concentration.

S		TWA		STEL	CEILING		NOTATIONS	YEAR ADOPTED	
Substance	CAS#	ppm	mg/m³	ppm	mg/m³	ppm	mg/m³	[Notes]	[Next review]
Selenium and compounds, as Se	[7782-49-2]		0.1						[2022]
Silane (Silicon tetrahydride)	[7803-62-5]	5	6.6						
Silica fume	[69012-64-2]		2(r)						
Silica fused	[60676-86-0]		0.2(r)						
Silica-Amorphous, Diatomaceous earth (not calcined)	[61790-53-2]		10						
Silica-Amorphous, Precipitated silica	[112926-00-8]		10						
Silica-Amorphous, Silica gel	[63231-67-4]		10						
Silica-Crystalline (all forms)			0.05(r)					6.7A; α-quartz and cristobalite are confirmed carcinogens; †	2019 [2022]





Gets into the mouth and nose

Thoracic dust

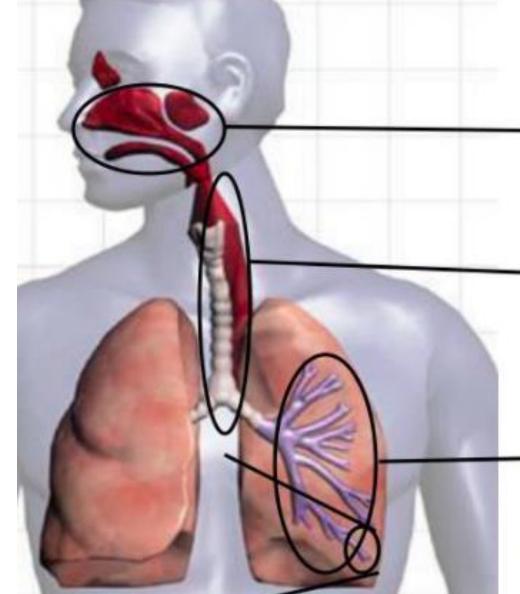
Reaches the upper respiratory area

Respirable dust

Reaches the finest parts of the lungs (alveola)







"Respirable particles" are small enough to get deep into your lungs where they can't be cleared with coughing. They can't be seen with the naked eye.

Micrometre is 0.001 mm or 0.000039 inch

Very fine silica dust less than 2.5 microns in size barely visible to naked eye



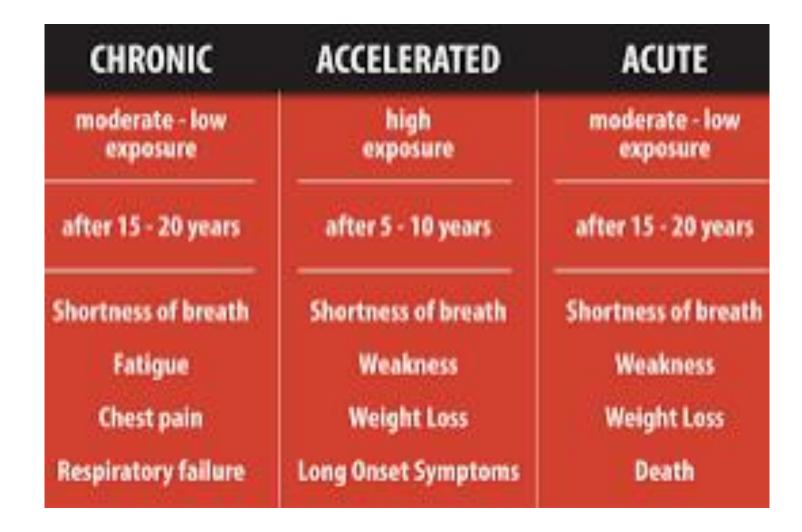
Don't panic – we've all been exposed to dust

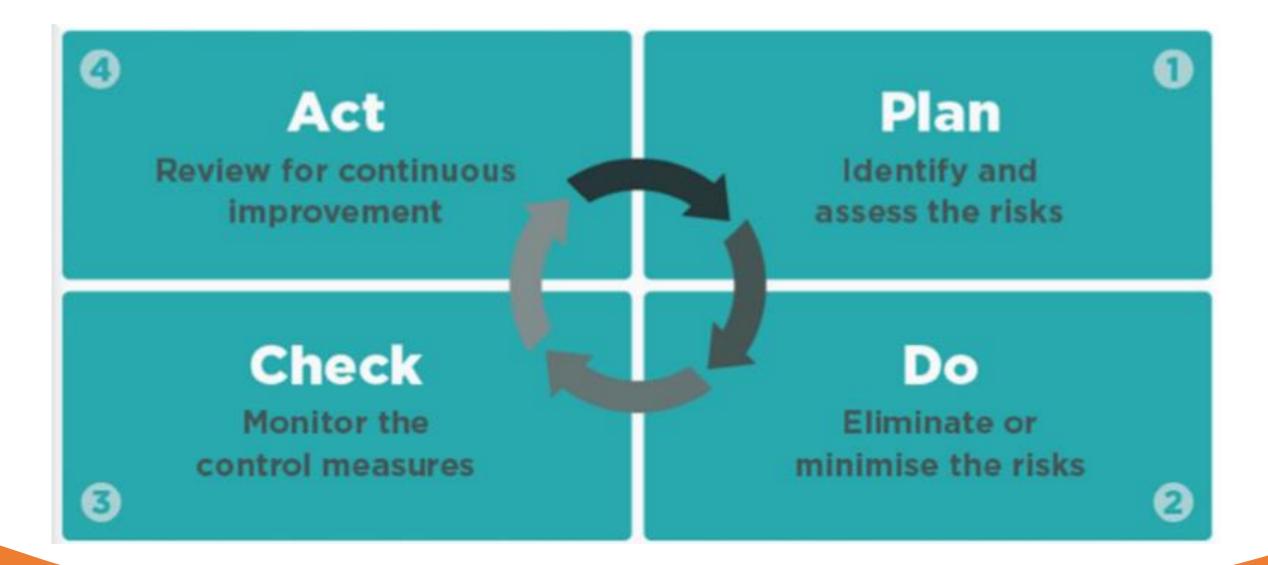
Everyone is responsible for managing risks and hazards at work. Speak up.

Talk to your boss, ask about controls and prevention. No such thing as a stupid question.

Check out Worksafe website

Talk to a doctor





RISK/HAZARD IDENTIFICATION, AND CONTROL

Take 5 — Informal Risk
Assessment (Serves as a Pre-start
Meeting, Site Induction, Visitor
Register, New Hazard
Identification, Daily Hazard
Checklist, Site Safety Inspection,
Daily Tailgate, Daily Safety
Meeting, and Daily Site Audit)

JSA – Job Safety Analysis (A step-by-step Breakdown of the task – this includes environmental risks and hazards) Procedures – A procedure is the way something is done – a fixed, step-by-step sequence of activities or course of action (With definite start and end points) that must be followed in the same order to correctly perform a task

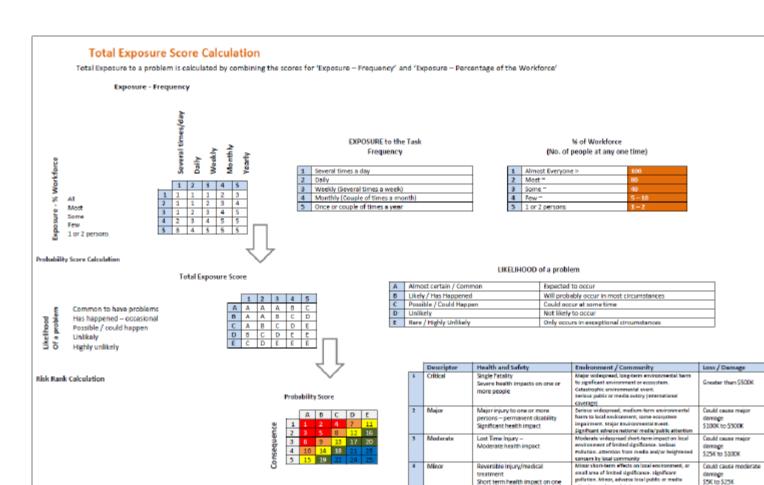
SOP's – Standard
Operating Procedures –
are written instructions
intended to document
how to perform a routine
activity

SWP's – Safe Working Procedures – are stepby-step descriptions of a process when deviation may cause a loss Site Inductions – All employees must attend an initial Health and Safety Induction. This induction consists of three levels, B-Basic for all employees, T-Trades people for all workers onsite, S-Supervision for all supervisors and managers. This induction can be arranged to suit – either at an agreed site, office, or workshop

Formal Risk Assessment

– a Formal Risk

Assessment is facilitated where high-risk events or subjects have been identified



Note that the ranking of 1 represents the highest risk or the worst case and 25 the lowest.

attention and complaints

Environmental nuicance, limited temporary damage

to immediate, low significance environment. Public

concern restricted to local complaints

Could cause minor

Less than \$5000

damage

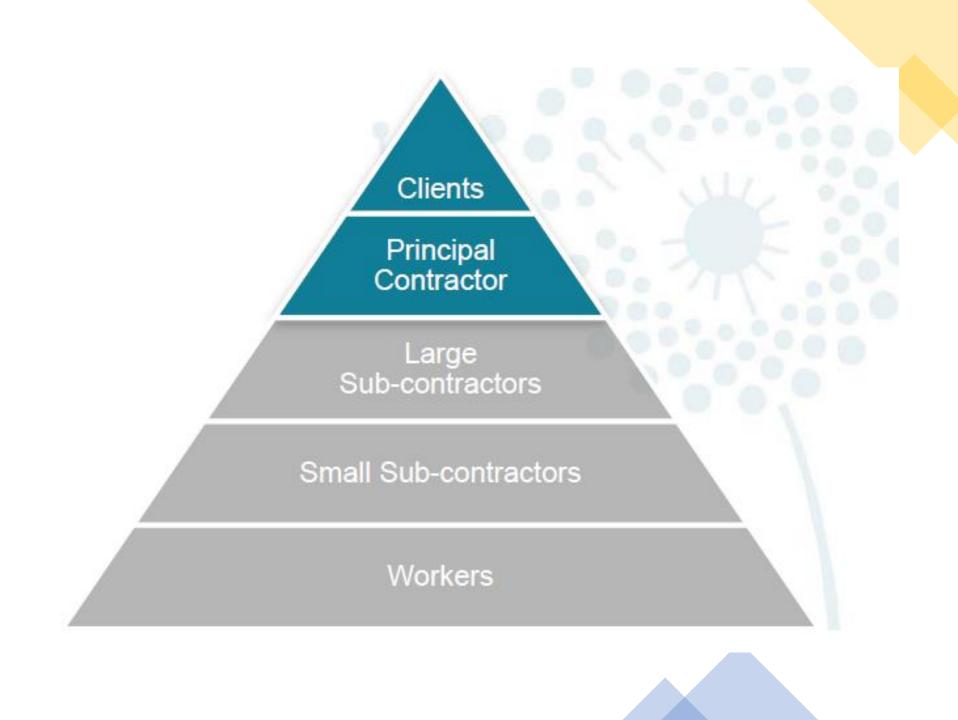
or more persons

individual health

Minor / first Aid injury

Slight negative impact on

a Low









Heavy Vehicle cabin cleaning to reduce the transmission of COVID-19

SYNOPSIS

To assist in *flattening the curve* with the recent COVID-19 outbreak, we recommend all plant operators perform routine preventative cleaning (RPC) to reduce the risk of virus transmission.

In preparing this document, the scope has been limited to the cleaning/disinfection of plant equipment only.

ADVICE

RPC involves thorough cleaning with disinfectant solution/wipes provided by your employer. Cleaning should be undertaken at every instance when an operator both enters and leaves a cab after a period of operating, and sporadically when droplets are accidentally spread – for example when an individual sneezes or coughs.

A list of suitable cleaning products is available here <u>Interim List of Household Products and Active</u> <u>Ingredients for Disinfection of the COVID-19 Virus.</u>

Frequently touched areas can harbour COVID-19 droplets prior to transmission and are referred to as Hotspots. Hotspots must be cleaned during each RPC.

Hotspots include but are not limited to;

- · Steering wheel and seatbelt
- · Dashboard buttons, levers and controls
- · Two-way radio handpiece
- Door handles
- · Light switches
- · Screens including tracking devices and communication tools
- Joystick including armrest

It is critical that the operator thoroughly clean their hands at the completion of each RPC, using the hand sanitiser provided by their employer.

To ensure suitable ventilation, operators should open the windows/door of their cabin while performing each RPC.

FURTHER INFORMATION

The Institute of Quarrying Australia (IQA) 02 9484 0577 admin@quarry.com.au www.quarry.com.au

BEST

ELIMINATION

Design it out

SUBSTITUTION

Use something else

ENGINEERING CONTROLS

Isolation and guarding

ADMINISTRATIVE CONTROL

Training and work scheduling

PERSONAL PROTECTIVE EQUIPMENT

Last resort

Control effectiveness

BEST

Business value

- Shelter the stockpile to avoid weather
- Keep it low
- Keep drop height low as possible
- Cover the load
- Good road, efficient route
- Restrict who goes there
- Plant out areas you are not working on



- Clean your machine to avoid dust build up
- Door and window seals
- Vacuum cabin with good vacuum cleaner
- Check and maintain filters and air con
- Wait 20 seconds before open door when you turn the machine off
- Cover loads



- Enclosed cabins with good air con
- Check and replace the filters and the seals
- Keep it clean
- Keep the windows and doors shut in control rooms
- Wet dust suppression or foggers where dust is generated
- Cover materials



- Keep workers away from dust as much as reasonably practicable
- Low wind, rain, early morning dew
- Wash hands and face before eating, drinking, smoking, chewing gum



- P2 masks fit testing
- Overalls gloves
- Don't wear your dusty clothes home
- Airtight container to wash
- Limit time working with dust



FIGURE 1: Re-usable half-face respirator (cartridge)



FIGURE 2: Full-face respirator (cartridge)



FIGURE 3: Full-face powered respirator (cartridge)

After first fit testing



After shaving



Development of a Silica Dust Management Plan

	Control methods	Comment
screening plant	 Restrict access to dusty work area Ensure control room door and window seals are working Check regularly as part of routine maintenance Keep control room clean (Vacuum regularly - do not dry sweep) Check filters and air conditioning Check water sprays/fogging system is working effectively Ensure P2 respiratory masks are used where workers are exposed to dust for short periods (<20mins) Restrict the drop from conveyors onto stockpiles Cover conveyors where practicable 	





This is Grandma.

We all know women – grandmothers, wives, mothers, daughters.

They've wiped our bums, they give us cuddles, make our breakfast, run our country, and that's just on Monday mornings.



But do we see many women at work in the quarry industry?

There are a few around. They fit in well and they do a good job. But do they stay?

Why aren't there many long-term female employees in quarrying?

Is there a problem?



Women are different to men.

- Many women are strong, but most women can't lift as much as a big, strapping rugby player can.
- Many machines are designed for ablebodied men.
- Work gear and PPE fit differently on women.



- Women sit down to pee.
- Women get periods and can have mood changes every month.
- They get pregnant and leave work. If they are the main wage earner, the whole family suffers a huge loss.
- Women breastfeed and need time off for women's issues.



Maybe the hazard assessments don't work so well. Maybe the controls don't fit.

It's not just a question of chucking in an extra toilet and bringing in a sexual harassment trainer.

With some women losing jobs due to Covid-19, there is an opportunity now to bring more women into your workforce.



But how?

The first step is to take a long hard look.



Would you let your pregnant girlfriend work in the conditions at your quarry?

If not, then ask yourself, why do you let your workers, workmates and yourself be exposed to the same hazards?



Would your grown-up daughter work those hours?

If they leave the industry because of the hours, then why do you expose your workers to fatigue when they're under the pump, doing over 55 hours per week?



Would your Mum work that night shift?

Is your workplace safe, secure and inclusive for all genders, races, sexual orientations?



What happens when they have babies or when they get injured?

Does your workplace have alternative, light duties for anyone that needs some time out from the heavier work?



When women leave, ask them why.

Learn from what they say.

I bet some will tell you that they feel as though *they* are the problem, that they have to fit the work and the workplace, and if they don't, then there's something wrong with *them*.



Talk to the women in your life and ask them.

Have a think about what diversity means in your workplace.

What makes workers discontented and not engaged? What doesn't work for them?



Do we just have to "empower" or "educate" women to fit into your current workforce?

Do they have to fit you?

Don't you think that, if your workplace was safe enough (hazards, ergonomics, PPE, personal security, work life balance) for women, then it would be safer for everyone?



Maybe it's not just a question of fixing women.

Maybe it's about setting up the quarry work so that everyone thrives.



But how do employers pay for all this?

Why is it the employer's problem to fix issues that are just too hard?

Is the answer actually very simple – just hire more women?





NEWS ▼ PRODUCTS ▼ OPERATIONS ▼ IN DEPTH ▼ EDUCATION ▼ OPINION ▼

Crushing

Encouraging more women in quarrying



Why do employers have to bear the burden of keeping women and everyone else in the workplace happy and safe?

Education, Industry News, News, Training

IQA unveils agenda for 2020 **Women in Quarrying events**



MYLES HUME

07/02/2020, 2:05 am * 1561



Proceedings from the 2019 NSW WIQ conference. Three WIQ conferences will this year be held in Brisbane, Perth

Untapped resources - including recognition of diversity and recruitment and retention of talented staff - will be the focus of the IQA's annual Women in Quarrying conference Those are all good questions.





News

Industry members review more opportunities for women



19/03/2020, 3:53 am * 382



What are you going to say to the person sitting next to you at lunch about this?

HOME

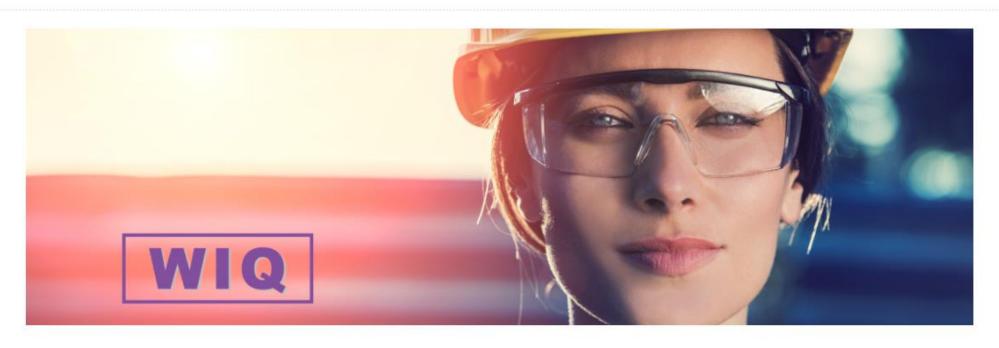
ABOUT US

MEMBERSHIP **EDUCATION**

NETWORKING

STORE

EVENTS



The IQA Women In Quarrying Network

The Institute of Quarrying Australia

Diversity in any industry is important as it encourages creativity and innovation, broadens the talent pool and is shown to improve business outcomes. Women play a major role in the sector by fulfilling in roles from HR, marketing, sales and finance to operators, engineers, geologists, environmental officers and more. There is an underrepresentation of women in the "non-traditional" roles. The IQA is working with to support and encourage women to join the industry, develop the career path of women and advance the career or upskill women already in the sector.

The IQA board saw the need to further enhance women's involvement in, and contribution to, the extractive industry. In 2014 a group of dedicated women held the first WIQ lunch event in Queensland. This lunch event was attended by over 24 people, the majority women, and for many of the people attending it was their first IQA event. From this first lunch the IQA established the WIQ Charter and the IQA Women in Quarrying Network was born. The WIQN Committee is chaired by the IQA WIQ National Coordinator and consists of four or more State WIQ Coordinators.

