



Mining & Quarrying
OCCUPATIONAL HEALTH &
SAFETY COMMITTEE

MAQOHSC

SPRING NEWSLETTER

Protecting Workers from Occupational Dust Related Diseases

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SPRING 2018



Health Surveillance Dust Monitoring 2018 – 2019



Presiding member's letter

Welcome to our Spring Newsletter for 2018. I am pleased to advise the Committee continues a very busy schedule providing industry with vital initiatives including health surveillance, disease prevention, mental health, accredited education and research across the State to meet the demand of our ever-growing and changing industry.

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The Committee continues to provide vital practicable initiatives that are critical in supporting and promoting the importance of an innovative, safe, responsible, well informed and educated mining and quarrying sector for our State.

The generation of dust particles is a common occurrence in all mining, quarrying and exploration activities. Certain types of minerals when drilled, processed and extracted from the ground generate hazardous dust particles that contain Silica. Exposure to crystalline silica can cause Occupational Dust Related Diseases such as Silicosis.

Silicosis is a type of pneumoconiosis that affects millions of workers worldwide. It is an untreatable but preventable occupational lung disease caused by inhalation of respirable crystalline silica. Silica is listed as a known group 1 human carcinogen. Prevention of workers exposure to hazardous crystalline silica can only be achieved through vigilant workplace dust monitoring, identifying and

eliminating dust at the source and continuously improving workplace dust mitigation strategies accordingly.

The Committee continues a dedicated priority to pro actively support the South Australian mining and quarrying sectors with resources, education and workplace procedures that prevent Occupational Dust Related Diseases, with a targeted core focus to prevent silicosis.

Protecting the respiratory health of all South Australian mine and quarry workers remains one of the Committees highest priorities. The five year fully funded Health Surveillance - Workplace Dust Monitoring program is inclusive of the below.

- Pre monitoring discussions with mine and quarry operators, supervisors and workers regarding current dust mitigation practices
- Personal respirable dust monitoring of mine/quarry workers
- Static respirable dust monitoring within the mine/quarry
- Personal noise monitoring for mine and quarry workers
- Compliance review of workplace respiratory and hearing Personal Protective Equipment
- Workplace report discussions with mine and quarry operators and supervisors

- Workplace report discussions with all workers
- MAQOHSC developed an educational video and information session on Preventing Occupational Dust Related Diseases, Respiratory and Hearing Protection for all workers
- Documented consultation with mine holder / operator to action any report improvement recommendations.

The Workplace Dust Monitoring program is available to all Mine and Quarry Stakeholders and businesses that support them across the State.

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Presiding member's letter *continued*

To further support stakeholders and industry we have doubled our newsletter and increased all future quarterly publications to 8 pages.

Known as MAQOHSC our Committee is unique and consists of professional individual members who are dedicated industry experts with critical key operational knowledge of mine and quarry working environments. This is evident as we continue to develop and provide targeted initiatives that directly supports, builds, and strengthens our States mining and quarrying industries, whilst promoting the importance of health, resilience and qualifications to all workers across the State.

I am also pleased to briefly detail just a few of the many successful outcomes already achieved for the first half of 2018. Firstly, the completion of the third year of our fully funded Workplace Health Surveillance

- **Dust Monitoring program.** A total of 659 samples were obtained across the project and 416 workers were monitored for personal respirable dust exposure
- **Noise exposure,** 214 workers undertook personal noise exposure
- **Respiratory protection,** 268 workers undertook fit testing of respiratory protection
- **Work Health and Safety Specialists.** Our Work, Health and Safety Specialists have facilitated workplace respiratory protection education with workers and dust mitigation improvement strategies with all participating stakeholders
- **Cert IV WHS,** 65 workers across the State are participating in our fully funded Work, Health and Safety Education project (Cert IV WHS)
- **First Graduation,** I am pleased to announce Mel Cave from Cave Quarries as the first person to complete her accredited training through the MAQOHSC project and gaining her Work, Health and Safety Certificate IV qualification. Well done Mel.

Our Committee has maintained its busy industry engagement schedule, which includes, attending stakeholder mine and quarry worksites, undertaking site tours, facilitating open dialogue meetings with PCBU'S, managers, supervisors and workers. The Committees industry engagement has also provided the opportunity to see firsthand the many positive outcomes being achieved through the many vital programs MAQOHSC provides across the State.

The MAQOHSC and industry partnership continues to achieve a strong shared commitment in promoting and implementing a model of continuous industry improvement that directly assists Stakeholders achieve their mining and quarrying business obligations.

This Committee continues to further build on the successes of over 80 years of State-wide industry support and engagement, however, the key focus remains on achieving positive research, health surveillance, health and wellbeing and safety outcomes through evidence based driven programs that will continue to protect workers and support our stakeholders in the prevention of occupational dust related diseases. An example of this, is our newly developed State-wide industry health surveillance project which incorporates a holistic approach, as well as three additional fully funded targeted Health Surveillance initiatives.

Our three new initiatives will commence in the upcoming weeks and include,

- Accredited Mental Health First Aid Officer Training
- Workplace Fully Funded Skin Cancer Screening for workers
- MAQOHSC developed Workers' Workplace Health Assessment, inclusive of previous employment review. A Respiratory and Crystalline Silica Questionnaire, Spirometry test, Cardiovascular and Hypertension review, Diabetes Test, Audiometric Assessment, Health and Wellbeing Questionnaire, BMI review and General Fitness Assessment.

These targeted initiatives are fully funded and provided to workers directly in the workplace by a qualified General Practitioner in recognition by the Committee that workers often undertake/complete shifts of 8-12 hours per day, 5-7 days per week, at times workers across our State can often spend more time at work than they do at home.

Yours sincerely

Martin O'Malley
Presiding Member MAQOHSC

Mental Health First Aid

The Mining and Quarrying Occupational Health and Safety Committee (the Committee) has proudly been a Mental Health Gold Badge Workplace for the past three years.

Our Committee recognises positive psychological health, wellbeing and safety are essential in all mine and quarry workplaces across our State.

The Committee is leading the industry by example, to achieve the vision of South Australia's mining and quarrying industries being safe, responsible, prosperous, well-educated and innovative workplaces where protecting workers is the top priority.

Given almost half the total population (45.5%) will experience a mental health disorder at some point in their lifetime, recognising the signs of stress, anxiety and or mental disorders early, assisting workers to seek support and or professional services and applying effective strategies can result in increased recovery.

The Committee is offering fully funded accredited Mental Health First Aid Officer Training for 60 workers across our State. Three training courses will be available at the MAQOHSC offices and will be delivered by an accredited South Australian MHFA Professional Instructor.

Participants will be provided with the key knowledge to initially support adults who are developing any of the following mental health problems:

- Developing mental health problems
- Depression
- Anxiety problems
- Psychosis
- Substance use problems.

Mental health crises

- Suicidal thoughts and behaviours
- Non-suicidal self-injury
- Panic attacks
- Traumatic events
- Severe psychotic states.

Through the funded industry training, the Committee aims to support our stakeholders eliminate stigmatising attitudes to mental health, create better industry awareness, and create a support platform for workers direct in the workplace through accredited well-trained dedicated Mental Health First Aid Officers.

Mental Health First Aid Officers will be a valuable resource in the workplace, with the Committee expanding this program later in 2018. All participants who successfully complete the course will be eligible to receive a Mental Health First Aider Certificate of Accreditation valid for 3 years and a MAQOHSC Mental Health Officer Badge will be issued for easy workplace identification.



2018/2019

Hoppers and Chutes

Continuing on the previous newsletter theme around guarding associated with crushing plants, this time we identify some of the key requirements for hoppers and chutes, including the hazards and risks and typical risk control measures used to manage the risks.

The following information only provides a brief overview, for more detailed information, please refer to the applicable approved codes of practice and the relevant Australian Standard guidance material.

Australian Standard 1755 - Conveyors - Safety Requirements, identifies some of the following requirements for hoppers and chutes.

- All openings to hoppers and chutes shall be suitably guarded where there is a risk of contact with dangerous parts or of personnel falling into the opening
- The sides of open hoppers or chutes shall be high enough to prevent material falling into working areas below and open chutes should be provided with plates at the point where conveyors discharge into them to prevent materials from bouncing out of the chute.

When addressing falling into the opening of a hopper or chute, the person conducting business or undertaking (PCBU) must also take into account the requirements of the Code of Practice - Managing Risks of Falls at Workplaces.

The code identifies specific areas that must be considered when identifying fall hazards. These areas include, where a worker or other person is:

- in or on plant or a structure that is at an elevated level
- in or on plant that is being used to gain access to an elevated level
- in the vicinity of an opening through which a person could fall
- in the vicinity of an edge over which a person could fall
- on or near the vicinity of a slippery, sloping or unstable surface.

Hoppers and Chutes

A PCBU should review all means of access around hoppers and chutes, to identify hazards that could give rise to a risk of a fall into the opening of a hopper or chute. This includes but not limited to, stairways, walkways, landings, platforms and loading ramps.

Hazards may be in the form of unprotected edges, unprotected openings in floors, unsecured or loose railings, incorrect (low or high) railing heights, damaged or incomplete accessible structures, and material build-up.

Australian Standard 1657 - Fixed platforms, walkways, stairways and ladders, requires guardrailing on all edges of accessible walkways and platforms, and handrailing on the edges of stairways to prevent the risk of a fall.



The top railing height, measured vertically above the floor, walkway surface, or the nosing of a stair tread, shall be not less than 900mm, or greater than 1100mm, with an intermediate rail (knee rail) section of 450mm above the toe board.

Ladders and ladder landings must also be considered when identifying areas where there is a risk of fall into a hopper or chute opening.

AS 1657 requires a ladder cage to be provided where a person could fall more than 6m from a rung-type ladder, irrespective of landings.

Consideration should also be given to installing a ladder cage for fall heights of less than 6m where there is a risk of injury, providing there is sufficient room to install a cage.

Where it is too short for a ladder cage to be installed, a permanently fixed distance guard (barrier) may be required between two levels, to prevent a worker or other person from falling into the opening of a hopper or chute. Where a ladder cage is provided, the cage shall extend not less than 1000mm or to the height of the guardrail (if provided) above the top of the platform landing.

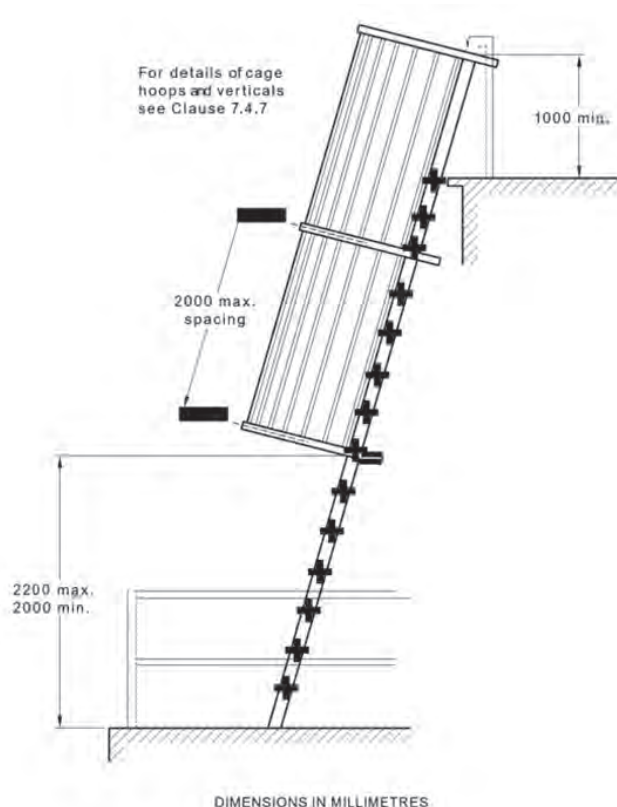


FIGURE 7.8 TYPICAL LADDER CAGE DIMENSIONS

The bottom of the cage shall terminate not less than 2000mm or more than 2200mm above the base of the ladder. When climbing up or coming down ladders, ensure 3 points of contact are maintained at all times.

Material build-up creates uneven surfaces and potential trip hazards on stairways, walkways and platforms. When stood upon, it reduces the effectiveness of the guardrail or handrail, and places a person at risk of falling over the railing, due to the reduced railing height.

A PCBU can identify and address the root causes of material spillage and build-up, through regular plant inspection and monitoring, maintenance and housekeeping activities.

On fixed crushing plants, loading material into the main hopper is generally undertaken with dump trucks, or front end loaders. One of the dangers identified with this process, is that mobile plant could unintentionally travel (driven or reversed) into the hopper opening when loading the hopper.

A common approach to control the risk, is to install a physical barrier (guard), across the loading point of the hopper to act as a bump stop for the mobile plant and a position indicator for the plant operators.



The barrier, generally constructed of reinforced concrete or heavy duty steel beams, is positioned as high as possible, without interfering with the mobile plant loading the hopper.

On mobile crushing plants, it is unlikely that front end loaders would travel into the hopper opening on a primary jaw, due to the difference in plant design.

Nevertheless, the areas on and immediate surrounding mobile crushing plants, should still be reviewed to identify any hazards and risks associated with falling into the opening of a hopper or chute.

Circumstances where material could escape over the sides of a hopper or chute and fall into work areas below, must be identified and eliminated, or risk controls implemented to manage the risks.

Design is one of the areas that can contribute to material escaping and falling into work areas below. The sides of a hopper or chute, should be of equal height to control and maintain a specific level of material.

The main hopper on a fixed crushing plant, should also have barriers (guards) located on either side of the hopper, to contain any material that may roll out of the loading point, or that may fall from the bucket or tray during the loading process.

The barrier should be made of materials such as a reinforced concrete barrier (wall), or heavy duty steel plating to withstand forces that may be placed against it during clean up.

Overloading hoppers and chutes is another area that can contribute to material escaping and falling. On a fixed crushing plant, the control room operator (where appointed), should be the designated person responsible for managing the loading process.

Control room operators should have a clear view of material inside the main hopper (and other critical areas around the plant), in order to appropriately manage the amount of material in the hopper and crushing plant circuit.

A direct line of sight from the control room is the most practicable way from the control room.

Where vision is restricted, closed circuit television (CCTV) cameras positioned around the hopper and crushing plant, with display monitors located in the control room, provide a good alternative.

Measures must also be in place to communicate with the mobile plant operators who are loading the hopper. Signal lighting positioned at the hopper loading point, and the use of two way radio communications, are effective means to communicate and control how much material is to be loaded.



Other controls such as steel plating, chains / links may also need to be installed on the exiting side of the hopper, in order to prevent material from rolling out of the hopper, over the sides of the exiting chute and onto walkways and work areas below.

Where a foreseeable risk of being struck by falling material still remains, steps must be taken to prevent all personnel from entering an area (danger zone) where they could be struck by falling material.

Controls in the form of fixed distance guards and lockable gates or timed interlocked systems should be considered to prevent access into the danger zone.

A safe systems of work must also be established which include conditions of entry into the danger zone areas, and warning signage should be displayed to alert others of the dangers and entry requirements.

Hopper Loading Ramps

Risk controls should be in place to prevent any person from entering a hopper loading ramp area on foot, whilst the crushing plant and ramp area are in operation.

From a dump truck, front end loader cabin, it can be difficult for an operator to see a person who may have entered their work area, and this places that person at significant risk of being struck by the operating mobile plant.

Exclusion zones should be established with physical barriers such as fencing/gates, and signage to prevent workers and other persons from entering a loading ramp area from crushing plant stairway or walkway.

Hot seat changeovers, should only occur in designated parking areas, away from a hopper loading ramps and trafficable areas, where mobile plant are fundamentally stable and the area is safe to conduct the changeover.

Edge protection for mobile plant can range from, but not limited to, earthen formed safety banks, to heavy duty steel guard railing.



It should be placed or installed on the edges of a loading ramp or roadway, where there is a risk injury to a person or damage to plant, as a result of mobile plant travelling over an unprotected edge.

Spilled material on the floor of a fixed crushing plant loading ramp, can increase the floor height, and the risk of mobile plant travelling over a barrier (bump stop) and into the hopper opening.

Conducting regular inspection and cleaning of the loading ramp floor, will maintain the correct floor height.

Dangerous Parts

A PCBU must identify and suitably guard hoppers and chutes openings where a worker or other person is at risk of coming into contact with dangerous parts.

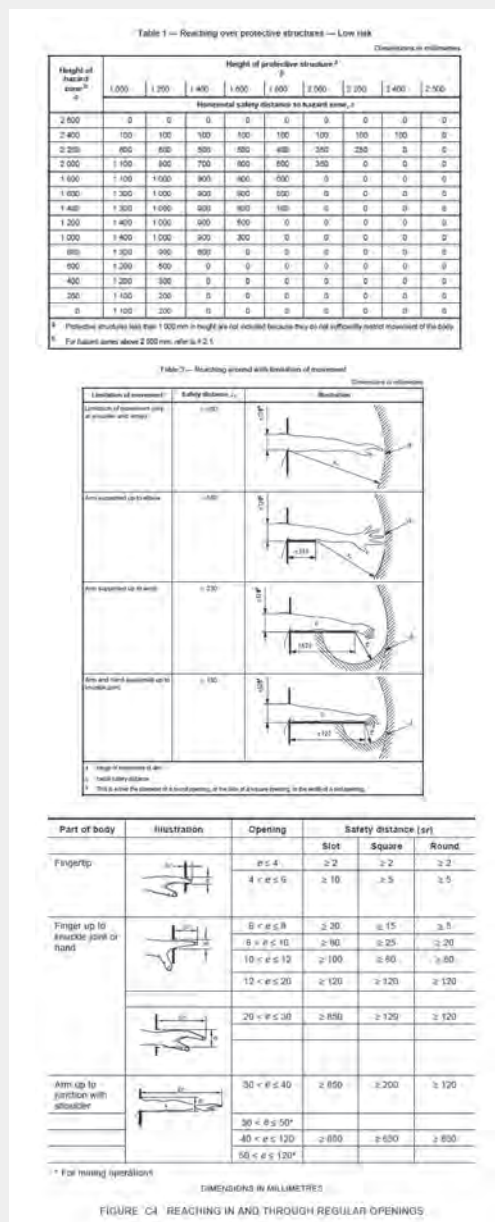
Where access to a dangerous part is not necessary during the operation, maintenance or cleaning of the plant, guards must be in the form of a permanently fixed physical barrier.

Where access is required, the guards must be an interlocked physical barrier. Where it is not reasonably practicable to use permanently fixed or interlocked guards, then guards must be of a physical barrier type that can only be altered or removed by the use of a tool.

Wherever a person has access to a loading, unloading, work station, transfer, or discharge point, guards in the form of guard-rails, fences, or close fitting guards shall be installed to prevent injury to that person.

AS 1755 - Conveyors and AS 4024.1 - Safety of Machinery detail specific requirements that must be complied with when designing and building guards that prevent persons from encroaching into a danger zone on plant.

Some examples of specific requirements relate to ergonomic data and specific measurements range from reaching over protective structures, reaching around with limitations of movement, and reaching in and through regular openings.



MAQOHSC Support

Under the Work Health and Safety Act 2012 (SA), The person with management or control of fixtures, fittings or plant at a workplace” (the PCBU) “must ensure, so far as is reasonably practicable, that the fixtures, fittings and plant are without risks to the health and safety of any person”.

The Approved Code of Practice - Managing the risks of plant in the workplace, provides practical guidance on how to manage health and safety risks of plant once plant is in the workplace, from plant installation, commissioning and use through to decommissioning and dismantling. Other approved codes of practice on various types of plant may also be referenced.

MAQOHSC Work Health and Safety (WHS) Specialists can provide onsite support and guidance around the requirements of the South Australian Work Health and Safety Legislation, Approved Codes of Practice and Australian Standard guidance material.

If you would like one of our WHS Specialists to assist you in this area, or any other matter of workplace health and safety, please feel free to contact us via or phone 8204 9842 to arrange a time for one to attend your site.



Mining & Quarrying
OCCUPATIONAL HEALTH &
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2018 Regional Safety Seminars

Our successful Regional Safety Topics soon to be available online.

All mine and quarry owners/operators, supervisors, health and safety representatives, contractors, workers and those responsible for work, health and safety will be able to access videos of the high important topics delivered at our regional seminars.

Topics include:

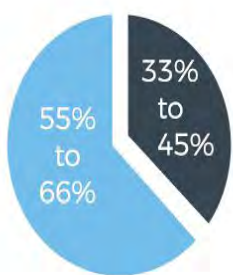
- MAQOHSC Overview
- Workplace Skin Cancer Screening
 - Workplace Mental Health
 - Preventing Occupational Dust Related Diseases
- Workplace Health Assessment

Sleep is just as essential to humans as food and water

However many Australians are falling short of recommended amounts of sleep.

Although many aspects of sleep are still a mystery, it is clear it serves an essential function for most animals, humans included. Sleep helps us restore both physically and mentally, being a period of peak activity for muscle regeneration, toxin removal, immune system function and learning and memory consolidation. Although sleep needs vary across individuals and age brackets, the recommended amount of sleep for adults is between 7.5 – 8 hours of sleep for both men and women.

Alarming, the most recent survey from the Australian Sleep Health Foundation highlights that:



Almost half (45%) of Australian adults get inadequate sleep and experience daytime consequences as a result.



In absolute terms, 7.4 million Australians regularly do not get a good night sleep.



Within a representative Australian sample, roughly a quarter (24%) believed they had a sleep problem.



As many as 12% of Australians reported sleeping less than an average of 5.5 hours and experience significant interference as a result.

Insufficient sleep causes more than just tiredness; it can impact physical and mental health. Periods of insufficient sleep can have critical physical and mental health consequences.

These include increased risk of:



Structural safety of plant, buildings and other structures has emerged as an area of concern at mines and quarries in South Australia.

The SafeWork SA mines inspectorate is concerned about structural failures, high potential incidents and integrity issues on mining operations that includes;

- Potentially serious incidents involving loss of structural integrity
- The adequacy of structural repairs and modifications
- The monitoring of assets through their life cycle.

Plant, buildings and other structures that typically have a long design life may be assumed to be at no risk of failure and people regularly passing damaged structural elements can become desensitised to the increasing risk of structural failure.

While no one was injured in these reportable incidents, all had the potential to cause serious injury or fatalities:

- Roof ventilators dislodged from mine store buildings and fell on walkways below
- Lighting assembly fell to floor from fixture in cyanide storage shed
- Concrete mezzanine floor element collapsed
- Failure of radial stacker which twisted and collapsed to the ground
- Outrush of water from collapsed surface water tanks
- Bolts sheared off in an underground articulated truck drive line assembly which in turn pierced the transmission casing and caused a fire in the engine compartment.
- Ejection of bolt fragments from a high pressure tailings pump
- Water tank dislodged from water cart mounts causing vehicle rollover.

In addition to the reported failures, mines inspectors have observed structural damage during pro-active Site inspections and have required mine operators to have the following assessed by competent persons:

- Impact damage to walkway landings at the front of hydraulic excavators
- Corroded ROPS cabin mounts on earthmoving equipment
- Corroded support columns on quarry fines bin
- Structural integrity of crusher cabin mounting and retaining wall compromised by corrosion and inadequate support.
- Corroded handrails and insecure walkway landings.

During the life cycle of plant structures at a workplace, a person whose competency covers specific structures should regularly assess them for structural adequacy. A risk based approach should be adopted to determine the timing of inspections and monitoring.

Where a structure has inadequate strength or reliability, a competent person should advise the immediate measures to be taken to ensure there is no risk to health and safety of persons while decisions are made regarding the course of action in terms of its design life or planned obsolescence.

Graeme Sauer
Principle Mining Engineer/Inspector of Mines



Committee Workplace Visits

The Committee have completed their first workplace-stakeholder engagement for 2018. Five mines and quarries participated in industry strategy meetings and provided the Committee with valuable work site tours.

The Committee met with Directors, management and key staff of Simec, BGC, Black Oak Quarries, Cave Quarries and DK Quarries for productive strategic meetings. These meetings provided a platform of open dialogue to discuss MAQOHSC services, industry needs, emerging issues, health surveillance and resources developed and provided through our informative webpage.

The Committee received positive comments for all services and programs provided, the attendees emphasised the vital partnership that MAQOHSC provides and the positive outcomes achieved through projects and programs that contribute to preventing injury, death and disease.

A core project of the Committee continues with a targeted aim is to increase safety awareness, knowledge and qualified work, health and safety personnel in our industries. Mining and quarrying workers across the State were provided the opportunity of fully funded education and gain qualifications or upskill themselves to contribute and strengthen our States mining and quarrying workforce.

65 workers are currently undertaking the MAQOHSC funded accredited certificate IV in work, health and safety.

The Committee had the opportunity to meet with workers completing their WHS certificate IV, discuss and see first hand how their safety qualifications are contributing to workplace safety.

Stakeholders commended the dedicated staff and Committee for the beneficial resources, newsletters, safety alerts, programs and projects as they continue to have a direct positive impact in mining and quarrying.

Stakeholders and workers welcomed the release of upcoming projects such as the 2018 Regional Safety Seminars, Health Surveillance - Dust Monitoring, Workplace Skin Cancer Screening for workers, Workplace Health Assessments and Accredited Mental Health Officer Training.

The Committee would like to thank all those involved and will continue to meet with stakeholders and workers across the State in the workplace. Further site visits are to be scheduled in late 2018 and early 2019.

**NEW CALENDAR
AVAILABLE ON
MAQOHSC
WEBPAGE**

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