



Mining & Quarrying
OCCUPATIONAL HEALTH &
SAFETY COMMITTEE



EVERYONE DOES IT TOUGH SOMETIMES.



Presiding member's letter

Welcome to our final edition of the Mining and Quarrying Occupational Safety Committees (MAQOHSC) newsletter for 2017.

The Committee has once again had a very busy schedule during 2017. The Committee remains vigilant in the prevention of Occupational Dust Related Diseases with a core focus to prevent long latency Diseases such as Silicosis. The Committee will be providing health initiatives during 2018 to support industry and all South Australian Mine and quarry workers.

The Committee continued supporting dedicated industry beneficial projects and programs including our Health Surveillance - Dust Monitoring program, educational funding support to 65 Mine and quarry workers across the State in Certificate IV in Work, Health and Safety, Mine and Quarry specific Mental Health Training both for the metro and regional areas.

The Committee has developed and launched a comprehensive new web page. Users will be able to access developed material including over 100 best practice industry guides, safety templates and mine and quarry educational information on high risk tasks.

We wish all our stakeholders and workers across the state a safe festive and new year season.

Yours sincerely

Martin O'Malley
Presiding Member MAQOHSC



Supported by
Government
of South Australia

MAQOHSC Funded Mental Health Training Program

The Mining and Quarrying Occupational Health and Safety Committee has been a Gold Badge Mental Health Workplace since 2014. Leading by example, the Committee recognises the importance of Workplace Mental Health and is dedicated to promoting and supporting these educational resources.

It is well recognised that the Mining industry workers need crucial ongoing support for optimal mental health and emotional wellbeing. Since 2014, the Committee has funded numerous programs and provided valuable management resources to all mines and quarries across the State.

Building on the successes of previously funded mental health programs such as the National and State award winning "Rock Solid" Suicide Prevention and Emotional Resilience Guide for Workers, The Pilot Mental Health Training for mine and quarry operators and the recent "Depression Prevention" initiative for South Australian workers, the Committee is pleased to announce the MAQOHSC Fully Funded Mental Health Training Program.

The program will be provided by an accredited facilitator in late 2017 for the Metro area and during the first quarter of 2018 for rural and remote areas across the State.

*All enquiries can be made to
maqohsc@sa.gov.au or
Telephone: (08) 8204 9807*

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Access, Egress and Crushing Plant Guarding

MAQHSC provides practicable resources promoting a model of continuous workplace improvement and assist all stakeholders across the State in workplace health and safety compliance with the Work Health and Safety (WHS) Regulations 2012 (SA) requirements of Chapter 10 – Mines. There has also been an increase for assistance with regards to access and egress and guarding on crushing plants.

The following information provides a brief overview on some of the key requirements for access and egress and guarding of plant. For more detailed information, please refer to the applicable Approved Codes of Practice and Australian Standards.

Means of Access

In general terms, means of access refers to how and where a person enters, exits, climbs or descends an area or structure.

It is recommended that conveyors should have at least one walkway installed to allow safe access and egress to componentry in elevated areas. The use of stairways is the preferred method to access walkways, platforms and landings; however, due to the footprint of a stairway; limited room may only be available in certain areas. Step or rung type ladders may be used as the alternative.

Walkways should be a minimum of 600 mm in width and have a stairway, step or rung type ladder installed to allow access. Guard railing should be at least 900 mm in height with a mid-rail height section of 450 mm. Toe boards of 100 mm in height should be installed and positioned no greater than 10 mm from off the walkway / platform floor.

Platforms should be installed horizontally level around crushers and screen decks where access

is required for inspection, maintenance and repairs. The same design and measurements for walkways shall also apply to platforms and landings; however, screen decks should have larger platform surface areas to provide more room for maintenance activities.

The Australian Standard 1657 – Fixed platforms, walkways, stairways and ladders – Design construction and installation sets out the standard requirements for the design, selection, construction and installation of fixed platforms, walkways, stairways and ladders that are intended to provide safe access to places used by operating, inspection, maintenance and servicing personnel.

Below are examples from AS 1657, illustrating the requirements for the slope / angle of stairs and ladders, measurements for steps, walkways, guard railing and toe boards.

Other areas to consider that may impact on safe means of access are obstructions, material build up and ground conditions.

- Obstructions should be removed to provide a clear and direct path to and around plant,
- Material build-up on walkways and at access points to stairs and ladders should be cleaned / removed prior to accessing,
- Uneven ground conditions are made level where possible to provide a level working surface, and
- Slippery / muddy conditions should be dress with rubble to provide a more stable, non-slip surface.

Note: Work should not be undertaken from portable ladders. When climbing or descending a stairway, step or rung type ladder, 3 points of contact should be maintained at all times.

Conveyor Guarding

When identifying danger zones on conveyors that require guarding, look for areas where a worker could gain finger / hand access by reaching around, under, over or through an area and is able to make contacts with a nip and shear point, or where a part of a workers body or clothing could become caught or entangled in rotating or moving parts.

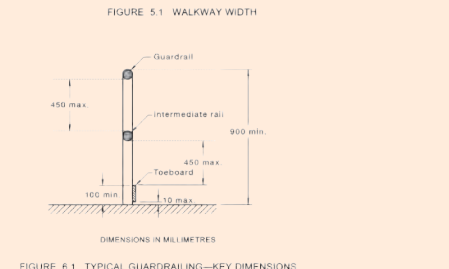
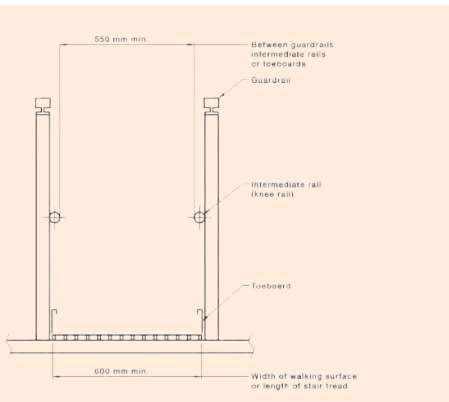
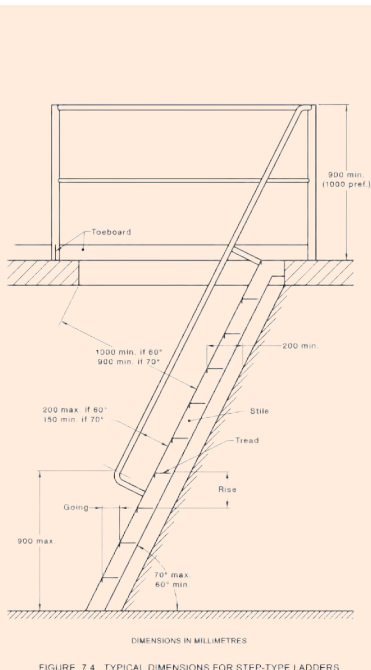
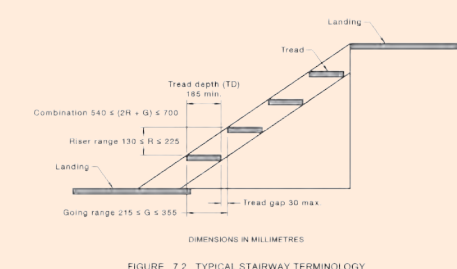
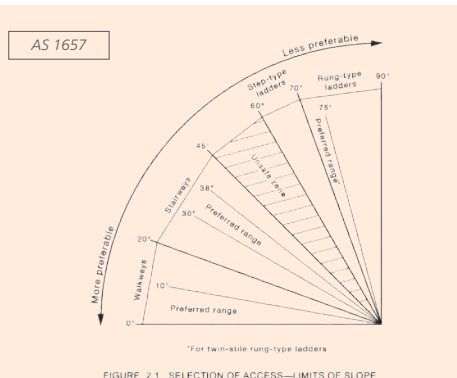
Nip points are identified as the point at which a moving conveyor element meets a fixed or moving element so that it is possible to nip, pinch, squeeze or entrap parts of the human body coming into contact with one of the two elements. An example is where a moving conveyor belt meets the surface of a tail drum, return roller; head drum or where drive belts meet a pulley.

Shear points are identified as the point at which, or the line along which, a moving part meets or passes close enough to a stationary part or object so that parts of the human body can be caught, trapped or pinched between them such as feed chutes and skirt plates.

The 2 main types of guarding used to prevent access to danger zones. A fixed enclosure guard or fixed distance guard.

A fixed enclosed guard is a guard which, when in position, prevents access to a hazard or area by enclosure. It encloses the hazard to prevent access to a danger zone and the guard itself must not create a hazard. For example, the guard, being too heavy or awkward to handle or manoeuvre resulting in a musculoskeletal injury, or having sharp / protruding edges that could result in lacerations or puncture wounds.

A fixed distance guard does not completely enclose a hazard but reduces access by its physical dimensions and its distance from the hazard.



It must be designed and constructed with the object of preventing any part of the body from reaching a hazard. It may take the form of a fixed barrier or a fence designed to such a height so as to prevent normal access to the danger zone.

Where fence type guards are used, the access to any fenced area must include a system to automatically stop the conveyor before access is obtained to the danger zone; and a sign shall be provided at every access point through the fenced off area stating 'Danger - Isolate drive energy'.

Below are examples from the Approved Code of Practice, Australian Standard 1755 - Conveyors - Safety Requirements illustrating fixed distance guarding requirements and emergency pull wire locations.

conveyor is commencing operation and a potential danger exists. The system shall be in the form of an appropriately timed visual or audible warning given prior to the conveyor starting.

Additionally, power isolation procedures (e.g. Lock-out / tag-out systems for maintenance, set-up, etc.) and adequate local lighting for working outside of daylight hours are also required.

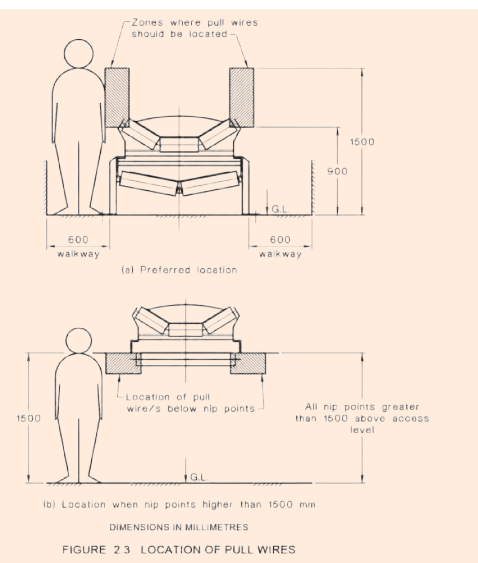
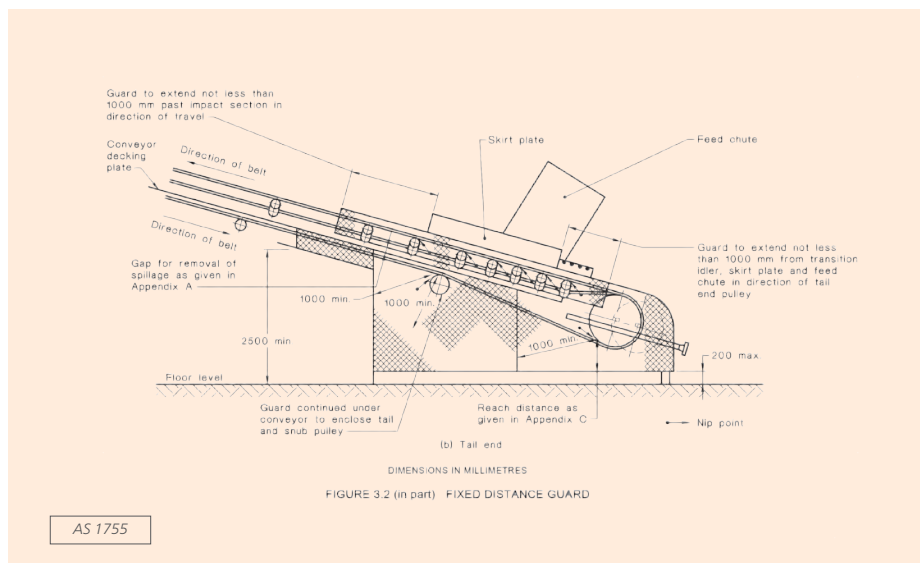
The Approved Code of Practice "managing the risks of plant in the workplace" provides a stepped out process that complied with when identifying hazards and assessing, and controlling risks associated with plant.

In addition, Australian Standard 1755 - Conveyors - Safety Requirements is also an Approved Code of Practice under the Work Health and Safety

guarding where accessible by hand. Where rotating drive belts are elevated above 2.5m in heights from ground level or walkway / platform, considerations should still be given to the possibility of a person being struck by an expelled part; e.g. when a drive belt breaks. These areas may require a guard or deflection barrier to contain or control a breakage.

As all crushers have a run down time, meaning they do not stop immediately when powered off, controls measures should be in place to prevent internal access to componentry until they have come to a complete stop and power isolation and lockout measures have been implemented.

Engineering risk control measures such as timed interlocked systems, lockable gates, fixed distance guarding and guard railing, along with jaw covers /



Fixed enclosed and distance guarding are not the only methods of controlling risks on conveyor systems. The Approved Code of Practice - Australian Standard 1755 - Conveyors - Specific Requirements, also clearly defines other additional safeguards.

All conveyors in mining must be fitted with easily accessible emergency stop pull wires (lanyards) and shall be activated when the pull wire is pulled in any direction.

Pull wires should be located in such a manner that they are:

- Clearly visible and readily accessible from all areas of access to the conveyor;
- Located external to the vertical line of any nip or shear point and no further than 1m from the nip or shear points;
- At least 900 mm above the access floor and generally not more than 1500 mm above the access floor; and
- Where all nip or shear points are greater than 1500 mm above the access floor, the pull wire may be raised provided the pull wire is lower than all nip or shear points.

Where an otherwise uncontrolled hazard may arise when a conveyor or conveyor system starts, an automatically operated prestart warning system shall be installed to alert people to the fact that the

Regulations 2012 (SA) and is the minimum legislative requirements and must be complied with when guarding conveyors. Other standards can be used as supporting guidance materials as long as it meets or exceeds the minimum requirements of the Code of Practice.

Crusher Guarding

Most moving parts on impact crushers are well contained through their engineering design. Impact crushers do have a retractable canopy / hood to allow internal access to the crusher hammers / blow bars. The retractable canopy / hood should be in its fully closed position and appropriately secured at all times whilst the crusher is operating.

Primary jaws, vertical shaft impact (VSI) and cone crushers are of an open design and can pose greater risk to safety. It is foreseeable that a person could fall into a primary jaw crusher from platforms and walkways where there is no physical barrier / guard in place to prevent this. A primary jaw also has the potential to eject parts such as a ground engaging tool (GET), more commonly known as bucket teeth; or wear plates and controls should in place to prevent ejected parts from escaping the jaw and becoming airborne.

In most cases, crushers are powered by an electrically driven motor attached via v-belts, to pulleys on rotating shafts all of which require

deflection guards are just some of the measures to consider when controlling the risks with crushers. In addition to engineering controls, it may require a combination of risk controls such as isolating the worker from the hazard, signage, safe work procedures, training and personal protective equipment to ensure the risks are appropriately managed.

The Australian Standard 4024 – Safety of Machinery series, covers areas from design and fabrication specifications, such as the diameter and type of mesh to be used in guarding and their installation distances, to interlock systems, emergency stop provisions and type and location of operator controls to be used.

MAQHSC has developed guides and audit tools to assist stakeholders in identifying hazards and risks associated with plant. Our WHS specialists can also provide onsite support and guidance around the requirements of the South Australian Work Health and Safety Legislation, Approved Codes of Practice and the use of Australian Standards as guidance material.

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

SafeWork SA have commenced visiting a number of quarry sites previously identified as not being visited by Inspectors, either due to them being new enterprises or re-established resource developments. We have also included tourist mines operated either by private enterprises or local and State Government. Our focus during these visits has been on the requirements outlined under the Work Health and Safety Act 2012 and Regulations, namely:

- The development and implementation of Safety Management Systems (SMS)
- Identification of Principal Mining Hazards (PMH) and
- Developed Principal Mining Hazard Management Plans (PMHMP).

Where it was found that these did not exist or needed updating, written directions were issued in the form of Improvement notices. It is important to understand that notices are not a penalty, they are a written direction of what work needs to be undertaken. The notice includes a timeframe for this to occur, and in most cases this would be determined after consultation with the recipient.

SafeWork SA Inspectors have also focused on the presence of asbestos in buildings and structures on mine and quarry sites. To date we have inspected 52 sites, and of these, 16 had asbestos present, 14 had asbestos registers in place and asbestos management plans developed, however, 2 sites had neither and written directions were issued. The remaining 36 sites had no asbestos on site. The Inspectors will continue to seek compliance with asbestos regulations during their inspections as well as Safety Management Systems during the latter part of 2017. Dust control will also be a focus during this period.

Over the winter period we had a number of occurrences where loss of control incidents were reported. This has mainly been due to weather events causing road and ramp surfaces to become slippery due to high clay content. This issue becomes more prevalent on intersections and bends on haul roads and ramps in pits.

Controls may include monitoring weather forecasts and/or the installation of weather stations at the worksite, or stopping work when inclement weather is approaching. Other measures may include ensuring edge protection is in place where there is a risk of vehicles falling over edges or where roadways have centre islands (windrows) on bends and at intersections to separate vehicles.

We are also entering the time of year when shutdown maintenance tends to increase around sites, resulting in an increase in near miss incidents and objects falling from heights, mainly around scaffold works. Where tools are being used at height, consideration should be given to the use of tool lanyards, exclusion zones should be in place below work being conducted, and wherever possible, simultaneous works that may conflict should be avoided.

With National Safe Work Month fast approaching we're asking workplaces to "have the conversation today" by attending one of our SafeWork SA events or a partner event, or by holding their own workplace event. We have loads of resources to help, just head to our website safework.sa.gov.au/nswm2017 for more information. For more information on work health and safety, head to safework.sa.gov.au

Christopher Spinks
Team Leader - Mining
SafeWork SA



Health Surveillance Dust Monitoring 2017 – 2018

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
- MAQHSC developed 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.

As part of the 2017-2018 dust monitoring program, the Committee seeks to further develop a greater understanding of workers personal exposure and silica-related health risks associated with the mining and quarrying industry in South Australia to enable greater industry awareness, facilitate improvements in dust mitigation measures, and to provide a more available means of information and education to the workforce.

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

CURRENT FUNDED PROJECTS

**Health Surveillance
– Workplace Dust
Monitoring**

**Certificate IV – Work
Health and Safety for
South Australian Mine
and Quarry Workers.**

Mental Health Training

**Upcoming
2018 Events**

**Regional Mental Health
Training**

**Regional Safety Road
Shows**



Contact us

If you wish to comment on the information provided in this newsletter we would appreciate your views.

We are also pleased to receive contributions – including photographs if possible – on better approaches to improving the safety of standard industry operations.

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