June 2023

MMQ Quarterly Report

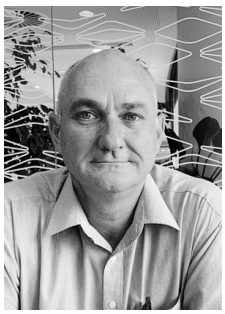
High Potential Incidents and Serious Accident Summary
Queensland Mineral Mines and Quarries Inspectorate
March – June 2023 quarter

Resources Safety & Health
Queensland

Contents

Unless otherwise stated, all data displayed is the financial quarter FY23Q3

From the Chief



Hermann Fasching, Chief Inspector Mineral Mines and Quarries

As reported in the media, RSHQ is seeing an increase in the number of HPIs being reported by industry. While this increase may raise some concerns, the increase is indicative of a strengthening of reporting culture across industry.
In 2022, one of the key initiatives of the Mineral Mines and Quarries Inspectorate was to increase the reporting of HPI's and since then we have seen an increase in the number of HPIs being reported by Industry.

The Brady review, published in December of 2020, made 11 recommendations for the regulator, one of which refers to reporting of High Potential Incidents.

Recommendation 11: The Regulator should adopt the High Potential Incident Frequency Rate as a measure of reporting culture in the industry.

Rather than viewing the High Potential Incident Frequency Rate as a measure of the level of safety in the industry, it should be viewed as a measure of the reporting culture. High Potential Incident reporting should be encouraged in order to better ensure early warning signals of impending incidents and fatalities are captured and disseminated to the wider industry. This provides the best opportunity to identify hazards before they cause harm and ensure they are effectively controlled. (Brady 2019)

The key takeaway is that every reported incident is an opportunity to learn and take action to prevent incidents. The reporting of HPIs is not the measure of safety in the industry, it is the measure of reporting culture.

As I have said previously, RSHQ welcomes and encourages the reporting of HPI's and the inspectorate will not take compliance action for reporting an HPI. I do want to make clear that where is it identified that a HPI has been deliberately not reported, compliance action will be taken. Compliance action will also be taken where there has been a failure to comply with legislation.

News and updates from RSHQ

Trevor Brown, Deputy Chief Inspector Mineral Mines and Quarries

In the 2022/23 Financial year the mineral mines and quarry (MMQ) inspectorate completed:

1025 mine and quarry inspections
8 in depth safety management system effectiveness audits
29 Site Senior Executive (SSE), High Potential Incident (HPI) investigation reviews

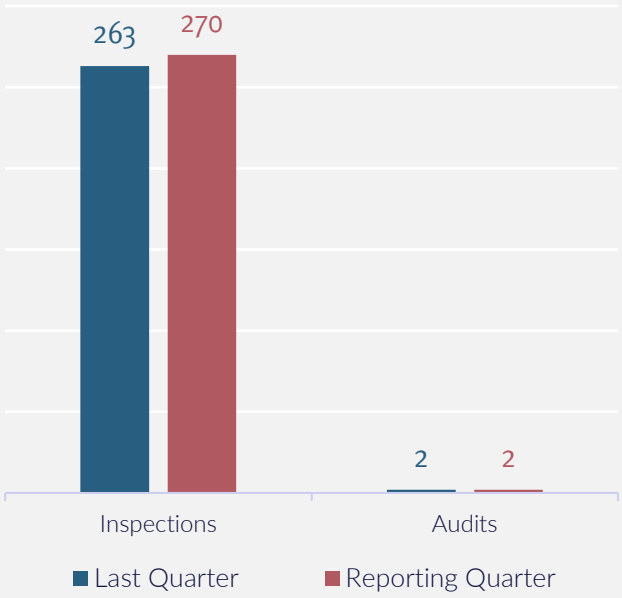
The 2023/24 financial year will see two major changes to the MMQ business operational plan. Firstly, a greater focus on critical/effective control implementation and less tolerance or acceptance of soft controls as controls to prevent a reoccurrence of HPIs. Secondly the move towards being more problem centric with our activities.

There has also been a greater focus put on the review of SSE HPI investigations. With this year seeing an additional follow up process implemented to determine the ongoing effectiveness of controls to prevent a reoccurrence of the HPI. 21 of the HPI investigations were followed up on with most showing controls continued to be in place and effective. While this is encouraging what was of concern was the continuing reliance on soft controls such as administration, training and PPE.

Historically the majority of MMQs work has been program centric, schedule of inspections and audits etc. MMQ is moving towards a mix of program centric and problem centric. Problem centric is the identification of critical issues within MMQ operations and implementing strategies to make a step improvement change to mitigate risk to workers from those identified problems.

The 2023/24 MMQ business plan has identified “Fires on underground vehicles” and “Effective second means of egress in underground mines” as the two critical areas of concern that will be focused on.

Regulator activity



Planned inspections **242**

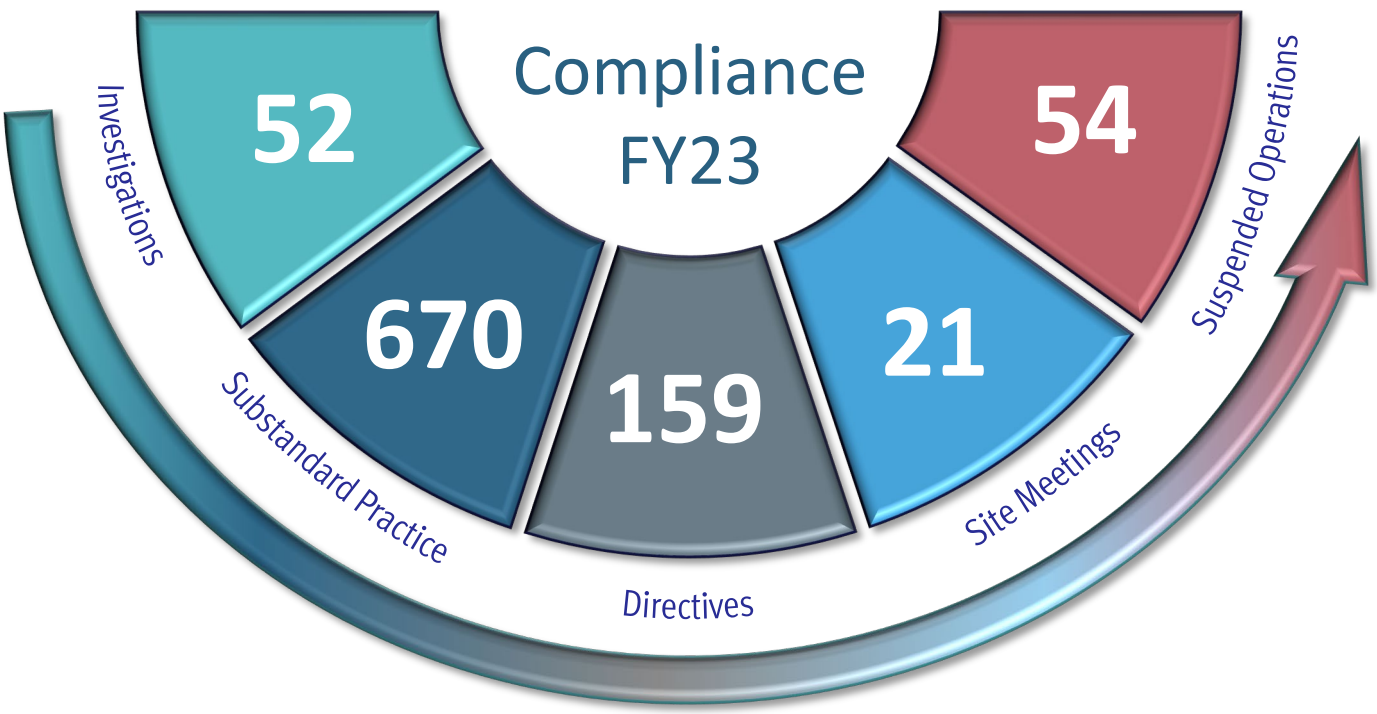
Complete

28% Unannounced Inspections

Planned audits **2**

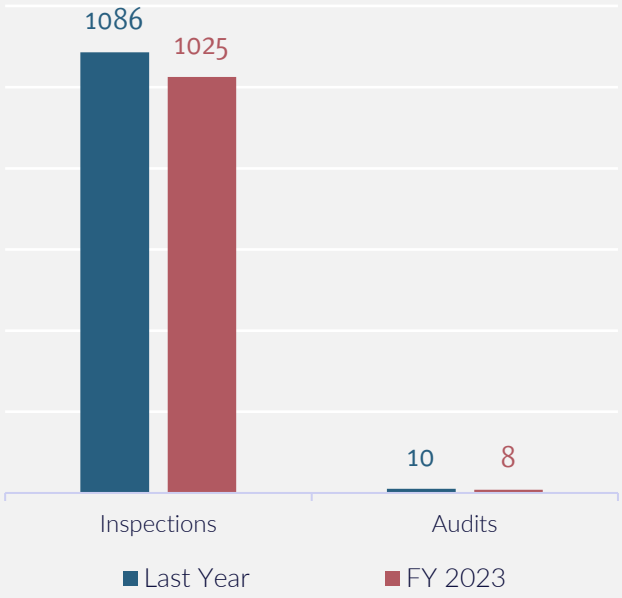
Complete

Complaints in FY23Q4 **9**



Displayed data taken 17/07/2023

Regulator activity 12 months



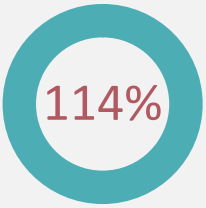
Complaints in FY23 **45**

Planned inspections **970**

Complete

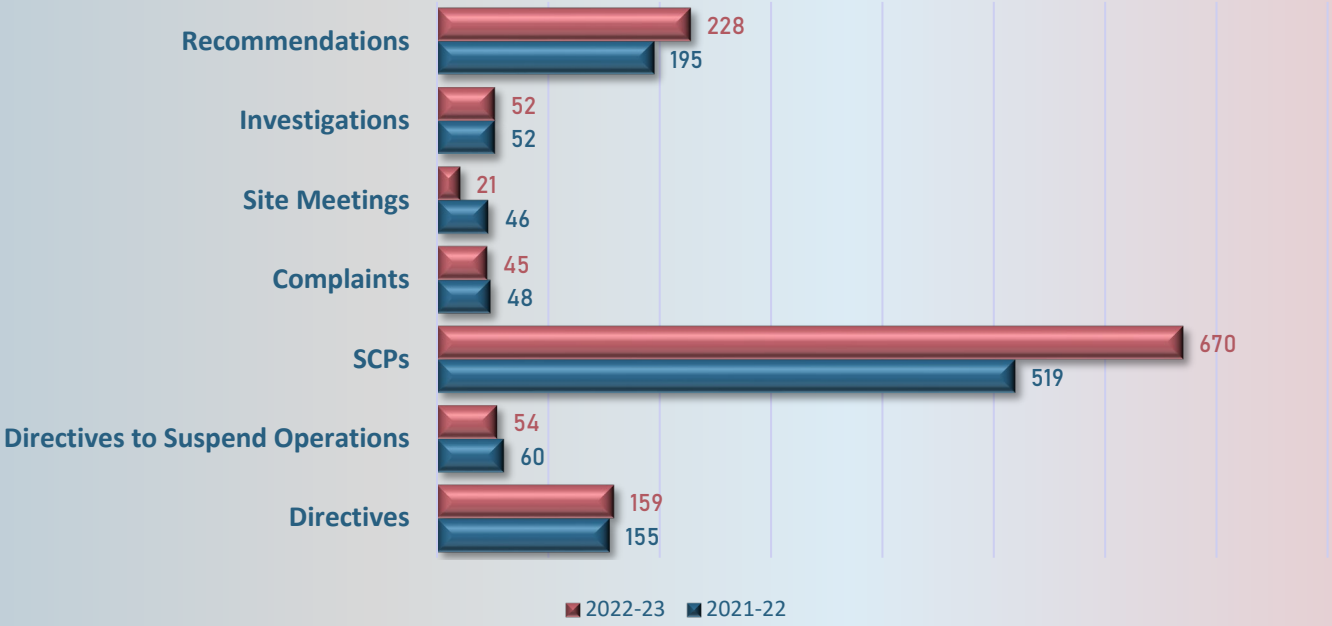
21% Unannounced Inspections

Planned audits **7**



Complete

Compliance FY23 vs FY22



Displayed data taken 17/07/2023

The numbers

FY23Q4
Industry worked
7.25 Million Hours

For every million hours worked:

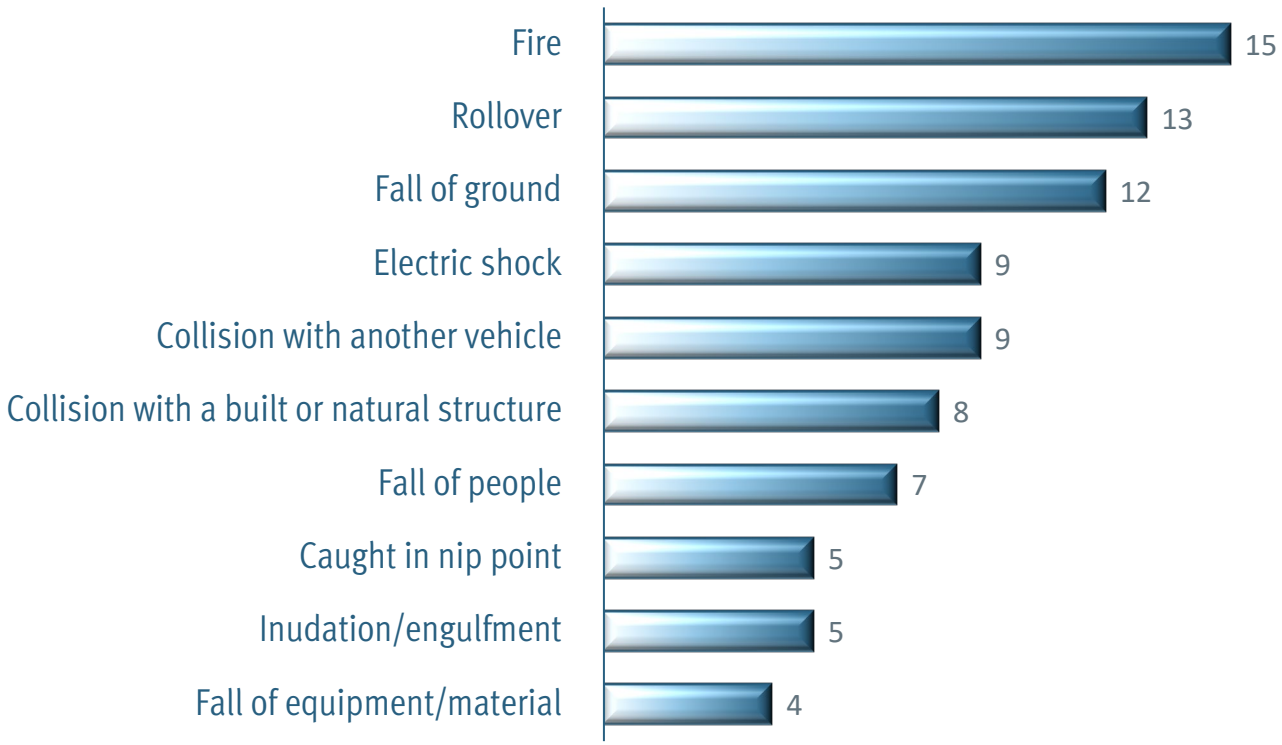
- 16.6 HPI's (HPIFR)
- 0.97 SA (SAFR)

Totals incident:

- 120 High Potential Incidents
- 7 Serious Accidents

0 Deaths

The top 10 hazards were:



Data taken 17/07/2023

The numbers – 12 months

Financial Year 2023
Industry worked
30.8 Million Hours

For every million hours worked:

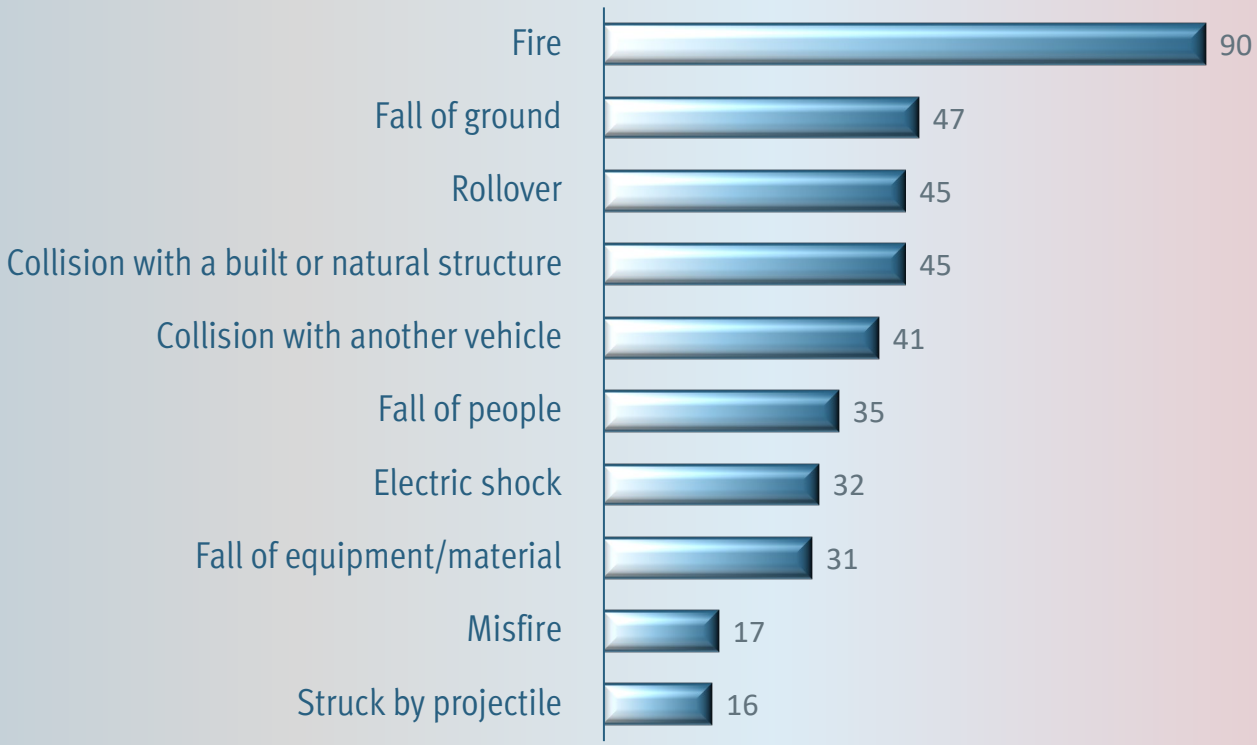
- 17.4 HPI's (HPIFR)
- 1.40 SA (SAFR)

Totals incident:

- 535 High Potential Incidents
- 43 Serious Accidents

3 Deaths

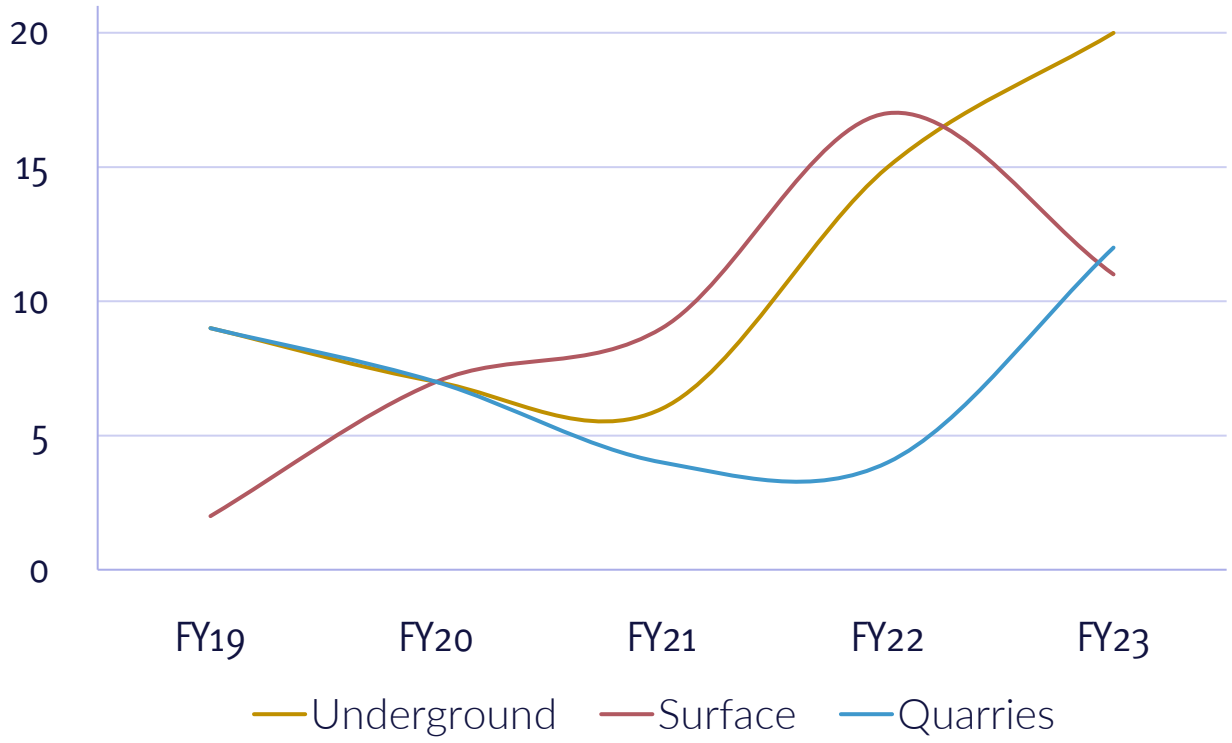
The top 10 hazards were:



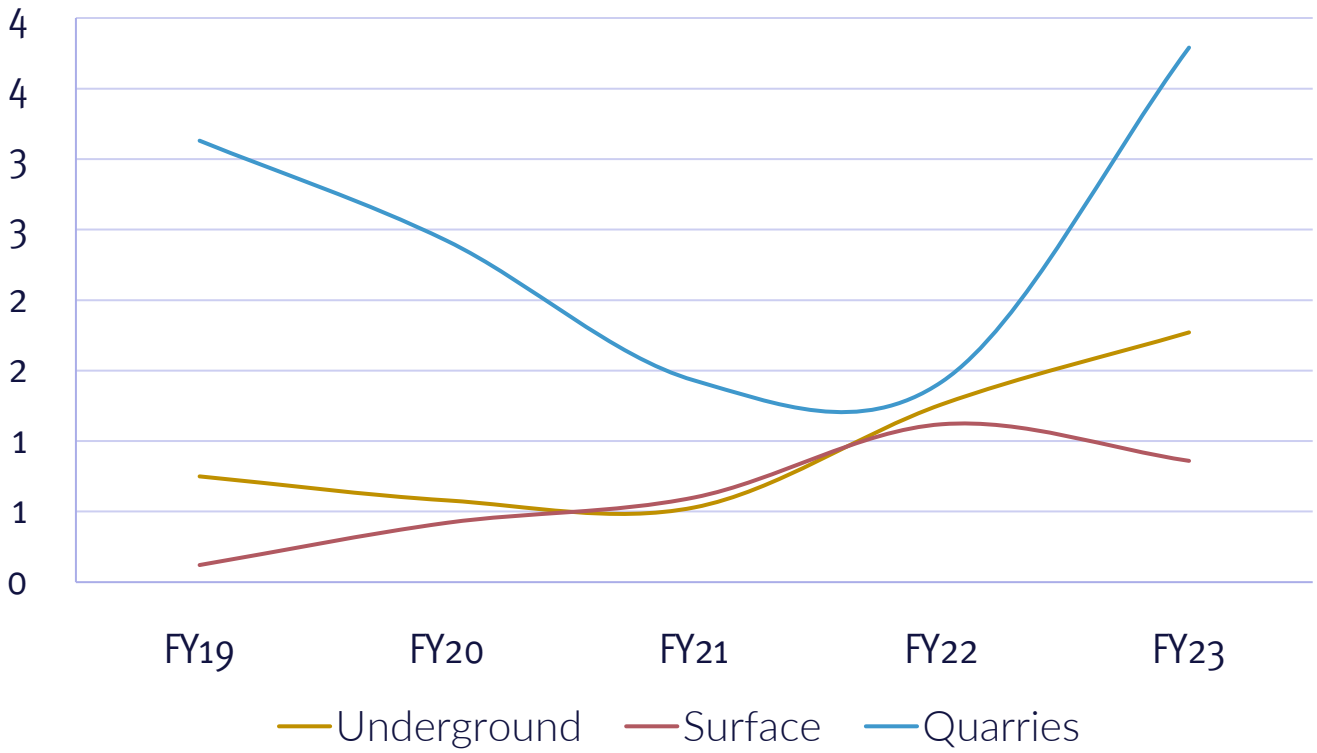
Data taken 17/07/2023

Trends

Serious Accidents FY 2019 to FY 2023



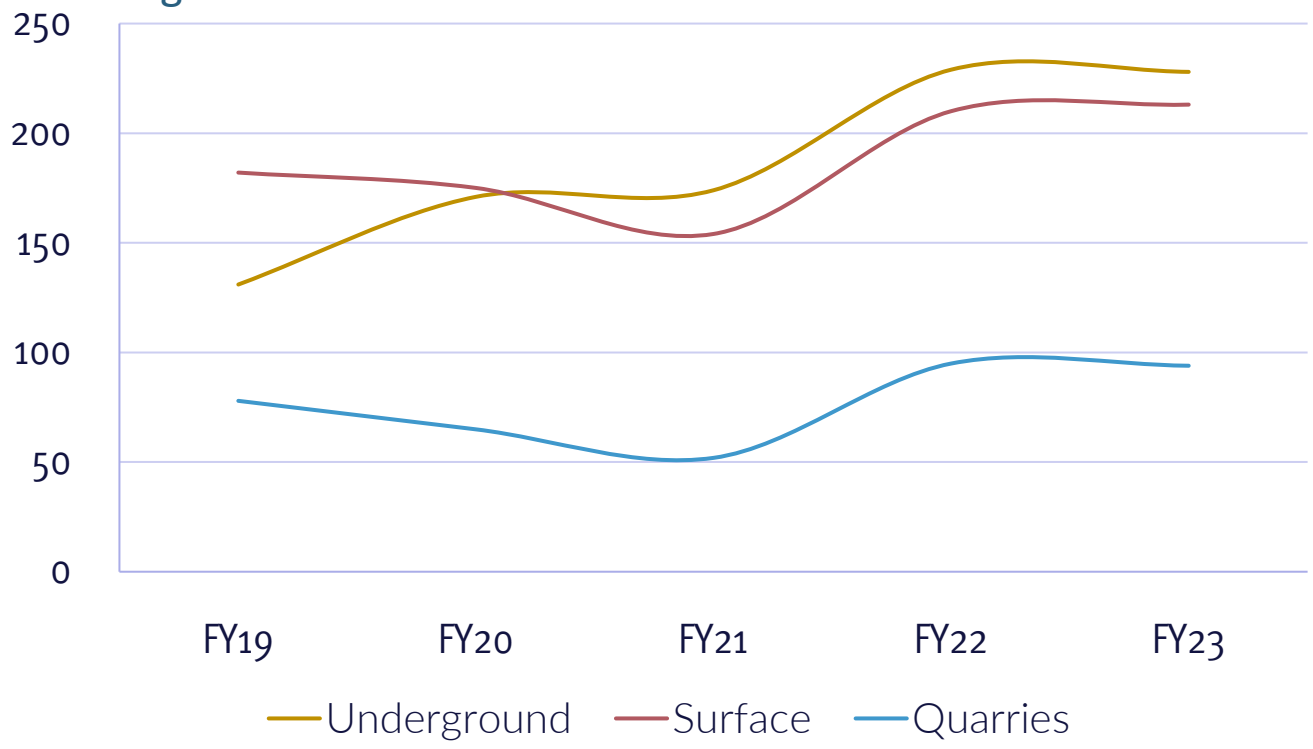
Serious Accident Frequency Rate FY 2019 to FY 2023



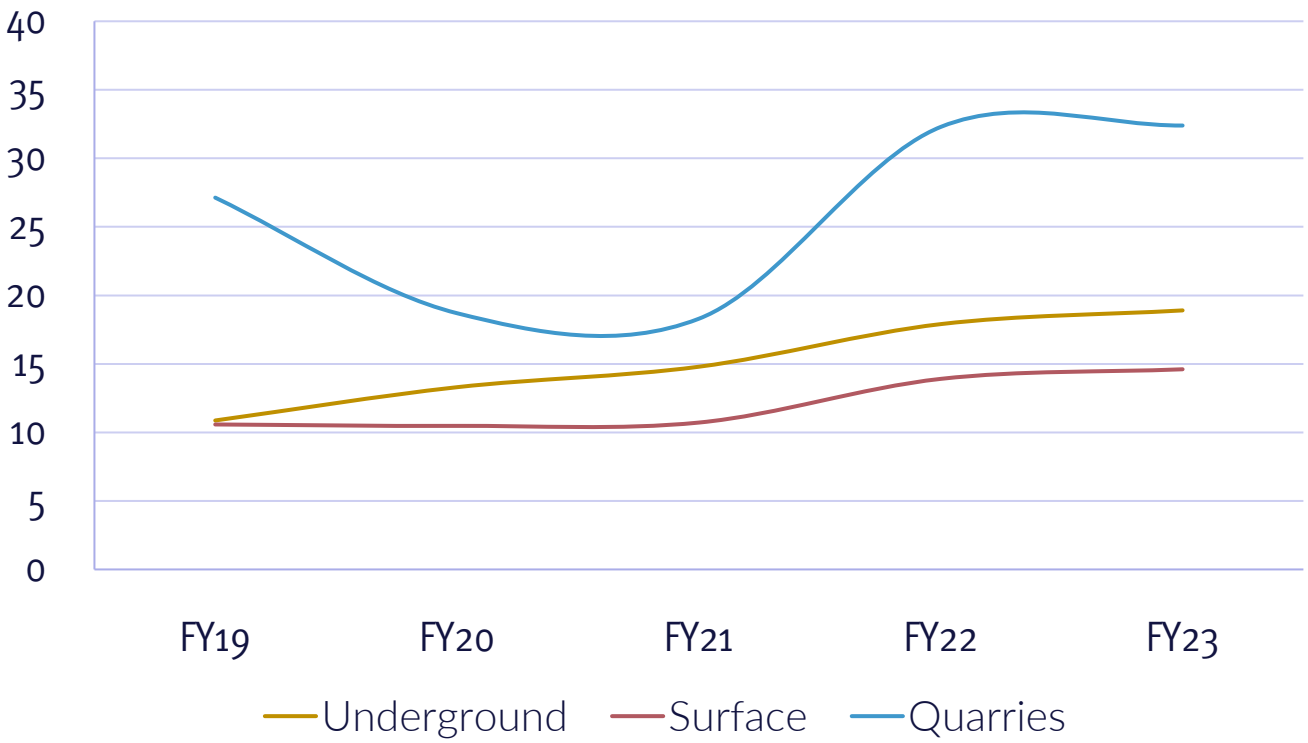
Data taken 17/07/2023

Trends

High Potential Incidents FY 2019 to FY 2023



High Potential Incident Frequency Rate FY 2019 to FY 2023



Data taken 17/07/2023

Incident Focus

Workers finger caught in conveyor nip point, causing a crush injury

While a radial stacker conveyor was being retracted, a worker 's finger was caught in a nip point between a roller and the conveyor frame causing crush injury that required surgery.

Serious accident resulting in surgery

← Workers finger was crushed in an accessible pinch point

Why?

← No guarding fitted to telescopic guide rollers and no exclusion zone was in place

Why?

← The latent hazard was not identified during the risk management process, resulting in no control implementation

Why?

← Unguarded pinch points are only present during the activation of the telescopic action, resulting in a latent hazard being overlooked

Why?

Contributing Factors

- During design and construction nip points on the radial stacker conveyor were not identified. These nip points only occur when telescoping the conveyor.
- The likelihood and consequence of latent hazards were not considered during the risk management process.
- A risk assessment was not conducted prior to commencing the task to identify the entanglement hazard.
- The conveyor's telescopic guide rollers were not guarded to prevent access to the nip point by persons.
- An exclusion zone was not established around the conveyor for extension or retraction.

Key takeaways

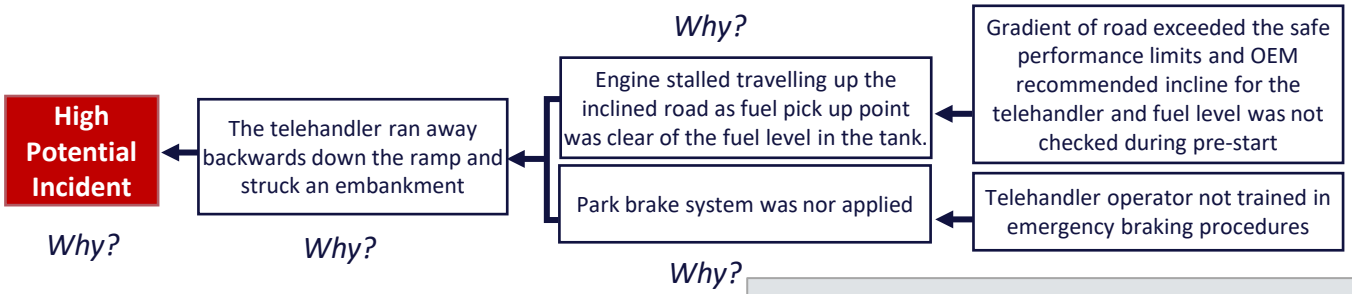
- Ensure that persons operating or maintaining conveyors understand the hazards and the controls necessary to prevent serious injury or death.
- Never operate a conveyor without the necessary guarding in place.
- All nip and shear points must be identified, assessed and guarded.
- Always carry out an appropriate risk assessment prior to conducting a task.

Photographs showing the radial stacker and the nip point

Incident Focus

A telehandler was travelling up an inclined ramp en route to having the machine refuelled when the engine stalled.

The telehandler began to run away backwards down the ramp. When the operator attempted to slow the vehicle movement using the service brakes, he was unable to do so. The telehandler travelled backwards approximately 20 metres and came to a halt when it struck an earth embankment adjacent to the ramp near an intersecting road.



Contributing Factors

- Road design - the gradient of the road exceeded the maximum OEM recommended incline for the telehandler.
- Pre-start checks - the telehandler prestart check sheet did not contain a prompt for the operator to check the fuel level.
- Maintenance - the emergency service brake accumulator was found to be faulty. It was not tested at the last 250 hour service interval.
- Training - no evidence could be sighted to suggest mobile equipment operators have been trained in emergency braking procedures in the event of primary system failure.

Key takeaways

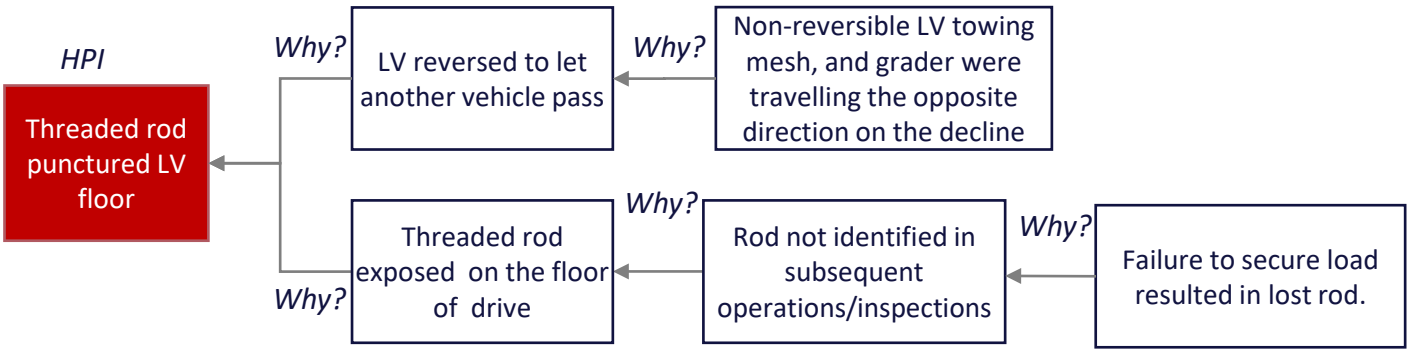
- **Ensure mobile plant does not exceed OEM operating specifications. Consider including sign posting mobile plant restriction areas.**
- **Ensure brake testing and maintenance is carried out as per OEM recommendations**
- **Consider the need to include fuel level checks on mobile plant pre-start checks**
- **Ensure appropriate training and verification of competency processes are adopted to assess operators understanding of mobile plant design limitations and all brake operations including correct application in an emergency situations.**
- **If operation of plant presents an unacceptable level of risk, or is unfit for use, plant must be locked-out and tagged.**

The telehandler came to a halt when it struck an earth embankment near an intersecting road

Incident Focus

Threaded rod punctured LV floor

While reversing a light vehicle into a drive to let another vehicle pass, the driver and passenger felt a bump and the passenger felt something touch their seat. Upon inspecting the light vehicle, they saw a piece of threaded rod had punctured the floor and contacted the underside of the passenger's seat.



Figures 1 & 2 – Photo showing damage to LV floor and re-enactment showing likely rod position after floor was punctured

Contributing Factors

- Regular inspections did not identify the rod in the drive road maintenance activities
- The site did not have a mandated floor protection system as part of its specification for LVs.
- Decline road conditions deteriorated over time creating uneven surfaces.
- Failure to secure load resulted in lost rod.

Key takeaways

- Debris on underground drives is a persistent hazard in the industry, with puncture of floors a possible outcome
- Sites must implement controls to identify and limit the sources of debris on drives
- Sites must regularly inspect drives and declines to identify and remove debris
- Innovative solutions exist for the protection of occupants in LVs – See MMQ Quarterly Report January 2023

HPI Investigation Review Findings (22/23 FY)

Process Brief:

21 Site Senior Executive, High Potential Incident Investigations, required as per Act S.198, were reviewed by an Inspector of Mines. Suitable controls to prevent a reoccurrence were identified to be implemented. A validation of the effective implementation of the controls was carried out 3 months post the HPI.

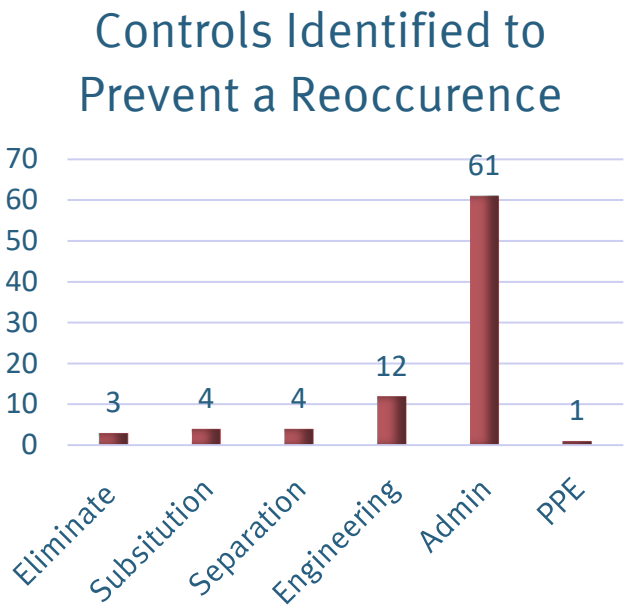
Observations:

Of concern, is that administration controls continue to feature as the preferred control type to prevent a reoccurrence of a HPI.

Possibly, on closer examination higher level controls are documented within the administrative processes but this was not evident.

On their own, administrative controls and other soft controls are not effective controls to prevent a reoccurrence of a HPI. They are processes to document and communicate what higher level controls are required to be implemented.

Reviews generally also did not identify how controls to be implemented would be monitored for ongoing effectiveness.



Validation

Control status 3 months post HPI

Implemented - 76%

In Progress - 17%

Not Implemented - 7%

Where to next:

With the ongoing high reliance on administrative controls future reviews will focus on the implementation of critical controls*.

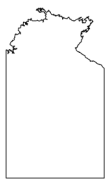
Reviews will identify critical controls that have failed or had not been previously identified. Monitoring of a critical control's ongoing effectiveness will also need to be identified as part of the review process.

Once again, the critical control and it's monitoring process will be validated post the HPI.

***Critical Control:**

A control that is crucial to preventing the event or mitigating the consequences of the event. The absence or failure of a critical control would significantly increase the risk despite the existence of the other controls. In addition, a control that prevents more than one unwanted event or mitigates more than one consequence is normally classified as critical.

Interstate and around the world

Location	What has been happening
	**Gold mine fire in Peru kills 27** LIMA, May 6 (Reuters) - A fire in a small gold mine in southern Peru has left 27 people dead, authorities said on Sunday, in the country's single deadliest mining accident in more than two decades. In a statement, the local government said a short-circuit sparked the fire in the early morning hours of Saturday in the southern region of Arequipa. Images on local media and on social media showed dark plumes of smoke pouring out of the site. Reuters
	**MSHA Safety Alert** - From January 2013 to March 2023, there have been 545 accidents on longwalls in underground coal mines, causing seven deaths and 333 serious injuries. These accidents occurred when miners were performing routine work such as shovelling coal, working on shields, moving equipment, installing bits on shear drums and installing supplemental ground support at the face and roof during recovery of longwall equipment. Read more MSHA Longwall Accidents Safety Alert
	**Significant Incident Summary** No. 3 - Installing non-original sun visors that reduce field of view – fatal incident. WorkSafe is investigating an incident, which resulted in a worker sustaining fatal injuries after being struck by a truck at a workplace. At the time of the incident, the worker was in close proximity to the front of the cab of the truck. The driver of the truck did not see the worker prior to setting off. Further information.
	**Carbon monoxide risk** when using forklifts in enclosed areas. Two workers working in a cool room experienced the effects of carbon monoxide poisoning that resulted in one of the workers requiring medical assistance. An LPG fuelled forklift had been operating inside the cool room the workers were in. Further information
	WorkSafe is reminding employers of the risks associated with modifying the structure of quarrying or mining plant. On 4 August 2022, a side discharge conveyor on a screening plant at a quarry collapsed suddenly while operating. The supporting structure failed at the midpoint, instantly causing the discharge end of the conveyor to collapse. Further information

Positive Outcome Focus

Snake Bite – Are you prepared?

Whilst inspecting drilling pads in a remote location, the Geologist (IP) was bitten by an unknown snake. Upon feeling the onset of symptoms (chest tightness, shacking leg and nausea), IP drove himself to nearby Drilling Crew to raise the alarm and get help.

The Drilling Crew immediately immobilised IP and applied first aid. As there was no phone service and no Satellite phone available, Offsider was sent to contact emergency services. *InReach was found under IPs vehicle seat and SOS was activated. Offsider was able to contact emergency services, Ambulance and RFDS Helicopter were dispatched. IP was flown to Mt Isa Hospital for treatment and was released later that day.

The Drilling Crew did an outstanding job in immediately applying first aid, raising the alarm and maintaining IP stable until the RFDS Helicopter arrived to transport IP to Hospital, and are to be commended for their actions.

Success Factors

Safety and health management system:

- Emergency Response and First Aid Training - The Drilling Crew were aware of what to do and acted quickly to apply first aid for a snake bite, raise the alarm and stabilise IP.
- Working in Isolation, and Remote Location plan and procedures were in place and followed.
- Offsider was able to communicate directly with ooo not far from the exploration site.
- InReach was available and was used as intended to send an SOS and raise the alarm in an emergency.
- Helicopter landing area was pre-set and was made available as part of the Emergency Response Plan.

Key takeaways

- Majority of the surface operations are in the snakes' habitats. Always Plan and prepare to deal such situations.
- First aid training including dealing with snake bites is very important when working remotely.
- First aid kits must include snake bite kits.
- Being able to Identify or describe the snake will speed up the medical treatment and recovery.
- Working in Isolation, Remote Location Plan and Procedure, and an Emergency response plan must be in place before deploying to and conducting work in a remote location.
- Signs indicating presence of snakes must be in place in known snake habitat areas.
- Maintain and ensure the availability of The Emergency Position Indicating Radio Beacon (EPIRB) and Satellite phone as means of communication, when working in remote locations.

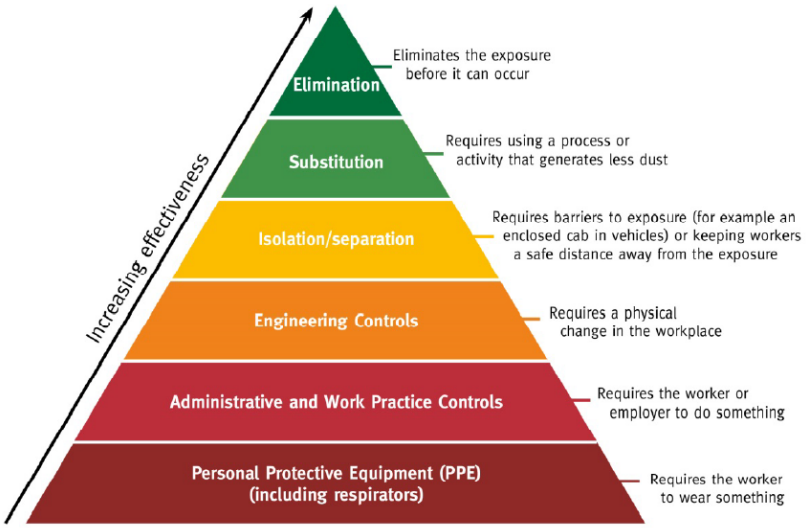
*InReach - https://guardianangelsafety.co/

Respiratory protective equipment - RPE

Using personal protective equipment as a hazard control is the lowest form of defence in the hierarchy of controls.

Section 140 of the MQSHR's 2017 states when using personal protective equipment

(2)The site senior executive for the mine must ensure— (a) the person is given suitable and effective personal protective equipment; and (b) the person is competent in using the equipment; and (c) the person's work load and work cycles are reduced to allow for the increased physical load of the equipment. (3) A person who is given personal protective equipment under subsection (2) must use the equipment when the person's level of risk from the hazard is unacceptable.



Hierarchy of control

When RPE is required to be worn on a mine site the selection, use and maintenance of respiratory protective equipment must conform to Australian standard AS/NZS 1715 Selection, use and maintenance of respiratory protection.

Tight fitting respirators (masks) rely on having a good seal with the wearers face. The respirator must be a suitable size for the person's face, and for the hazard present. A risk assessment is needed to demonstrate when and where respirators are used on a mine site.

There are two basic types of respirator fit testing available – qualitative and quantitative. Fit testing is a method to check that a tight fitting mask matches a person's facial features and seals adequately. The aim is to fit a mask to an individual to achieve the desired level of protection.

RSHQ is a partner support of RESP_FIT https://respfit.org.au/our-partners/ which is a program providing information, tools and competent best practice fit testing professionals (a program of the AIOH).

More information

1. https://www.worksafe.qld.gov.au/news-and-events/alerts/workplace-health-and-safety-alerts/2021/fit-testing-for-tight-fitting-respirators
2. https://respfit.org.au/
3. Standards Australia, 2009, AS/NZS 1715 - Selection, use and maintenance of respiratory protection.

Key engagement & activities

KEY ENGAGEMENTS FY24Q1

IQA North Queensland Quarrying and Mining Conference, Townsville 14 July 2023
Underground Mine Managers & Site Senior Executives Conference, Townsville 20-21 July 2023
Queensland Mining Industry Health & Safety Conference, Gold Coast 20-23 August 2023
Miner's Memorial Day, Mt Isa 19 September
Minister for Resources Safety Reset 2023 - October

KEY TRAINING – BOE LAW EXAM SCHEDULE FY24Q1

July	Brisbane	Monday 3	9:00AM
	Dysart	Friday 21	9:00AM
	Mackay	Wednesday 19	9:00AM
	Moranbah	Thursday 6	9:00AM
	Rockhampton	Thursday 6	9:00AM
August	Brisbane	Monday 7	9:00AM
	Dysart	Friday 15	9:00AM
	Mackay	Wednesday 18	9:00AM
	Moranbah	Thursday 12	9:00AM
	Rockhampton	Thursday 5	9:00AM
September	Brisbane	Monday 4	9:00AM
	Dysart	Friday 15	9:00AM
	Mackay	Wednesday 20	9:00AM
	Moranbah	Thursday 14	9:00AM
	Rockhampton	Thursday 5	9:00AM

Bookings must be received at least one week prior to the session date. BOESecretary@rshq.qld.gov.au

Contact


Use the camera on your smart phone to scan and connect to the Mines Inspectorate where you can report an incident, locate an office or talk to an inspector.
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