

June 2023

EI Quarterly Report

High Potential Incidents and Serious Accident
summary

Queensland Explosives Inspectorate
April – June 2023 quarter



Resources Safety & Health
Queensland

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Unless otherwise stated data is taken to the end of FY23 Q3.





From the Chief



Hermann Fasching Chief Inspector Mineral Mines and Quarries

Resources Safety and Health Queensland (RSHQ) is seeing an increase in the number of High Potential Incidents (HPI) being reported by industry. While this increase may raise some concerns, it is indicative of a strengthening of reporting culture across industry. A key initiative of the inspectorate is to increase the reporting of HPI and since then we have seen an increase in the number of HPI 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 HPI. Recommendation 11: The regulator should adopt the HPI Frequency Rate (HPIFR) as a measure of reporting culture in the industry.

Rather than viewing the HPIFR as a measure of the level of safety in the industry, it should be viewed as a measure of the reporting culture. HPI 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 2020*)

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

RSHQ welcomes and encourages the reporting of HPI, and the inspectorate will not take compliance action for reporting them.

However, if it is found that a HPI has deliberately not been reported, compliance action will be taken. Compliance action will also be taken where there has been a failure to comply with legislation.

Our vision – ZERO SERIOUS HARM





From the Deputy Chief



Snezana Bajic

Deputy Chief Inspector Explosives

The Explosives Inspectorate has a regulatory role across many explosives industries, and it is a challenge to balance our focus equally across authority holders. Over the past year we have increased the number of forums we attend with a range of industry groups.

We will continue to inform and update our authority holders on meetings and presentations relevant to their area of interest, the forums we are attending are listed on page 13 of this report. These events are a great opportunity for the regulator to share learnings from the incidents which have been reported to us.

I want to iterate the Chief's message that every reported incident is an opportunity to learn and take action to prevent further incidents. In 2022/23 the Explosives Inspectorate received notifications of 495 incidents, which is a 23 per cent increase from the previous year.

During this quarter we doubled the number of inspections we conducted, resulting in 133 statutory actions within the industry.

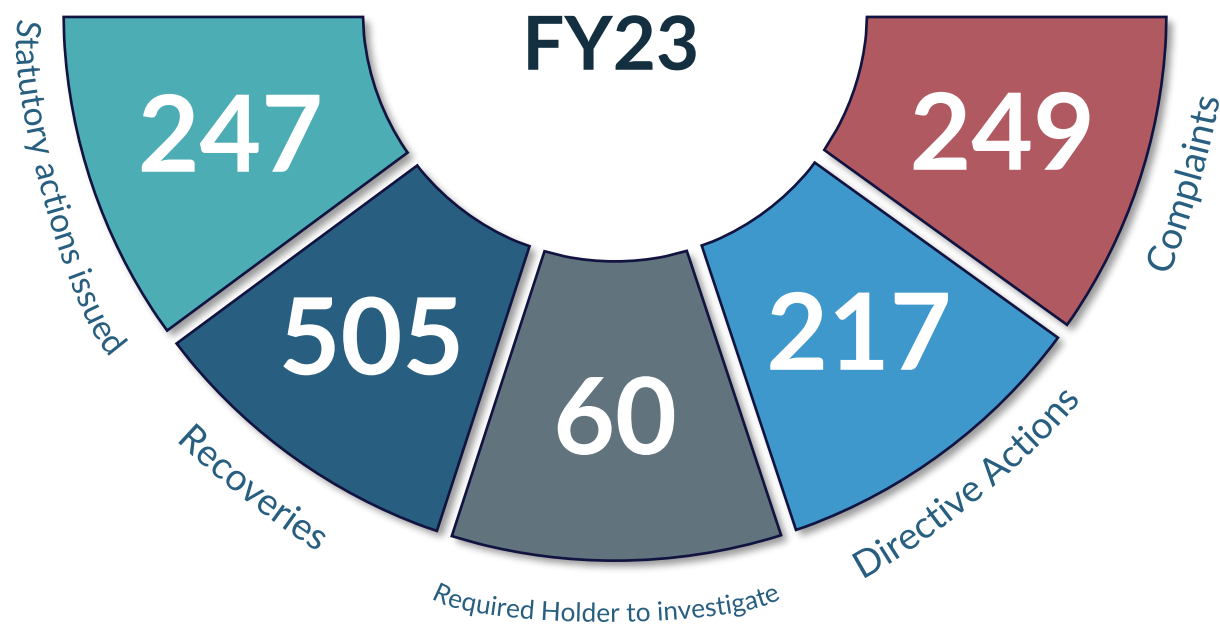
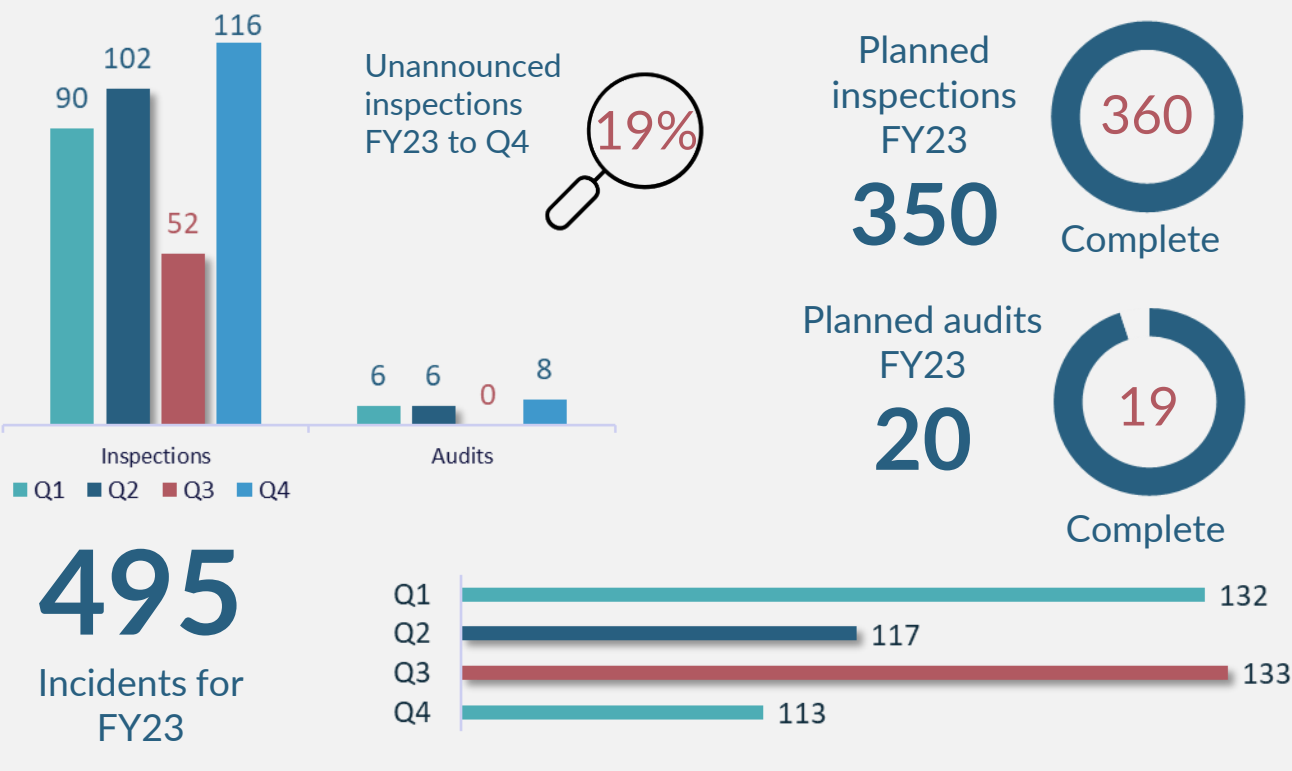
This year we have issued 70 per cent more *section 58's* to authority holders to investigate incidents, findings and improvements to inspectorate. Our efforts in this area are continuing, and we are seeing a decrease in a need for inspectors to issue dangerous situation notices or other forms of direct action to prevent harm, resulting in higher safety focus.



Our vision – ZERO SERIOUS HARM

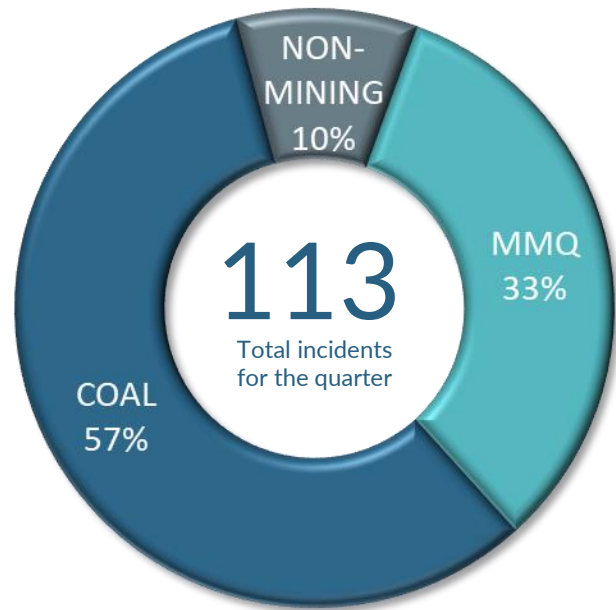


Regulator actions

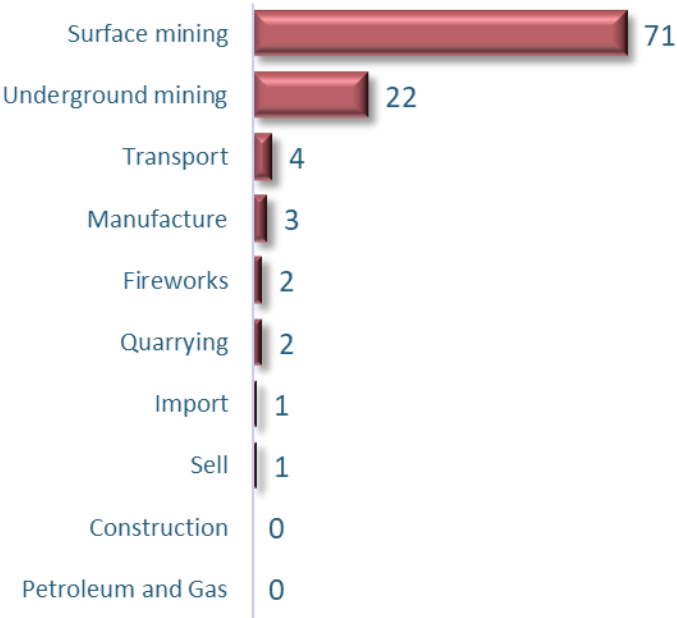


Incident numbers for FY23 Q4

Incidents by industry sector



Incidents by sector top 10

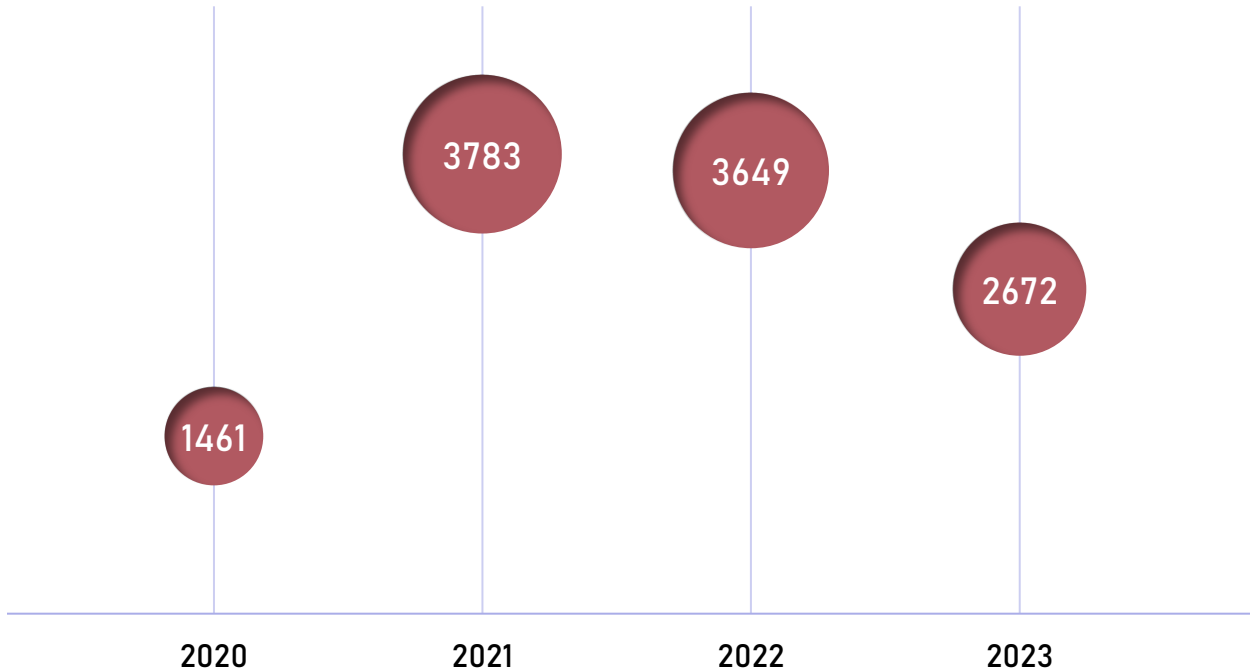


Top 10 incidents by type

What are the key control failures or areas of safety that have impacted these outcomes.

Security clearances

Security clearances by financial year



Transitional security clearances



If you held a security sensitive authority (licence) on 1 February 2020, the transitional security clearance arrangements will expire depending on which of the following applies;

If the **licence is renewed after 1 February 2020**, the transitional arrangements expire on the expiry date of the renewed licence (up to the maximum of 1 February 2025) or earlier if the license is surrendered or cancelled

If the licence is **not renewed** after 1 February 2020, the transitional arrangements will expire when the licence expires (or is surrendered or cancelled)

Check your security clearance status:

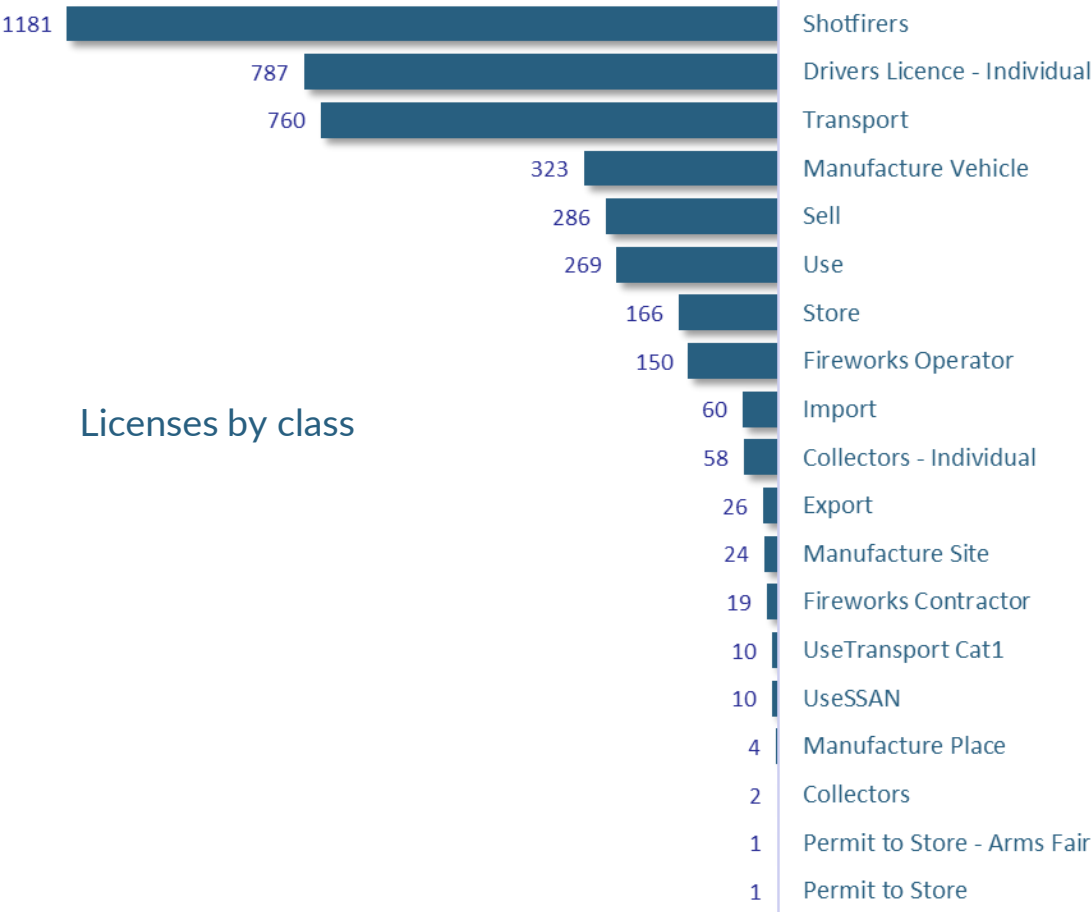
www.qescstatus.qld.gov.au

For more information:

[Security clearances for explosives and fireworks](#)



Current licenses

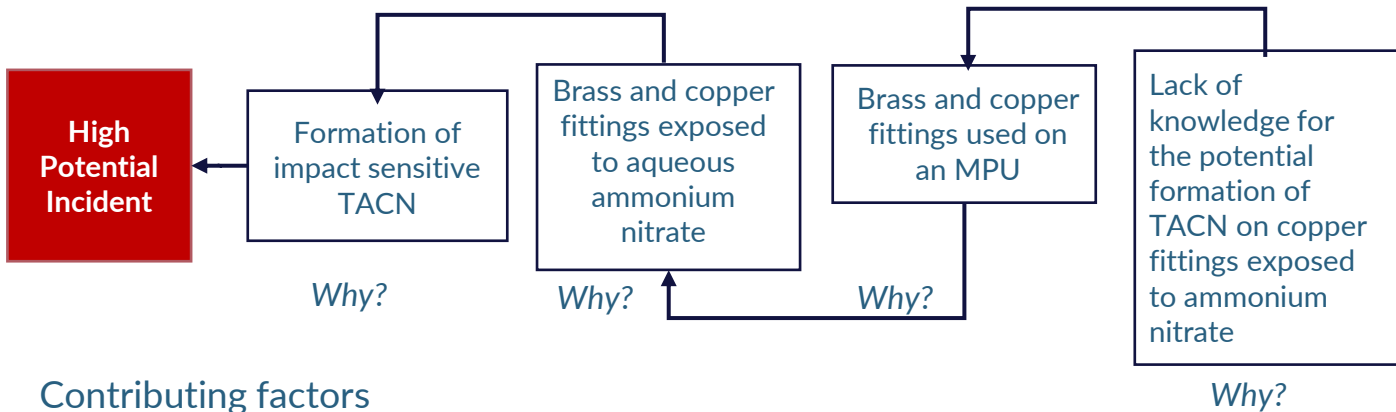


Incident focus

Formation of Tetra-Amine Copper Nitrate (TACN) on copper fittings located on Mobile Processing Unit (MPU)

During a routine inspection by the Explosives Inspectorate TACN was identified on a brass padlock and copper fittings located on an explosive Mobile Processing Unit.

TACN is an impact sensitive explosive compound formed when reactive metals such as zinc, copper or its alloys (brass) are exposed to an aqueous solution of ammonium nitrate.



Contributing factors

Training - Lack of knowledge and awareness of interactions between ammonium nitrate and reactive metals



Key takeaways

- Replace all reactive metals in ammonium nitrate and emulsion storage and handling facilities with non-reactive materials.
- Train employees and maintenance workers in the identification of TACN.
- Review workshop procedures to ensure that they highlight the hazards associated with the use of reactive metals.
- Refer to explosives technical advice on cleaning methods to removed possible TACN compound.
- Never use impact or hot-work tools on an item known or suspected to contain TACN.
- Regularly wash down areas exposed to ammonium nitrate spillages or dust.

Further information

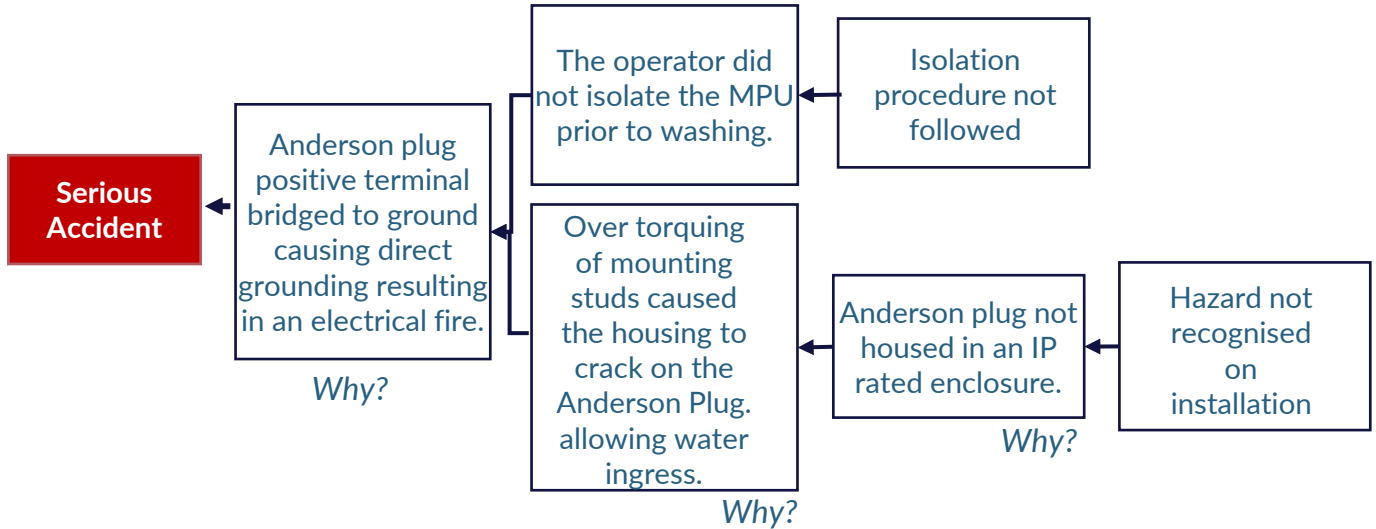
- [Formation of Tetra-Amine Copper Nitrate \(TACN\) on copper fittings located on Mobile Processing Unit \(MPU\) | Resources Safety & Health Queensland \(rshq.qld.gov.au\)](https://rshq.qld.gov.au)
- [The Australian Industry and Safety Group \(AEISG\) code of practice for mobile processing units \(MPU\)](#)
- [Department of Industry NSW - Safety Bulletin -Exposure to copper or copper alloys to ammonium nitrate – TACN formation](#)



Incident focus

Electrical fire on a Mobile Explosives Manufacturing Unit

While washing an MPU at a mine site wash bay, the operator noticed an electrical fire in the jump start receptacle (commonly known as an Anderson Plug) on the passenger side of the MPU.



Contributing factors

Mounting the Anderson plug on top of a box that is connected to the battery negative terminal when not isolated.

The Anderson plug is not IP rated, allowing internal corrosion over time due to the presence of AN residue, dust and moisture.

Internal crack to Anderson plug

Failure to identify damage to the Anderson plug housing during pre-start and inspections.

Washing the MPU without following isolation procedures.

Key takeaways

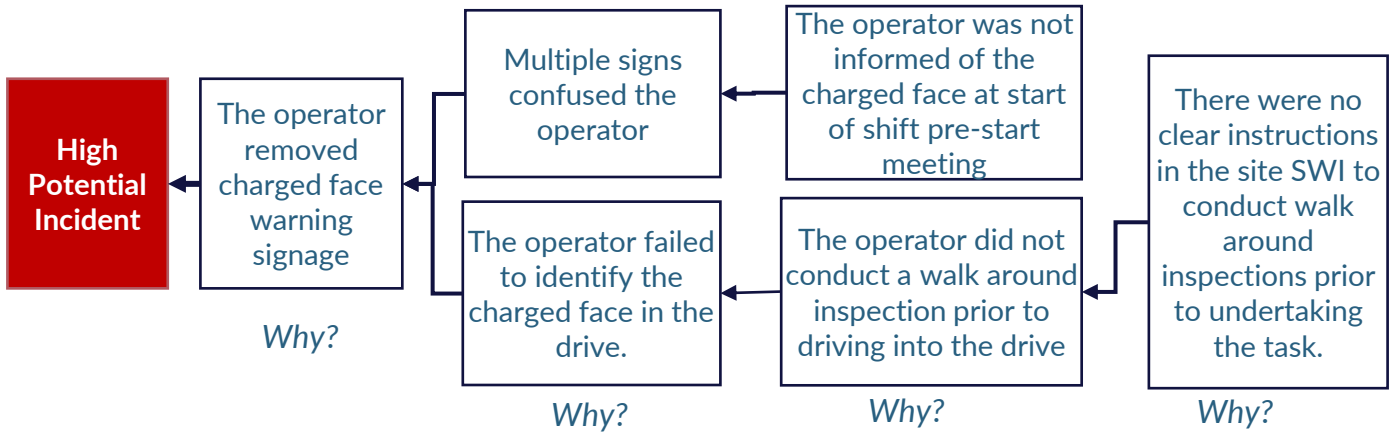
- Management of Change processes must be adhered to and regularly reviewed for effectiveness.
- Ensure aftermarket installations on MPU's comply with all relevant Standards and Codes.
- Adequate training of employees in isolation and tagging procedures is a critical step in all safety and health management systems.



Incident focus

Loader breached live explosive exclusion zone

A loader operator at an underground mine drove into an area containing live explosives and contacted Non-Electric Signal Tube.



Contributing factors

- Pre-start meeting – The operator was given the task to bog the stripping at the start of shift at the pre-shift meeting and was not notified that the stripping has not been fired.
- Hazard identification– Hazard Analysis/ JSA/ Safe Stop was not completed prior to tramming into drive.
- Individual actions– The operator removed signage warning of danger without seeking prior permission from his or her supervisor.

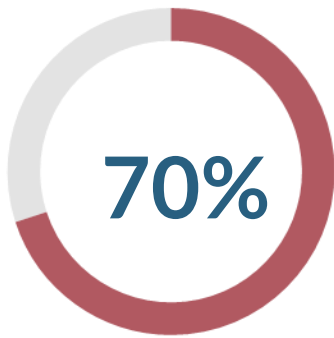
Key takeaways

- Non Electric signal tube is impact sensitive and can be unintentionally initiated if not utilised as per the manufacturer's instructions.
- Signage warning of potential hazards should never be dismissed as incorrect.
- Always STOP and seek clarification from your supervisor if faced with uncertainty while completing a task.





Incidents in the spotlight

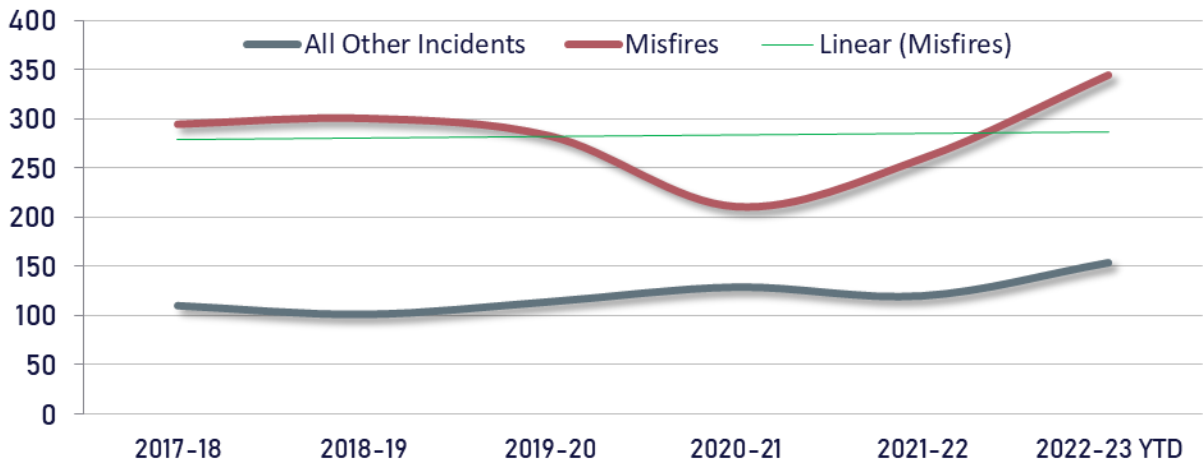


Misfires

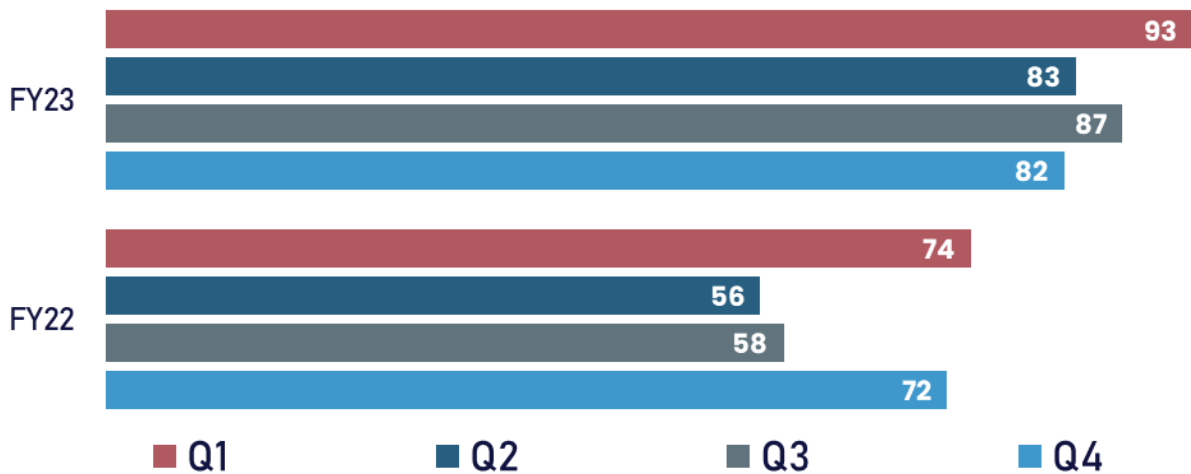
Misfires make up 70 percent of all incidents recorded by the Queensland Explosives Inspectorate.

This incident type will form part of the investigative strategy for the coming year.

The graph below shows the trend for misfires compared to all other recorded incidents - it is trending slightly down but continues as a major contributor.



Misfires FY23 vs FY22 by quarter



Key engagement and activities

UPCOMING EVENTS



Queensland Mining Industry Health & Safety Conference, Gold Coast, 20-23 August 2023



AusIMM Northwest Queensland Regional Mining Conference



Miner's Memorial Day, Mt Isa 19 September



Minister for Resources Safety Reset 2023, October

PUBLICATIONS THIS QUARTER



[Safety Alert 111 - Unplanned Detonation of Explosives During Rock Breaking Activity](#)



[Safety Alert 112 - Formation of Tetra-Amine Copper Nitrate \(TACN\) on copper fittings located on Mobile Processing Unit \(MPU\)](#)

OTHER BUSINESS



Reminder to all authority holders selling propellant powder

In our recent inspections we have noticed that several authority holders and/or their employees selling propellant powders don't have Queensland Explosives Security Clearance (QESC).

Authority holders and their employees who have unsupervised access to explosives must hold QESC.

If an employee does not hold QESC, access to explosives can only be under supervision of someone who has the QESC.

Authority holders who don't have QESC and are under transitional arrangement, please note that it ends on 1 February 2025, and they must obtain QESC before the end date.



Contact

Licensing

GPO Box 1321

Brisbane QLD 4001

Phone: (07) 3199 8023

Email: explicensing@rshq.qld.gov.au



General enquiries

GPO Box 1321

Brisbane QLD 4001

Phone: (07) 3199 8023

Email: explosives@rshq.qld.gov.au

Emergencies

For emergencies where someone is seriously injured and in need of urgent medical help, life or property is under threat, or if you have witnessed a serious accident or crime **first contact 000**.

You can then report explosives accidents or emergencies to the **Explosives Hotline 1300 739 868** (24/7).



<https://www.business.qld.gov.au/industries/mining-energy-water/explosives-fireworks>

