Explosives Inspectorate

Resources Safety & Health Queensland

# Explosives Inspectorate Quarterly Report - Q1 2022

## Chief Inspector of Explosives

### Quarterly Message

**Blasting incidents due to weather events**

Summer is here again and in the coming weeks and months Queensland is expecting a significant amount of rainfall. From a blasting point of view, significant weather events have the potential to lead to the oversleeping of product in blast holes, and misfires due to the slumping of explosive product.

The Explosives Inspectorate generally receive an increased number of reported incidents of this type from November to March.

The good news is we normally receive ample warning prior to these events which allow us to take appropriate action and avoid such incidents. If you have not done so already review your blast management plan with a focus on what actions your site should take to avoid blasting incidents caused by weather events.

*1 - Example of a flooded shot*

## New Explosives Inspectors

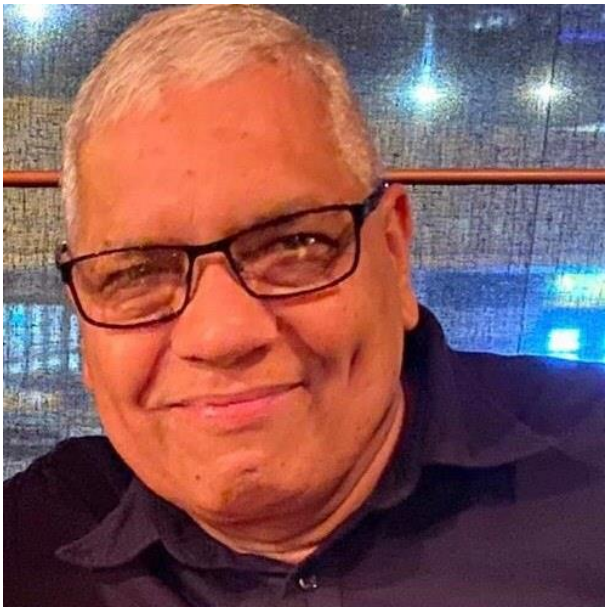
*2* - Hermann Fasching, Chief Inspector of Explosives

**Hermann Fasching – Chief Inspector of Explosives**

Hermann provides strategic leadership and direction through a focus on regulation and education. His inspectorate assists the industry to meet its obligations while promoting the safety and health of workers to achieve a goal of zero serious harm.

He has over 40 years' experience in the extractive mining industries, in both surface and underground operations, and as a government regulator. His extensive experience is backed by qualifications that include a Diploma of Engineering, Diploma of Government Workplace Inspection, Fellow of the Institute of Quarrying Australia and a Certified Practicing Quarry Manager.

The loss of a close family friend in an underground mining accident drove Hermann to actively pursue a career in health and safety. His conviction that a zero serious harm industry is achievable keeps him focused.



*3 - Vishwa Bhushan - Principal Inspector of Explosives, South Region*

**Vishwa Bhushan – Principal Inspector of Explosives, South Region**

Vishwa Bhushan is a mining engineer with significant international experience in explosives and drill and blast. He worked for 11 years with Rio Tinto before joining RSHQ. Previously he has worked with major explosives manufacturers including Orica, Dyno and Downer Blasting Services in Australia and in India.

He has a Master's degree in Mining Engineering from the Ohio State University in the US and has done research in explosives at the US Bureau of Mines in Pittsburgh. He has authored several papers published in international conference proceedings and mining journals.

*4 - Michael Hersey – Senior Inspector of Explosives*

**Michael Hersey – Senior Inspector of Explosives**

Mike began his career in the explosives industry in July of 1988 as an assistant Shotfirer with the Groote Eylandt Mining Company.

He has remained in the explosives industry ever since and has gained experience in the Pilbara and Eastern Gold Fields of Western Australia, PNG and Central Queensland.

He has extensive experience in the safety and compliance field and has held several senior positions in the mining industry.

A former Senior Inspector of Explosives of five years, Mike has recently returned to RSHQ.

*5 - Jamie Greaves - Inspector of Explosives*

**Jamie Greaves – Inspector of Explosives**

Jamie joined the Explosives Inspectorate team in April 2022. He has previously been employed with Orica Mining Services as a Shotfirer and Site Supervisor. During his 10-year career with Orica, Jamie has had experience with blasting across both open cut hard rock and coal mines and has conducted blasting operations across 13 different mines in Queensland. Jamie was a member of Orica's Rapid Response Team, driving safety, compliance and best practice across many Orica customer sites.

Jamie left Orica in 2018 to take a new career at the Port of Townsville, where he was responsible for safe arrival and departures for shipping movements, berth allocation, incident management, dangerous goods and explosives notification approvals for products coming across Port of Townsville. Jamie's responsibilities also included legislative requirements under Australian Maritime Safety Authority (AMSA) and Maritime Transport and Offshore Facilities Security Act 2003 (MTOFSA) as well as other codes and practices.

# Deputy Chief Inspector of Explosives

*6* - Dr. Snezana Bajic, Deputy Chief Inspector of Explosives

## Serious Incidents – A Closer Look

**Breach of safety exclusion zone**

An incident occurred at a Queensland show this year where an angled firework broke the exclusion zone and flew near to the watching crowd. Further investigation of this incident lead to a change in the Fireworks Notification form which now asks Contractors to identify angled fireworks to ensure exclusion zones are adequate. The fireworks contractor identified the causes of this incident and released the internal investigation findings to the industry during the Fireworks Contractor meeting. The meeting was organised by RSHQ and held in late November. The learnings from the incident show that system reviews and continuous improvements are needed to ensure safer environments for fireworks contractors, operators, and the public. The inspectorate commends the sharing of these findings with industry, demonstrating fireworks contractor commitment to safety and the benefit of fireworks industry.

There have also been a number of other breaches of exclusion zones in blasting, some resulting in damage to plant and equipment, and some instances of people being left in the exclusion zone as blasting commenced. The Explosives Inspectorate has issued Notices to Investigate to authority holders and has conducted its own investigations into these incidents.

Failed controls include:

- lack of engineering controls
- controls identified in risk assessments are not implemented, or not effectively implemented.

**Loss of product**

The Inspectorate has received a number of reported incidents of loss of product, including detonators. The reasons provided for these losses included accounting errors resulting from inaccurate stock-take and ineffective intake practices.

In one incident, the investigation conducted by the Explosives Inspectorate found inadequate processes and controls for receiving explosives into a reserve. The inspection resulted in a Notice to

investigate the incident being issued to the authority holder. The report provided by the authority holder has identified several actions to improve processes, procedures and training at the manufacturing plant.

**Multiple flyrock events**

Several unwanted flyrock events were reported during this quarter. At no stage did any material projected by a blast breach the personnel exclusion zones.

Some of these events resulted in damage to plant and equipment, which were left either within the smaller equipment exclusion zones or just outside the exclusion zone, but in front of the free face.

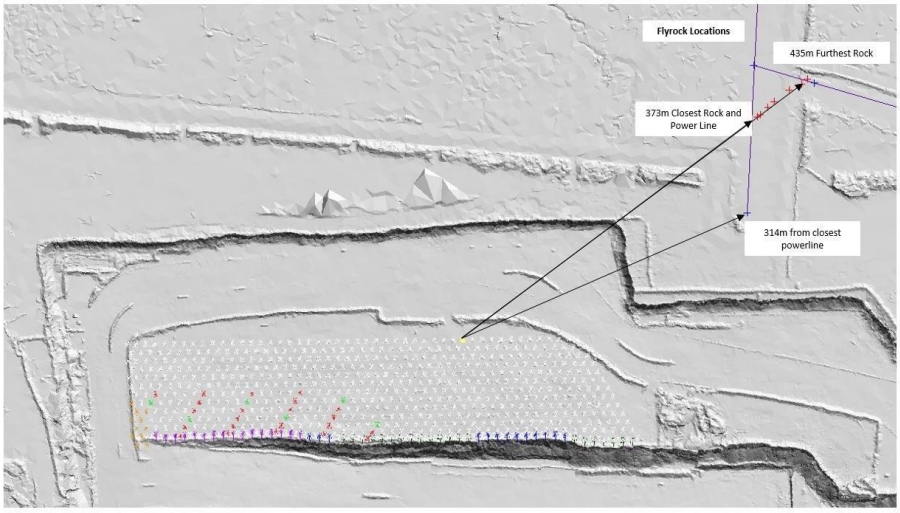
Last year, we had a significant incident where the flyrock projected onto a nearby shopping centre and a car park. In this instance, there was significant risk to public and there was shopping centre property damage. The outcome of investigation into this incident was a loss of authority for the shotfirer in charge, and increased oversight of any subsequent blasting in this area to ensure adequate controls are implemented by blasting contractors.

Another flyrock event was created by a decision to fire only a part of a drilled pattern, and then subsequently to load and fire the complete pattern. These decisions introduced an unforeseen hazard, where multiple timing plans were designed. Due to the deviation from the original blast plan, the timing plan used for the blast introduced a 4 second delay between the original part of the blast to be fired and the remainder of the blast. This delay created a free face within the blast, resulting in material being projected up to 435 metres behind the blast, as well as impacting nearby power lines located 373 metres from the blast.

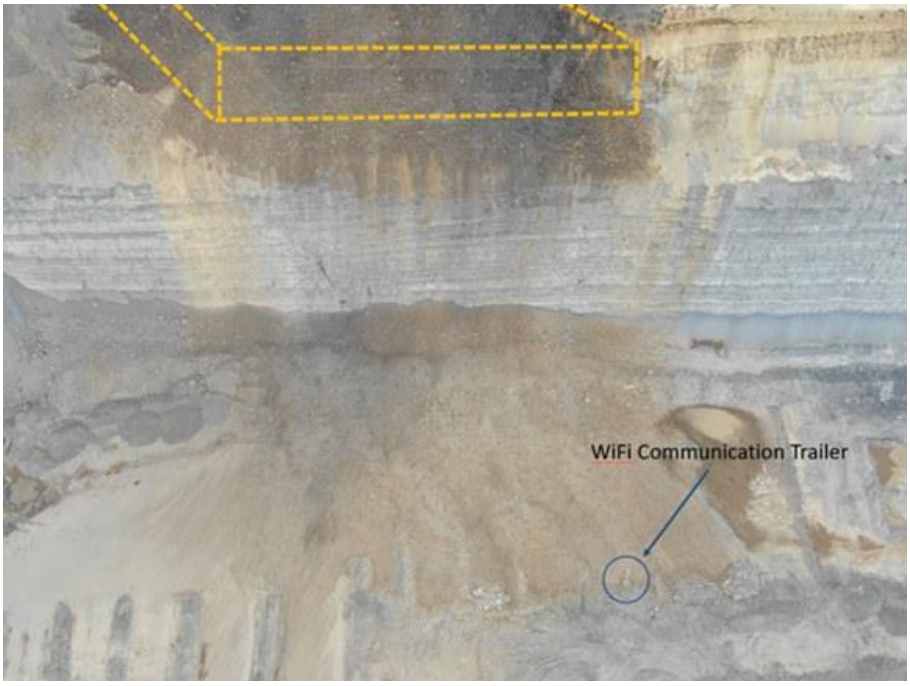
Site based investigations determined the following absent or failed controls:

- Ineffective blast clearance process to identify equipment left within the blast exclusion zone.
- Risks associated with leaving plant/equipment in a position in front of a free face or in the direction of fire.
- Deviations from original blast designs and variance to authorisation processes.

In accordance with Australian Standard 2187.2, “All blasts must have a blast management plan incorporating a risk assessment prepared by a competent person. No blasting shall commence until the blast management plan has been authorised by a competent person. Where conditions revealed during execution of the blasting operation necessitate changes in the blast management plan, notification shall be given and authorisation confirmed before the proposed changes are commenced, except in emergency situations.”




*7 - Flyrock distances*




*8 - Flyrock damages WIFI communications trailer*

## Reporting

Under the Explosives Act 1999, the Chief Inspector of Explosives must be contacted by phone (1300 739 868) immediately following certain events. A written follow-up notification must then be submitted within 48 hours. The Inspectorate has issued a number of temporary actions to authority holders where we have found a record of reportable incidents which were not reported to RSHQ.

Our mission is to regulate, educate and assist the explosives industry in meeting its obligations to protect and promote safety and health of persons from risks associated with explosives. It is imperative that incidents are reported to Explosives Inspectorate to allow the inspectorate to investigate and communicate learnings to industry where there is a hazard and controls are eroding or when these controls are ineffective.

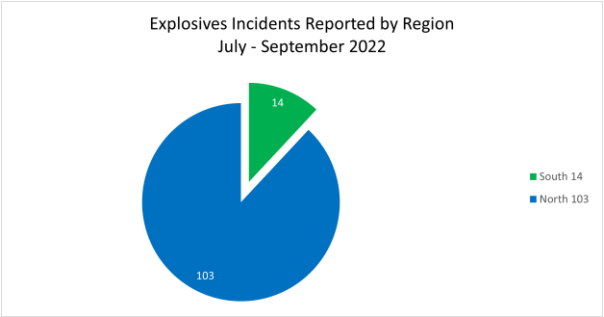
Every unreported high potential incident (HPI) should be considered both a learning opportunity wasted, and a hazard left in play, waiting to cause an incident at some point in the future;

***"a safety culture is a reporting culture in which people are prepared to report errors, near misses, unsafe conditions, inappropriate procedures, and any other concerns they may have about safety."*** 121 – (121 Hopkins, 2009, Learning from high reliability organisations, Sydney, CCH Australia Limited.)

Continuous learning from incidents is a key part of any High Reliability Organisation or Industry. The following types of incidents need to be reported:

- actual or apparent loss or theft of explosives
- attempted theft or security threat
- accidental explosion, fire or spillage
- death of or an injury to a person
- unexpected damage to property
- misfire or
- other event that has the potential to cause any of the above.

For more information visit [Reporting explosives incidents | Business Queensland](Reporting explosives incidents | Business Queensland).




*9 - Explosives Incidents Reported by Region July to September 2022*

## Safely remediating transport incidents

The transport of explosives and precursors for blasting in mining and construction is conducted safely and securely across Queensland every day.

On road explosives transport incidents (accidents or spills) generate a significant emergency service response to isolate and control the scene for safety and security. Once controlled, the scene can be later accessed for recovery and remediation of affected explosives and equipment.

Explosives and precursor transporters have obligations to undertake necessary remediation. Transporter's safety and security management systems must include assessments, plans, procedures, and training relevant to credible transport incidents. A remediation response team supported by available and maintained explosive recovery equipment should be frequently tested using real life scenario training.

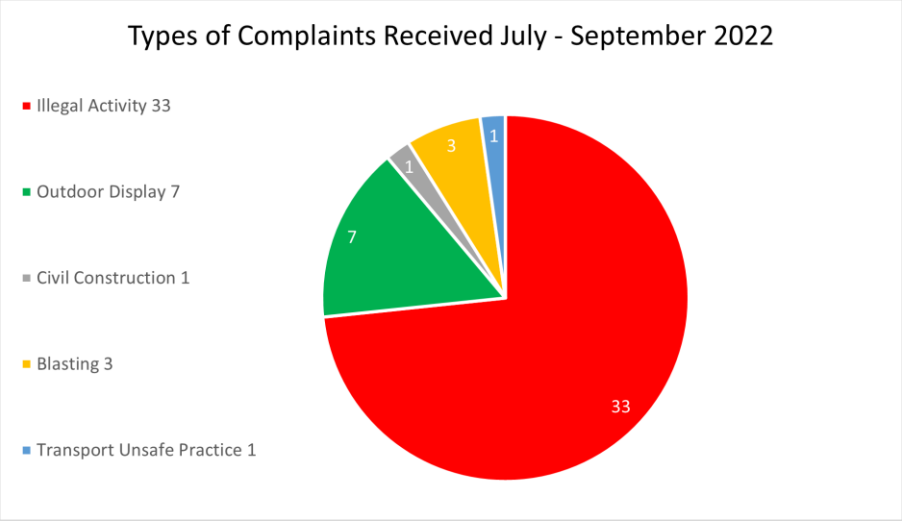

*10 - Example of truck roll over requiring remedial action*

## Complaints

**Quarry noise complaint**

Several complaints were received from residents surrounding a quarry about blasting noise and vibration. The Inspectorate conducted an inspection and found that metal hardening blasting was occurring in a surface bunker. The Inspectorate issued instructions, requiring that the quarry cease metal hardening blasting activities until noise and vibration monitoring was installed at the complainant's residence.

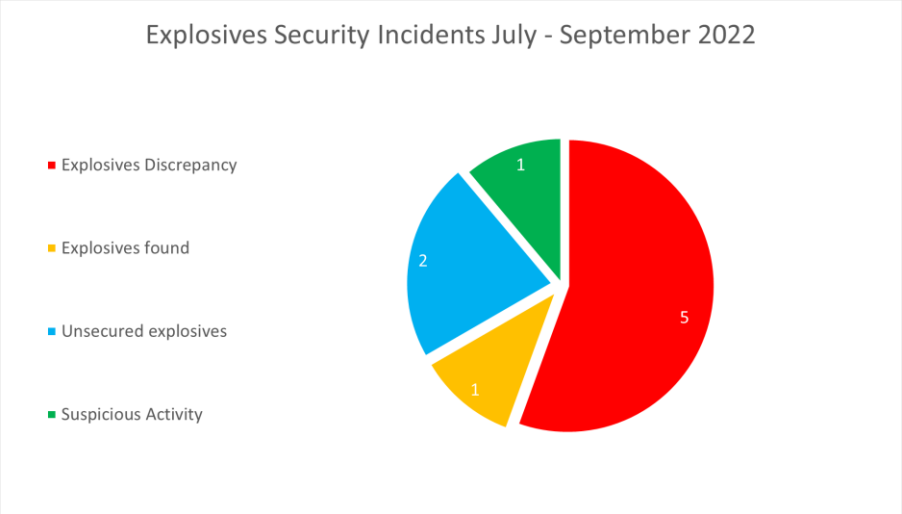
*11 - Metal hardening activities caused noise and vibration complaints*




*12 - Types of complaints received July - Sept 2022*

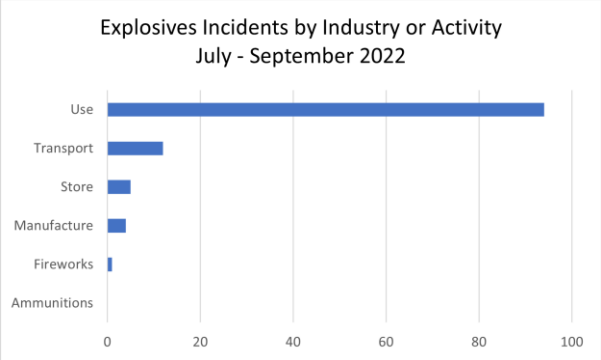
# Statistics

## Security Incidents

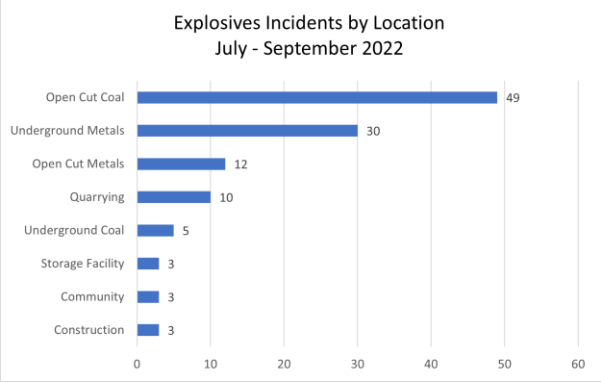



*13 - Explosives Security Incidents July to September 2022*

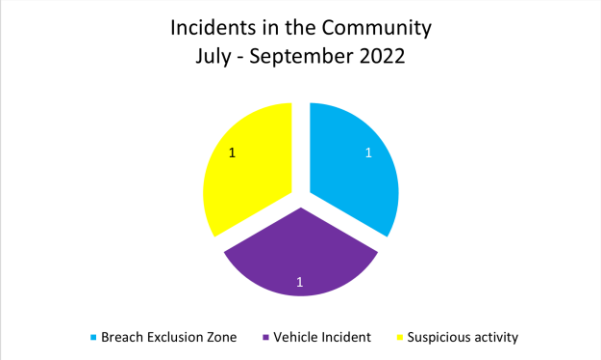
## Incidents by Industry, Activity or Location



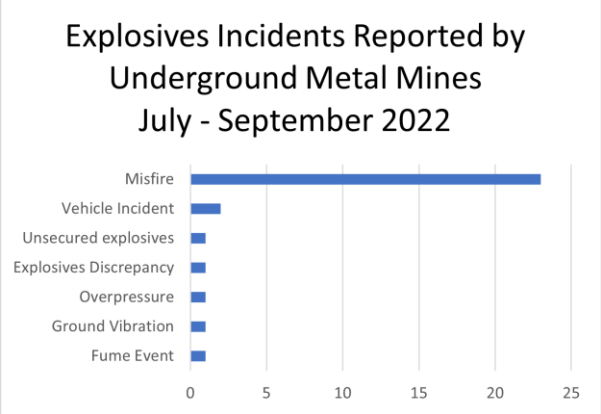

*14 - Explosives Incidents by Industry or Activity July to September 2022*



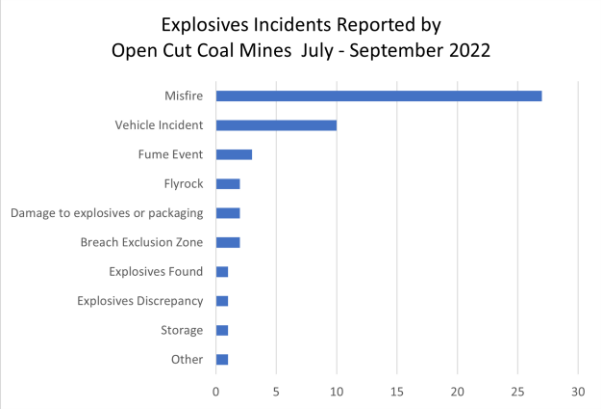

*15 - Explosives Incidents by Location July to September 2022*



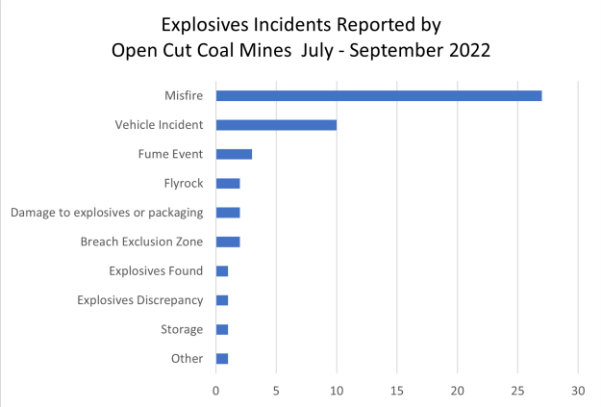

*16 - Explosives Incidents in the community July - September 2022*




*17 - Explosives Incidents in Underground Metal Mines July to September 2022*

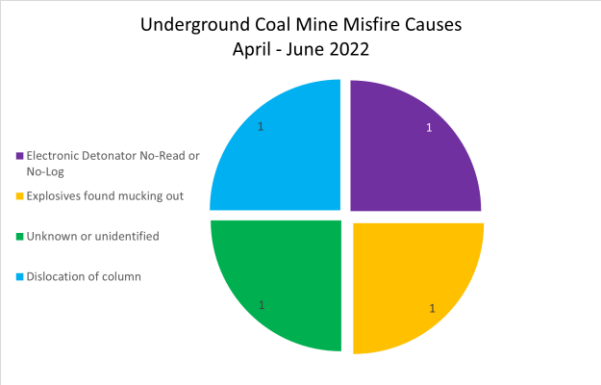


*18 - Explosives Incidents in Open Cut Metal Mines July to September 2022*

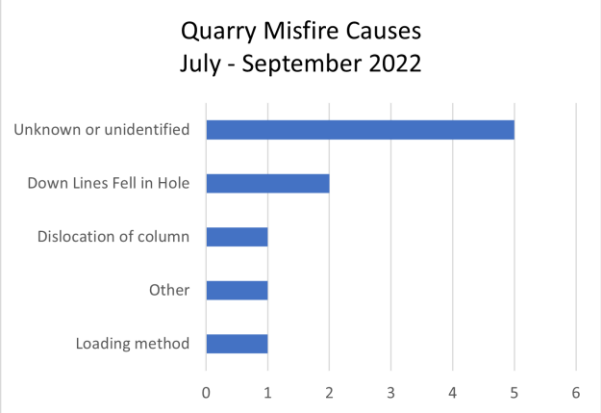



*19 - Explosives Incidents in Open Cut Coal Mines July to September 2022*

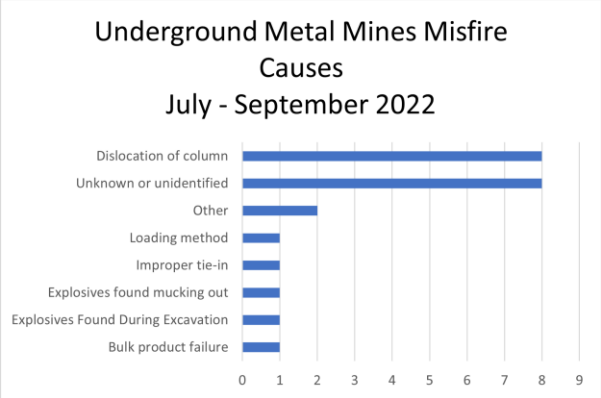
## Misfire Causes By Industry or Location



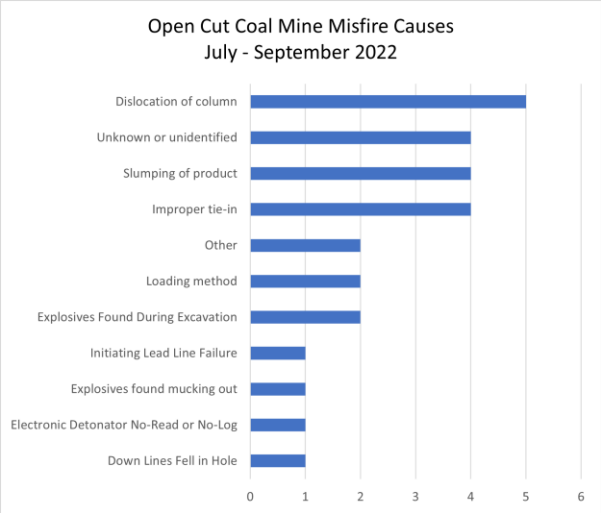

*20 - Underground Coal Mine Misfire Causes July to September 2022*



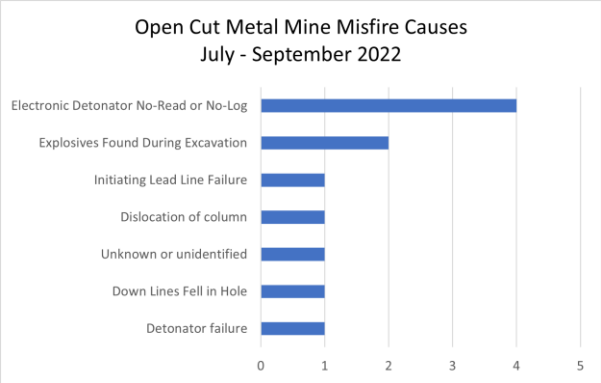

*21 - Quarry Misfire Causes July - September 2022*




*22 - Underground Metal Mines Misfire Causes July - September 2022*




*23 - Open Cut Coal Mine Misfire Causes July - September 2022*




*24 - Open Cut Metal Mine Misfire Causes July - September 2022*

## Publications this Quarter

**Safety Alert 105 - Close proximity fireworks breach safety exclusion zone**

Explosives Safety Alert 105

*Interested in our other Safety Alerts? You can find them here: https://www.rshq.qld.gov.au/safety-notices*

**Final Draft Consultation - Best Practice Guide for the Prevention of Misfires in Blasting Applications**

RSHQ has received feedback on the draft Best Practice Guide for the Prevention of Misfires in Blasting Applications. The Misfire Working Group is reviewing the feedback. We would like to thank everyone who contributed in the consultation process. The final document is expected to be published in quarter 3 2022/2023.

# Key Updates

## Best Practice Guide for the Prevention of Misfires in Blasting Applications


*25* - The Explosives Inspectorate was proud to present at the QMIHSC in August 2022.

*26* - Haydn Isaac, Principal Inspector of Explosives, North Region.

In August 2022, Dr Snezana Bajic, Deputy Chief Inspector of Explosives, and Haydn Isaac, Principal Inspector of Explosives were proud to present on the current draft Best Practice Guide for the Prevention of Misfires in Blasting Applications (BPG) at the Queensland Mining Industry Health and Safety Conference.

The BPG is the first stage of a long standing project that the Explosives Inspectorate is undertaking with industry experts. This guide will enable the resources industry to understand serious harm prevention methodologies to minimise the likelihood of an unplanned detonation of explosives.

## What's new in Licensing?

**BPOINT**

1 July 2022 saw the introduction of the online BPOINT facility for the payment of licensing fees. Applicants can now choose between BPOINT, cheque/money order or EFT (electronic funds transfer) to pay for a new licence, renewal of existing licence, replacement licence or request for authorisation of an explosive. For more details, please view our website Licence fee information for explosives and fireworks | Business Queensland.

## What's coming in Licensing?

**SMARTFORMS for licence applications**

The Explosives Inspectorate are seeking to improve the current licence application process from online PDF forms to a digital solution to improve end user experience. The implementation of SMARTFORMS will see the user complete the application, attach the relevant supporting documentation and also pay for the licence via BPOINT all at the same time whilst allowing digital submission of the application through to the Inspectorate.

The project is currently underway and is scheduled for completion by 31 December 2022.

## Upcoming Events

- Transport Industry Liaison Group Meeting, Quarter 3 2022/2023
- Queensland Explosives Forum, Quarter 4 2022/2023

# Contact Us

## Explosives Inspectorate Contact Details

**Website**

Resources Safety & Health Queensland (rshq.qld.gov.au)

**24 Hour Explosives Inspectorate Hotline**

1300 739 868 (manned by Explosives Inspectors)

**Report an Incident**

1300 739 868 (manned by Explosives Inspectors)

Electronically Report an Explosives Incident

**Make a Complaint about Explosives or Fireworks**

Electronically make a complaint

**Explosives Licensing Team**

Phone during business hours: 07 3199 8023

Email: explicensing@rshq.qld.gov.au

**Queensland Explosives Security Clearance Team**

Phone during business hours: 07 3199 8023

Email: QESC@rshq.qld.gov.au

**General Enquiries**

Phone during business hours: 07 3199 8023

Email: explosives@rshq.qld.gov.au