



**NSW  
Resources  
Regulator**

# **Quarterly safety report**

July to September 2021



## **ABOUT THIS REPORT**

This quarterly health and safety performance report has been prepared by the NSW Resources Regulator for mine and petroleum site operators in NSW. It contains industry and sector specific information, in addition to information regarding hazards. Wherever possible, trends and patterns have been identified.

The report references sector information about the number of 'active' mines. Active mines have the status: open, intermittent, mines under care and maintenance, open tourist mines, planned and small-scale titles that are current or pending.

The report also contains information on matters of concern to the Resources Regulator including controls and actions that may be implemented to prevent or reduce the likelihood of future safety incidents.

Operators should use the sector specific information, emerging issues and good practice examples presented in this report to assist them in improving safety management systems and undertaking risk assessments at their sites. This report refers to the date the incident was notified rather than the date the incident took place.

## **DOCUMENT CONTROL**

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# Executive Summary

This report is prepared to assist mine and petroleum site operators meet their obligations under relevant work health and safety legislation, including the *Work Health and Safety (Mines and Petroleum Sites) Act 2013*. It is also a way in which the NSW Resources Regulator monitors progress in implementing our risk-based compliance and enforcement strategy.

As a high-hazard regulator, we focus on compliance with legislative requirements associated with principal and other high-risk hazards, including mechanical and electrical energy and explosives. This report highlights dangerous and high potential incidents, in addition to incidents where a serious injury occurred. 'Roads or other vehicle operating areas' and 'fires or explosion' are principal hazard classifications that feature regularly in incident notifications to the Regulator.

As well as providing an overview of incidents across the mining industry, this report looks at the safety performance and regulatory activities of six sectors: coal, large (non-coal) mines and quarries, small mines and quarries (including gemstones), opal mines, petroleum and geothermal sites and exploration sites.

This report also provides information on significant mining events in Australia and globally, summarises safety incident notifications, compliance activities and outcomes for the quarter of July to September 2021. For selected measures, data is analysed over a 15-month period from June 2020 to September 2021.

There were no mining-related fatalities in NSW during the quarter.

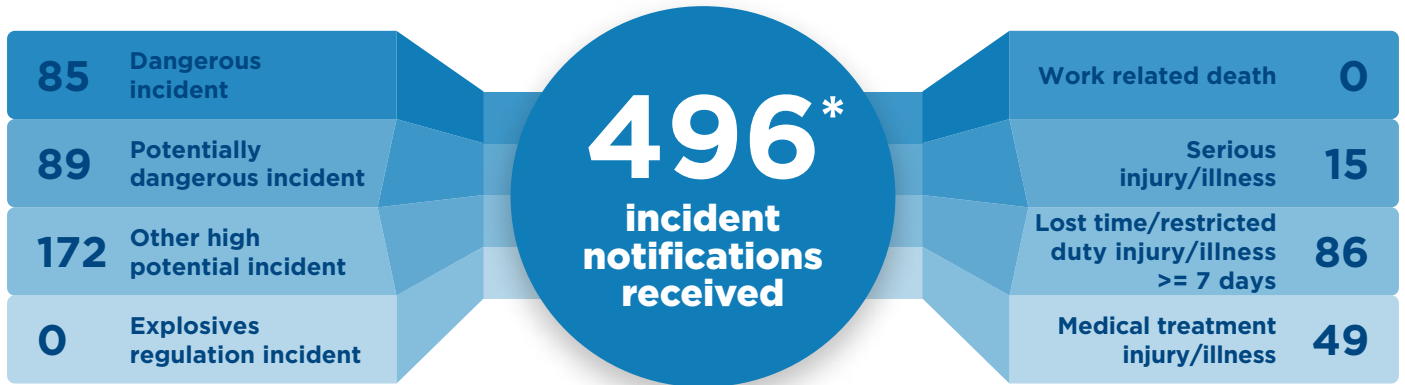
In this quarter, total incident notifications received by principal hazard were up (from 166 to 211) for the first time in a year. This figure represents a 13% rise from the quarterly average (187) recorded for the previous four quarters.

Air quality or dust or other airborne contaminants, from the principal mining hazards, saw a slight decrease in notifications (52 to 50), compared to the previous quarter. However, notifications rose in: ground and strata failure (15 to 28), roads or other vehicle operating areas (38 to 55), spontaneous combustion (5 to 9) and fire and explosion (54 to 67).

Incident notifications received by principal control plans decreased across four of the five classifications, with only ventilation control plans registering a slight rise.

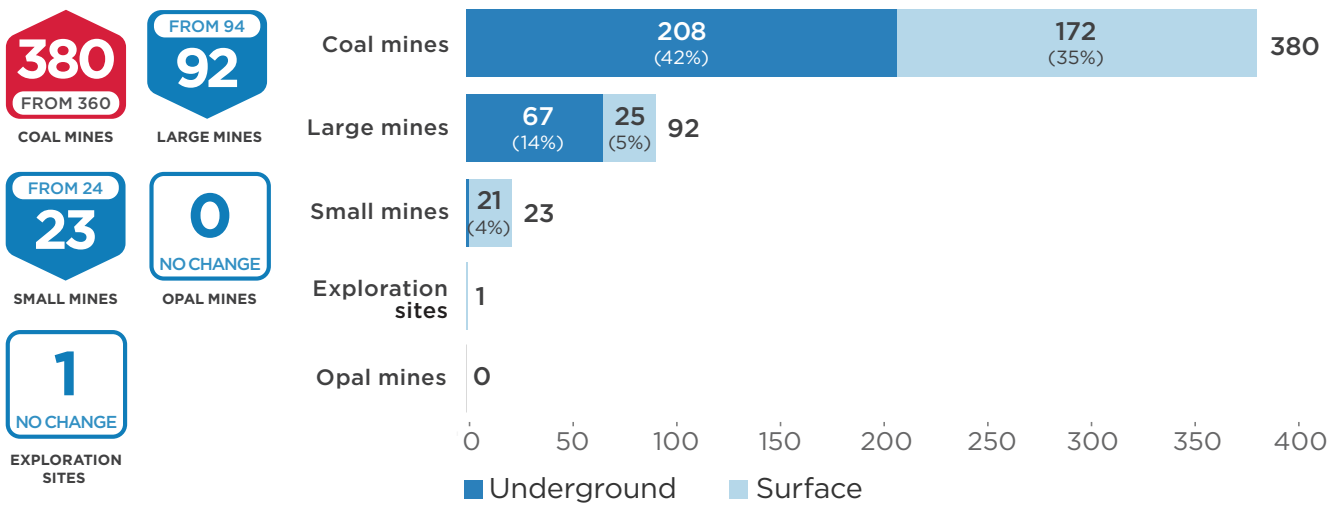
# Quarterly snapshot

The quarterly safety performance snapshot show key measures and assist industry in the development and promotion of safe work practices on mining operations.

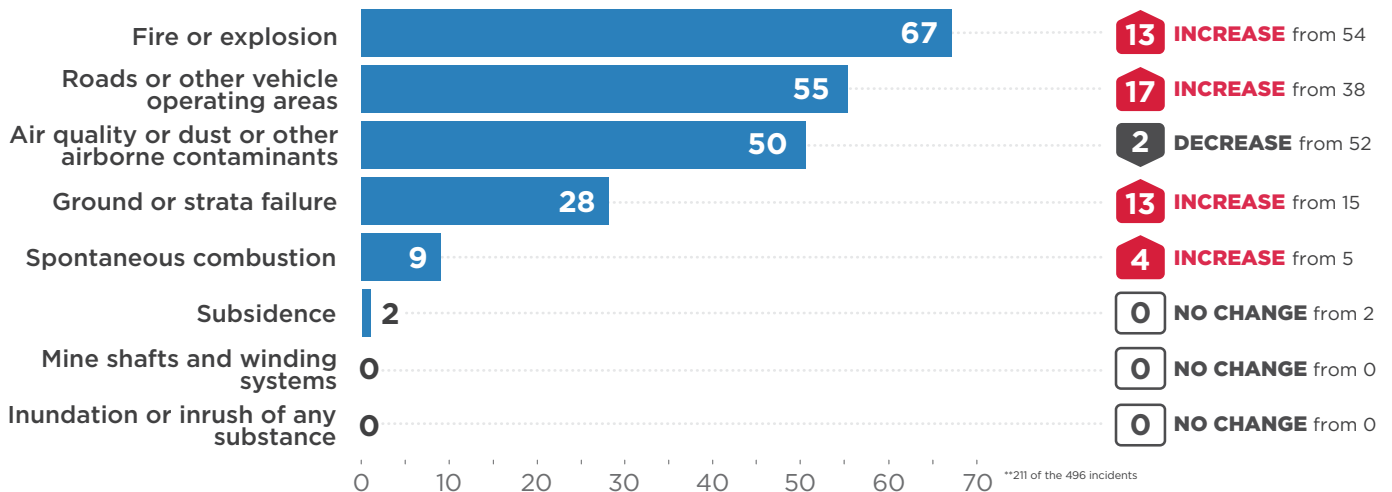


\* by requirement to report as notified by mines. The actual number of incidents, injuries and illnesses recorded may differ from original incident notifications following assessment of the notified event.

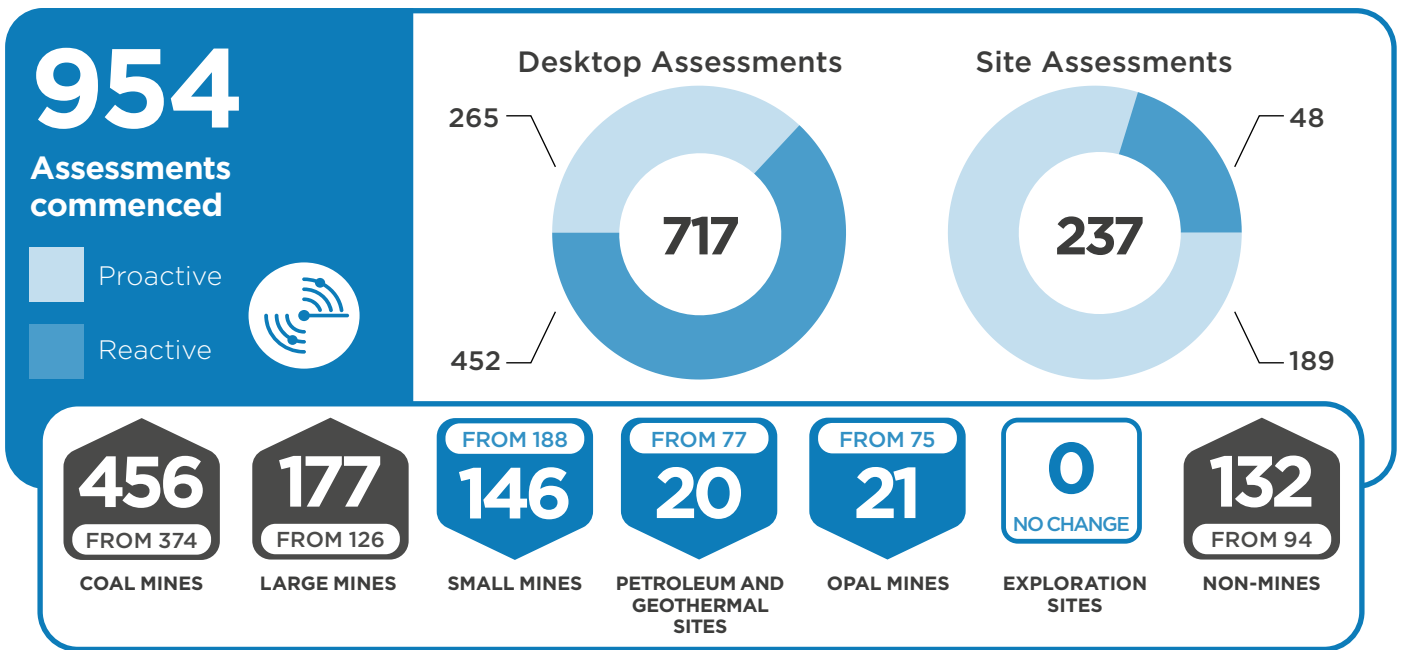
## Incident notifications received by sector and operation type



## Incident notifications classified by principal hazard\*\*



# Quarterly snapshot



# National and international significant events

The NSW Resources Regulator is committed to sharing safety information about significant mining-related events and fatalities to increase industry awareness.

The following list includes safety alerts (including fatalities) and bulletins that occurred between **July to September 2021**.

The incidents selected were based on their relevance to equipment and processes commonly used across the NSW mining industry.

## Fatal injuries

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### Australia

#### NEW SOUTH WALES

There were no mine or quarry related fatalities reported this quarter.

#### OTHER STATES

##### Queensland

There was one mine or quarry related fatalities reported this quarter.

On 14 September 2021, three coal mine workers were conducting work in a conveyor drift at Crinum underground coal mine when a significant fall of ground from the roof area of the drift occurred. This resulted in one worker being fatally injured and a second being seriously injured.

##### Western Australia

There were two fatalities reported this quarter.

On 17 September 2021, a maintenance worker received fatal injuries when he fell from a conveyor walkway to the ground below. The Department of Mines, Industry Regulation and Safety has commenced an investigation into the incident.

On 30 September 2021, a drill and blast operator received fatal injuries when he was engulfed in a ground collapse while stemming a charged shot hole for blasting. The incident occurred in an open pit mine. The Department of Mines, Industry Regulation and Safety has commenced an investigation into the incident.

##### Victoria

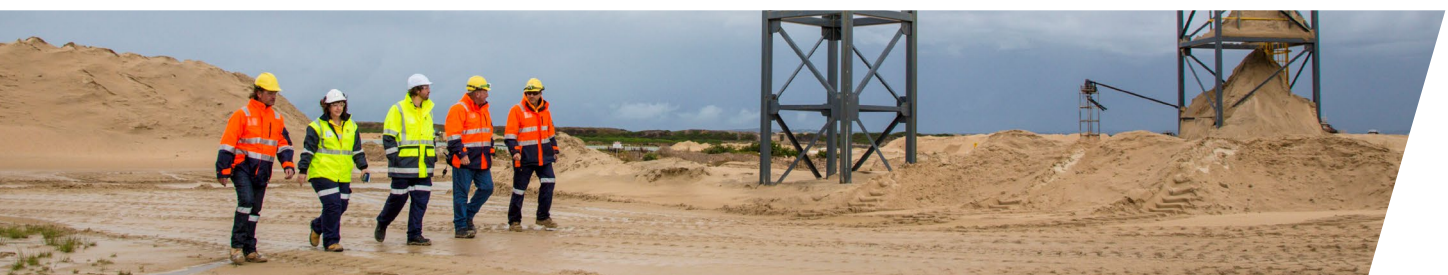
There were no mine or quarry related fatalities reported this quarter.

## International

### UNITED STATES OF AMERICA

There were nine mining or quarry related fatality alerts, and four safety alerts published by United States of America’s Mine Safety and Health Administration (MSHA), during the quarter:

- On 13 July 2021, a rock falling from a pillar in a benched area at a room-and-pillar zinc mine, struck and fatally injured a worker. The worker was in a personnel lift basket near ground level to load blasting supplies. The rock fell from a height of approximately 40 feet, striking the basket. Refer to the [fatality alert](#).
- On 21 July 2021, a miner received fatal injuries while adding a boom extension to a crane. The miner was working under the boom to remove the boom pins when he was struck by the falling boom. Refer to the [fatality alert](#).
- On 26 July 2021, a contract employee, who was not wearing fall protection, was performing maintenance on a cement cooler when a wooden board broke, causing him to fall 23 feet onto a concrete floor. Refer to the [fatality alert](#).
- On 1 August 2021, a mine worker drowned during a flash flood while traveling in a personnel carrier toward the mine portal. The worker exited the personnel carrier as the floodwater engulfed the vehicle. As the worker attempted to assist other workers, he was carried away by the floodwater. Refer to the [fatality alert](#).
- On 3 August 2021, a miner with over a decade of experience, was run over by a customer semi-trailer while walking to his normal work area. Refer to the [fatality alert](#).
- On 11 August 2021, a contract truck driver with ten years’ experience was fatally injured while conducting a pre-operational inspection of a truck. The rear wheels of the vehicle struck the truck driver when the truck rolled forward. Refer to the [fatality alert](#).
- On 14 September 2021, an individual was fatally injured when an excavated trench collapsed and engulfed him. The person who was not an employee, was prospecting for gold inside the trench with a metal detector when the trench collapsed. Refer to the [fatality alert](#).
- On 15 September 2021, a contract welder was fatally injured when he crawled 40 feet into a 30-inch-diameter stainless-steel pipe. The contract worker was welding a joint from the outside of the pipe, and then entered the pipe to troubleshoot issues related to an argon gas leak. Co-workers found him unresponsive. Refer to the [fatality alert](#).





- On 21 September 2021, a contract truck driver with 20 years of experience was fatally injured while operating a haul truck. The victim was found lying in front of his truck near the edge of a haul road. The truck was upright and facing the opposite direction to the expected route of travel. Refer to the [fatality alert](#).
- From January 2017 to August 2021, the coal mining industry experienced 1,967 roof and rib accidents. Of these, there were nine fatal accidents and 570 lost time accidents: 83% of these accidents were the result of rocks falling between bolts and 13% were from rib rolls on continuous mining sections or onto longwall face conveyors. Refer to the [roof and rib safety alert](#).
- Four massive pillar collapses have occurred in limestone mines since October 2020. Refer to the [stone mine massive pillar collapses safety alert](#).
- Fatalities and accidents involving mobile equipment: shuttle cars, scoops, locomotives, front end loaders, haulage equipment, service and pickup trucks continue to occur at a disproportionate high rate. Refer to the [powered haulage accidents safety alert](#).
- Fatalities have occurred when vehicles flipped over backwards, rolled over and tipped over on their sides. Workers were operating haul trucks, excavators, bulldozers, front end loaders and service trucks while working or traveling near the edge of dump sites, elevated roadways, embankments, ponds and excavations. Refer to the [recent vehicle rollover accidents safety alert](#).

## Safety alerts, bulletins and other dangerous or high potential incidents

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### ■ (NEW SOUTH WALES)

- [SA21-06 Proper design, construction, inspection and use of scaffolding](#)
- [SA21-07 Lift arm failure on load haul dump \(LHD\)](#)
- [SB21-05 Fire risk of battery units for underground battery electric vehicles](#)
- [SB21-06-Water carts and human factors in design](#)

■ **(NEW ZEALAND)** Two near misses involving the delivery of concrete to customer sites. Both incidents involved load shifting equipment and activities. No workers were injured in either incident. For more information refer to the [safety alert](#).

■ **(NEW ZEALAND)** An excavator was digging a face on a bench when a large rock let go, falling out of the face. The rock had the potential to strike the stick of the excavator and, due to its size, had the potential to damage the machine. The face was previously inspected by the excavator operator and appeared stable but due to a clay fissure behind the rock, as the clay dried and shrunk, the rock dislodged itself. For more information refer to the [safety alert](#).

■ **(WESTERN AUSTRALIA)** Maintenance personnel at an exploration camp were carrying out maintenance to a reverse circulation drill rig and had attached a rod handler to the upright mast. The rod handler, which is a hydraulically activated mechanism that consists of a grabbing implement and pivoting 'elbows', was lifted into place and fitted to the vertically orientated mast by means of a bolted mounting bracket, with the pivot/rotation point of the rod handler arm located at the bottom. Maintenance personnel then installed a breakout assembly, a gripping mechanism used to secure rods when coupling or uncoupling, to the drill rig and commenced reattaching hydraulic hoses. During the task, a driller's assistant, who was instructed to reconnect hydraulic hoses, had placed himself between the rod handler and break out assembly. The rod handler arm unexpectedly rotated down crushing the assistant's head (causing serious injuries) between the lowering rod handler arm and the breakout assembly. The investigation is ongoing. For more information refer to the [significant incident report #287](#).

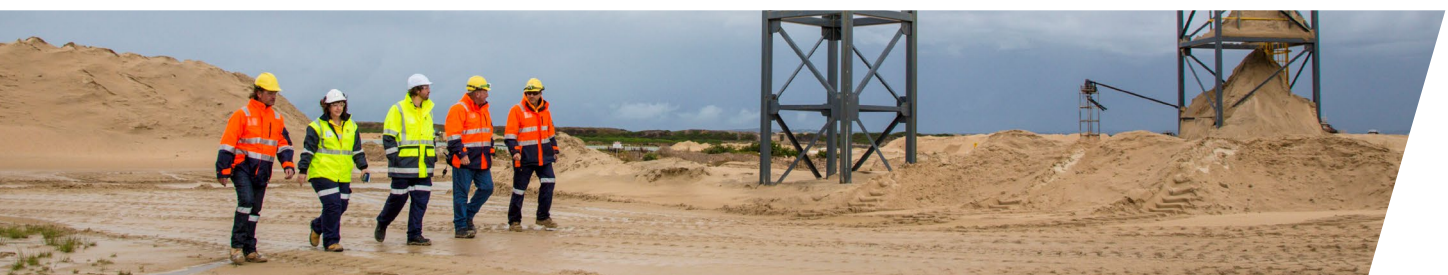
■ **(WESTERN AUSTRALIA)** A haul truck arrived at a workshop for maintenance. It was being operated without tyres fitted in position four or five. The position six tyre casing blew out 15 days later. At the time of the blowout, four workers were working on the haul truck, near the tyre. One worker was thrown backwards by the percussive shock wave and knocked unconscious. Two other workers received minor injuries (ringing in ears and light bruises). The workshop walls were also damaged, and projectile

shrapnel was found up to 17 metres from the position six tyre. For more information refer to the [significant incident report #288](#).

- **(WESTERN AUSTRALIA)** A service crew at an underground mine was hanging an electrical trailing cable for a jumbo drill in an ore drive, when two workers were tipped out of a work platform attached to an integrated tool carrier (ITC). As the two workers were hanging the cable, a hydraulic failure associated with the tilt cylinder (crowd function) on the boom of the ITC caused the work platform to tilt fully forward under gravity. Due to the sudden and unexpected movement, one of the workers was ejected onto the ground below while the other remained in the work platform as his right boot was caught in the door. The hydraulic failure resulted from the anti-dump valve on the tilt cylinder becoming separated from the cylinder port when its mounting bolts sheared. The mounting bolts sheared when the body of the anti-dump valve clashed with the lifting frame of the ITC as the boom was being raised. The floor of the work platform was reported to be approximately two metres off the ground immediately prior to the incident, and despite both workers wearing fall control equipment, their shock adsorbing lanyards failed to deploy. Although the two workers received minor physical injuries, the potential consequences could have been much more serious. For more information refer to the [Mines safety bulletin #184](#).
- **(QUEENSLAND)** A mobile processing unit was being used to manufacture blasting explosives, blending ammonium nitrate, fuel oil and emulsion. During this operation, a flame was observed by the operator coming from the incline transfer tube. The most likely cause of the flame was identified as an ignition of diesel vapour emitting from the chute between the incline and delivery augers. The flame was of short duration and self-extinguished before potentially causing a general fire or explosion. As a precaution, the operator used onboard extinguishers to mitigate the risk of fire. For more information refer to the [safety alert #103](#).
- **(QUEENSLAND)** Coal mine workers were undertaking maintenance work on a pump in a coal handling and preparation plant. During the process the suction line, including the sump isolation valve, released from the sump wall under pressure. A worker was impacted by the expelled components, suffering a serious injury. For more information refer to the [safety alert #395](#).
- **(QUEENSLAND)** A coal mine worker was injured when struck by a moving light vehicle at a coal mine. The worker was between a stationary light vehicle and pallet racking in a workshop when a work colleague was undertaking the prestart checks on the vehicle. The worker started the engine of the light vehicle while standing beside the driver's door. When the engine started, the vehicle transmission was in reverse causing the vehicle to move backwards, trapping the worker between the pallet racking and the vehicle tray, causing injuries. The vehicle tow bar hit an upright on the pallet racking and one corner of the cargo tray slid onto an adjacent shelf. This

combination stopped the rearward motion of the vehicle, preventing the injury becoming even more severe. For more information refer to the [safety alert #394](#).

- **(QUEENSLAND)** While working on a dragline shutdown and performing spray painting activities under a confined space entry permit, a coal mine worker became unresponsive and was rescued from inside the revolving frame of the dragline. A second worker also had to be rescued after they re-entered the confined space to assist with the first rescue. For more information refer to the [safety alert #393](#).
- **(QUEENSLAND)** Recent inspections across oil and gas field operations have identified a lack of awareness with hazardous chemical management and training. This includes identification and recognition of hazardous components such as respirable crystalline silica. For more information refer to the [safety bulletin #14](#).
- **(QUEENSLAND)** As summer approaches, some coal mines have already started to experience hot weather conditions. Persons with safety and health obligations must ensure that exposures to heat are being effectively managed to an acceptable level of risk at their mine sites. The mine's safety management system must incorporate processes to recognise and effectively manage heat exposure and to protect mine workers from heat related illness. For more information refer to the [safety bulletin #191](#).





# Notifiable incidents relating to hazards

The Work Health and Safety (Mine and Petroleum Sites) Regulation 2014 (the regulation) identifies principal hazards and principal control plans for special consideration.

Principal hazards have a reasonable potential to result in multiple deaths in a single incident or a series of recurring incidents.

Principal control plans cover risks to health and safety from hazards, work processes and plant that may result in incidents that are high potential, frequently occurring or of a certain complexity.

## SUMMARY OF INCIDENTS

The following table shows the number of incident notifications received for the past five quarters as classified against a principal hazard or principal control plan.

Overall, there were 496 incident notifications received in the current quarter. Of these, 43% (211) related to principal hazards, 22% (109) related to principal control plans and the remainder related to other incidents.

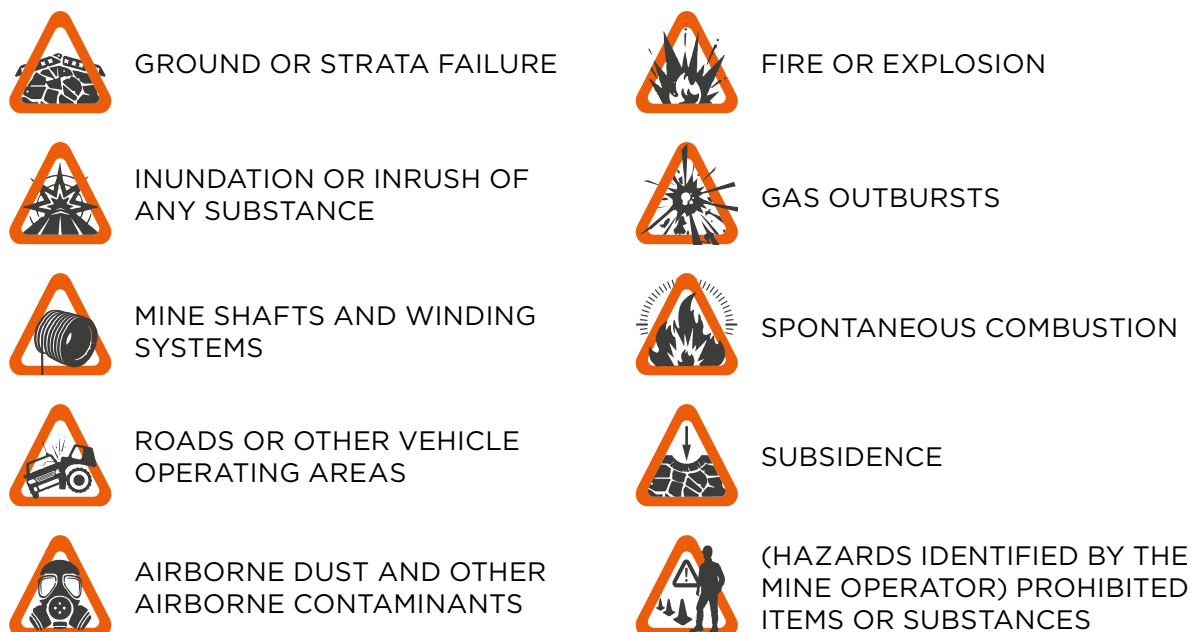




**TABLE 1.** INCIDENT NOTIFICATIONS CLASSIFIED BY PRINCIPAL HAZARD/PRINCIPAL CONTROL PLAN - JULY 2020 TO SEPT 2021

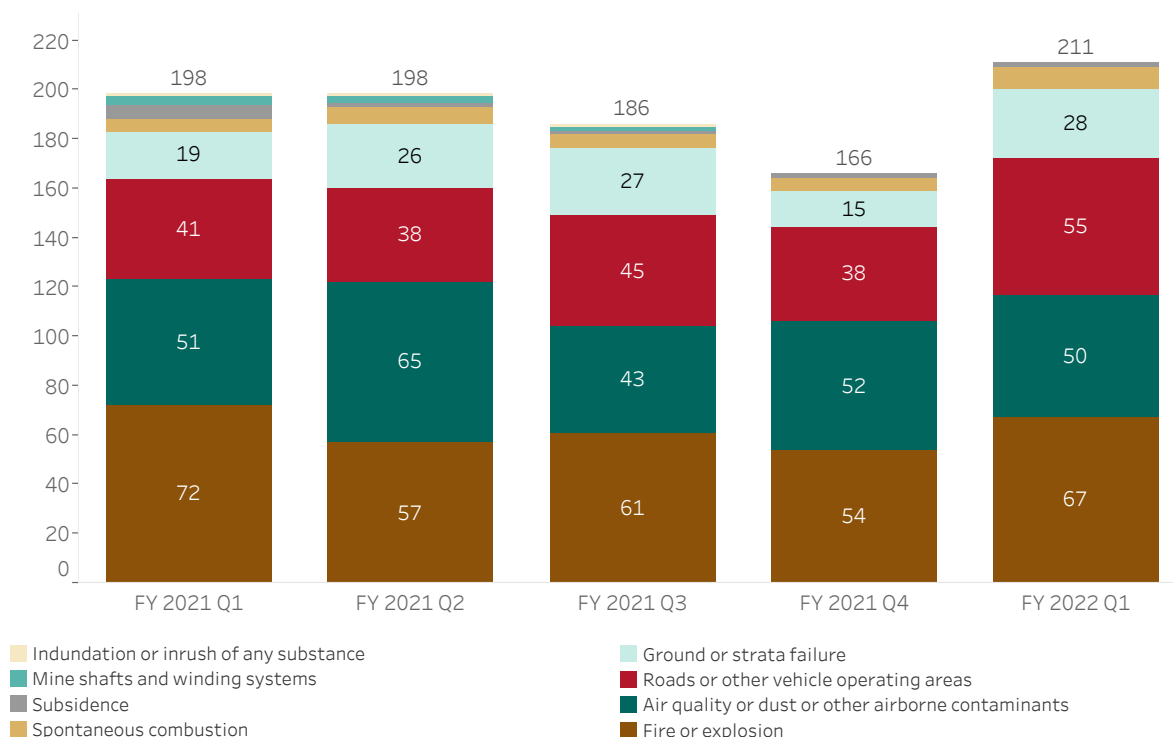
| INCIDENT CLASSIFICATION BY PRINCIPAL HAZARD OR PRINCIPAL CONTROL PLAN |  | FY 2021 Q1 | FY 2021 Q2 | FY 2021 Q3 | FY 2021 Q4 | FY 2022 Q1 |
|---|--|------------|------------|------------|------------|------------|
| Principal hazard  | Air quality or dust or other airborne contaminants           | 51         | 65         | 43         | 52         | 50         |
|   | Fire or explosion  | 72         | 57         | 61         | 54         | 67         |
|   | Ground or strata failure                                     | 19         | 26         | 27         | 15         | 28         |
|   | Inundation or inrush of any substance                        | 1          | 1          | 1          |            |            |
|   | Mine shafts and winding systems                              | 3          | 2          | 2          |            |            |
|   | Roads or other vehicle operating areas                       | 41         | 38         | 45         | 38         | 55         |
|   | Spontaneous combustion                                       | 5          | 7          | 6          | 5          | 9          |
|   | Subsidence   | 6          | 2          | 1          | 2          | 2          |
|   | <b>Total</b>   | <b>198</b> | <b>198</b> | <b>186</b> | <b>166</b> | <b>211</b> |
| Principal control plan  | Electrical engineering control plan                          | 27         | 16         | 23         | 23         | 23         |
|   | Electrical and/or mechanical engineering control plan        | 56         | 43         | 38         | 37         | 33         |
|   | Explosives control plan                                      | 23         | 28         | 18         | 19         | 11         |
|   | Mechanical engineering control plan                          | 62         | 39         | 42         | 45         | 40         |
|   | Ventilation control plan                                     | 5          | 5          | 5          | 1          | 2          |
|   | <b>Total</b>   | <b>173</b> | <b>131</b> | <b>126</b> | <b>125</b> | <b>109</b> |
| Other   | No related principal mining hazard or principal control plan | 220        | 190        | 160        | 188        | 176        |
| <b>GRAND TOTAL</b>  |  | <b>591</b> | <b>519</b> | <b>472</b> | <b>479</b> | <b>496</b> |

## Principal mining hazards



The chart below presents a further breakdown of numbers of incidents notifications received by quarter related to principal hazards as defined in clause 5 of the Regulation.

**FIGURE 1. INCIDENT NOTIFICATIONS RECEIVED BY PRINCIPAL HAZARD JULY 2020 TO SEPTEMBER 2021**



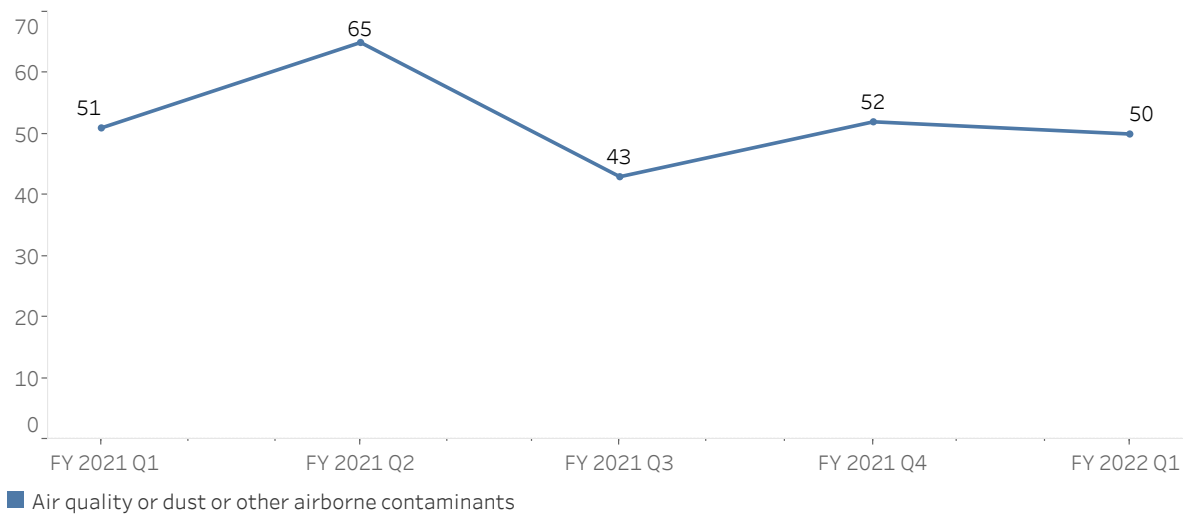


## Air quality, dust or other airborne contaminants



Airborne contaminants comprise a large and varied range of substances and forms. Coal and silica particles, along with methane and carbon monoxide, are regularly present in mining as dusts, fumes and vapours. These contaminants have exposure standards and can affect workers rapidly (CO or CO<sub>2</sub>) or over several years (coal/silica dust).

**FIGURE 2.** INCIDENT NOTIFICATIONS RELATED TO THE PRINCIPAL HAZARD AIR QUALITY, DUST OR OTHER AIRBORNE CONTAMINANTS - JULY 2020 TO SEPTEMBER 2021





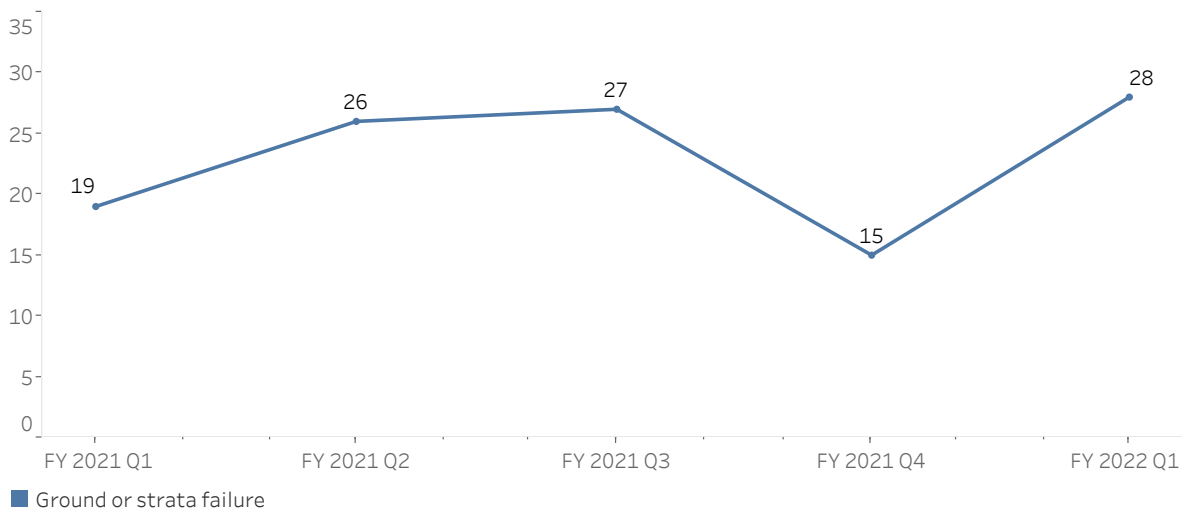


## Ground or strata failure



Ground or strata failure is an ever-present hazard in both surface and underground mining, with a significant risk posed to workers from unplanned movement of ground.

**FIGURE 3.** INCIDENT NOTIFICATIONS RELATED TO THE PRINCIPAL HAZARD GROUND OR STRATA FAILURE - JULY 2020 TO SEPTEMBER 2021



### VIDEO ANIMATION DEVELOPED FROM WHS UNDERTAKING

As part of a WHS undertaking accepted by the Resources Regulator, Centennial Coal have produced an informative [video animation](#) which is now available on YouTube.

The animation details a strata incident that occurred on 4 July 2018, which resulted in serious injuries to two mine workers.

### DANGEROUS INCIDENT - ROOF FALL PRIOR TO WORKERS ARRIVING

A roof fall occurred in an underground coal mine. The fall was the full width of the roadway and extended 15 to 20 metres. It occurred as workers were in the crib room preparing to start work in the area where the fall occurred. Monitoring in the intersection showed 31 millimetres total displacement leading up to the fall. Initial investigations suggest it was a stress related roof fall.



*Above: Fallen section, spread across roadway.*

This incident is under investigation and further information may be published later.

### Comments to industry

Underground mine operators should review the adequacy of their strata monitoring arrangements and associated trigger action response plans to ensure that workers are not exposed to unacceptable risks associated with strata failure.

Mine operators should ensure that any abnormal changes in the strata behaviour are considered as potential indicators of geological change and respond appropriately.

Mine operators should ensure that the strata monitoring plan includes the timing for installation of strata monitoring devices and required installation of the devices in all high-risk areas including intersections.

### DANGEROUS INCIDENT - FALL OF GROUND AT INTERSECTION

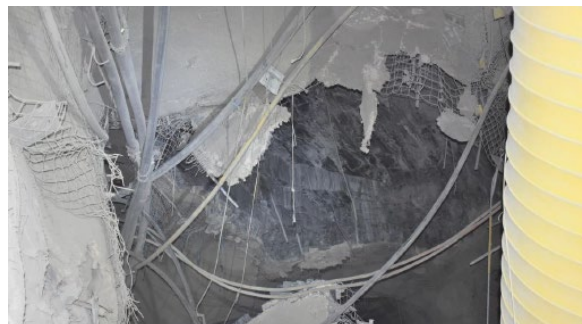
A fall of ground occurred in a metalliferous mine. The roof of a four-way intersection fell across full width of the intersection.

No one was in the area at the time of the fall.

### Comments to industry

Underground mine operators should review the adequacy of their strata monitoring arrangements and associated trigger action response plans to ensure that workers are not exposed to unacceptable risks associated with strata failure.

Strata monitoring should be increased in areas of geological structures or where other mining operations may influence strata stability.



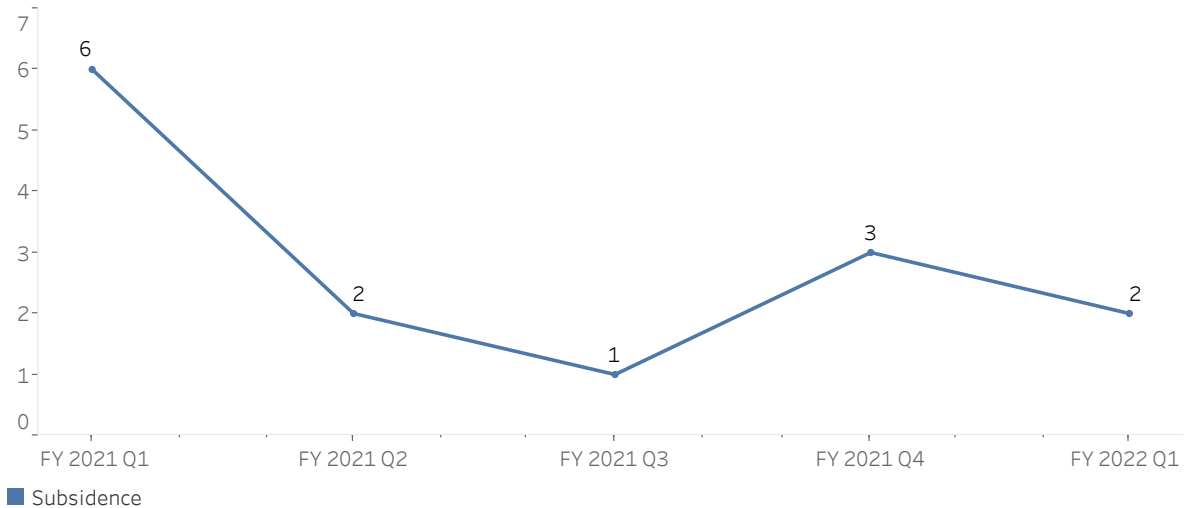
*Above: Fall of ground at intersection.*



### Subsidence

Surface subsidence hazards are a potential where there has been underground mining. The potential to cause significant damage (from deformation or sinkholes) to infrastructure (roads, dwellings etc.) and injure persons nearby, makes this a principal hazard in NSW.

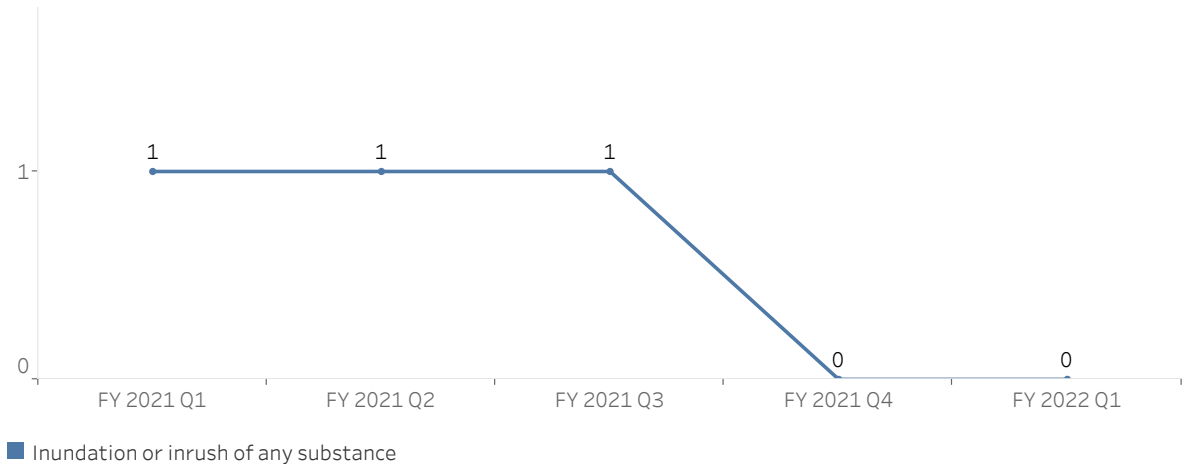
**FIGURE 4.** INCIDENT NOTIFICATIONS RELATED TO THE PRINCIPAL HAZARD SUBSIDENCE - JULY 2020 TO SEPTEMBER 2021



### Inundation or inrush of any substance

Inundation and inrush is a low frequency, high consequence hazard, particularly in underground mining. Incidents often involve inrushes of water or inundation by denser materials (sand or rock). The potential to cause multiple fatalities in a single event like at Gretley Colliery in 1996, make this a principal hazard in NSW.

**FIGURE 5.** INCIDENT NOTIFICATIONS RELATED TO THE PRINCIPAL HAZARD INUNDATION OR INRUSH - JULY 2020 TO SEPTEMBER 2021

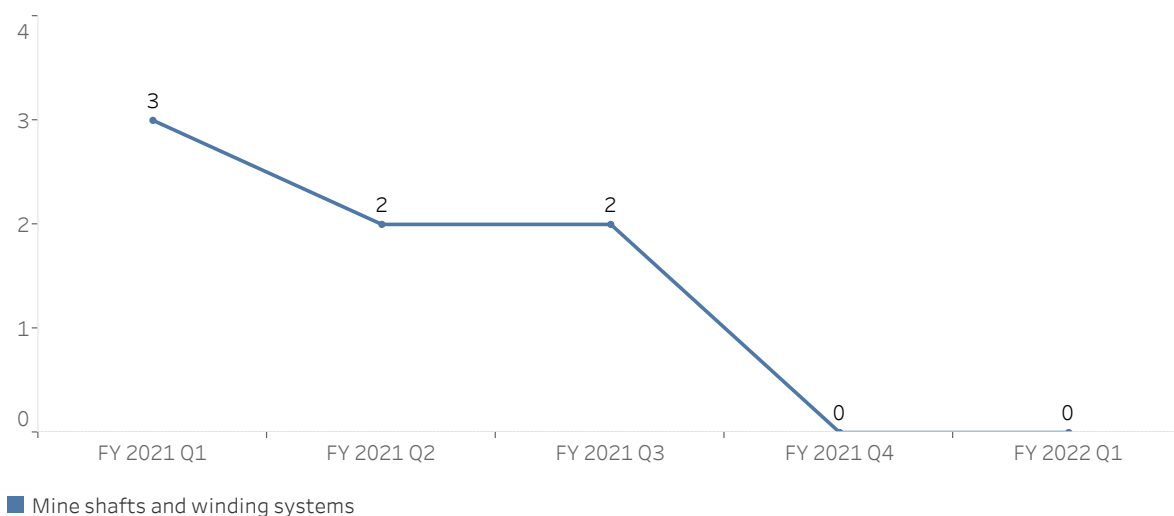




## Mine shafts and winding systems

Mine shaft integrity and the operation of winding systems require specific focus. The safe movement of material and workers up/down mine shafts can be hazardous and has the potential to impact on the safety of multiple workers at a mine.

**FIGURE 6.** INCIDENT NOTIFICATIONS RELATED TO THE PRINCIPAL HAZARD MINE SHAFTS AND WINDING SYSTEMS - JULY 2020 TO SEPTEMBER 2021



## Gas outbursts

The implementation of appropriate risk controls ensure gas outbursts are not a high frequency hazard event (as seen from the above graph), however their often sudden and violent nature, has the potential to cause fatalities to workers nearby.

This hazard also includes the liberation of gases that can asphyxiate, explode or cause a fire. These circumstances make this a principal hazard in NSW.



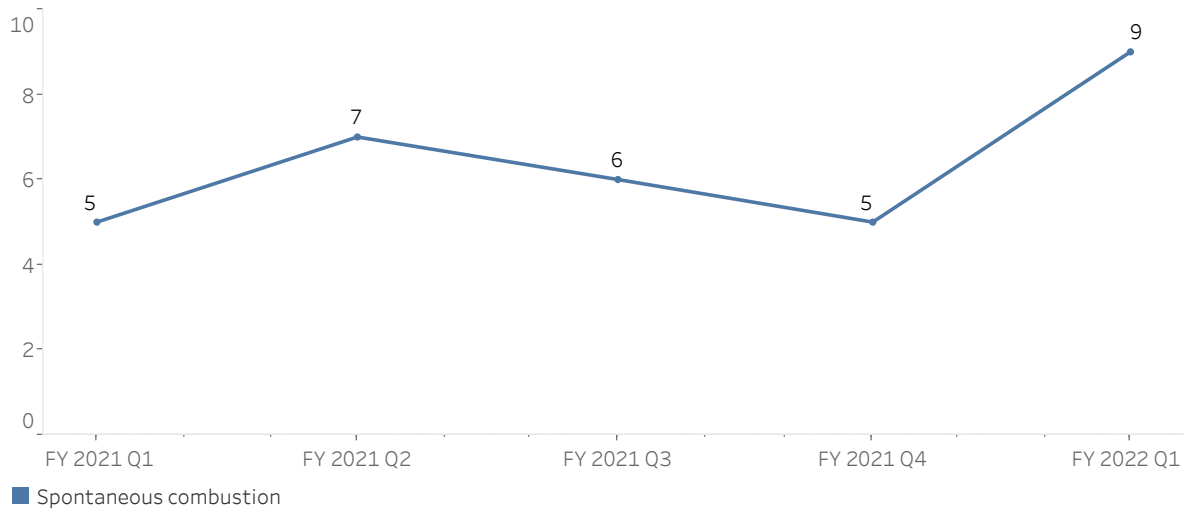


## Spontaneous combustion



While spontaneous combustion (of coal) is a hazard exclusive to the coal sector, in the underground parts of the mine the consequences have the potential to cause multiple fatalities.

**FIGURE 7.** INCIDENT NOTIFICATIONS RELATED TO THE PRINCIPAL HAZARD SPONTANEOUS COMBUSTION - JULY 2020 TO SEPTEMBER 2021



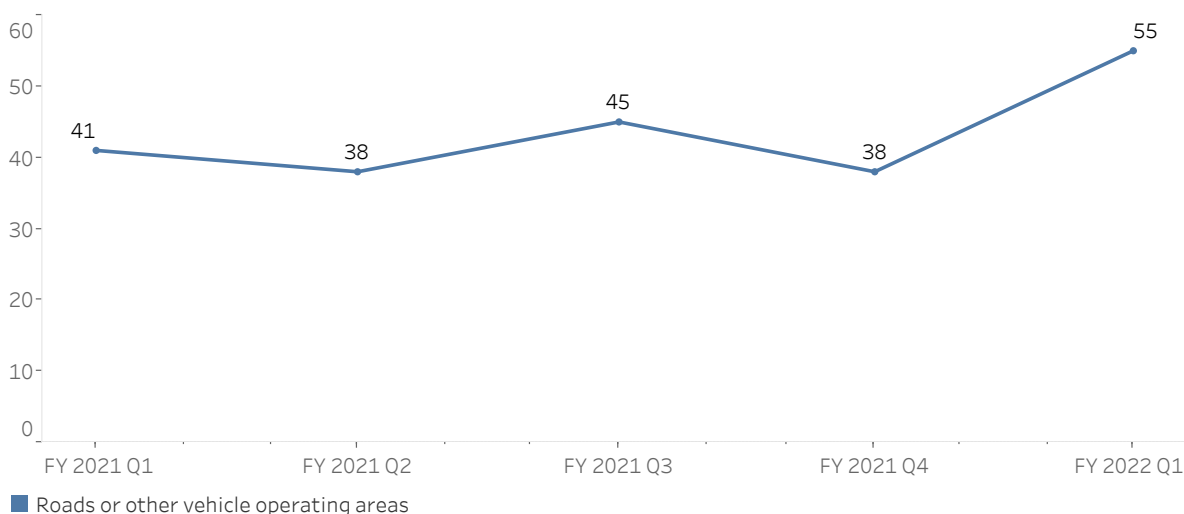


## Roads or other vehicle operating areas



Vehicle movements in and around mine sites, require specific design considerations and controls, to ensure that collisions and other vehicular accidents do not occur, and place workers lives at risk. The high volume of vehicular interactions on mine sites and the size of the mobile plant utilised classifies this as a principal hazard in NSW.

**FIGURE 8.** INCIDENT NOTIFICATIONS RELATED TO THE PRINCIPAL HAZARD ROADS OR OTHER VEHICLE OPERATING AREAS - JULY 2020 TO SEPTEMBER 2021



### DANGEROUS INCIDENT - EXCAVATOR REVERSES OVER EDGE

A 50-tonne excavator was operating on a pad of material that was being fed into a mobile crusher when the air conditioner failed. Consequently, the operator swapped to a 20-tonne excavator. While setting up to cut down the pad, the operator reversed off the edge of the pad, rolling backwards down the 3.5 metres face.

The operator was uninjured.

#### Comments to industry

Equipment operators must maintain situational awareness and remain vigilant to the inherent risks when working at height.

When equipment is changed out, the operator and supervisor should review the hazards and controls for the task.



*Right: The excavator came to rest on its roof.*



### **DANGEROUS INCIDENT – FAILURE TO COMMUNICATE LEADS TO NEAR MISS**

A light vehicle travelling up a ramp narrowly avoided driving over a 3.5 metre face. The ramp had been constructed that morning to link two work areas but was partially excavated during the day. Due to the incline of the ramp, the light vehicle driver couldn't see that the ramp had been partially removed. The front wheels went over the edge and the vehicle bellied out on the open edge.

The occupants were able to exit the vehicle safely and did not suffer any injuries.

The ramp had been excavated without any delineation markers, windrow or positive communication to the light vehicle operators.

#### **Comments to industry**

Mine operators should ensure that appropriate barricading standards are applied in instances where ramps or roads are excavated, or edges are exposed. Changes to roads and other vehicle operating areas should be communicated to affected workers. The Resources Regulator is currently investigating a similar incident in which a light vehicle drove over an open edge and fell 12 metres following the excavation of a ramp. Refer to [IIR20-03 Light vehicle drives over open edge](#).

### **DANGEROUS INCIDENT – POOR COMMUNICATION CONTRIBUTES TO COLLISION**

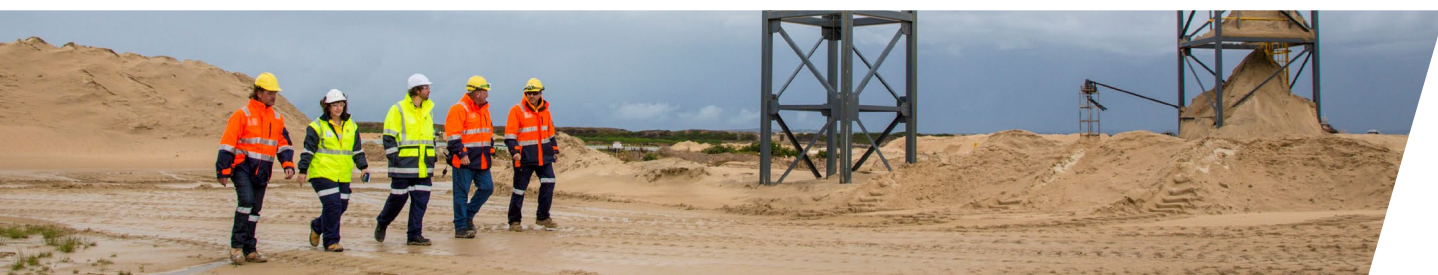
A watercart passed through the site wheel wash enclosure and travelled down a sealed asphalt ramp towards the weigh bridge. The watercart was spraying the ramp to remove a build-up of dirt and silt that had dropped from vehicles using the ramp. The operator lost control of the watercart and tried to brake and steer it into the bank but couldn't stop. It then collided with a truck and dog trailer waiting on the weighbridge. The operator had mistakenly assumed the truck was in the process of exiting the weighbridge when he began his descent.

The traffic control lights for the ramp were inoperable at the time.

There were no injuries.

#### **Comments to industry**

Mine operators should ensure traffic control devices are working as per design. Vehicle operators should always seek positive communication and should never assume the movement of another vehicle. Operators are reminded to always drive to conditions.



## DANGEROUS INCIDENT – POOR COMMUNICATION CONTRIBUTES TO COLLISION

A service cart entered an operational drill area and parked facing the front of a drill rig. The drill rig trammed forward and one of the drill support cradle arms made contact with the hand rail and windscreen of the service cart.

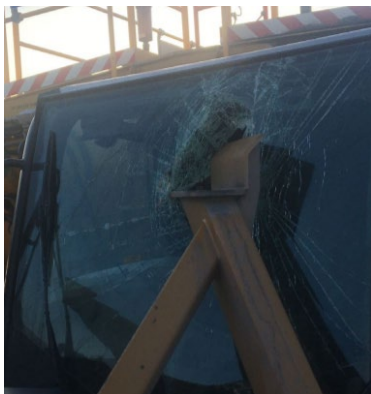
Visibility from the drill cabin was poor due to dust on the windows and glare from the sun.

The service cart operator did not establish positive communications with the drill rig operator.

There were no injuries.

### Comments to industry

Operators of plant must establish positive communications before entering the work area of other mobile plant. All mine operators must have well established procedures for such communications and workers have a legal obligation to follow those procedures. Our recent campaign focused on the risk of collisions involving heavy mining equipment. Refer to [Vehicle incidents - heading in the wrong direction](#).



*Far left: Cradle arm damage to windscreen.*

*Left: Position of vehicles after collision - drill rig on left.*

## DANGEROUS INCIDENT – PRIME MOVERS OVERTURN IN SEPARATE INCIDENTS

In two separate incidents, road registered prime movers have overturned. The trucks were each towing two side-tipping trailers. While tipping, the front trailer has rolled and pulled the prime mover onto its side.

One worker had identified material hang up in the body, however, the truck rolled before the material released.

Neither operator was injured.

### Comments to industry

Mine operators should consider the most appropriate truck type for the material being transported. Workers should monitor for material hang up and should report unsafe conditions to their supervisor.



*Above: An overturned prime mover.*



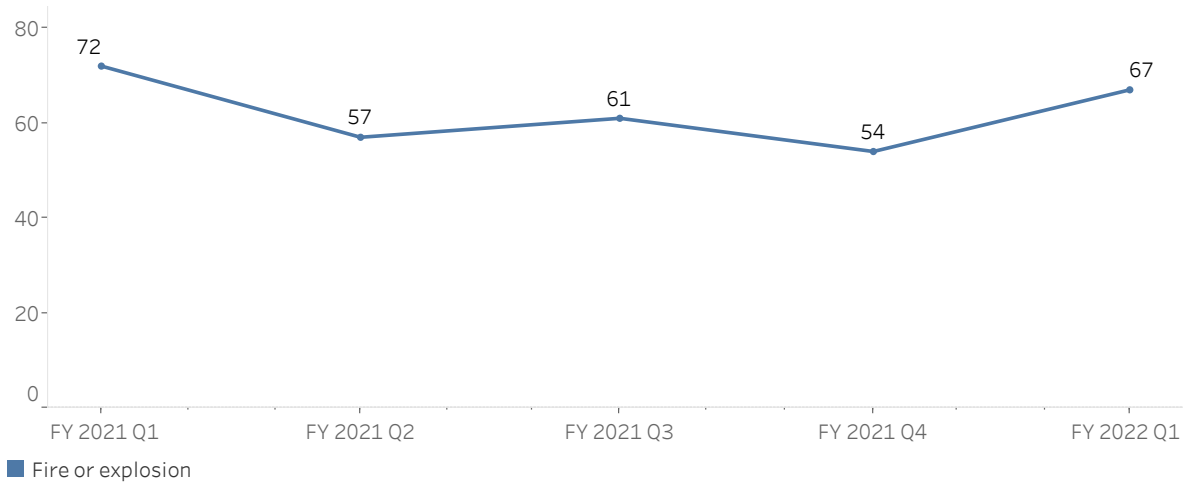


## Fire or explosion



This principal hazard includes risk associated with all sources of flammable, combustible and explosive substances and materials in the working environment. A common source of these incidents are fires on mobile plant. This principal hazard is distinct from the hazards covered in the explosives control plan.

**FIGURE 9.** INCIDENT NOTIFICATIONS RELATED TO THE PRINCIPAL HAZARD FIRE OR EXPLOSION - JULY 2020 TO SEPTEMBER 2021



### DANGEROUS INCIDENT - HAUL TRUCK FIRE

A haul truck caught fire while driving on a haul road. Another truck operator noticed that the fire suppression system had activated and alerted the operator. The operator was able to exit the truck before it became engulfed in flames.

The cause of the fire is being investigated. Further information may be published later.



Above: Haul truck fire incident.

## DANGEROUS INCIDENT - GRADER FIRE DURING REFUELLING

A grader caught on fire while being refuelled. Diesel fuel escaped from a crack in the weld between the tank and the inlet pipe. The fuel ignited when it contacted a hot surface within the engine compartment.

The operator was using a non-approved device to hold the fuel nozzle handle open.

There were no injuries.

Investigations are ongoing and further information may be released in future.



Above: The burnt engine compartment of the grader.

### Comments to industry

Under no circumstances should operators override safety controls on refuelling systems. Operators must always maintain control of the fuel flow.

The videos links below are from Resources Safety and Health, Queensland. They highlight the dangers of failing to use OEM recommended procedures when refuelling mobile plant.

- [Pressurised Refuelling Systems 1: Lessons learned](#)
- [Pressurised Refuelling Systems 2: Process overview](#)

## DANGEROUS INCIDENT - FIRE ON UNDERGROUND CONVEYOR

A deputy, carrying out underground conveyor belt inspection, found hot embers and a small flame caused by an empty 20 litre oil drum wedged under the moving conveyor return belt.

### Comments to industry

Historically, fires in underground coal mines have led to significant human tragedy and loss. Any fire should be extinguished as quickly as possible. Mine operators should ensure that risk control measures to prevent the occurrence of fires, and the escalation and response to underground fires, are implemented and remain effective. Inspection regimes, housekeeping standards and emergency response procedures should be routinely examined to ensure minimum standards are met or exceeded.



Above: The oil drum wedged under the conveyor belt.

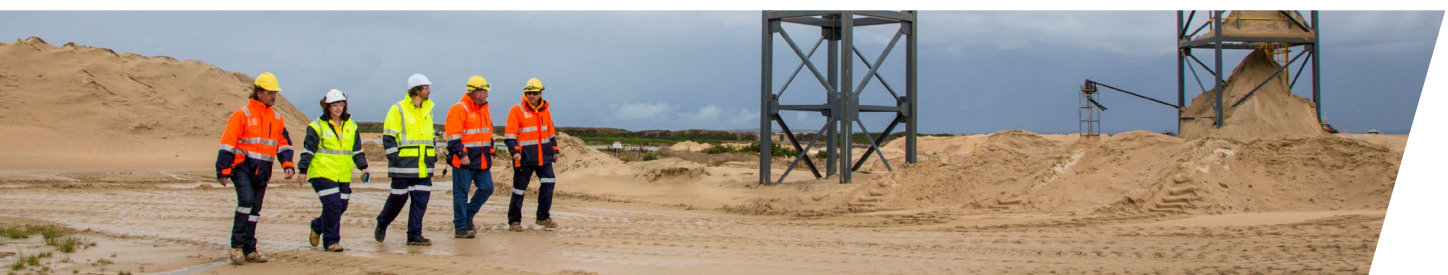
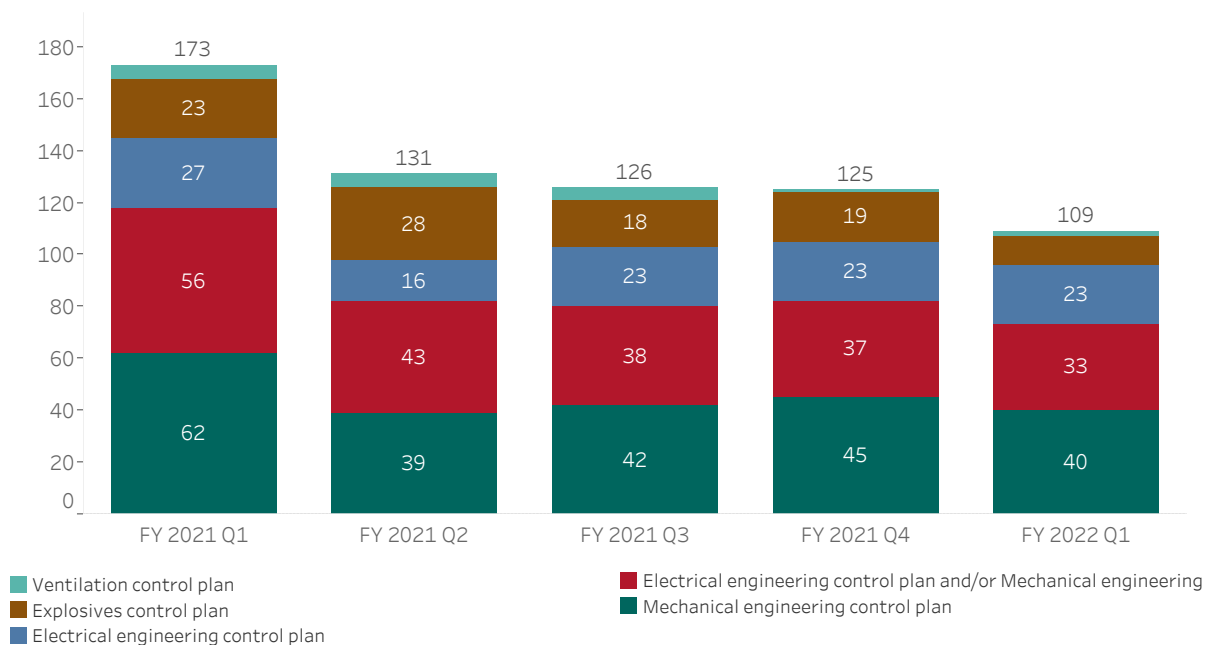
## Principal control plans

The Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 specifies principal control plans for managing certain risks associated with hazards at mine and petroleum sites.

There are seven principal control plans specified in the Regulation.

The figure below presents a further breakdown of numbers of incident notifications received related to principal control plans as defined in clauses 3 and 26 of the Regulation.

**FIGURE 10.** INCIDENT NOTIFICATIONS RECEIVED BY PRINCIPAL CONTROL PLANS - JULY 2020 TO SEPTEMBER 2021

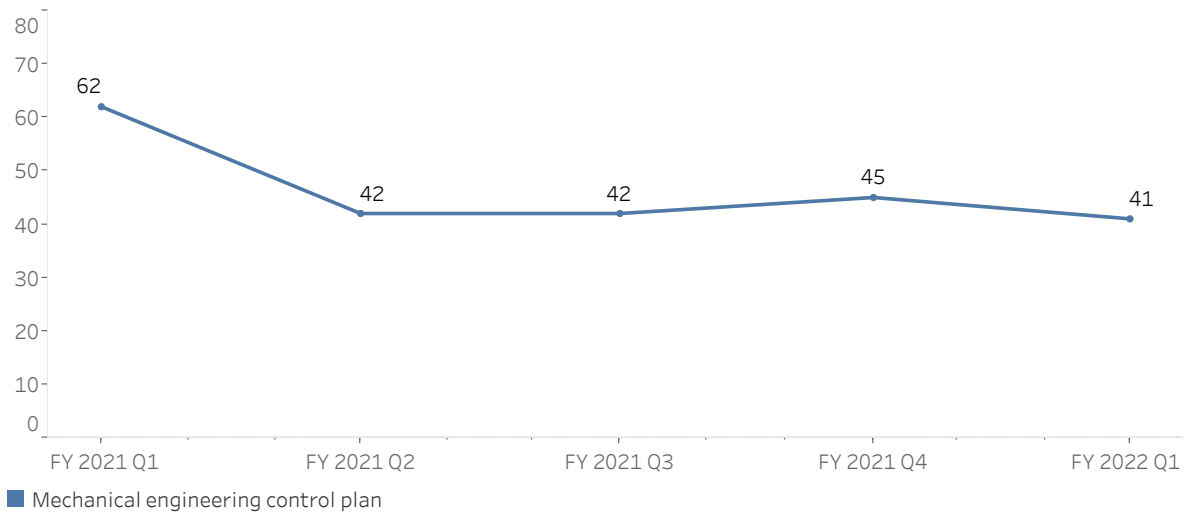




## Mechanical engineering control plan

The mechanical engineering control plan covers ‘lifecycle’ risks associated with mechanical hazards (vehicles, plant and mechanical systems and structures), that workers may be exposed to. This includes risks associated with pressurised fluids.

**FIGURE 11.** INCIDENT NOTIFICATIONS RELATED TO MECHANICAL ENGINEERING CONTROL PLANS - JULY 2020 TO SEPTEMBER 2021



### DANGEROUS INCIDENT - WORKER EXPOSED TO SERIOUS INJURY

An elevated work platform was being driven toward the ramps of a low loader when it slipped off the edge of the deck. The operator who was in the basket of the platform at the time was thrown from the basket and sustained a fractured vertebra.

A spotter was helping to guide the operator during the unloading process.



*Above: The elevated work platform and loader.*

#### Comments to industry

Mine operators must have controls in place to manage the risk of elevated work platforms overturning during loading and unloading activities. Elevated work platforms should be matched appropriately to the size of the transport vehicle (length and width) and be centrally positioned on the deck or tray. Operators should plan loading and unloading tasks and final machine position before commencing the task.

### **DANGEROUS INCIDENT – PRESSURE RELEASE NEAR MISS**

A mechanical tradesperson was performing maintenance on a continuous miner. The worker attached a handheld grease gun to a grease line and after three to four pumps, the grease gun began to stall. The fitter attempted to remove the grease gun coupler from the nipple. When the coupler disconnected, a pressurised spray of grease was released from the nipple, striking the fitter's forearm and bicep.

The fitter was treated, and later cleared, for a suspected fluid injection injury.

The initial investigation found that the grease line had been capped off.

#### **Comments to industry**

Mine operators must include the risks associated with grease systems when developing control measures for the unintended release of pressurised fluids.

Refer to [SB13-01 Fluid injections result in surgery](#) and [MDG41-Fluid-power-systems](#).

### **DANGEROUS INCIDENT – SCAFFOLD DESIGN**

A mine worker fell while climbing a ladder to access scaffold. The worker fell approximately four metres, landing on a co-worker, who was standing at the base of the ladder, on a scaffolding platform. The worker who fell lost consciousness and sustained a head laceration, which required 16 stitches. The worker who was fallen on, sustained a neck injury. Both workers were transported to hospital for treatment.

The outcome of this incident could have been far more serious, as there was a drop of several metres from the lower scaffold platform to the floor of the work area.

This incident is under investigation and further information may be published later.

#### **Comments to industry**

Mine operators must ensure that there are effective controls in place to manage the risk of falls while climbing onto and from scaffold ladders. All workers who install or work on scaffolding, should be familiar with site scaffolding procedures. This should include design and construction requirements, and necessary safety equipment, such as when fall protection equipment is required. Mine operators should review the [SafeWork NSW – Code of Practice – Managing the risks of falls at workplaces](#).

### **DANGEROUS INCIDENT – WORKING ON OPERATING CONVEYOR**

A worker was attempting to rectify a jammed conveyor belt when he slipped and fell into the feed chute of the conveyor. The worker was engulfed as the plate feeder continued to feed material from the hopper.

A loader driver, operating nearby, heard the trapped worker yelling for help and stopped the plate feeder. The operator then freed the trapped worker from the chute.

The worker suffered internal injuries.

This incident is under investigation and further information may be published later.

### **DANGEROUS INCIDENT - WORKERS HAND CAUGHT IN UNGUARDED CONVEYOR**

A worker lost his footing, stumbled and his right hand hit an unguarded conveyor snub pulley. The worker required surgery for injuries to his hand.

#### **Comments to industry**

Mine operators and workers must ensure that, before guarding around plant is removed for maintenance or cleaning purposes, all energy sources are isolated. Guarding must be restored to its secured position before the plant resumes operation.



*Above: The unguarded snub pulley.*

Mine operators should review:

- Work Health and Safety Regulation 2017 cl 208 and cl 210
- [SafeWork NSW - Code of Practice - Managing the risks of plant in the workplace.](#)

### **DANGEROUS INCIDENT - POOR SIGHT LINES AND COMMUNICATION**

A rigger sustained a broken right tibia and fibula after being struck by a forklift. Two riggers were directing the forklift into position when a misalignment was identified, requiring the forklift operator to reverse and reposition the forklift. During this time the riggers also identified the need to alter the rigging before the forklift lifted the load. The riggers began altering the rigging on the load. At the same time the forklift operator moved forward, striking one of the riggers on the back of the lower leg.

#### **Comments to industry**

Mine operators and workers must ensure clear communication between forklift operators and spotters. Forklift operators must be aware of worker position before moving. No standing zones should be identified and implemented prior to a task commencing.



**DANGEROUS INCIDENT – STRUCTURAL FAILURE AT WELD POINT**

An operator of an Eimco 130 LHD was coming to a stop at a set of block lights when the lift frame welds on the vehicle failed, causing the load, a QDS pod loaded with four pallets, to fall.

The operator was uninjured.



Above: Structural failure at weld point.

**Comments to industry**

The maintenance regimes for mobile plant must include inspection and testing of lifting components on mobile plant, including hired plant. Where mobile plant may be used with man baskets, the risk profile increases and requires a more rigorous regime. Mine operators must ensure that equipment used for lifting and carrying is operated within the safe working limits of the mobile plant and any attachments.

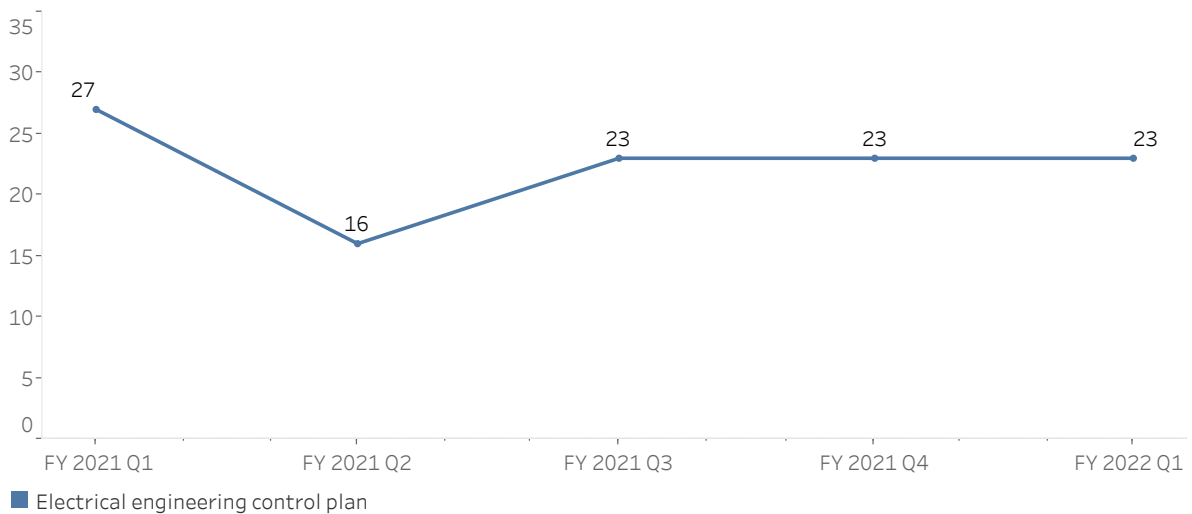


**Electrical engineering control plan**



The electrical engineering control plan covers ‘lifecycle’ risks, associated with electrical hazards (supply, vehicles, plant or infrastructure), that workers may be exposed to.

**FIGURE 12.** INCIDENT NOTIFICATIONS RELATED TO ELECTRICAL ENGINEERING CONTROL PLANS - JULY 2020 TO SEPTEMBER 2021



## **DANGEROUS INCIDENT - DAMAGE TO SYSTEM RENDERS ISOLATION INEFFECTIVE**

During a maintenance period, two separate crews were working on the longwall belt. The first crew, at 5 cut through, isolated and locked out using the remote isolation system. The second crew, at 3 cut through, later isolated and locked out at a different location, using the same remote isolation system. When the first crew removed their locks and isolation, the deputy called the control room operator to start the belt. The pre-start warning sounded, and the belt began moving while a person at 3 cut through was standing on the belt. Another worker pulled the lanyard which operated a switch and stopped the belt.

There were no injuries.

Preliminary investigations indicate the remote isolation point at 3 cut through had internal damage, making it ineffective.

### **Comments to industry**

Mines should review the maintenance and testing of remote isolation systems. Workers should be trained to identify when remote isolation has been successfully applied and when it has failed.





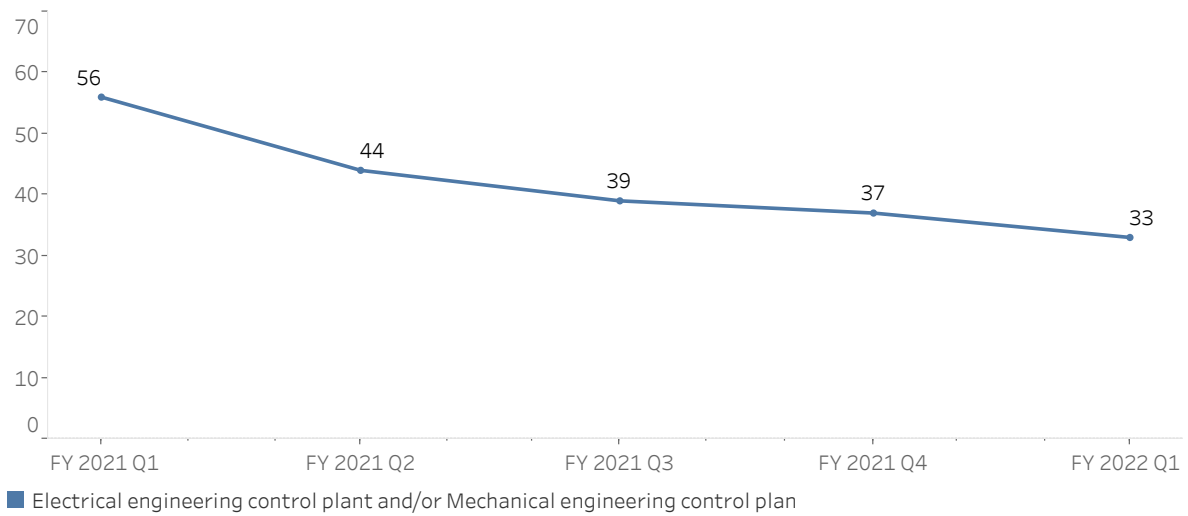


## Electrical and mechanical engineering control plans

Notified incidents may relate to both electrical and mechanical control plans.



**FIGURE 13.** INCIDENT NOTIFICATIONS RELATED TO THE ELECTRICAL AND/OR MECHANICAL ENGINEERING CONTROL PLANS - JULY 2020 TO SEPTEMBER 2021

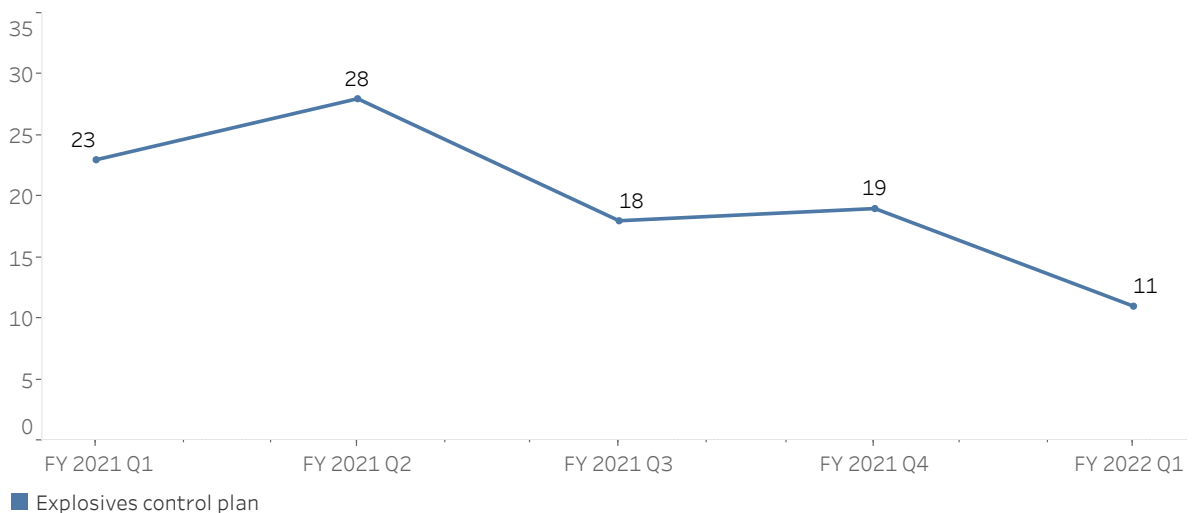


## Explosives control plan

The explosives control plan covers risks associated with the use and management of explosives hazards, that workers may be exposed to. This includes incidents involving 'flyrock'.



**FIGURE 14.** INCIDENT NOTIFICATIONS RELATED TO EXPLOSIVES CONTROL PLANS - JULY 2020 TO SEPTEMBER 2021



## PUBLIC CONSULTATION ON PROPOSED AMENDMENTS TO THE EXPLOSIVES REGULATION

Public consultation of the proposed Explosives Regulation 2021 was sought and closed on 23 August 2021.

The proposed Regulation retains many of the existing requirements for licence holders and explosives users. It also updates the regulatory framework and introduces changes intended to enhance safety.

These include:

- classifying desensitised explosives as explosive precursors
- new obligations for employers to be informed of suspended or cancelled security clearances and licences
- security clearance exemptions for NSW police officers
- clarifying storage requirements for firearms licence holders
- expanding the prohibition of certain loads of explosives being transported in NSW road tunnels.

For further information visit the NSW Government's, [Remaking regulations for the explosives industry](#).

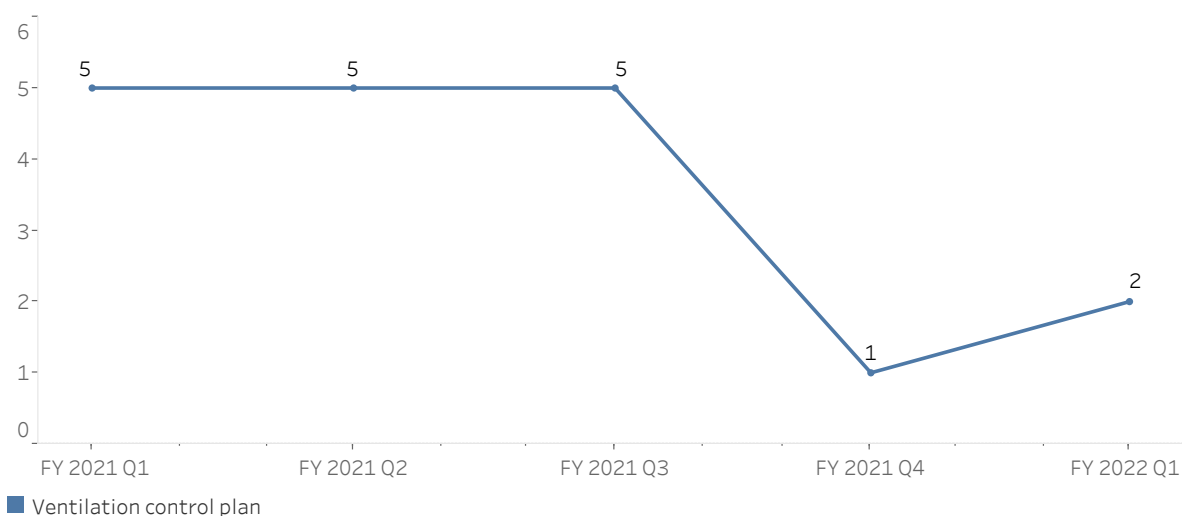


### Ventilation control plan



A ventilation control plan covers risks associated with ventilation in underground mines. This includes incidents involving failed atmospheric conditions and where trigger action response plans may have been activated.

**FIGURE 15.** INCIDENT NOTIFICATIONS RELATED TO VENTILATION CONTROL PLANS - JULY 2020 TO SEPTEMBER 2021



## DANGEROUS INCIDENT - MINE WORKER CAUGHT IN VENTILATION DOORS

A mine worker was found caught by his arm in a fully opened underground ventilation door. The hydraulically operated door, which opens vertically, had been jamming in the frame earlier in the shift. When the worker requested the ventilation door be opened, it failed to open. The worker then opened a personnel access door fitted to the ventilation door and the ventilation door unexpectedly opened. The personnel access door slammed, jamming two of the worker's fingers. The worker was lifted from the ground as the ventilation door opened and he was left suspended by the two trapped fingers. A short time later, another worker drove a machine to a nearby fill point. The trapped worker yelled for help. The colleague lowered the door to free the trapped worker and initiated an emergency response.

### Comments to industry

Engineering systems or controls should be installed such that when a piece of equipment fails to operate as intended it should fault to a safe state. The equipment should then require a reset before being capable of being energised. Mine operators should review the risk of entrapment associated with ventilation doors which are either hydraulic, automatic or operate in high ventilation pressures.

NOTE: This incident highlights the fact that incidents notified often involve aspects of one or more principal control plans.



Above: The fully opened ventilation door.



Above: The ventilation door in a closed position.



## Spotlight on good practice A sound approach to managing fires on plant

Incidents involving fires on plant are among the most numerous mining hazards notified to the regulator. These incidents represent significant risks to workers as well as repair and replacement costs to industry. With this in mind, Glencore Coal Assets Australia (GCAA) have taken a fresh look at how they conduct fire risk assessments for plant, across all their mines.

### **Data gathering**

The project involved a range stakeholders including a selection of workers from across all Glencore open cut coal mine sites, equipment suppliers and fire system providers. A data gathering phase commenced with a review of safety alerts and technical bulletins. The history of fire events was reviewed, and both these steps informed the risk assessment. A new template was also developed which focused on identifying preventative controls.

### **A different focus**

Traditionally, fire risk assessments have focused (almost solely) on suppression and mitigation controls. Industry too have a history of fire risk assessments that are generic, apply to a 'type' of plant and don't consider specific conditions, experience, and history at mine sites. The final step of the process developed verifications documents to confirm all the identified controls were put into place.

### **Next steps**

There are plans in the future which involve developing training packages for inspections, thermal imaging baselines and periodic inspection of each machine and critical hose audits. Glencore is currently commencing trial implementation of these steps.

# Sector profiles



## Coal mines

Open cut, underground and coal preparation plants

## Large mines

METALLIFEROUS AND QUARRIES

Quarries that produce >900,000 tonnes pa and large open cut or underground metalliferous mines

## Small mines

METALLIFEROUS, QUARRIES AND OTHER GEMSTONES

Quarries and other mine types (e.g. sand, clay, lime) that produce <900,000 tonnes pa, open cut or underground metalliferous mines and gemstone mines

## Petroleum and geothermal sites

Onshore petroleum and geothermal productions and exploration sites

## Opal mines

Opal mines at Lightning Ridge and White Cliffs

## Exploration sites

Exploration sites (excluding petroleum)

## Non-mines

Includes many manufacturers (including OEMs), suppliers, designers, importers, licence holders and registration holders

## Coal sector

### Incident notifications

Under work health and safety legislation, mine operators must notify the regulator about the occurrence of certain types of safety incidents. Incident notification data (by active mine) provides insights into sector-specific reporting trends.

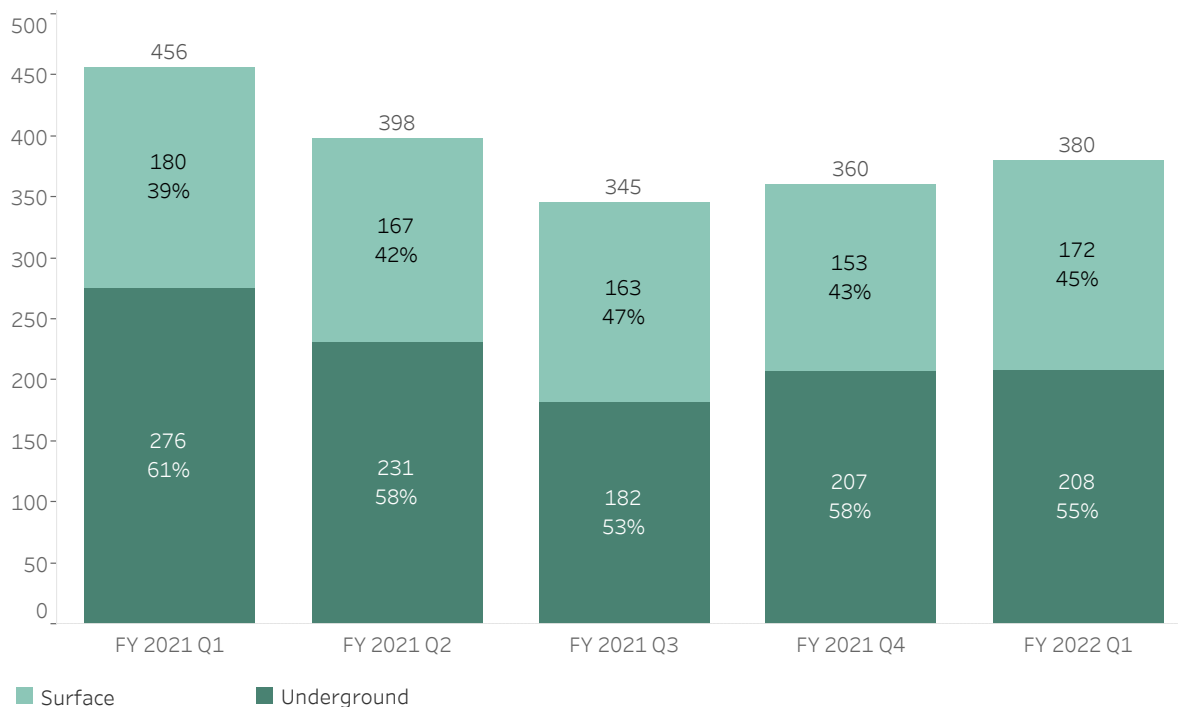
This quarter saw an increase in incidents reported by the coal sector.

**TABLE 2.** COAL SECTOR INCIDENT NOTIFICATION RECEIVED RATES - JULY 2020 TO SEPTEMBER 2021

| MEASURE                          | FY 2021 Q1 | FY 2021 Q2 | FY 2021 Q3 | FY 2021 Q4 | FY 2022 Q1 |
|----------------------------------|------------|------------|------------|------------|------------|
| Incidents                        | 456        | 398        | 345        | 360        | 380        |
| Active mines                     | 118        | 117        | 118        | 118        | 117        |
| Incident rate per active mine    | 3.86       | 3.40       | 2.92       | 3.05       | 3.25       |
| Mines that notified incidents    | 57         | 54         | 51         | 48         | 55         |
| % of mines notifying an incident | 48%        | 46%        | 43%        | 41%        | 47%        |
| Incident rate per notifying mine | 8.00       | 7.37       | 6.76       | 7.50       | 6.91       |

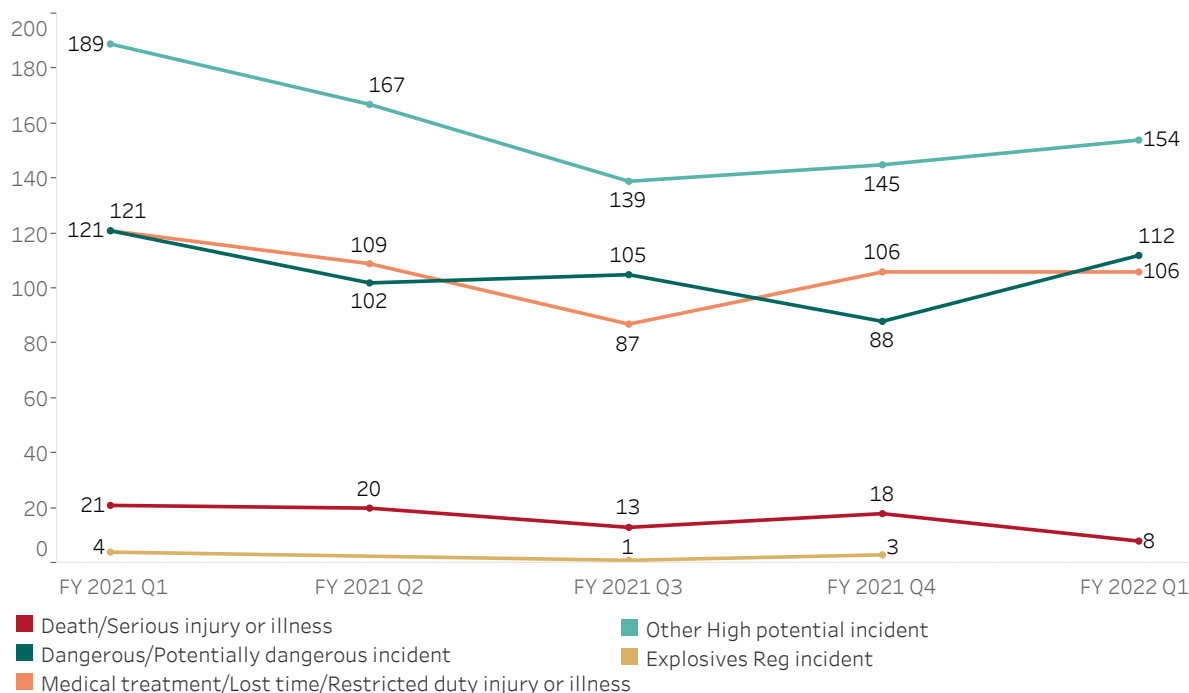
The following graph shows the proportion of safety incident notifications received from surface and underground coal operations.

**FIGURE 16. COAL SECTOR INCIDENT NOTIFICATIONS BY OPERATION TYPE - JULY 2020 TO SEPTEMBER 2021**



The graph below presents a breakdown of safety incidents notified to the Regulator by the coal sector by the requirement to report. This quarter saw a decrease in notifications of death/serious injury illness and medical treatment/lost time/restricted duties injuries and illness. Increases in notified dangerous/potentially dangerous incidents were observed this quarter.

**FIGURE 17. COAL SECTOR INCIDENT NOTIFICATIONS BY REQUIREMENT TO REPORT - JULY 2020 TO SEPTEMBER 2021**

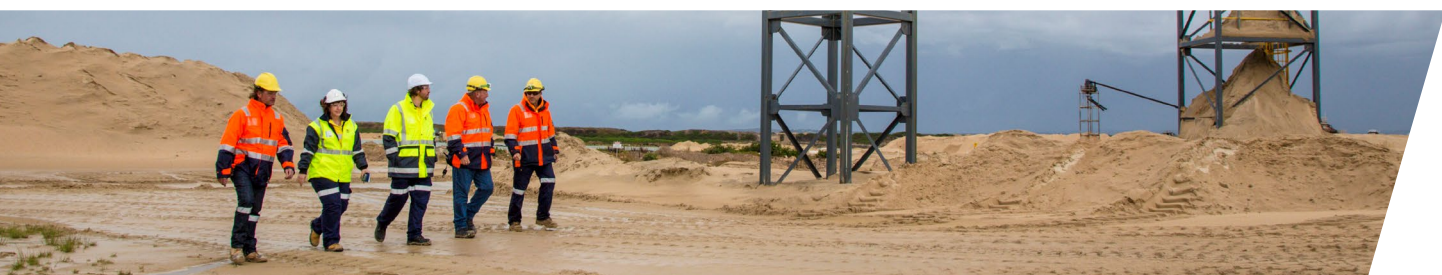
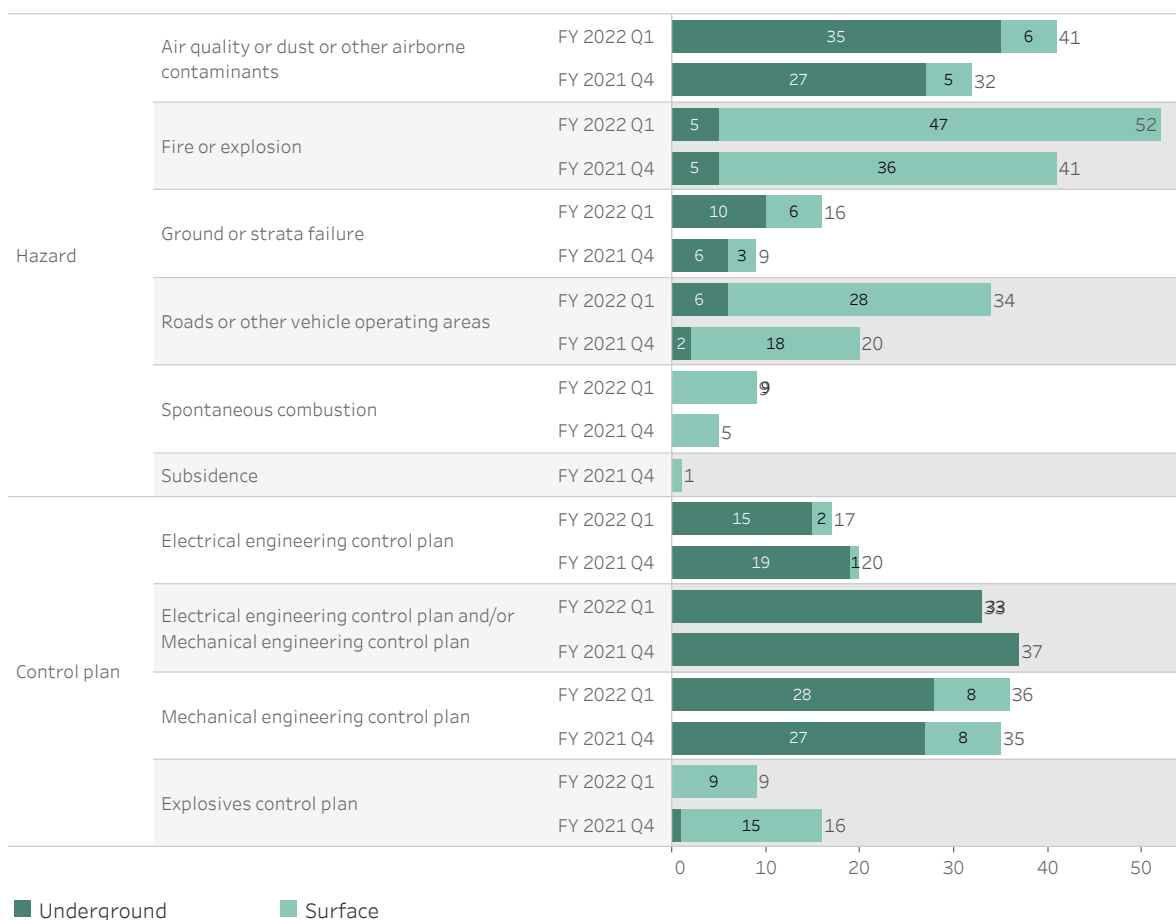




## Incident notifications by principal hazard

The figure below shows the number of incident notifications received from the coal sector during the past two quarters, as classified against related principal hazards and principal control plans. The findings highlight hazards where mine operators need to ensure their risk management controls remain fully effective – this includes ensuring the effectiveness of electrical/mechanical engineering control plans in underground operations and controls for managing fire or explosion hazards in surface operations.

**FIGURE 18. COAL MINE INCIDENTS CLASSIFIED BY PRINCIPAL HAZARD BY OPERATION TYPE - APRIL 2021 TO SEPTEMBER 2021**





## Large mines sector

### Incident notifications

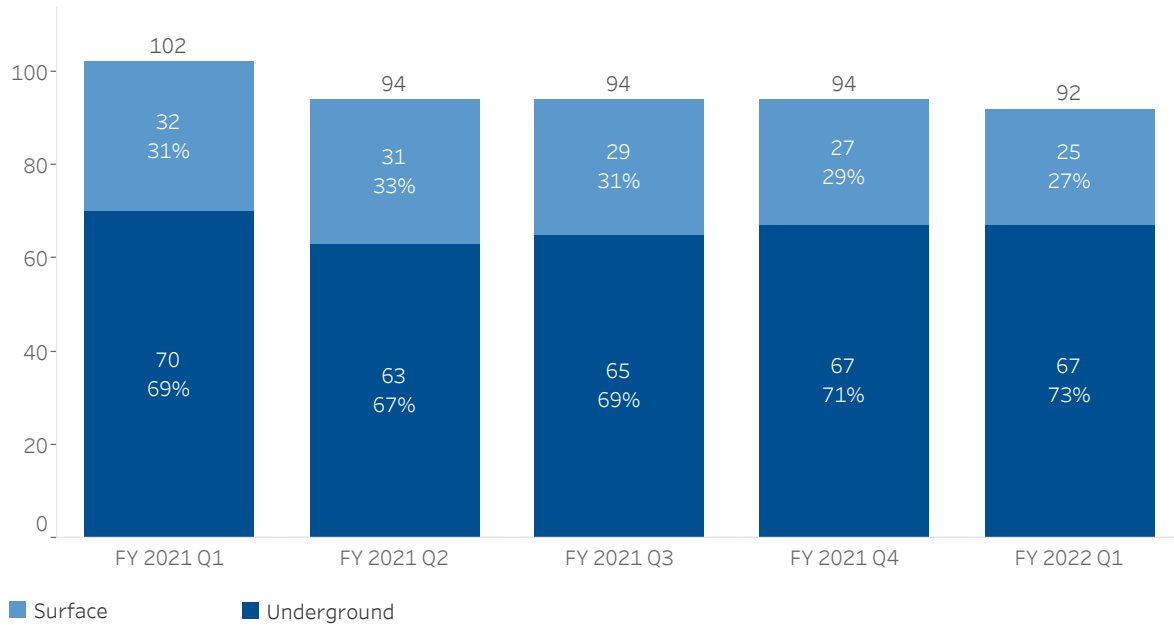
Under work health and safety legislation, mine operators must notify the regulator about the occurrence of certain types of safety incidents. Incident notification data (by active mine) provides insights into sector specific reporting trends. The increased number of active mines seen from Q4 2021 reflects changes in mine classification by the Resources Regulator where some small mines were re-classified as large mines.

**TABLE 3.** LARGE MINES AND QUARRIES SECTOR INCIDENT NOTIFICATIONS RECEIVED RATES - JULY 2020 TO SEPTEMBER 2021

| MEASURE                          | FY 2021 Q1 | FY 2021 Q2 | FY 2021 Q3 | FY 2021 Q4 | FY 2022 Q1 |
|----------------------------------|------------|------------|------------|------------|------------|
| Incidents                        | 102        | 94         | 94         | 94         | 92         |
| Active mines                     | 40         | 40         | 44         | 62         | 59         |
| Incident rate per active mine    | 2.55       | 2.35       | 2.14       | 1.52       | 1.56       |
| Mines that notified incidents    | 36         | 24         | 29         | 28         | 28         |
| % of mines notifying an incident | 90%        | 60%        | 66%        | 45%        | 47%        |
| Incident rate per notifying mine | 2.83       | 3.92       | 3.24       | 3.36       | 3.29       |

The following graph shows the proportion of safety incident notifications received from large mines and quarries by operation types. Consistently, underground large mines and quarries notify around 70% of all incidents for the sector.

**FIGURE 19. LARGE MINES AND QUARRIES INCIDENT NOTIFICATIONS BY OPERATION TYPE - JULY 2020 TO SEPTEMBER 2021**



RESOURCES  
REGULATOR  
**TELEPHONE  
MENU**

# 1300 814 609

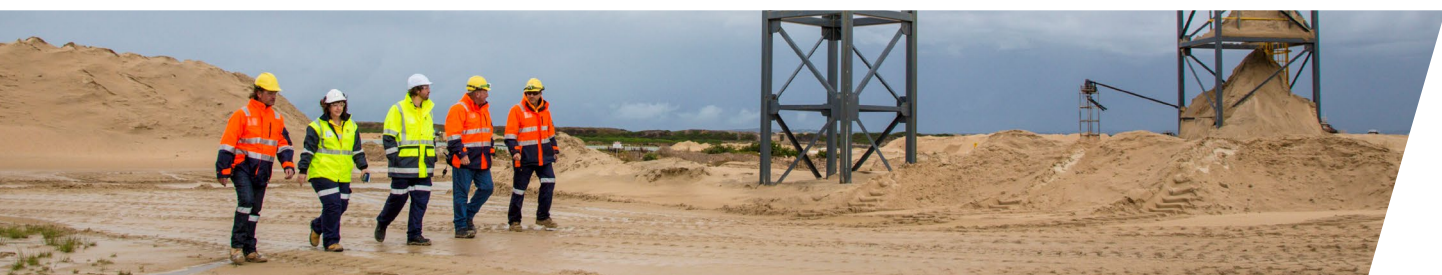
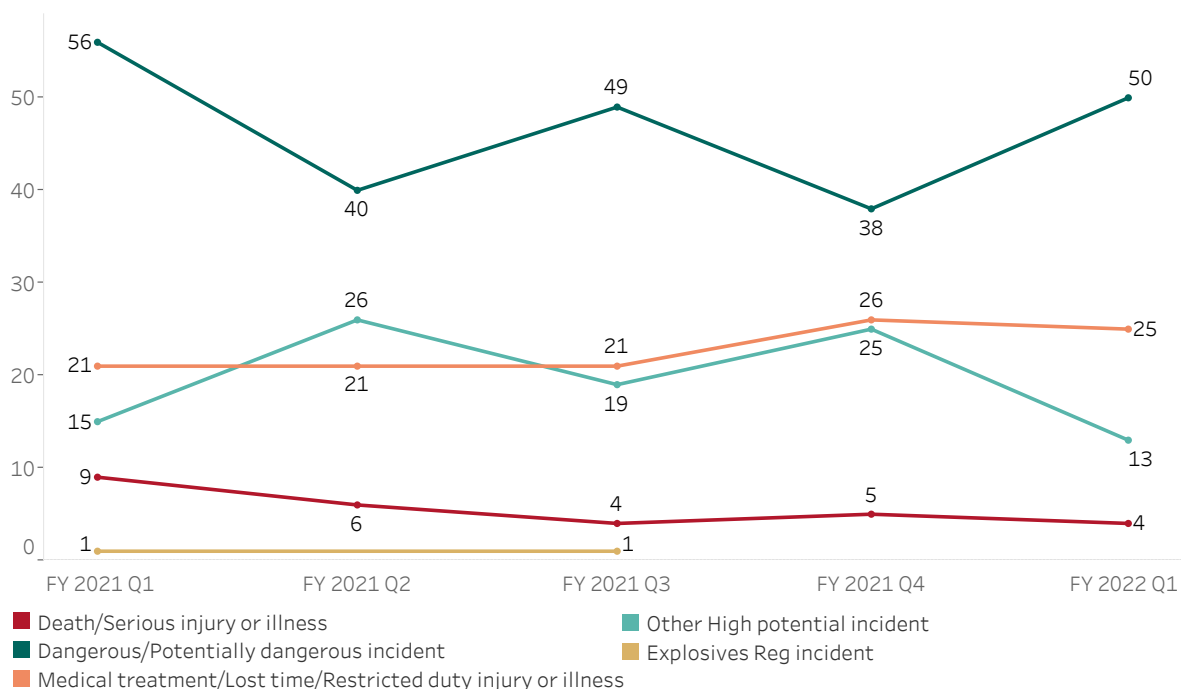
For all other enquiries, **PRESS 2** 8.30AM - 4.30PM MON - FRI

**NOTIFY AN INCIDENT** 24/7  
To notify a safety incident, or to enquire about an incident you have already notified, **PRESS 1**

- 2** AUTHORISATIONS, PLANT REGISTRATION, LICENCES & EXEMPTIONS PRESS 2
- 3** COMPETENCE, PRACTISING CERTIFICATES & MUTUAL RECOGNITION PRESS 3
- 4** MINE SAFETY GENERAL PRESS 4
- 5** MINING ACT COMPLIANCE PRESS 5

The following graph presents a breakdown of safety incidents notified to the NSW Resources Regulator by the large mines and quarries sector based on the requirement to report under the safety legislation. While an increase in ‘dangerous’ and ‘potentially dangerous’ incidents was observed this quarter, numbers of ‘other high potential’ incidents decreased sharply compared to earlier quarters.

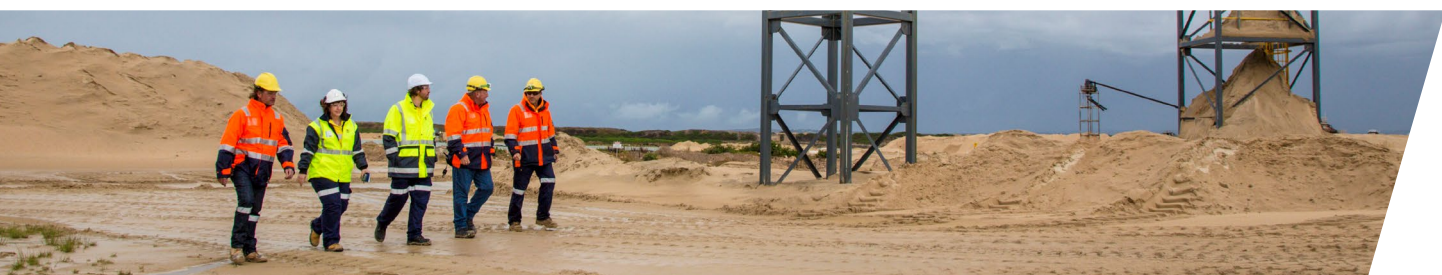
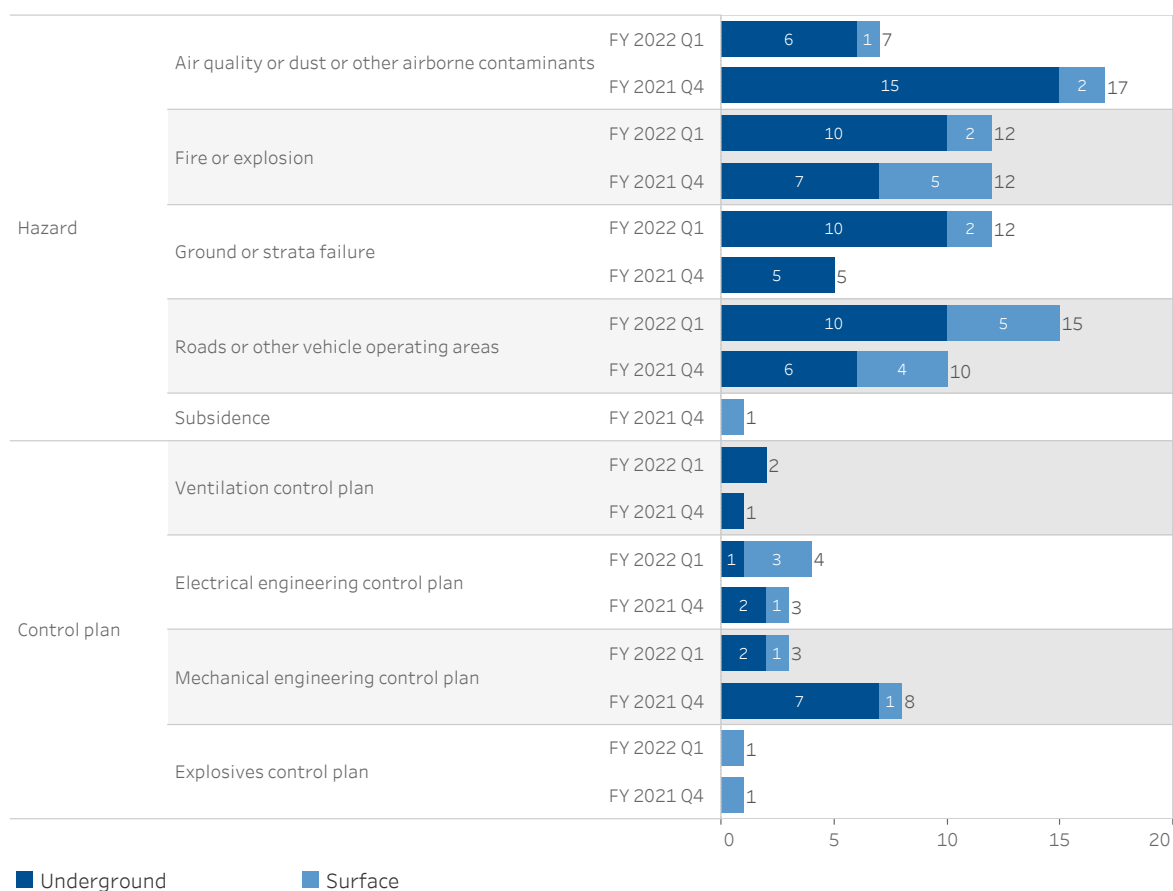
**FIGURE 20. LARGE MINES AND QUARRIES INCIDENT NOTIFICATIONS BY REQUIREMENT TO REPORT - JULY 2020 TO SEPTEMBER 2021**



## Incident notifications by principal hazard

The figure below shows the number of incident notifications received from the large mines and quarries sector during the past two quarters as classified against related principal hazards and principal control plans. The findings highlight incidents where mine operators need to ensure their risk management controls remain fully effective. This includes controls for managing hazards associated with roads or other vehicle operating areas, specifically in the underground large mines and quarries.

**FIGURE 21. LARGE MINES AND QUARRIES INCIDENTS CLASSIFIED BY PRINCIPAL HAZARD BY OPERATION TYPE - APRIL 2021 TO SEPTEMBER 2021**





## Small mines sector

### Incident notifications

Under work health and safety legislation, mine operators must notify the regulator about the occurrence of certain types of safety incidents. Incident notification data (by active mine) provides insights into sector specific reporting trends.

**TABLE 4.** SMALL MINES AND QUARRIES SECTOR INCIDENT NOTIFICATIONS RECEIVED RATES - JULY 2020 TO SEPTEMBER 2021

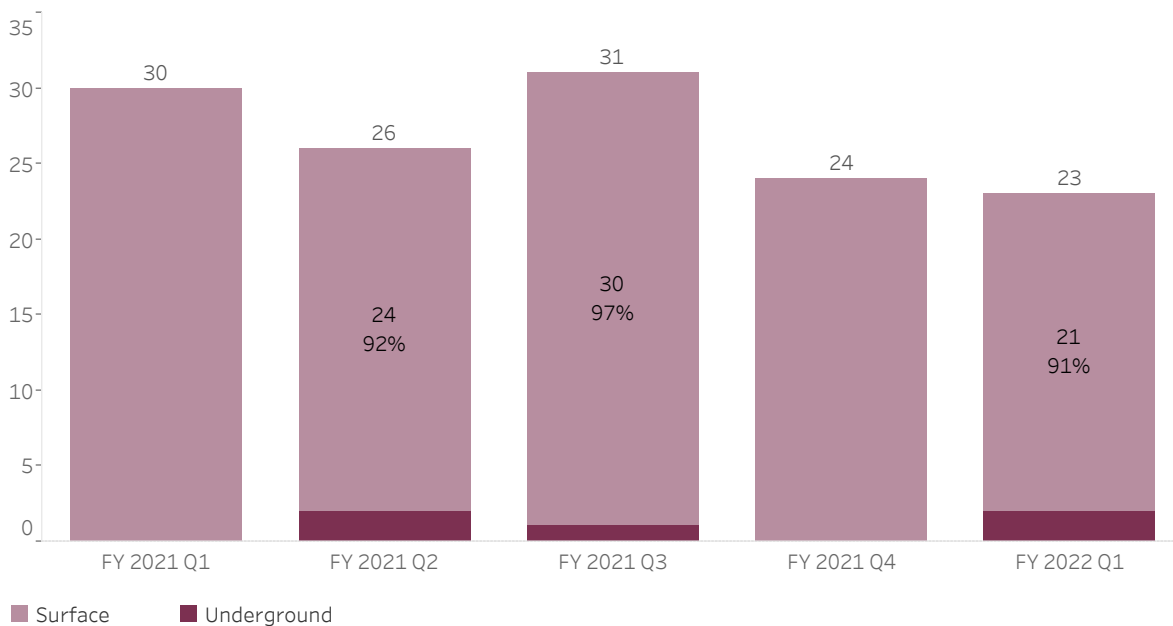
| MEASURE                          | FY 2021 Q1 | FY 2021 Q2 | FY 2021 Q3 | FY 2021 Q4 | FY 2022 Q1 |
|----------------------------------|------------|------------|------------|------------|------------|
| Incidents                        | 30         | 26         | 31         | 24         | 23         |
| Active mines                     | 2,658      | 2,654      | 2,624      | 2,588      | 2,591      |
| Incident rate per active mine    | 0.01       | 0.01       | 0.01       | 0.01       | 0.01       |
| Mines that notified incidents    | 26         | 22         | 28         | 22         | 19         |
| % of mines notifying an incident | 0.98%      | 0.83%      | 1.07%      | 0.85%      | 0.73%      |
| Incident rate per notifying mine | 1.15       | 1.18       | 1.11       | 1.09       | 1.21       |

The following graph shows the proportion of safety incident notifications received from small mines and quarries.



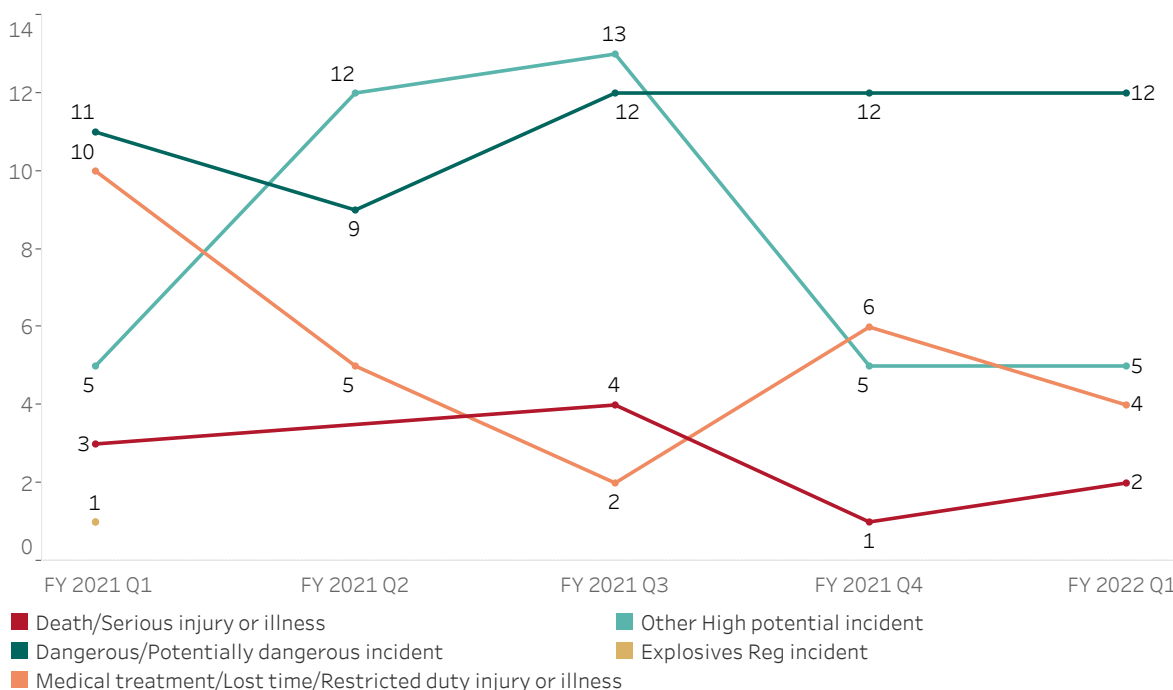


**FIGURE 22.** SMALL MINES AND QUARRIES INCIDENT NOTIFICATIONS BY OPERATION TYPE - JULY 2020 TO SEPTEMBER 2021



The graph below presents a breakdown of safety incidents notified to the NSW Resources Regulator by the small mines sector by the requirement to report. This quarter saw an ongoing steady trend in the number of ‘dangerous and potentially dangerous’ incidents. Comparatively, the number of incidents notified by the sector is substantially lower than what is reported by the coal and large mines and quarries sector.

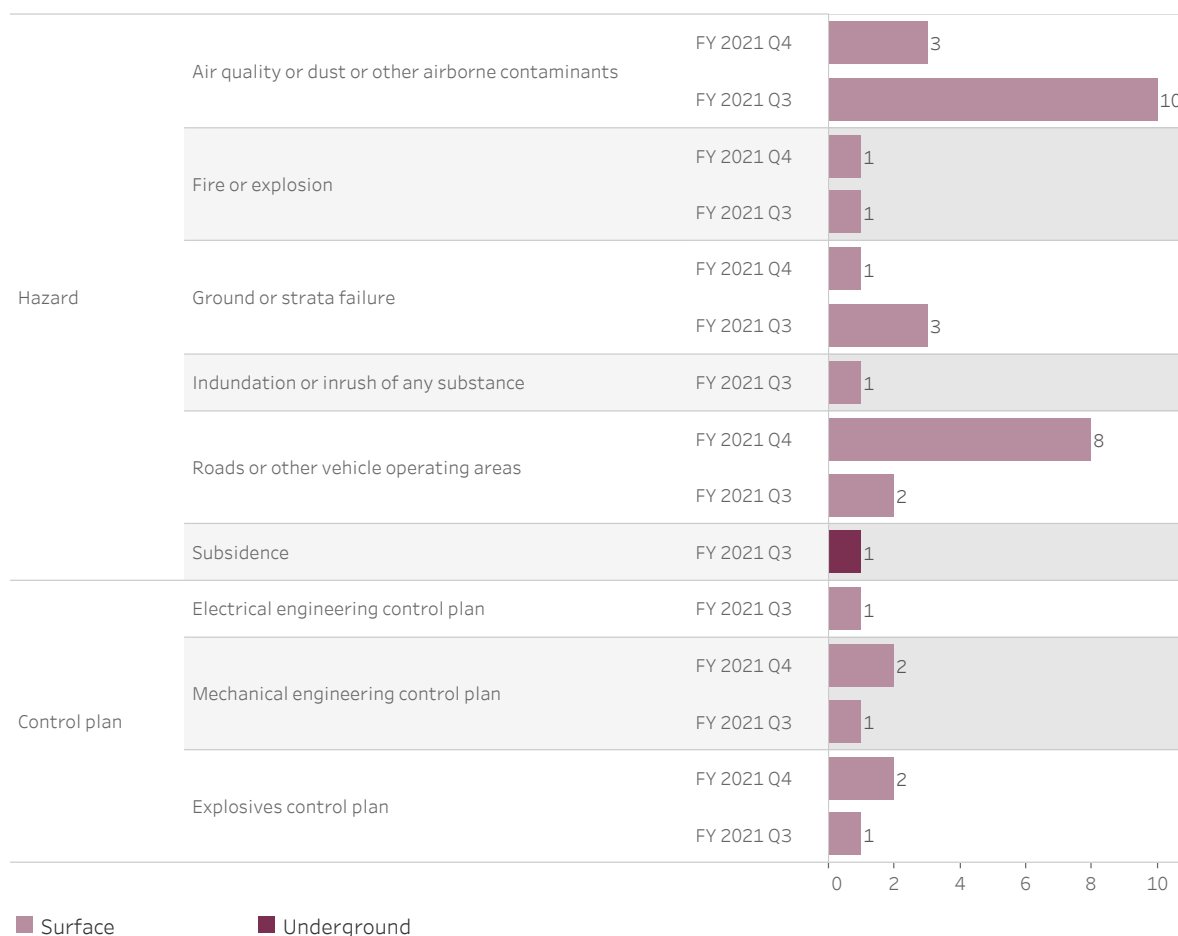
**FIGURE 23.** SMALL MINES AND QUARRIES INCIDENT NOTIFICATIONS RECEIVED BY REQUIREMENT TO REPORT - JULY 2020 TO SEPTEMBER 2021



## Incident notifications by principal hazard

The figure below shows the number of incident notifications received from the small mines sector during the past two quarters as classified against related principal hazards and principal control plans. The findings highlight hazards where small mine operators need to ensure their risk management controls remain fully effective — this includes controls for managing hazards associated with airborne contaminants or dust and roads or other vehicle operating areas.

**FIGURE 24. SMALL MINES AND QUARRIES INCIDENTS CLASSIFIED BY PRINCIPAL HAZARD BY OPERATION TYPE - APRIL 2021 TO SEPTEMBER 2021**



## Other mines sector profiles

### Incident notifications

Under work health and safety legislation, mine operators must notify the regulator about the occurrence of certain types of safety incidents.

This section relates to petroleum and geothermal sites, opal mines and exploration sites. The tables below show the number and types of incident notifications by requirement to report and by principal hazard.

**TABLE 5.** PETROLEUM AND GEOTHERMAL SITES, OPAL MINES AND EXPLORATIONS SITES INCIDENT NOTIFICATIONS - JULY 2020 TO SEPTEMBER 2021

| SECTOR                          | FY 2021 Q1 | FY 2021 Q2 | FY 2021 Q3 | FY 2021 Q4 | FY 2022 Q1 |
|---------------------------------|------------|------------|------------|------------|------------|
| Petroleum and geothermal sites* | 0          | 0          | 0          | 0          | 0          |
| Opal mines                      | 0          | 1          | 0          | 0          | 0          |
| Explorations sites**            | 3          | 0          | 2          | 1          | 1          |

\* includes exploration

\*\* excludes petroleum and geothermal

**TABLE 6.** EXPLORATION SITES INCIDENT NOTIFICATIONS BY REQUIREMENT TO REPORT - JULY 2020 TO SEPTEMBER 2021

| REQUIREMENT TO REPORT   | FY 2021 Q1 | FY 2021 Q2 | FY 2021 Q3 | FY 2021 Q4 | FY 2022 Q1 |
|---|------------|------------|------------|------------|------------|
| Death/serious injury or illness                               | 0          | 0          | 1          | 1          | 1          |
| Dangerous/potentially dangerous incident                      | 1          | 0          | 0          | 0          | 0          |
| Medical treatment/lost time/restricted duty injury or illness | 2          | 0          | 1          | 0          | 0          |
| TOTAL   | 3          | 0          | 2          | 1          | 1          |

**TABLE 7.** EXPLORATION SITES INCIDENT NOTIFICATION BY PRINCIPAL HAZARD - JULY 2020 TO SEPTEMBER 2021

| INCIDENT CLASSIFICATION BY PRINCIPAL HAZARD OR PRINCIPAL CONTROL PLAN | FY 2021 Q1 | FY 2021 Q2 | FY 2021 Q3 | FY 2021 Q4 | FY 2022 Q1 |
|---|------------|------------|------------|------------|------------|
| No related principal mining hazard or principal control plan          | 2          | 0          | 2          | 1          | 1          |
| Roads or other vehicle operating areas                                | 1          | 0          | 0          | 0          | 0          |
| <b>TOTAL</b>  | <b>3</b>   | <b>0</b>   | <b>2</b>   | <b>1</b>   | <b>1</b>   |



# Compliance and enforcement

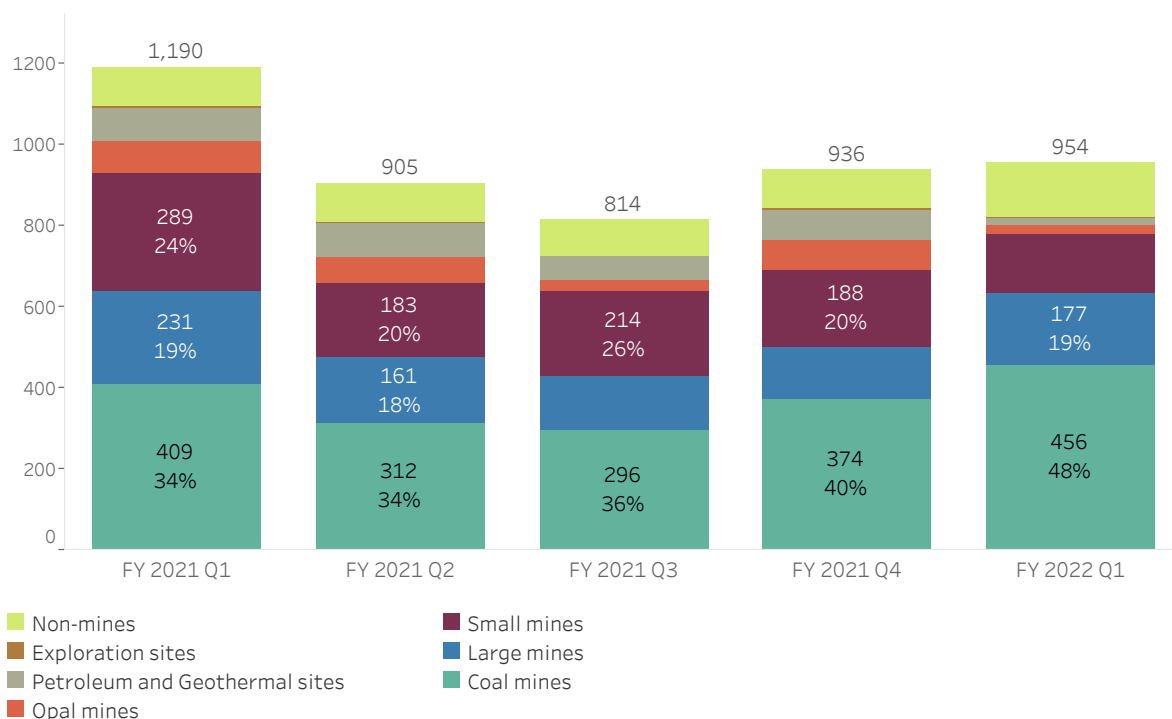
The Regulator uses a range of tools to promote and secure compliance in mines and petroleum sites in relation to work health and safety legislation. These include desktop assessments, site inspections, investigations and enforcement actions, such as issuing notices and commencing prosecutions.

Detailed information regarding compliance activities, priorities, outcomes and reports are published on our [website](#) and in our [monthly business activity reports](#).

## Safety assessments by sector

This quarter saw an increase in the number of assessments conducted in the coal sector and large mines sector.

**FIGURE 25. SAFETY ASSESSMENTS BY SECTOR - JULY 2020 TO SEPTEMBER 2021**





## Safety assessments by category and nature

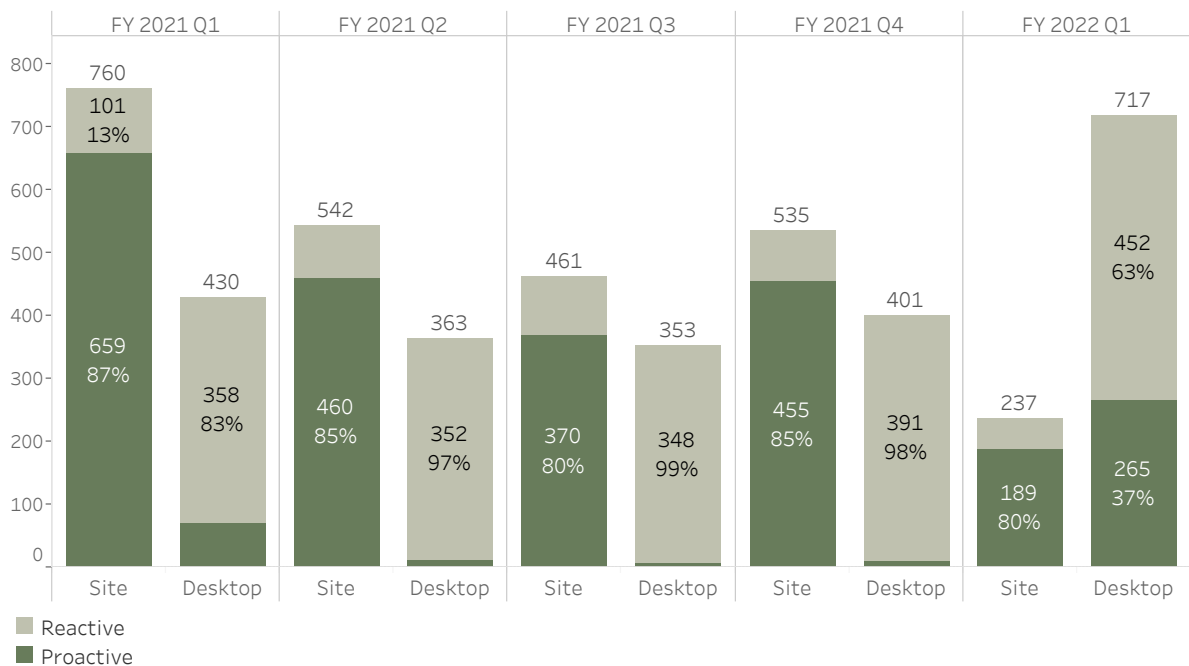
Site-based (visiting mine sites) and desktop activities are both important regulatory tools. While the main focus of our on-site compliance activity is on preventing incidents through planned risk-based proactive assessments, our desktop activities are mainly reactive.

Site-based proactive assessments focus on establishing whether critical controls have been effectively implemented. Meanwhile desktop assessment activities include reviews of control measures following an incident, review of personal dust monitoring reports submitted by coal mine operators, assessment of high-risk activity notifications, applications for exemptions from work health and safety laws, subsidence management plans and preparation for site work.

This quarter, due to COVID restrictions, some site based proactive assessments were conducted virtually but were recorded as desktop.

This quarter saw an increased number of certificate applications for quarry manager certificates which were also conducted as virtual desktop assessments.

**FIGURE 26. SAFETY ASSESSMENTS BY CATEGORY AND NATURE - JULY 2020 TO SEPTEMBER 2021**

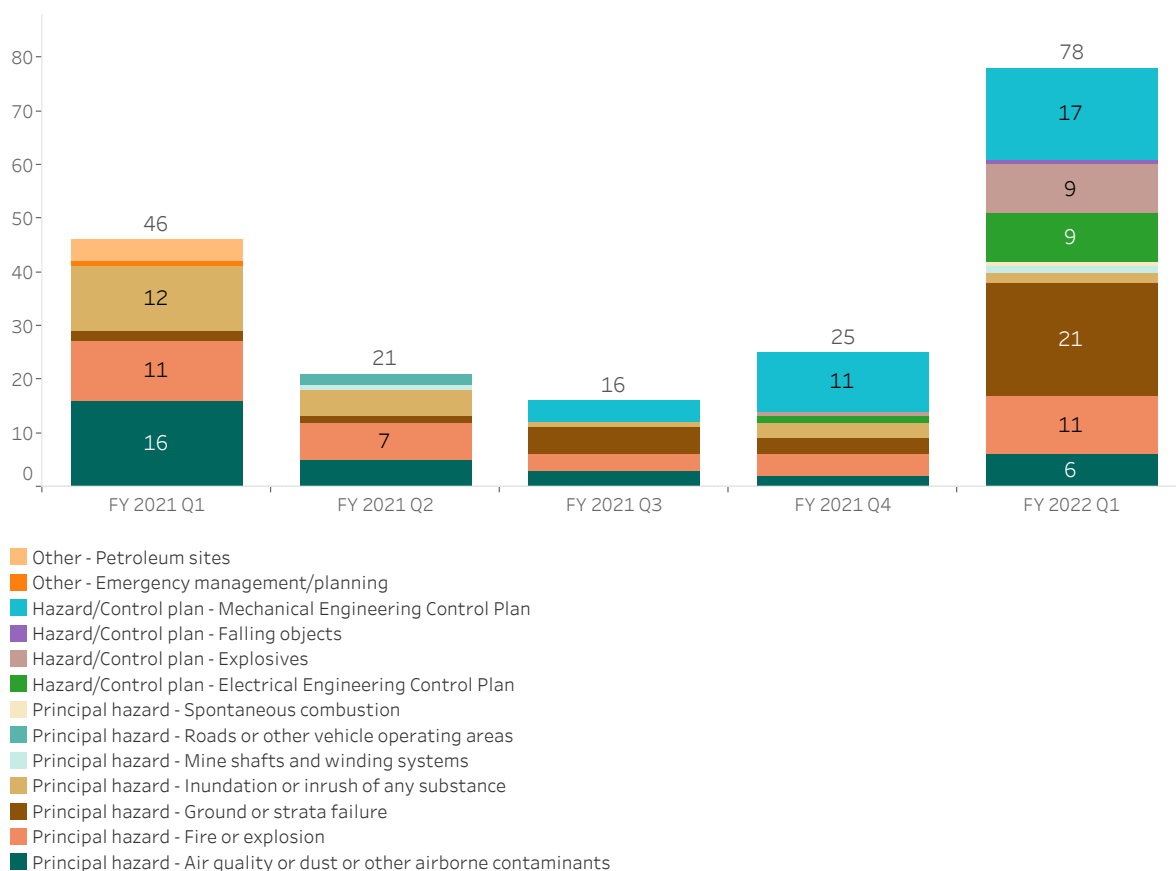


## Targeted assessment program

Our targeted assessment program establishes a risk-based and proactive approach for assessing the extent to which critical controls for managing principal mining hazards have been identified, implemented and are being monitored.

This quarter, targeted assessments focussed on the hazard of ground or strata failure as well as mechanical engineering control plans.

**FIGURE 27.** TARGETED ASSESSMENTS BY PRINCIPAL HAZARD, HAZARD/CONTROL PLAN AND OTHER - JULY 2020 TO SEPTEMBER 2021

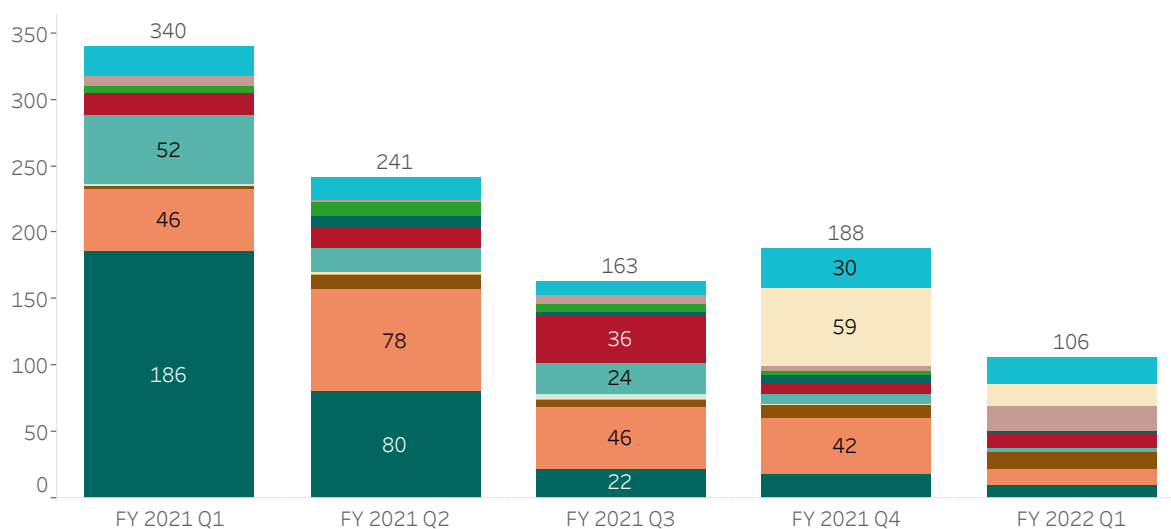


## Planned inspections

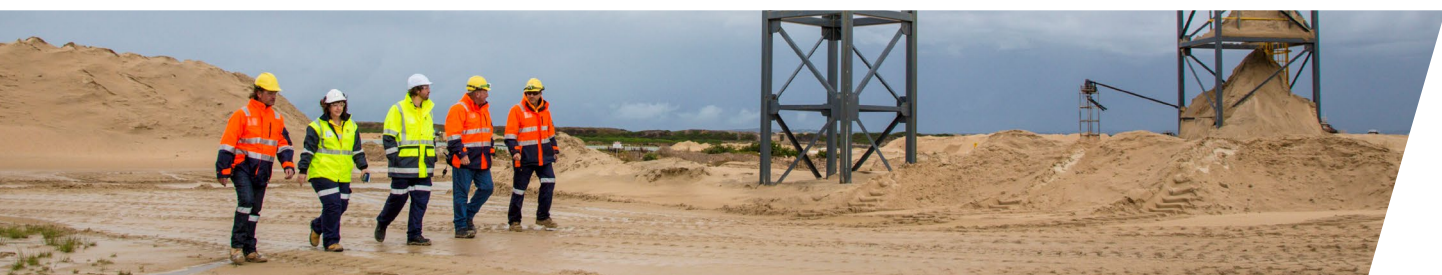
Planned inspections assist in identifying compliance weaknesses which could lead to an incident or injury. These assessments focus on the physical implementation of critical controls in the operating areas of a mine.

For principal hazards, this quarter included a focus on assessments relating to mechanical engineering control plans, explosives, and hazardous chemicals.

**FIGURE 28. PLANNED INSPECTIONS BY PRINCIPAL HAZARD AND HAZARD/CONTROL PLANS - JULY 2020 TO SEPTEMBER 2021**

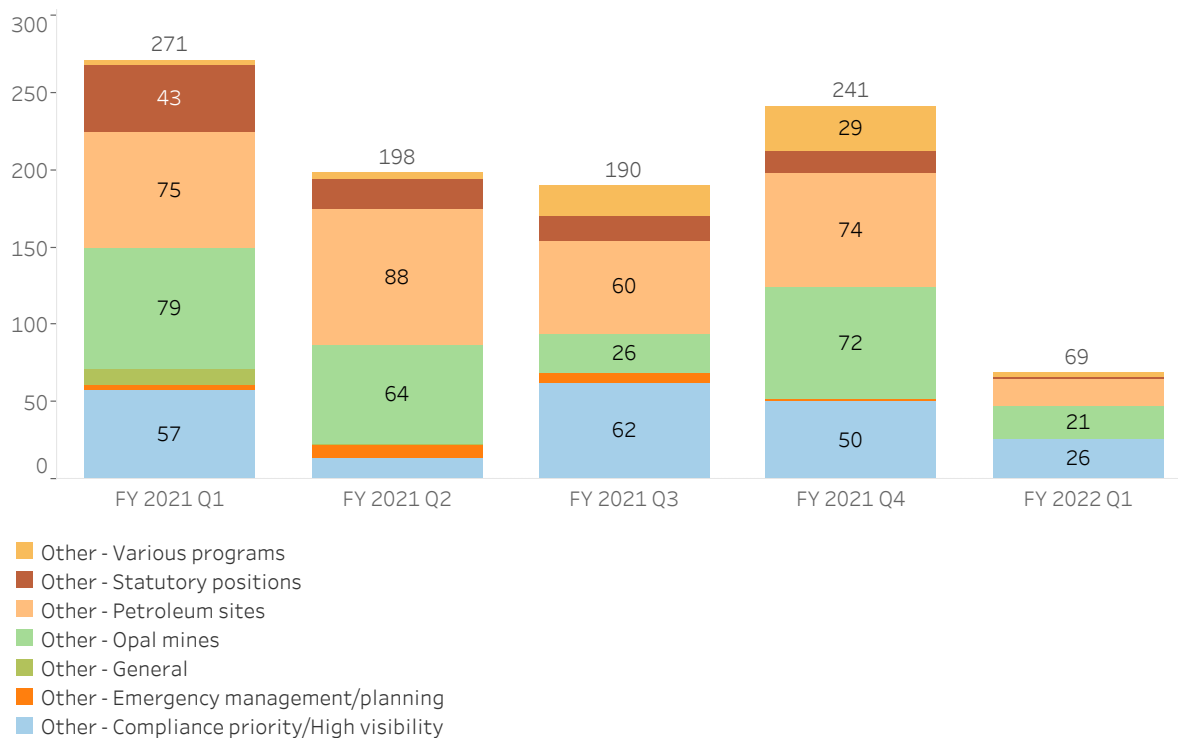


- Hazard/Control plan - Mechanical Engineering Control Plan
- Hazard/Control plan - Hazardous chemicals
- Hazard/Control plan - Explosives
- Hazard/Control plan - Electrical Engineering Control Plan
- Hazard/Control plan - Dams, Tailings, Emplacements
- Principal Hazard - Small mines - Tier 2 and Tier 3 Principal Hazard Assessment
- Principal hazard - Roads or other vehicle operating areas
- Principal hazard - Mine shafts and winding systems
- Principal hazard - Spontaneous combustion
- Principal hazard - Inundation or inrush of any substance
- Principal hazard - Ground or strata failure
- Principal hazard - Fire or explosion
- Principal hazard - Air quality or dust or other airborne contaminants



For planned inspections categorised as ‘other’, this quarter included ongoing high visibility compliance priority inspections, opals and petroleum sites planned inspections.

**FIGURE 29.** PLANNED INSPECTIONS BY ‘OTHER’ HAZARD - JULY 2020 TO SEPTEMBER 2021

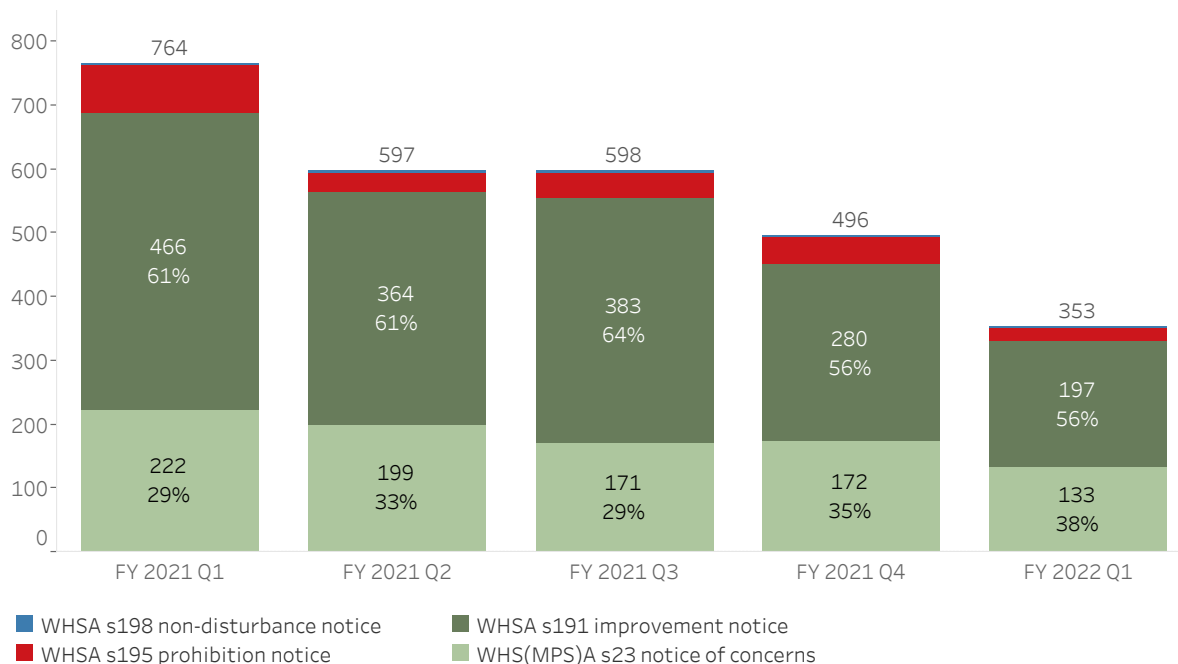


## Safety notices issued

We issue risk-based safety notices including prohibition and improvement notices, notices of concern (written notice of matters) and non-disturbance notices.

The graph below shows the number and types of safety notices issued during each of the five quarters since July 2020. This quarter saw another decrease in the number of improvement notices issued. COVID restrictions contributed to the ongoing reduction seen in the number of notices issued.

**FIGURE 30. SAFETY NOTICES ISSUED BY NOTICE TYPE - JULY 2020 TO SEPTEMBER 2021**



While fewer overall notices were issued this quarter, the proportion of safety notices issued across each sector was comparable with previous quarters.

**FIGURE 31. SAFETY NOTICES ISSUED BY SECTOR - JULY 2020 TO SEPTEMBER 2021**

