



**NSW
Resources
Regulator**

Quarterly safety report

October to December 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 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.

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Contents

EXECUTIVE SUMMARY	4
QUARTERLY SNAPSHOT	5
NATIONAL AND INTERNATIONAL SIGNIFICANT EVENTS	7
Fatal injuries	7
Alerts, bulletins, fact sheets and incident information releases	9
NOTIFIABLE INCIDENTS RELATING TO HAZARDS	12
Principal mining hazards	14
Principal control plans.....	26
SECTOR PROFILES	33
Coal sector	34
Large mines sector	37
Small mines sector	41
Other mines sector profiles	44
COMPLIANCE AND ENFORCEMENT	46
Safety assessments by sector	46
Safety assessments by category and nature.....	47
Targeted assessment program.....	48
Planned inspections	49
Safety notices issued	50

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 October to December 2021 (FY2022 Qtr2). For selected measures, data is analysed over a 15-month period from October 2020 to December 2021.

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

In this quarter, total incident notifications received by principal hazard were down (from 211 to 178). This figure represents a 9% reduction from the quarterly average (190) recorded for the previous four quarters.

Notifications increased for the principal mining hazards of fire and explosion (67 to 70) and subsidence (two to four). Air quality or dust and other airborne contaminant notifications remained at 50. Notifications for the principal mining hazards of roads and other vehicle operating areas, ground and strata failure and spontaneous combustion all reduced.

Incident notifications received by principal control plans increased across three of the five classifications, primarily due to failure of explosion-protection characteristics. Electrical engineering control plans and ventilation control plans registered slight reductions.

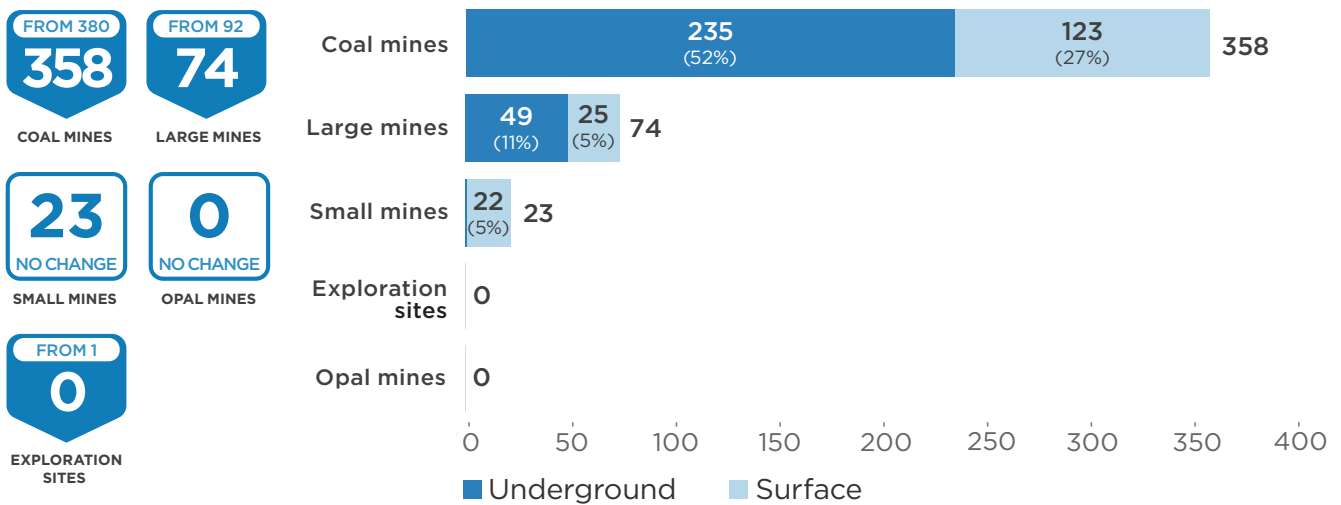
Quarterly snapshot

The quarterly safety performance snapshot shows key measures and assists industry in the development and promotion of safe work practices at mining operations.

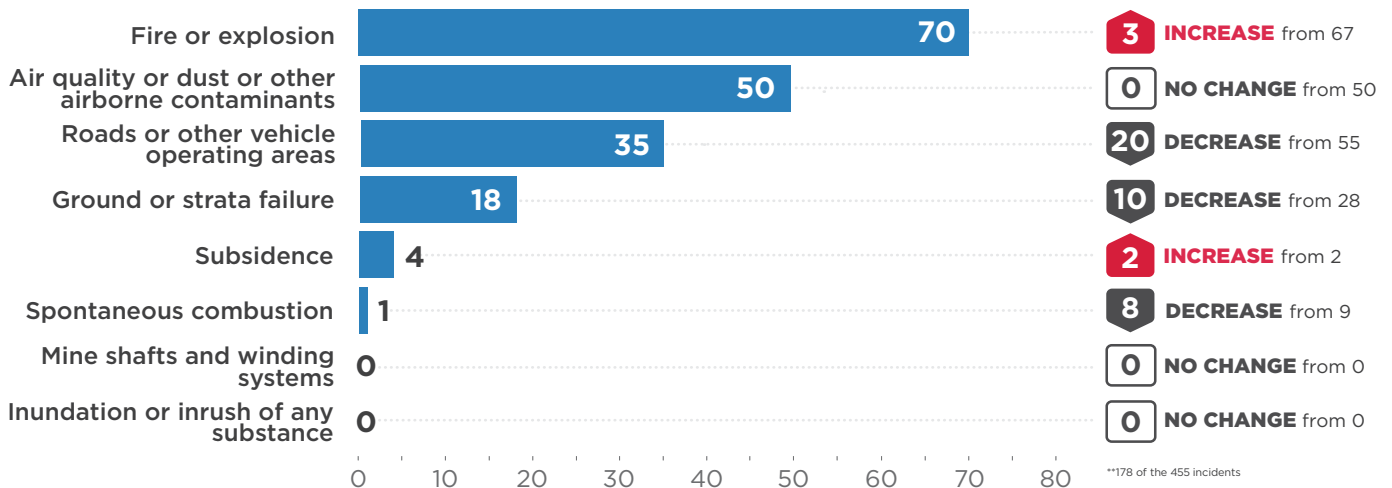


* by requirement to report as notified by mines. The actual number of incidents, injuries and illnesses recorded may differ from original incident notifications following assessment of the notified event.

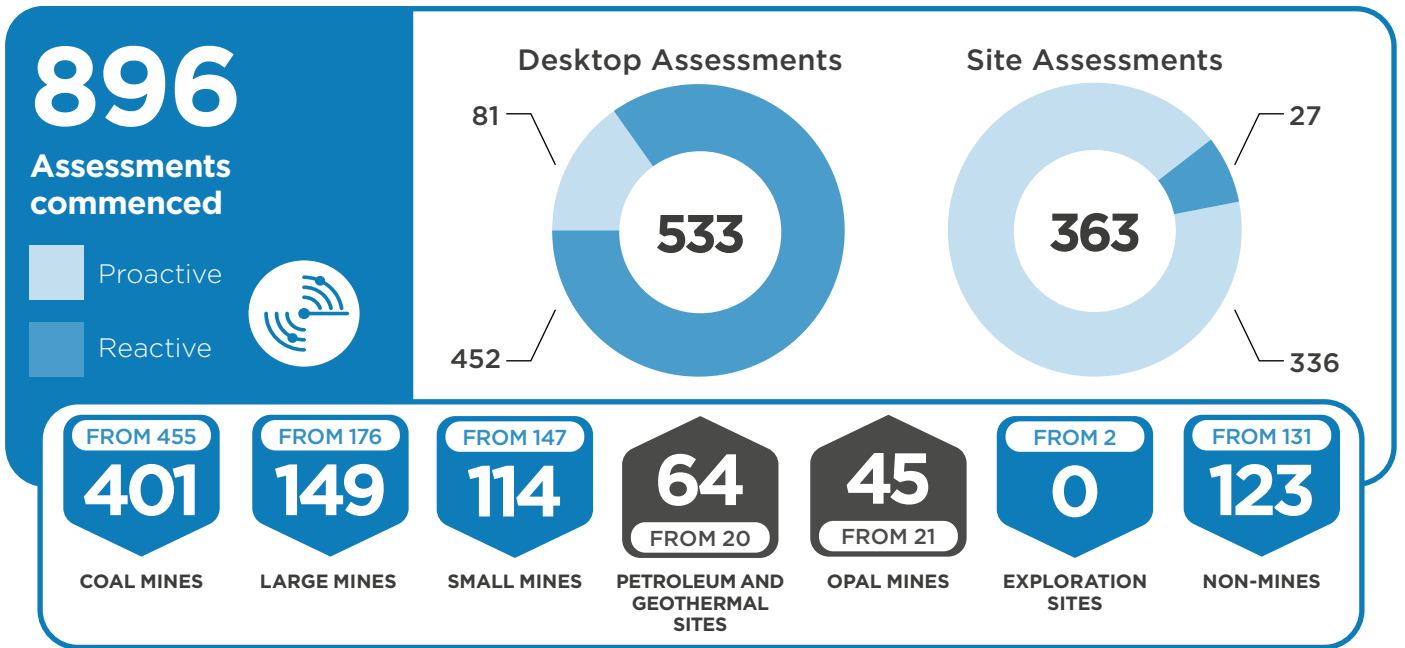
Incident notifications received by sector and operation type



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 **October to December 2021**.

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

Fatal injuries

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 fatality reported this quarter.

On 21 November 2021, at the Curragh Mine, a worker suffered fatal injuries in an incident that occurred when he was performing cable relocation work on the dragline within the operational swing boundaries of the dragline.

Western Australia

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

Victoria

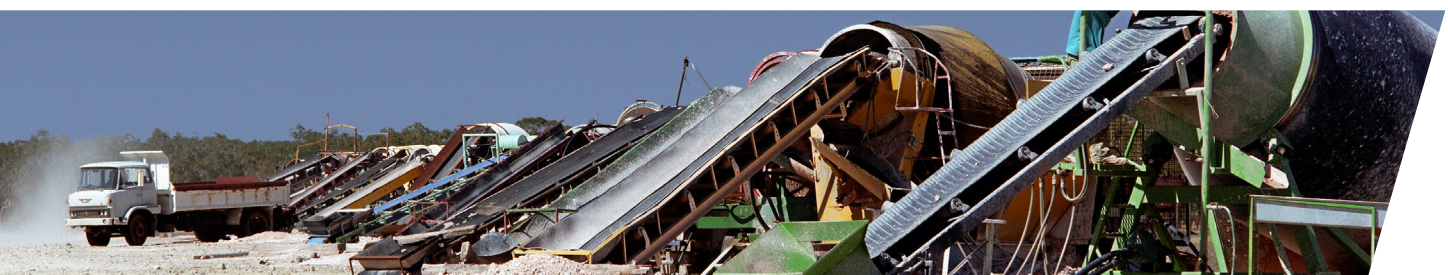
There were no mine or quarry related fatalities reported this quarter.

International

UNITED STATES OF AMERICA

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

- On 14 September 2021, an individual was fatally injured when an excavated trench collapsed and engulfed him. The person was prospecting for gold inside the trench with a metal detector when the trench collapsed. Refer to [fatality alert](#).
- On 21 September 2021, a 68-year-old contract driver with 20 years’ 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 in the opposite direction of the expected route of travel. Refer to [fatality alert](#).
- On 1 October 2021, a 25-year-old miner was fatally injured when he entered a surge bin used as a feed hopper and was engulfed by material. Refer to [fatality alert](#).
- On 19 October 2021, a 58-year-old mechanic with 17 years’ experience was fatally injured when the articulated haul truck bed collapsed on him while he performed maintenance on the truck. Refer to [fatality alert](#).
- On 20 October 2021, a 50-year-old mechanic with 12 years’ experience was fatally injured when he was struck by the bucket of an excavator while assisting in repositioning a hopper. Refer to [fatality alert](#).
- On 1 November 2021, an electrician with 25 years’ mining experience was fatally injured while traveling down a mine slope. He lost control of a four-passenger rubber-tired personnel carrier. The vehicle crashed at the bottom of the slope, pinning the victim underneath. Refer to [fatality alert](#).
- On 17 November 2021, a customer truck driver was electrocuted after the tarping mechanism on the trailer contacted a high-voltage overhead power line. While exiting the cab of the truck, the victim contacted the energized truck and received a non-fatal electrical shock. When he tried to re-enter the cab of the truck, he was electrocuted. Refer to [fatality alert](#).



Alerts, bulletins, fact sheets and incident information releases

New South Wales

INCIDENT INFORMATION RELEASES

- [IIR21-12 Clarence Colliery roof fall](#)
- [IIR21-13 Rear dump truck narrowly avoids collision with light vehicle](#)
- [IIR21-14 Worker suffers serious burns in underground loader fire](#)

SAFETY BULLETINS

- [SB21-07 Polyurethane resin selection](#)
- [SB21-08 Incident investigations Grosvenor mine](#)
- [SB21-09 Threaded fasteners on diesel engine systems in underground coal mines](#)
- [SB21-10 Summer severe weather season](#)
- [SB21-11 Fires occur after servicing mobile plant](#)

FACT SHEETS

- [Puddling operations – agitator safety](#)
- [Survey plan bore hole data](#)
- [Real-time dust monitors notification legislation](#)

Queensland

- **Overburden drill falls onto light vehicle**
On 14 September 2021 three coal mine workers were on-board a blasthole drill rig when it toppled onto its side impacting the front of the light vehicle. One worker suffered bruising injuries to the legs during the incident. The other two could have been seriously injured. Refer to [Safety Alert](#).
- **High potential incident under-reporting**
There has been a significant decrease in the number of high potential incidents reported by Queensland coal mines during the 2020-21 fiscal year. Refer to [Safety Bulletin](#).
- **Safe use of quick hitches on excavators**
A worker was seriously injured while performing maintenance work on the bucket of a 30-tonne excavator. The bucket suddenly detached from its quick hitch, swinging about 1.5 metres before it fell to the ground. The worker was knocked over by the bucket, hitting their head on the concrete floor and sustaining a crush injury to their leg. Refer to [Safety Alert](#).

■ **Electric motor terminal cover catastrophic failure**

A 400kW electric pump motor has suffered a rapid pressurisation in the motor body resulting in the motor terminal cover catastrophic failing. It was ejected from the terminal box propelling metal fragments approximately 15 metres. A similar incident occurred in August 2000. Refer to [Safety Alert](#).

■ **Coal mine worker crushed by moving plant**

On 30 October 2021, a worker suffered life threatening injuries in an incident that occurred during a routine wash down of a rear dump truck being undertaken by four coal mine workers. Refer to [Safety Alert](#).

■ **Pressurised steering accumulators sent off site for servicing**

Two accumulators from the steering system of a Komatsu 830E rear dump truck were sent from a mine to the original equipment manufacturer (OEM) for servicing. Through their own procedures, the OEM discovered that they were still pressurised. There wasn't any notification or tagging to warn about remaining pressure. Refer to [Safety Alert](#).

■ **Incidents have occurred whilst undertaking maintenance tasks associated with the gas monitoring systems.**

- An incident occurred at an underground coal mine where a Longwall CH4 sensor was being relocated from a powered roof support to another location along the face line. When the sensor was disconnected, the tripping circuit failed to operate.
- An incident occurred at another underground coal mine where an explosion risk zone boundary sensor went into a fault condition due to the failure of the uninterruptible power supply and the tripping circuit failed to operate. Refer to [Safety Alert](#).

Western Australia

■ **Field technician collapses during exploration activities**

A worker suffered severe heat stress and collapsed while completing exploration activities. The worker did not regain consciousness. Note: this incident occurred in 2018 and is included as the mine operator was recently prosecuted. Refer to [Significant Incident Report](#).

South Australia

■ **Unlicensed operator tips vehicle**

SafeWork SA issued a [safety alert](#) to remind PCBUs that they must not direct or allow a worker to carry out work activities without holding the relevant high-risk work licence following an incident involving a vehicle loading crane.

New Zealand

- **Broken link arm on loader**

A loader was lifting blocks and stacking them to one side ready to load onto a transporter. As the blocks were lowered onto the ground, the end of the link arm broke off. The broken end of the link arm projected into the air before it landed on the ground nine metres away from the loader. Refer to [Safety Alert](#).

- **Rockfall damages crusher**

Over the course of a weekend, a rock dislodged from a quarry face, rolled down the face and hit a mobile crusher in the pit. Refer to [Safety Alert](#).

- **Articulated Dump Truck (ADT) mechanical failure**

As an ADT was braking downhill, the whole tray was thrown up onto its side. Refer to [Safety Alert](#).

United Kingdom

- **Preventing inrushes at underground mines**

The inrush of water and material at Gleision Mine in South Wales which resulted in the deaths of four miners almost 10 years ago is a tragic reminder of the major hazard potential of uncontrolled inflows to mine workings. Refer to [Safety Bulletin](#).

- **Lubrication of circuit breakers**

The incorrect use and application of lubrication on HV and LV circuit breakers resulting in mal-operation and increased risk of catastrophic failure and downstream fire. Refer to [Safety Bulletin](#).

Canada

- **Valve falls from height striking and seriously injuring a worker**

While reciprocating casing during a cement job on a drill rig, a valve weighing greater than 15 kilograms broke off at the threaded nipple union and fell approximately 5-6 metres, striking a worker in the leg and causing serious injury. Refer to [Safety Alert](#).

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 455 incident notifications received in the current quarter. Of these, 39% (178) related to principal hazards, 33% (150) related to principal control plans, with the remainder related to other incidents.



TABLE 1. INCIDENT NOTIFICATIONS CLASSIFIED BY PRINCIPAL HAZARD/PRINCIPAL CONTROL PLAN - OCT 2020 TO DEC 2021

INCIDENT CLASSIFICATION BY PRINCIPAL HAZARD OR PRINCIPAL CONTROL PLAN		FY 2021 Q2	FY 2021 Q3	FY 2021 Q4	FY 2022 Q1	FY 2022 Q2
Principal hazard	Fire or explosion	57	61	54	67	70
	Air quality or dust or other airborne contaminants	65	43	52	50	50
	Roads or other vehicle operating areas	38	45	38	55	35
	Ground or strata failure	26	27	15	28	18
	Spontaneous combustion	7	6	5	9	1
	Subsidence	2	1	2	2	4
	Mine shafts and winding systems	2	2	-	-	-
	Indundation or inrush of any substance	1	1	-	-	-
	Total	198	186	166	211	178
Principal control plan	Mechanical engineering control plan	39	42	45	40	57
	Electrical engineering control plan and/or Mechanical engineering control plan	43	38	37	33	48
	Electrical engineering control plan	16	23	23	23	20
	Explosives control plan	28	18	19	11	24
	Ventilation control plan	5	5	1	2	1
Total	131	126	125	109	150	
Other	No related principal mining hazard or principal control plan	190	160	188	176	127
GRAND TOTAL		519	472	479	496	455

Principal mining hazards

Note: that while only one hazard/control plan per incident appears in the report, it is possible for more than one hazard or control plan to be applicable to the incident.



AIR QUALITY OR DUST OR OTHER AIRBORNE CONTAMINANTS



GROUND OR STRATA FAILURE



SUBSIDENCE



INUNDATION OR INRUSH OF ANY SUBSTANCE



MINE SHAFTS AND WINDING SYSTEMS



GAS OUTBURSTS



SPONTANEOUS COMBUSTION



ROADS OR OTHER VEHICLE OPERATING AREAS



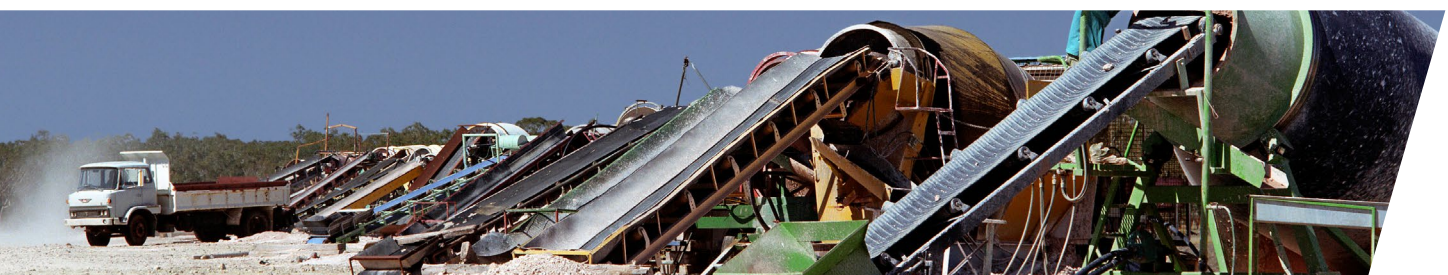
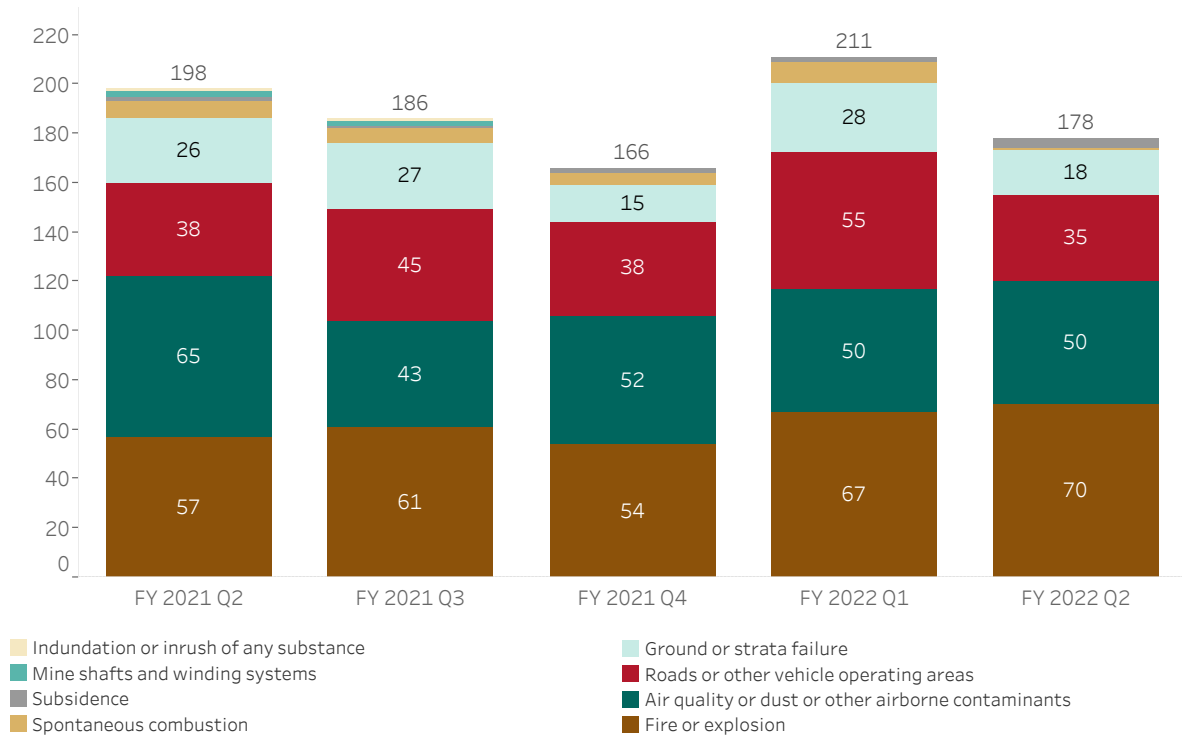
FIRE OR EXPLOSION



(HAZARDS IDENTIFIED BY THE MINE OPERATOR) PROHIBITED ITEMS OR SUBSTANCES

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. ‘Failure of explosion-protection characteristics’ has been the primary contributor to the increases observed in incidents related to mechanical engineering control plans. The Regulator will continue to monitor the mines’ actions in response to these incidents.

FIGURE 1. INCIDENT NOTIFICATIONS RECEIVED BY PRINCIPAL HAZARD OCTOBER 2020 TO DECEMBER 2021



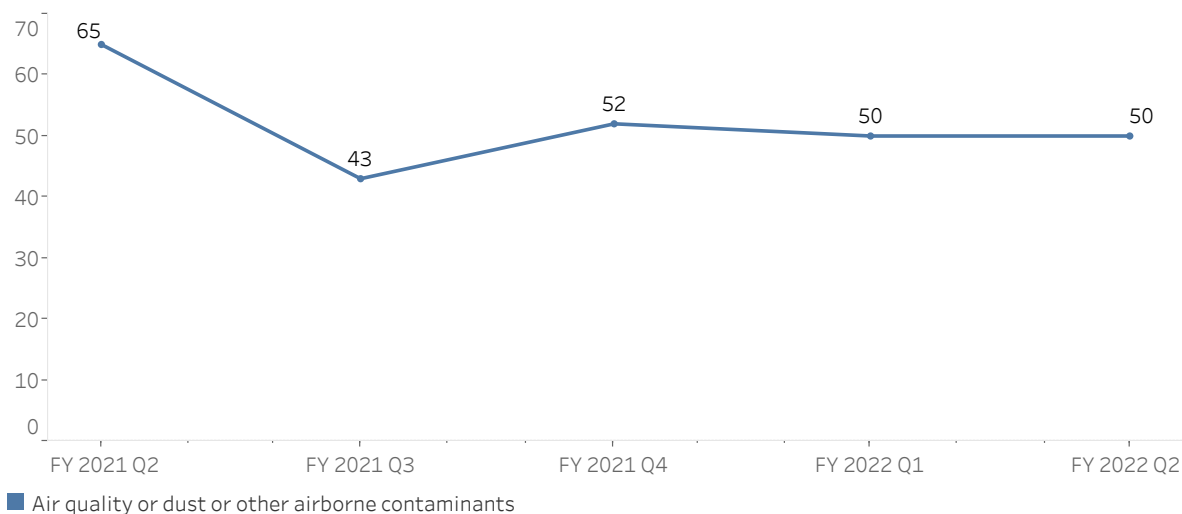


Air quality, dust or other airborne contaminants



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 CO₂) or over several years (coal/silica dust).

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

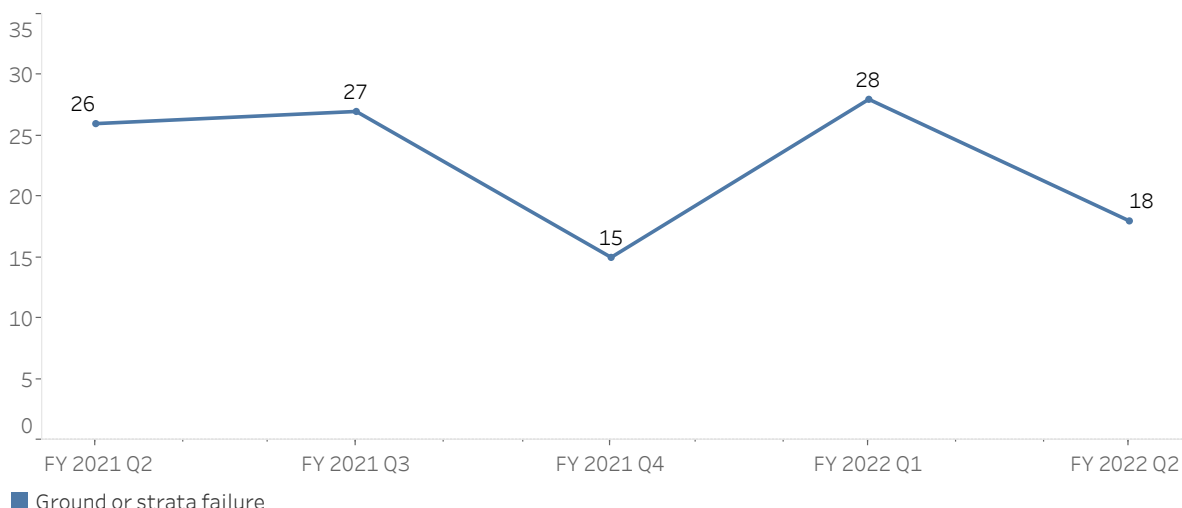




Ground or strata failure

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 - OCTOBER 2020 TO DECEMBER 2021



DANGEROUS INCIDENT - GOOD PLANNING AVOIDS RISK TO WORKERS FROM COAL BURST

A coal burst occurred while a longwall was in full remote operation. The workers were operating from the main gate as per their coal burst Trigger Action Response Plan (TARP).

Below: Debris at the face after the coal burst.



Comments to industry

Identification of increased coal burst potential and properly implemented TARPs reduces the likelihood of a coal burst exposing workers to risk. TARPs should be continually reviewed to ensure that the triggers and controls remain appropriate as mining conditions evolve.

Refer to [IIR16-05 Austar coal burst - report into double fatality at Austar Coal Mine on 15 April 2014](#).

DANGEROUS INCIDENT/MEDICAL TREATMENT INJURY - WORKER STRUCK BY RIB MATERIAL

A worker was leaning down, placing a monorail beam on the floor. A piece of rib material about 0.5 metres (m) x 0.5 m x 0.2 m fell from the rib striking him across the shoulders and neck. The worker suffered a fractured vertebra. The incident was reported by the mine operator as a medical treatment injury. In reviewing the incident details, Inspectors formed the view that the incident met the requirements of a dangerous incident. Investigations are ongoing.

Comments to industry

Mines must ensure roadways are driven, and strata supports are installed as per the approved design, including roadway dimensions. Systems should be implemented to monitor compliance to design. Workers must be vigilant for loose and unsupported coal that is not directly influenced by strata support. When a hazard is identified it should be made safe, such as barring down or installing additional support.

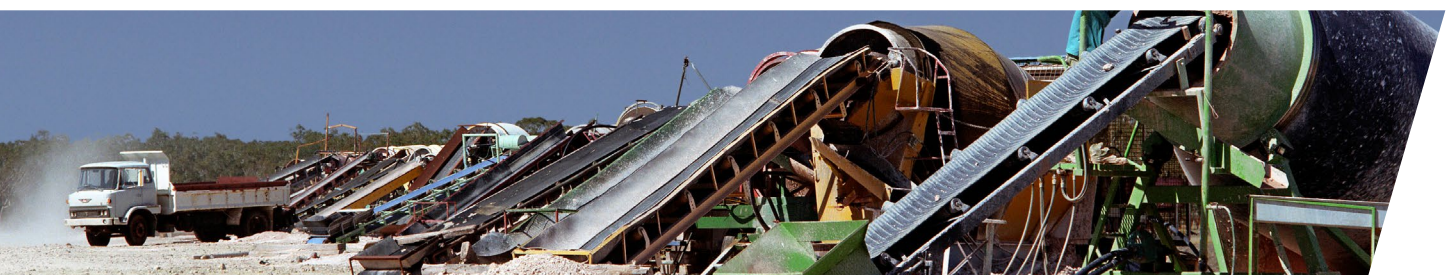
Mines must have systems in place for the management of dangerous incidents as defined in cl179 Work Health and Safety (Mines and Petroleum Sites) Regulation 2014. Statutory officials should be trained in the implementation of these systems.

DANGEROUS INCIDENT - SIZEABLE ROOF FALL AT INTERSECTION

A roof fall of about 15 metres occurred on a travel road intersection and impeded passage on the travel road. All workers were safely withdrawn from the panel. The roadway had been driven four months earlier.

Comments to industry

Geological mapping should be conducted as soon as possible once roadways are driven, to ensure support installed is appropriate for conditions. When monitoring devices are replaced, it should be confirmed they are reading correctly, and the frequency of routine readings should be increased. This should be included in the trigger action response plan.



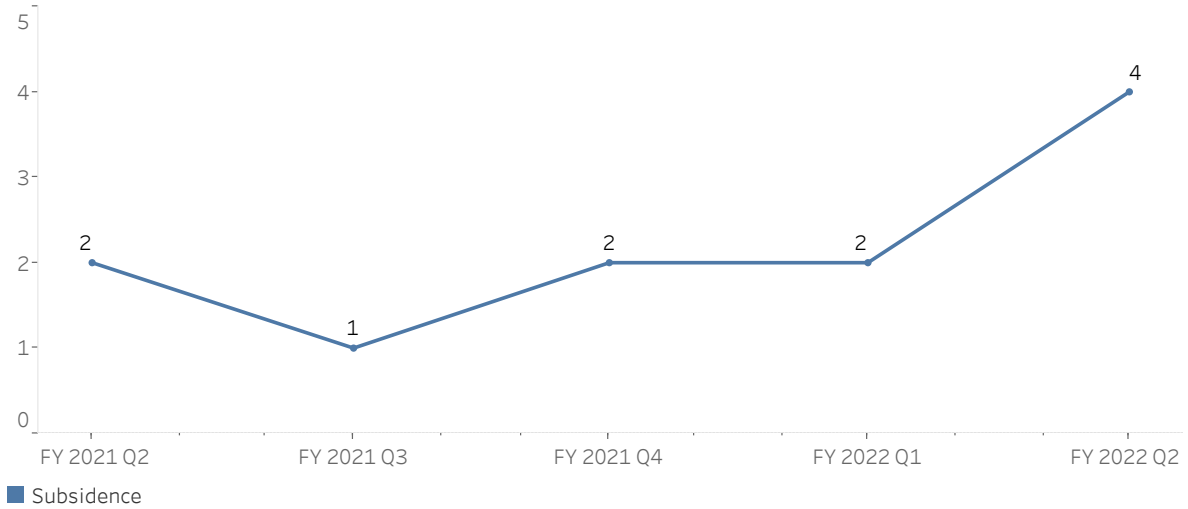


Subsidence



Surface subsidence is a potential hazard 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 - OCTOBER 2020 TO DECEMBER 2021

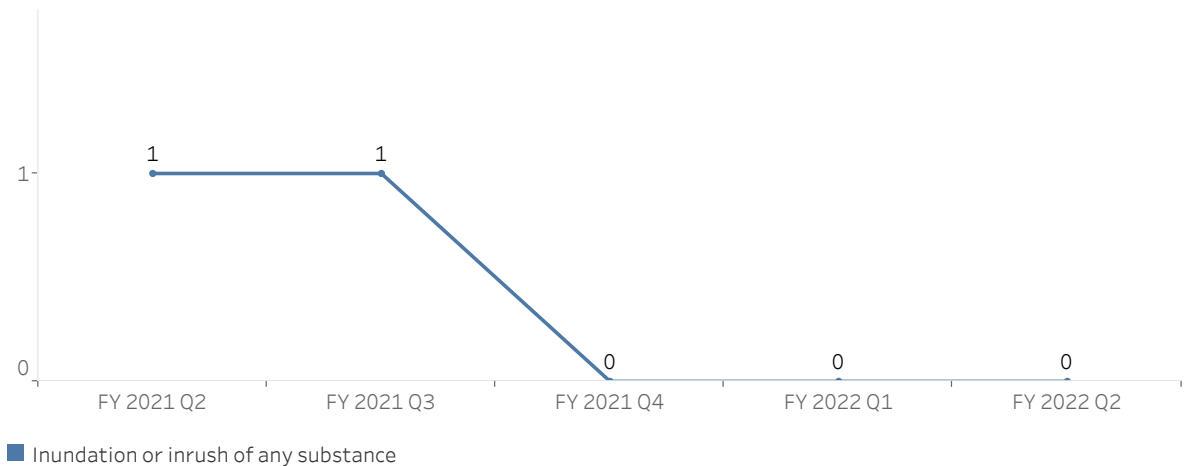


Inundation or inrush of any substance



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 - OCTOBER 2020 TO DECEMBER 2021

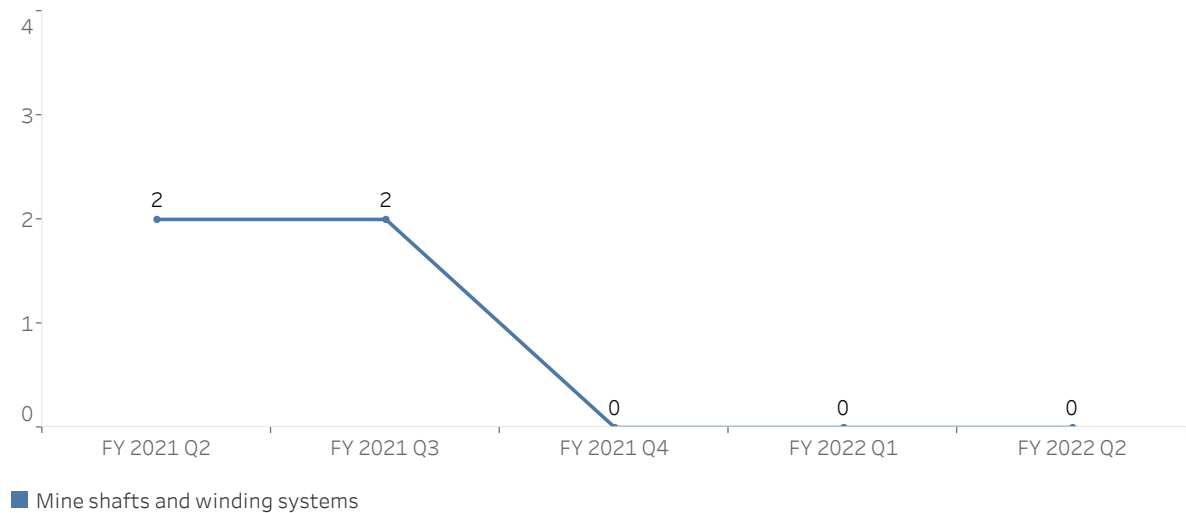




Mine shafts and winding systems

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.

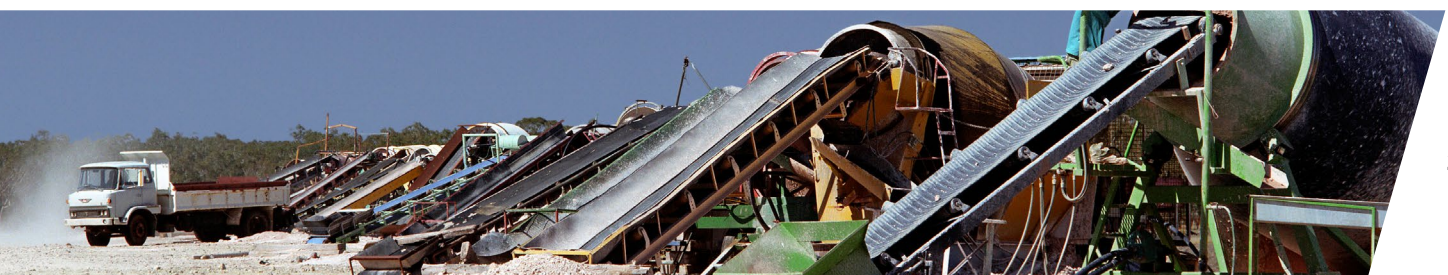
FIGURE 6. INCIDENT NOTIFICATIONS RELATED TO THE PRINCIPAL HAZARD MINE SHAFTS AND WINDING SYSTEMS - OCTOBER 2020 TO DECEMBER 2021



Gas outbursts

The implementation of appropriate risk controls ensure gas outbursts are not a high frequency hazard event, 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.

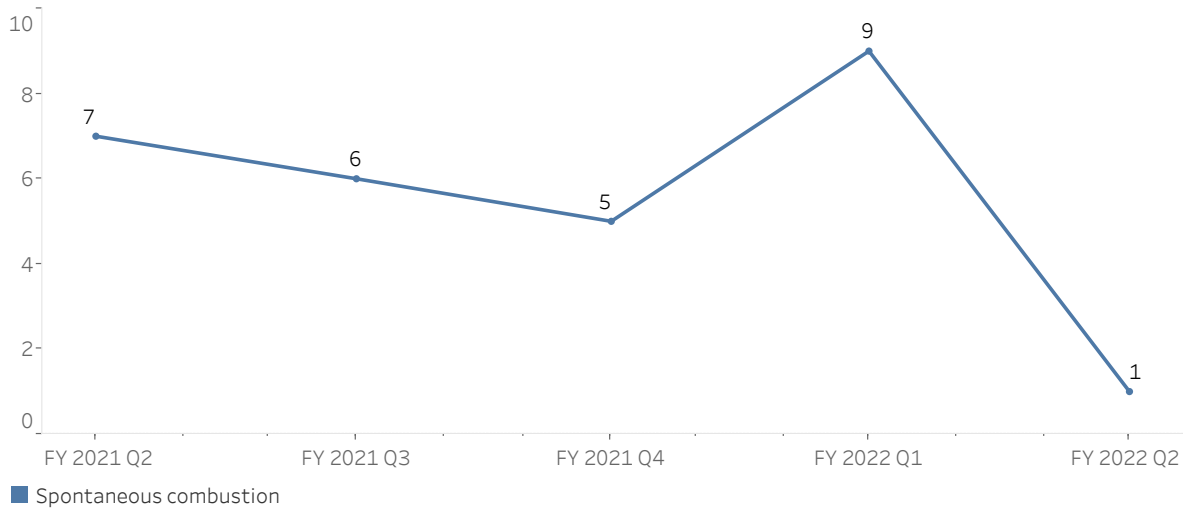




Spontaneous combustion

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 - OCTOBER 2020 TO DECEMBER 2021



RESOURCES
REGULATOR
**TELEPHONE
MENU**

1300 814 609

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

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

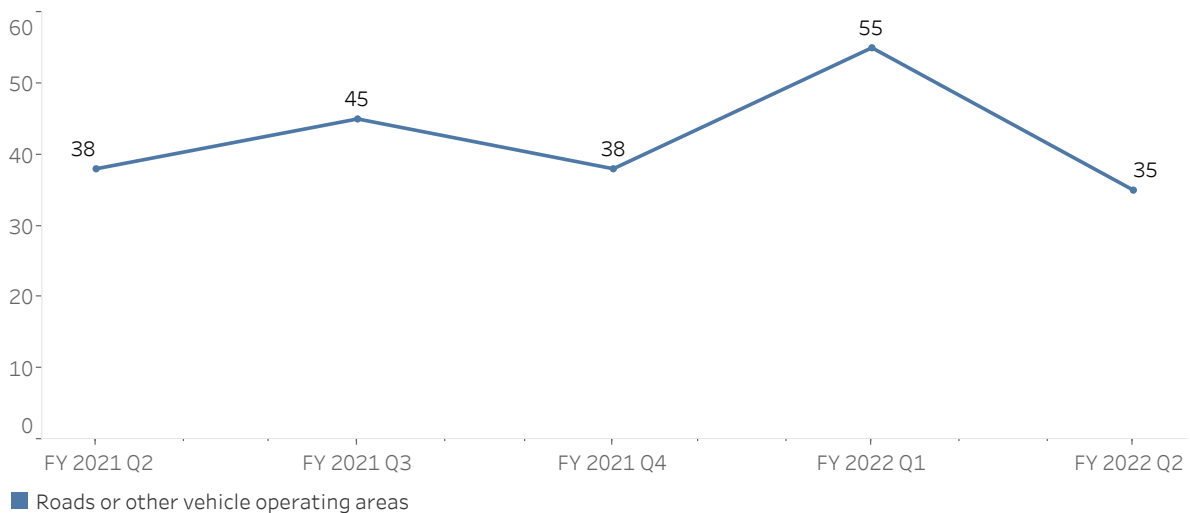
- 2
AUTHORISATIONS, PLANT REGISTRATION, LICENCES & EXEMPTIONS PRESS 2
- 3
COMPETENCE, PRACTISING CERTIFICATES & MUTUAL RECOGNITION PRESS 3
- 4
MINE SAFETY GENERAL PRESS 4
- 5
MINING ACT COMPLIANCE PRESS 5



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 - OCTOBER 2020 TO DECEMBER 2021



DANGEROUS INCIDENT - UNDERGROUND VEHICLE CONTACTS ELECTRICAL SERVICE LINE

A high voltage cable supplying a conveyor starter in an underground coal mine was found to have impact damage. The PVC outer sheath was damaged and the armoring distorted, exposing the internal lead sheath. It was discovered hanging from the roof about one metre from the rib. A duckbill carrying an air track was sitting underneath the cable.

Below: Damaged HV electrical cable hanging from roof of drive.



Comments to industry

When developing control measures to manage the risks associated with roads or other vehicle operating areas, the placement of services that may be exposed to risk of damage such as cables and pipelines must be considered.

Factors for consideration include:

- roadway height and width
- height and width of loads that are required to be transported in the roadways including the effect of bumps and dips with overhanging loads
- positioning of cables and other services suspended from the roof
- impact of roadworks that may alter the effective roadway dimensions over time.

DANGEROUS INCIDENT - DOZER SLIPS INTO POOLED WATER

While reversing a dozer on the coal floor, the dozer slipped sideways into water about 2 metres deep. The operator was able to exit the vehicle and was uninjured.

Comments to industry

Mine operators must have controls in place to manage the risks posed by water bodies near vehicle operating areas. Consideration should be given to the potential for slumping and voids to form, particularly following significant rainfall. The risk of drowning in a submerged vehicle must be considered in such circumstances. When water accumulates near mobile plant operating areas during periods of heavy rain, controls must be put in place to protect operators from the risk of drowning.

Refer to Safety Bulletins:

- [SB19-10 Dozer incidents increase despite warnings](#)
- [SB19-01 Rise in dozer incidents putting operators at risk](#)

Below: The partially submerged dozer.



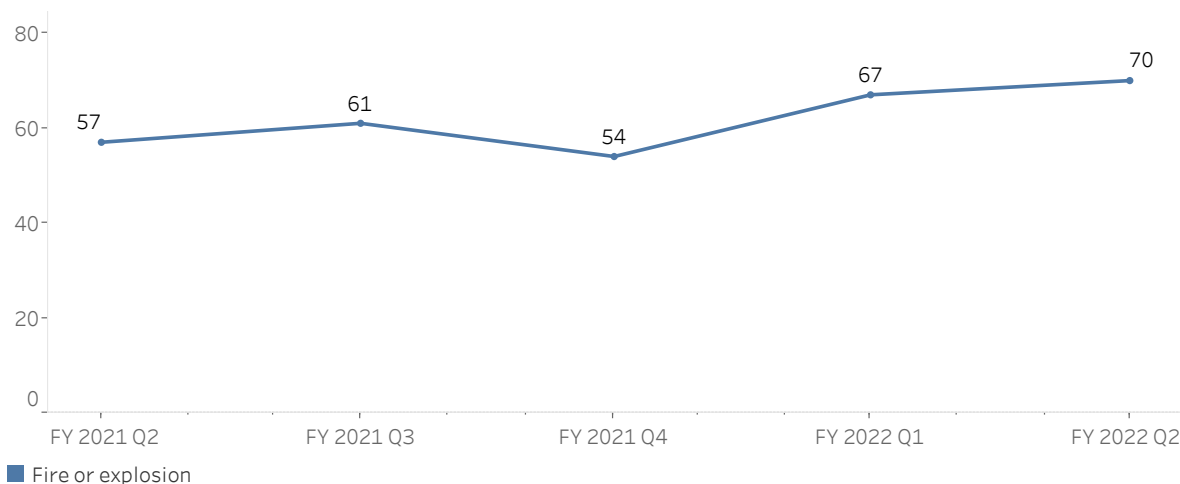


Fire or explosion



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 - OCTOBER 2020 TO DECEMBER 2021

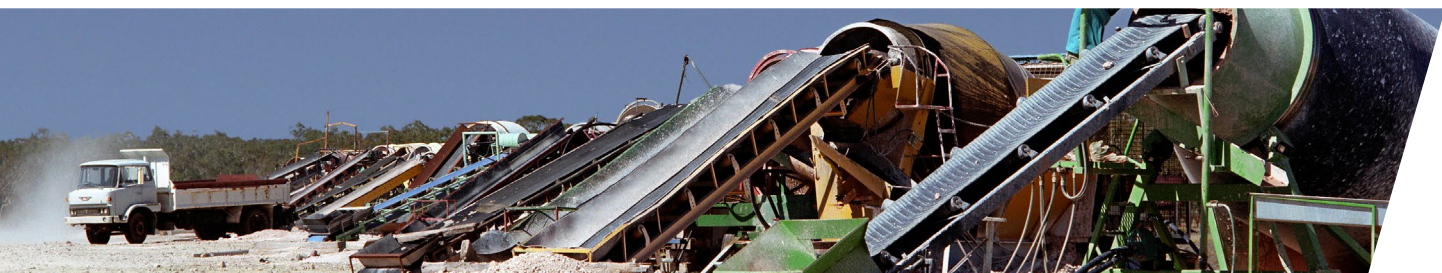


DANGEROUS INCIDENT - LOADER FIRE UNDERGROUND

A loader caught fire while being refuelled at an underground metal mine. A bolt retaining the air filter housing (mounted to the fuel tank) compromised the integrity of the fuel tank, allowing fuel to spray onto the turbo exhaust system and diesel particulate filter box. A worker used two fire extinguishers to put out the fire.

Comments to industry

Mine operators should ensure stringent monitoring and quality control of maintenance and repair activities. Refer to Safety Bulletin [SB21-01 Fires occur while refuelling plant.](#)



DANGEROUS INCIDENT - FIRE IN WHEEL BEARING

A fire occurred in the wheel bearing of a supply trailer in an underground coal mine. The fire was extinguished using a water hose. The investigation identified a damaged bearing cover that had failed to protect the bearing from contamination.

Comments to industry

Ancillary equipment such as trailers, attachments and supply pods should have suitable maintenance schedules to manage the plant through its lifecycle. This should consider the environmental conditions and the frequency of use.

Workers must always inspect plant for damage that may affect the safe use of the plant before commencing work.

Below: The damaged wheel bearing cover.



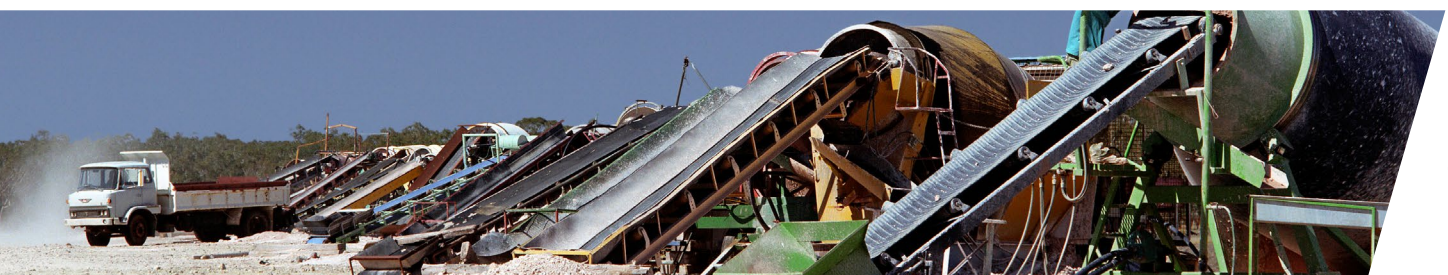
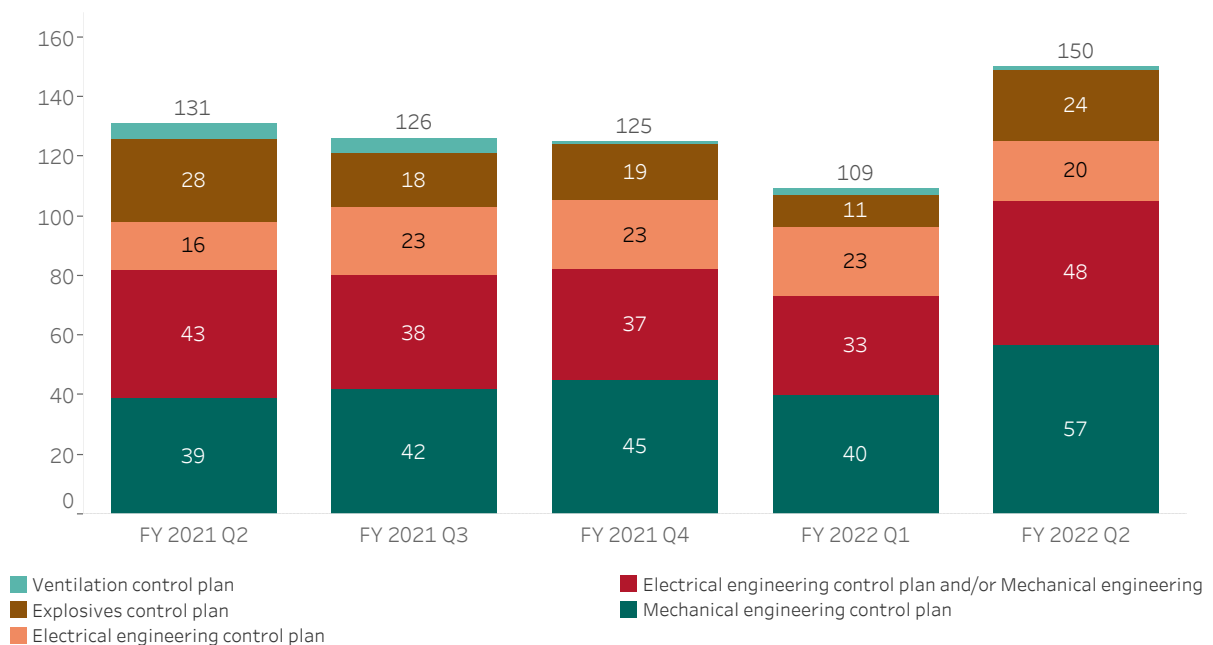
Principal control plans

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 - OCTOBER 2020 TO DECEMBER 2021



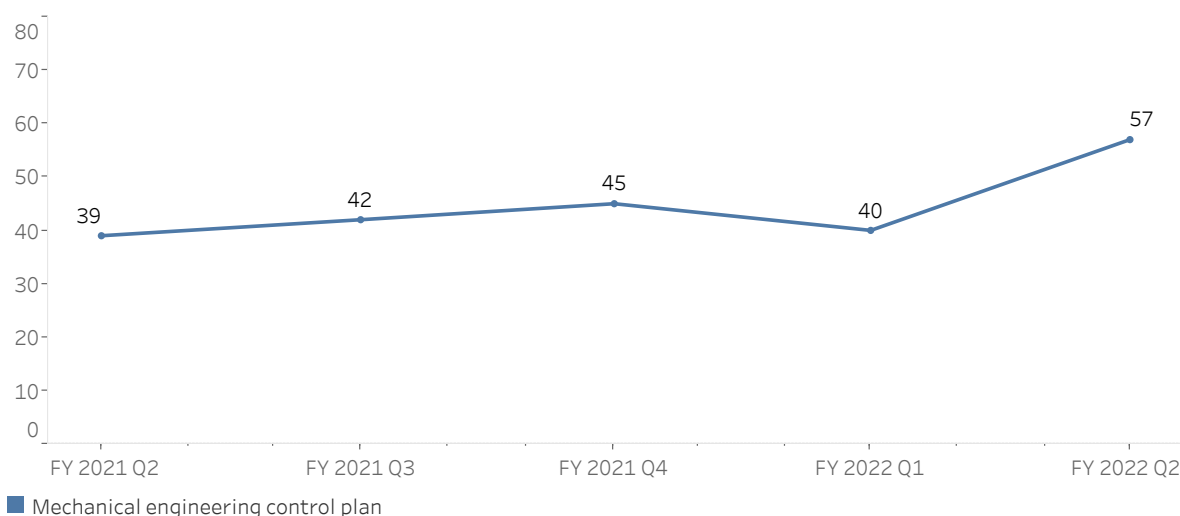


Mechanical engineering control plan



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 - OCTOBER 2020 TO DECEMBER 2021



DANGEROUS INCIDENT - MISSING SCREW CAUSES UNPLANNED MOVEMENT OF ELEVATED WORK PLATFORM

A team of fitters were replacing a hydraulic cylinder above a conveyor. A hired elevated work platform (EWP) was required to access the cylinder. The EWP basket was moved into position to allow the removal of the old cylinder. After releasing the joystick, while the operator’s foot was still on the ‘dead-man’ switch, the basket moved up approximately 200 millimetres.

The safety bar contacted the cylinder support structure, which activated and stopped the EWP. The fitters were standing beside the cylinder support structure. No personnel were injured during this incident. The investigation found the boom control joystick locking collar was not functioning correctly. The locking collar requires the operator to lift the collar before selecting a function to prevent accidental activation. The grub screw that secures the top of the joystick was missing, allowing the mechanism to partly unscrew. As a result, the function could be activated without lifting the locking collar, resulting in an unplanned movement.

Comments to industry

Mechanical engineering control plans must set out the control measures for the unintended operation of plant. This must include function testing as part of the introduction of plant to site process and pre-use inspections by operators. Refer to [SB15-04 Collisions of mobile elevated work platforms increase](#).

DANGEROUS INCIDENT - WORKER'S HAND CAUGHT UNDER CONVEYOR ROLLER

A worker at a sand mine was cleaning excessive build up on the tail roller of an operating conveyor. While using a small scraper to clean the build-up off, the worker's hand got pulled into the roller by the conveyor belt. It was common practice in this workplace to go into the guarded area and clean the tail roller without isolating the conveyor.



Above: Area where worker's hand was caught.

Comments to industry

Under no circumstances should workers enter a guarded area without implementing isolation procedures. Mine operators should review the adequacy of their guarding and isolation arrangements, to protect workers from the risk of entanglement with operating plant. Guidance on guarding requirements can be found in Australian Standard AS/NZ 4024 Safety of Machinery.

DANGEROUS INCIDENT - UNEXPECTED MOVEMENT OF HIRED PLANT

A worker at an underground metal mine was in the process of repositioning an elevated work platform (EWP) when the machine unexpectedly rolled forward approximately one metre. The movement occurred when the operator placed his foot on the dead man switch and before operating the hand controls. The movement stopped when the operator released the dead man foot switch.

Comments to industry

Mechanical engineering control plans must set out the control measures for the unintended operation of plant. This must include function testing as part of the introduction of plant to site process and pre-use inspections by operators. Mine operators should ensure:

- all hired equipment undergoes a thorough mechanical and electrical inspection to assess the plant's operation
- the thorough pre-work inspections are carried out by competent people
- the hired equipment is maintained in accordance with a suitable maintenance strategy considering the original equipment manufacturer's recommendations and relevant Australian Standards. For EWPs this should include AS 1418.10 and AS 2550.10.

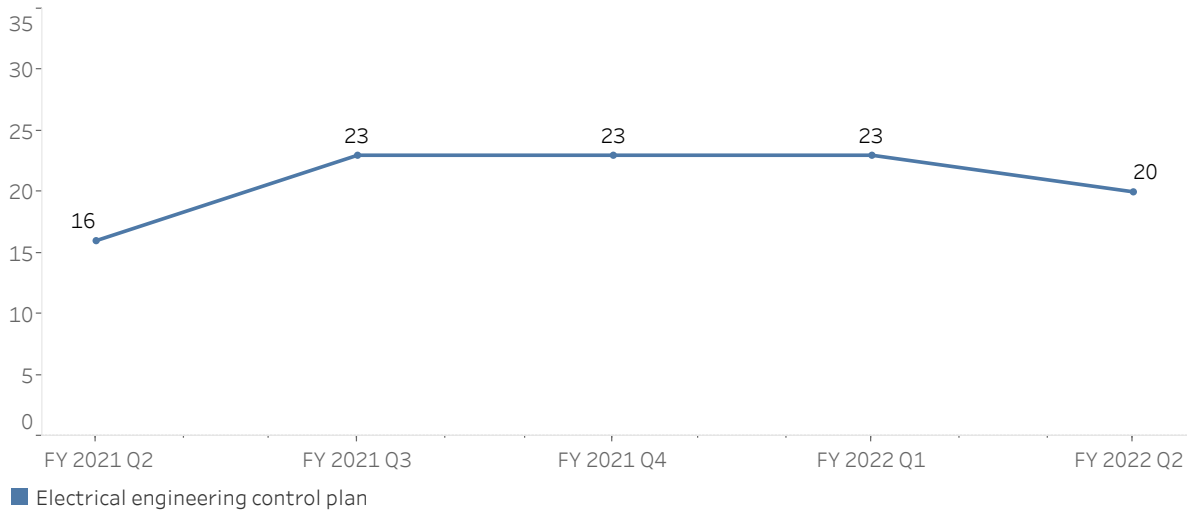


Electrical engineering control plan



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 - OCTOBER 2020 TO DECEMBER 2021



DANGEROUS INCIDENT - WORKER SHOCKED RESETTING CIRCUIT BREAKER

A worker conducting pre-start checks on an underground jumbo drill rig could not restart the power packs. The emergency stops were checked and the power to the machine cycled. The worker went to the control cabinet and found that a miniature circuit breaker had tripped. When he reset the breaker, he suffered an electric shock and small burn to his wrist, which was resting on the door.

Comments to industry

Mine operators must ensure that fit-for-purpose electrical installations are maintained in a state without risk to workers. The maintenance of ingress protection (IP) ratings and security of enclosures to prevent unauthorised access should be routinely verified to ensure compliance. Mine operators should also ensure workers are aware of procedures and competency requirements for the restoration of electrical protection.

Below: Circuit breaker and control cabinet.



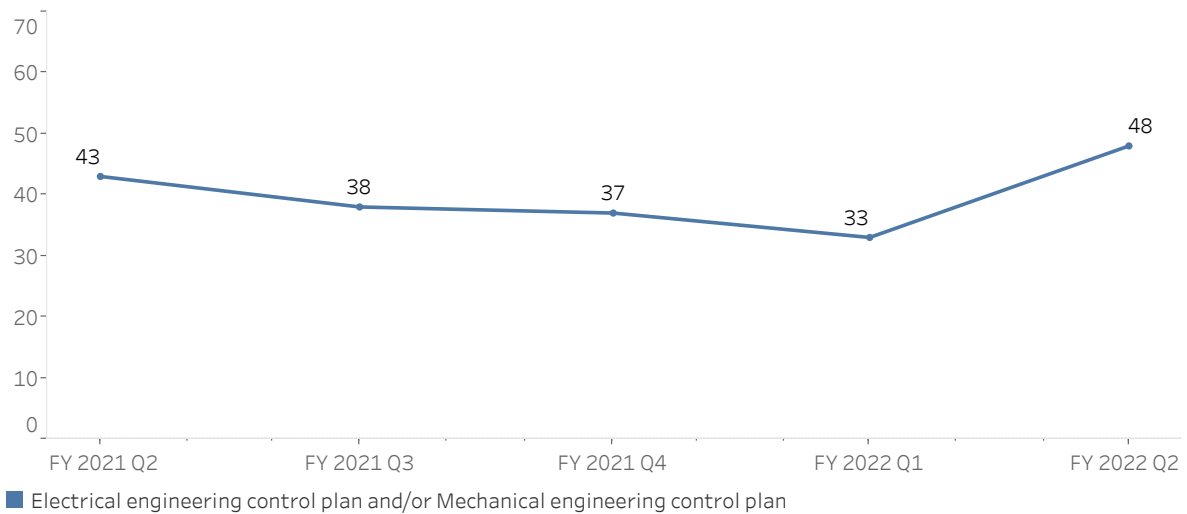


Electrical and mechanical engineering control plans

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

48
FROM 33

FIGURE 13. INCIDENT NOTIFICATIONS RELATED TO THE ELECTRICAL AND/OR MECHANICAL ENGINEERING CONTROL PLANS - OCTOBER 2020 TO DECEMBER 2021

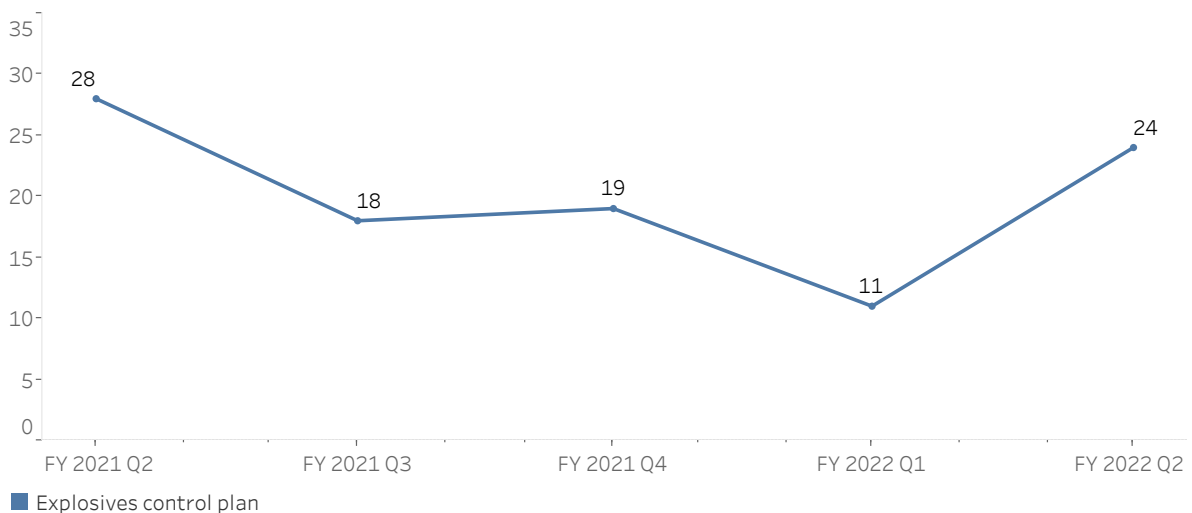


Explosives control plan

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'.

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FROM 11

FIGURE 14. INCIDENT NOTIFICATIONS RELATED TO EXPLOSIVES CONTROL PLANS - OCTOBER 2020 TO DECEMBER 2021



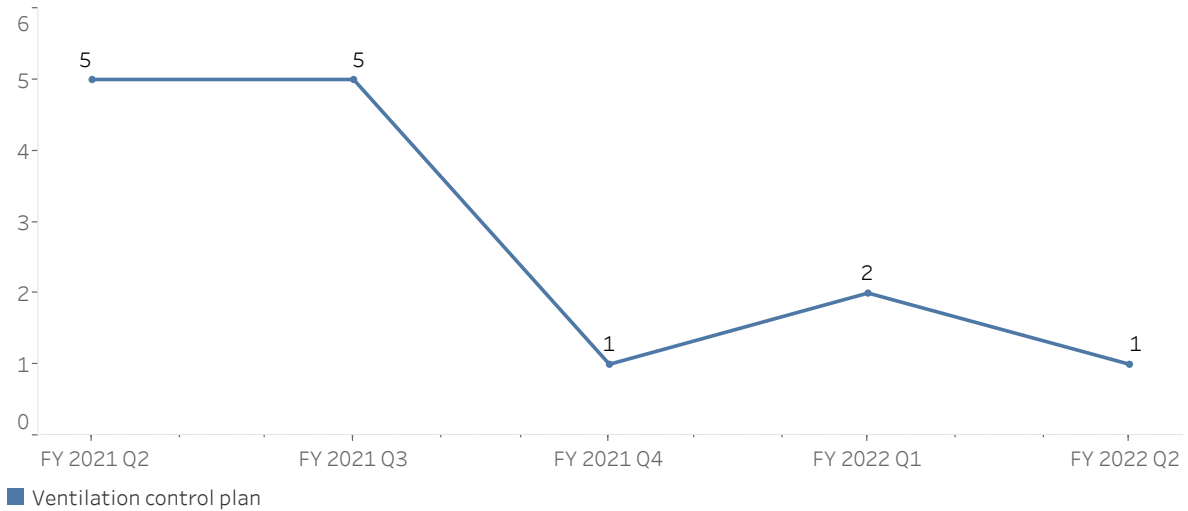


Ventilation control plan



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 - OCTOBER 2020 TO DECEMBER 2021



DANGEROUS INCIDENT - WORKER PARTIALLY SUCKED INTO VENTILATION TUBE

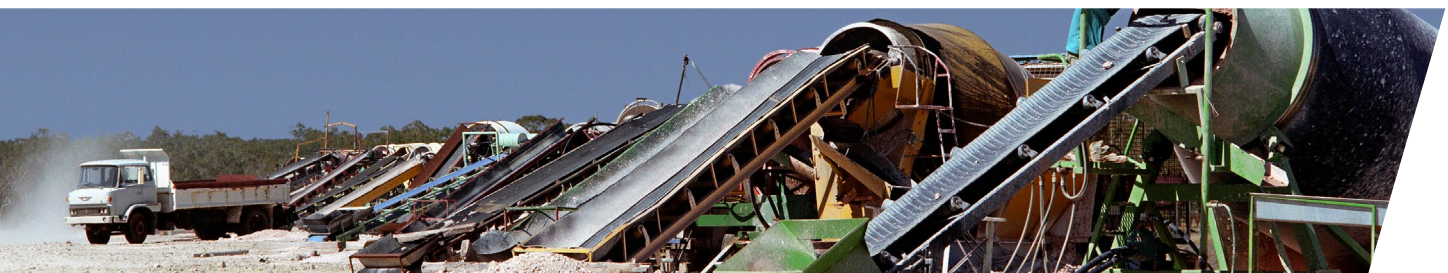
An operator was installing rib support using a continuous miner. The worker was on the same side as the ventilation tubes. Whilst inserting a rib bolt, the operator’s cap-lamp and helmet were sucked into the ventilation duct. Earlier in the day the auxiliary fan speed was increased from 12.5 metres³/sec to 19.5 metres³/sec to assist dust management due to the continuous miner cutting stone.

Comments to industry

Mine operators should ensure that appropriate control measures are in place to protect operators working near open-ended ventilation tubes.

Guarding should be installed on the most in-by tube to prevent objects being sucked into the tube. Operators should use cap-lamp pouches with retaining straps.

Mine operators should review their auxiliary fan operational risk assessments (for each type of auxiliary fan in use at each site) to identify and control the risks to health and safety for people working near ventilation ducts. Refer to [SA20-05 Worker sucked into ventilation tube](#).



NEWLY UPDATED TECHNICAL REFERENCE GUIDE RELEASED

Ventilation plant such as main fans, booster fans and auxiliary fans are crucial to providing a safe environment in an underground coal mine. At various times during the life of a ventilation fan, it may be exposed to elevated levels of methane and potentially explosive atmospheres. Failure of any ventilation fan, and the subsequent loss of ventilation to the underground parts of a mine, creates a serious risk to workers in the underground environment.

This [technical reference guide](#) replaces MDG 3 Main, booster and auxiliary fans in underground coal mines.



Sector profiles

**NSW
Resources
Regulator**

**SECTOR
REPORTING**

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.

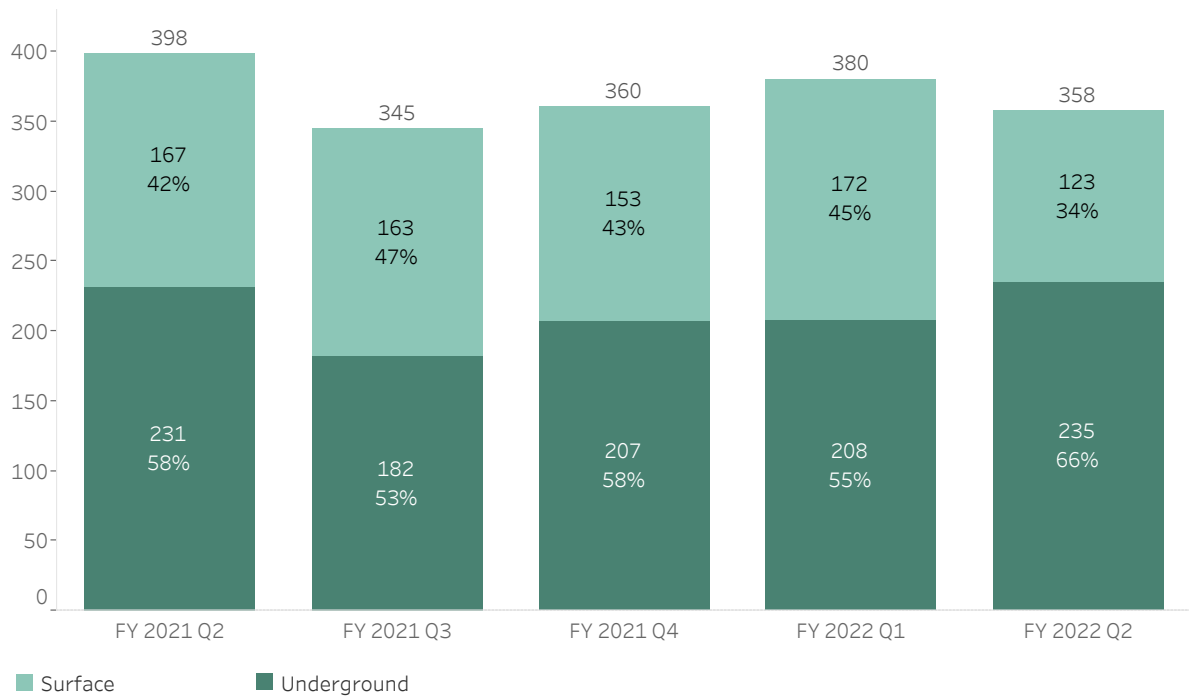
This quarter saw a decrease in incidents reported by the coal sector.

TABLE 2. COAL SECTOR INCIDENT NOTIFICATION RECEIVED RATES - OCTOBER 2020 TO DECEMBER 2021

MEASURE	FY 2021 Q2	FY 2021 Q3	FY 2021 Q4	FY 2022 Q1	FY 2022 Q2
Incidents	398	345	360	380	358
Active mines	117	118	118	117	119
Incident rate per active mine	3.40	2.92	3.05	3.25	3.01
Mines that notified incidents	54	51	48	54	51
% of mines notifying an incident	46%	43%	41%	46%	43%
Incident rate per notifying mine	7.37	6.76	7.50	7.04	7.02

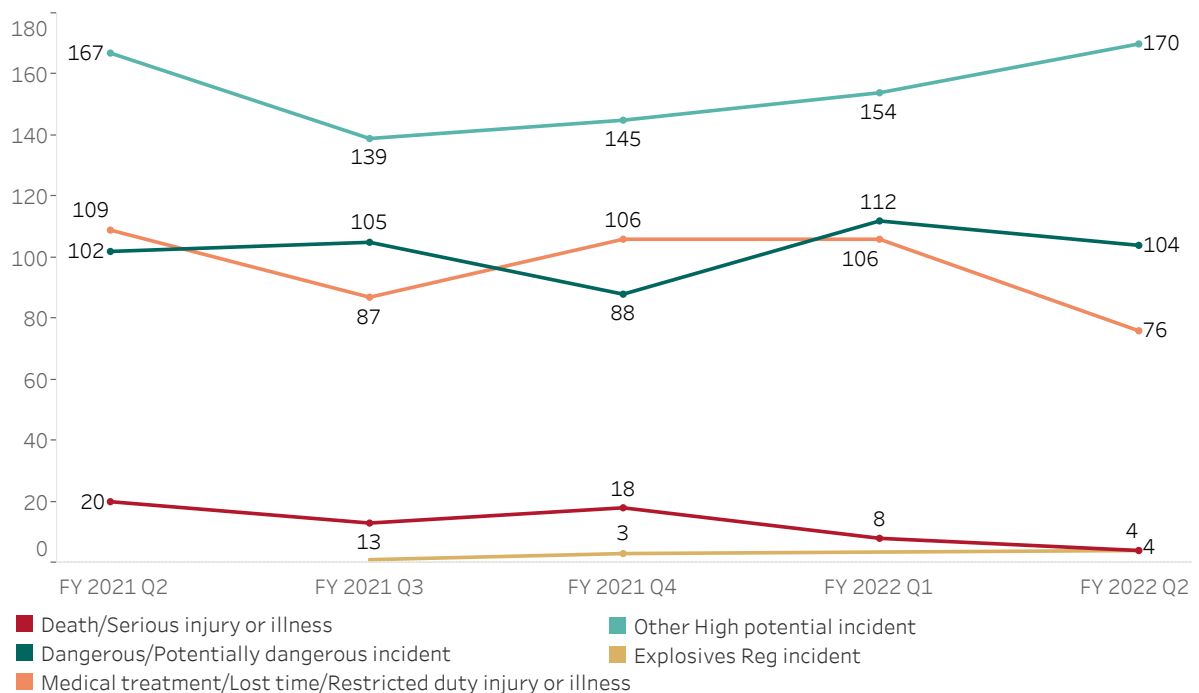
The following graph shows the proportion of safety incident notifications received from surface and underground coal operations. This quarter saw a decrease in incident notifications in the surface coal mines and an increase in underground coal mines.

FIGURE 16. COAL SECTOR INCIDENT NOTIFICATIONS BY OPERATION TYPE - OCTOBER 2020 TO DECEMBER 2021



The graph below presents a breakdown of safety incidents notified to the NSW Resources Regulator by the coal sector by the requirement to report. This quarter saw a continued decrease in notifications of death/serious injury illness and medical treatment/lost time/restricted duties injuries and illness. A decrease was also seen in dangerous/potentially dangerous incidents. Notifications of other high potential incidents have continued to increase this quarter.

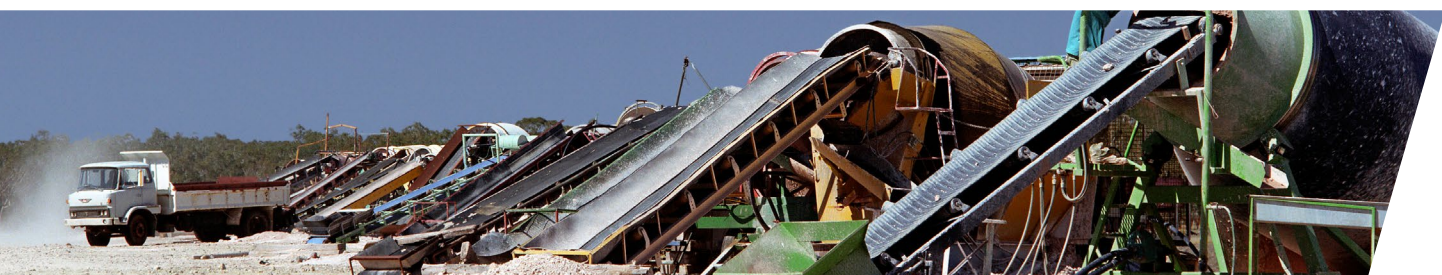
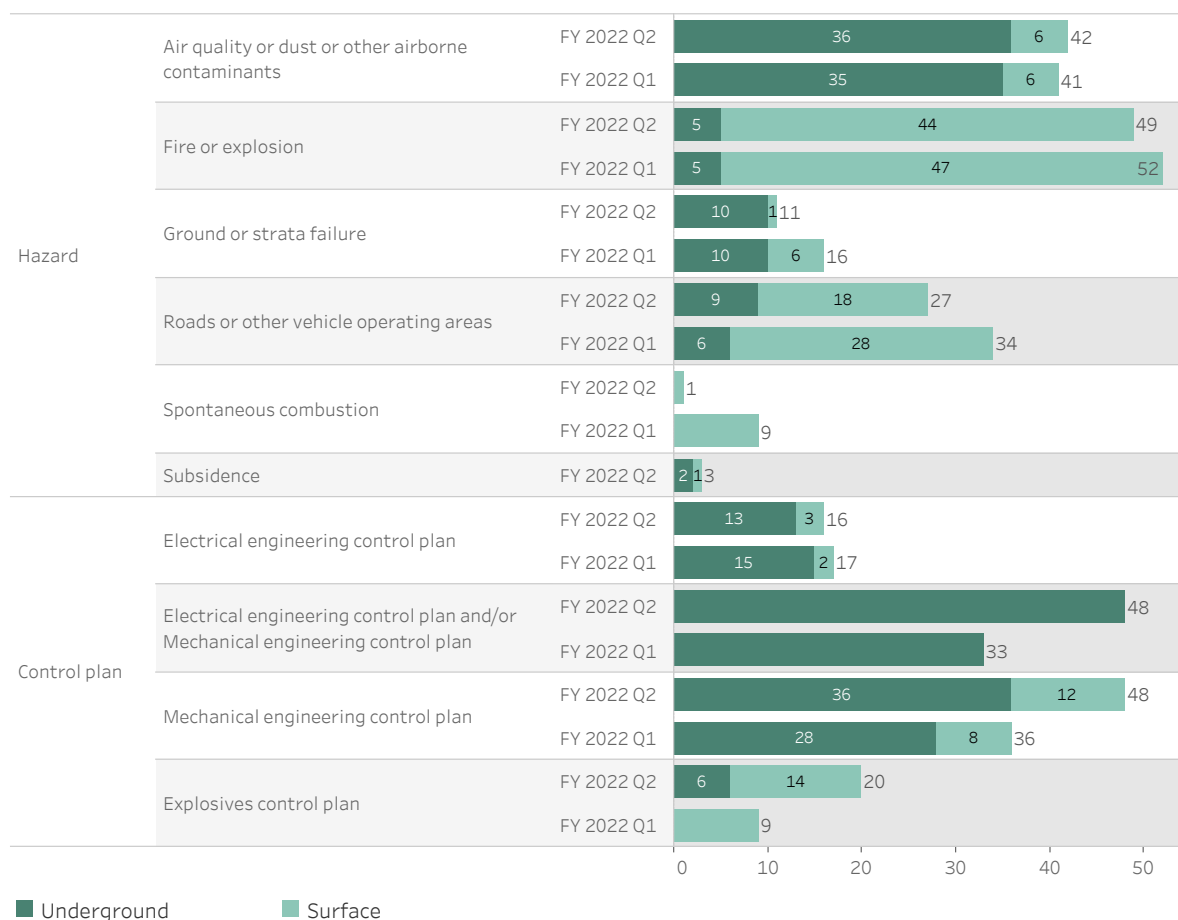
FIGURE 17. COAL SECTOR INCIDENT NOTIFICATIONS BY REQUIREMENT TO REPORT - OCTOBER 2020 TO DECEMBER 2021



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 - JULY 2021 TO DECEMBER 2021



Large mines sector

Incident notifications

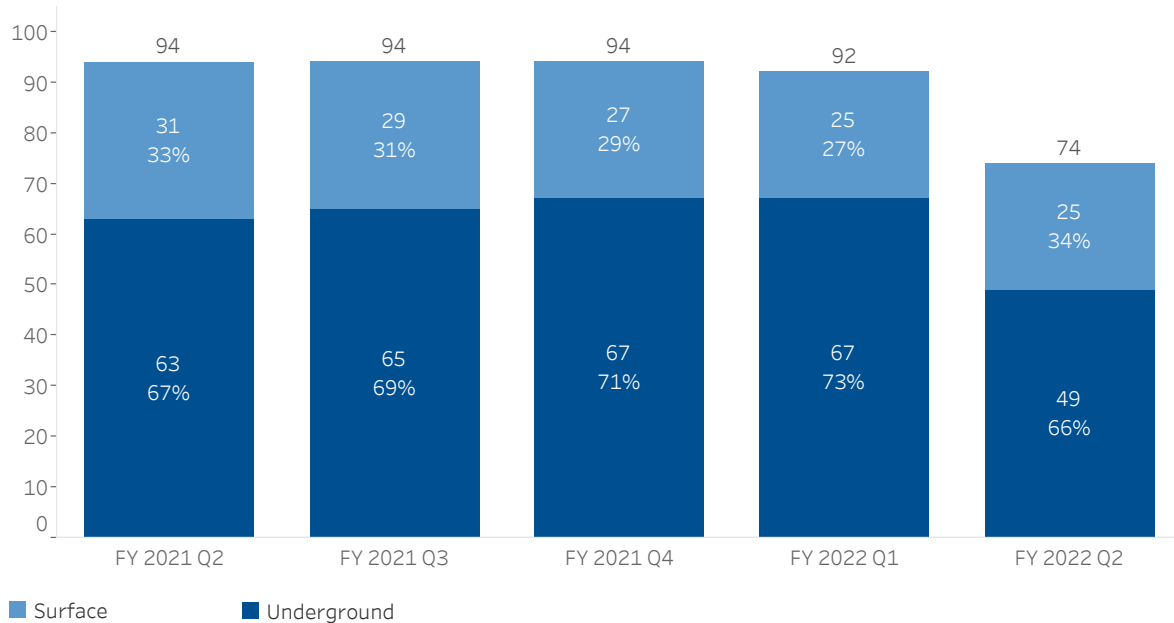
Under work health and safety legislation, mine operators must notify the regulator about the occurrence of certain types of safety incidents. Incident notification data (by active mine) provides insights into sector specific reporting trends. The increased number of active mines seen from Q4 2021 reflects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

TABLE 3. LARGE MINES AND QUARRIES SECTOR INCIDENT NOTIFICATIONS RECEIVED RATES - OCTOBER 2020 TO DECEMBER 2021

MEASURE	FY 2021 Q2	FY 2021 Q3	FY 2021 Q4	FY 2022 Q1	FY 2022 Q2
Incidents	94	94	94	92	74
Active mines	40	44	62	59	59
Incident rate per active mine	2.35	2.14	1.52	1.56	1.25
Mines that notified incidents	24	29	28	28	24
% of mines notifying an incident	60%	66%	45%	47%	41%
Incident rate per notifying mine	3.92	3.24	3.36	3.29	3.08

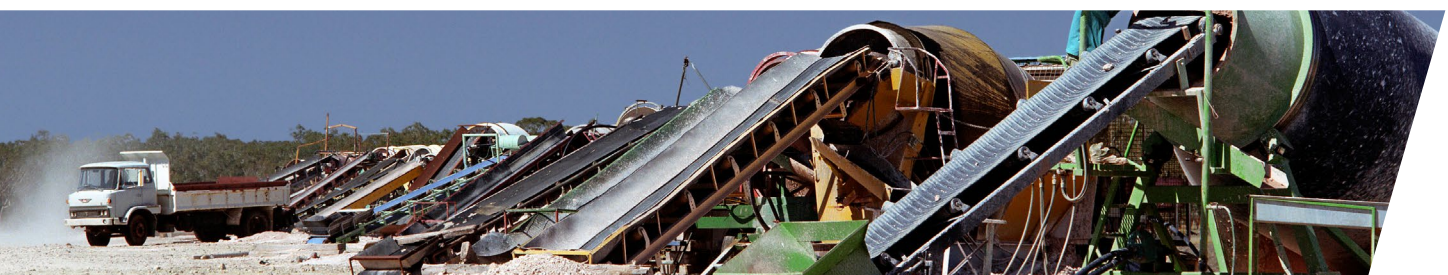
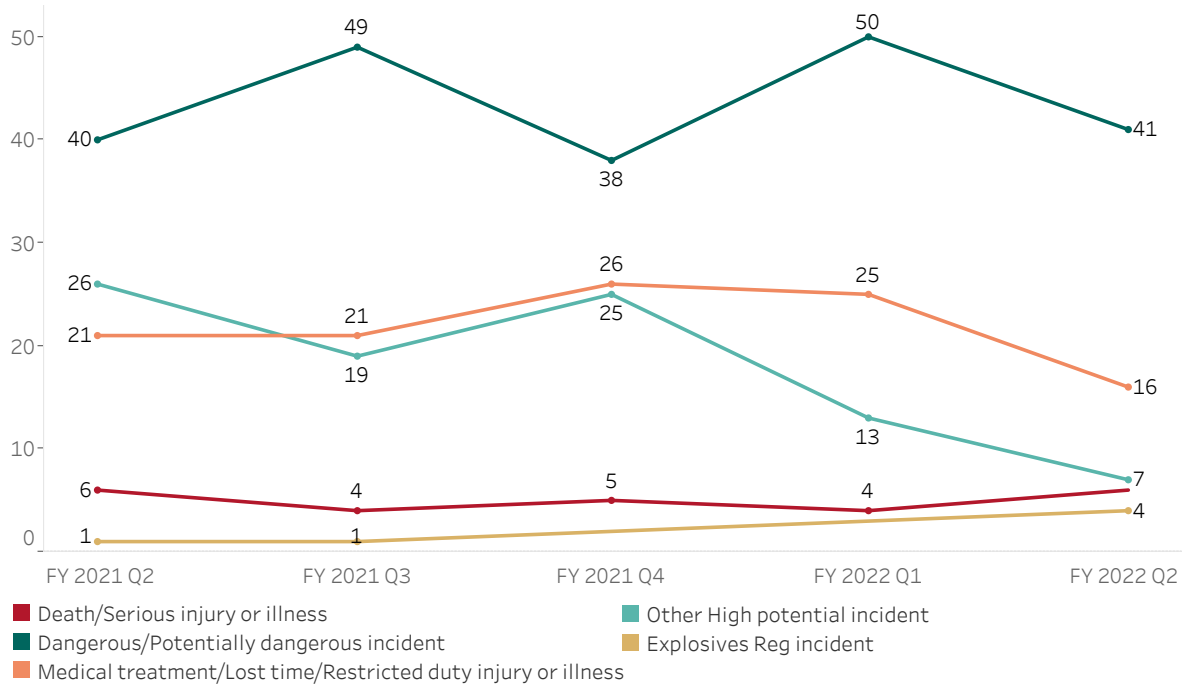
The following graph shows the proportion of safety incident notifications received from large mines and quarries by operation types. Consistently, underground large mines and quarries notify around 70% of all incidents for the sector.

FIGURE 19. LARGE MINES AND QUARRIES INCIDENT NOTIFICATIONS BY OPERATION TYPE - OCTOBER 2020 TO DECEMBER 2021



The following graph presents a breakdown of safety incidents notified to the Regulator by the large mines and quarries sector based on the requirement to report under the safety legislation. Notifications of death/serious injury illness and explosives incidents increased this quarter, with decreases observed in dangerous/potentially dangerous and other high potential incidents, as well as and medical treatment/lost time/restricted duties injuries and illness.

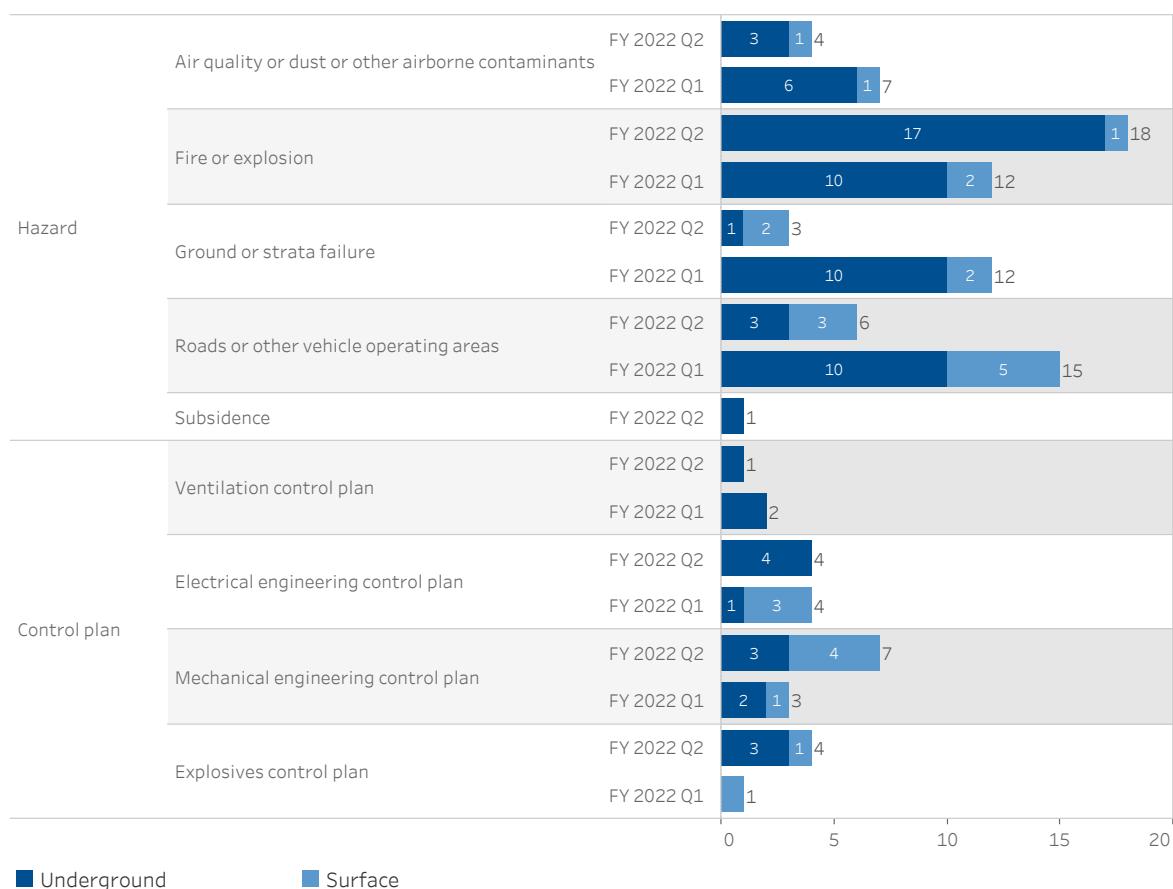
FIGURE 20. LARGE MINES AND QUARRIES INCIDENT NOTIFICATIONS BY REQUIREMENT TO REPORT - OCTOBER 2020 TO DECEMBER 2021



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 fire or explosion, specifically in underground large mines and quarries.

FIGURE 21. LARGE MINES AND QUARRIES INCIDENTS CLASSIFIED BY PRINCIPAL HAZARD BY OPERATION TYPE - JULY 2021 TO DECEMBER 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.

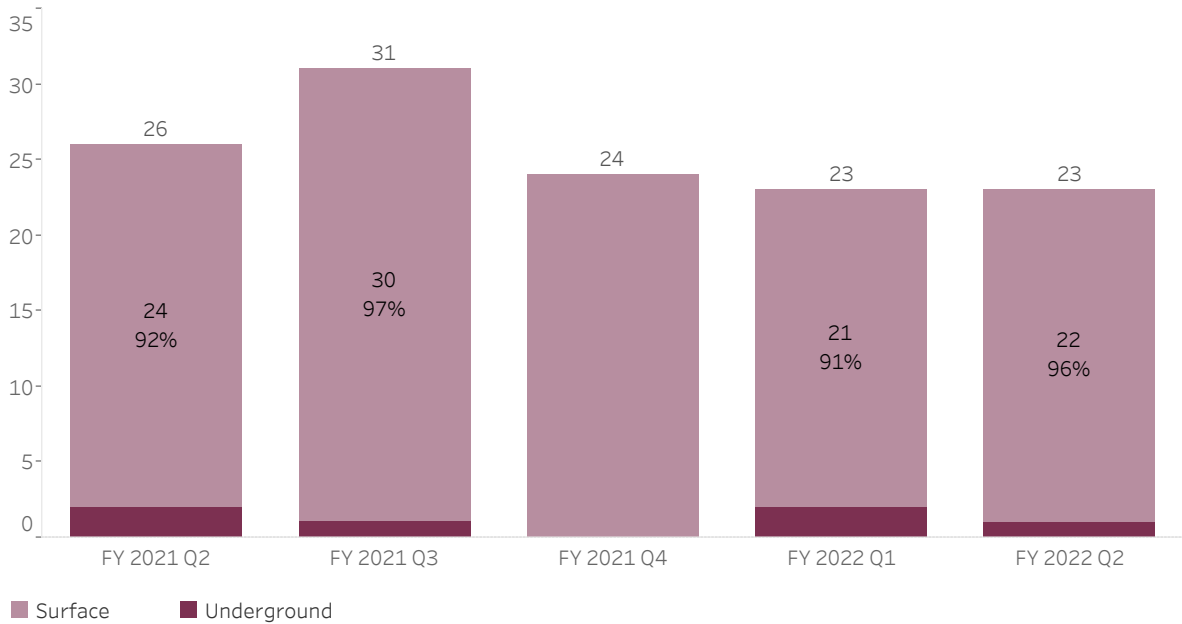
TABLE 4. SMALL MINES AND QUARRIES SECTOR INCIDENT NOTIFICATIONS RECEIVED RATES - OCTOBER 2020 TO DECEMBER 2021

MEASURE	FY 2021 Q2	FY 2021 Q3	FY 2021 Q4	FY 2022 Q1	FY 2022 Q2
Incidents	26	31	24	23	23
Active mines	2654	2624	2588	2591	2592
Incident rate per active mine	0.01	0.01	0.01	0.01	0.01
Mines that notified incidents	22	28	22	19	22
% of mines notifying an incident	0.83%	1.07%	0.85%	0.73%	0.85%
Incident rate per notifying mine	1.18	1.11	1.09	1.21	1.05

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

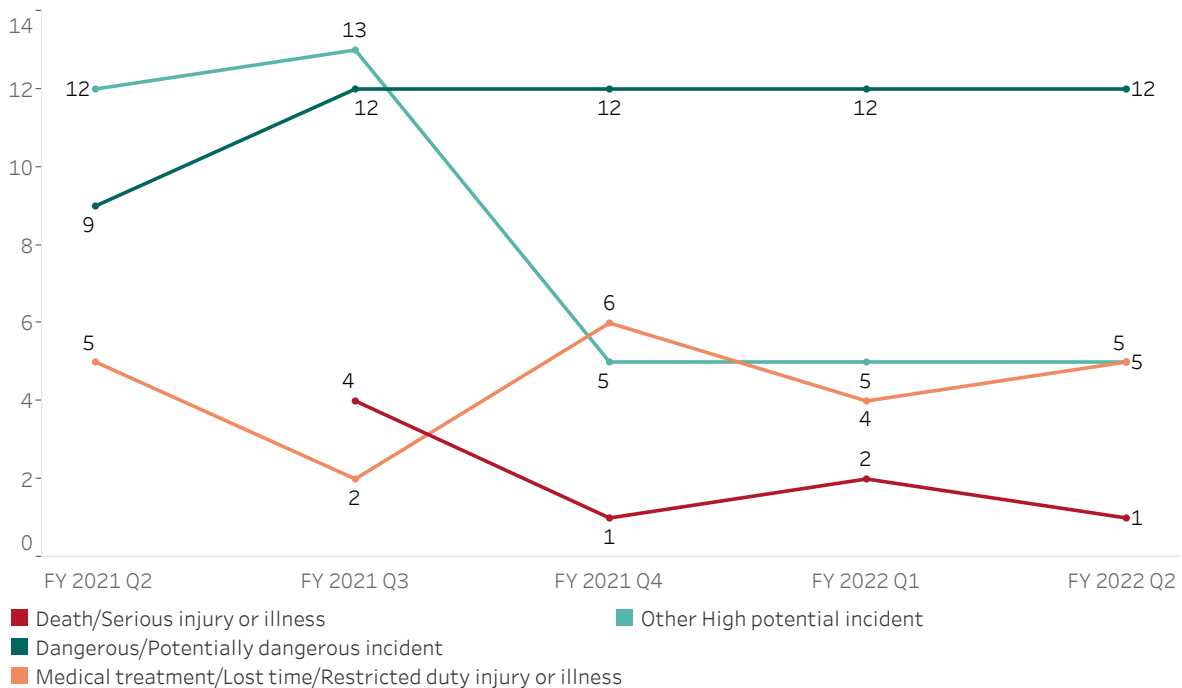


FIGURE 22. SMALL MINES AND QUARRIES INCIDENT NOTIFICATIONS BY OPERATION TYPE - OCTOBER 2020 TO DECEMBER 2021



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/potentially dangerous and other high potential 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.

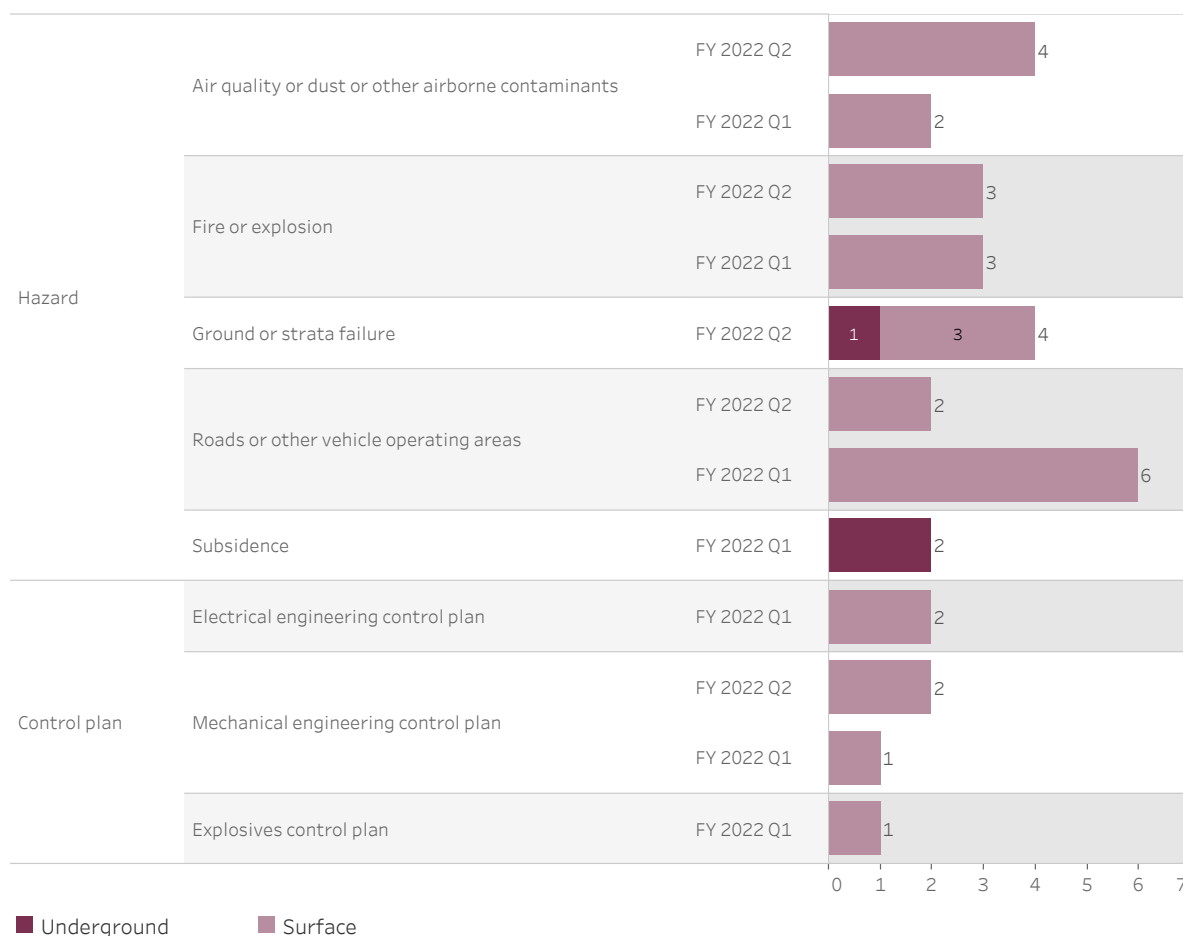
FIGURE 23. SMALL MINES AND QUARRIES INCIDENT NOTIFICATIONS RECEIVED BY REQUIREMENT TO REPORT - OCTOBER 2020 TO DECEMBER 2021



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 roads or other vehicle operating areas.

FIGURE 24. SMALL MINES AND QUARRIES INCIDENTS CLASSIFIED BY PRINCIPAL HAZARD BY OPERATION TYPE - JULY 2021 TO DECEMBER 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 - OCTOBER 2020 TO DECEMBER 2021

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

* includes exploration

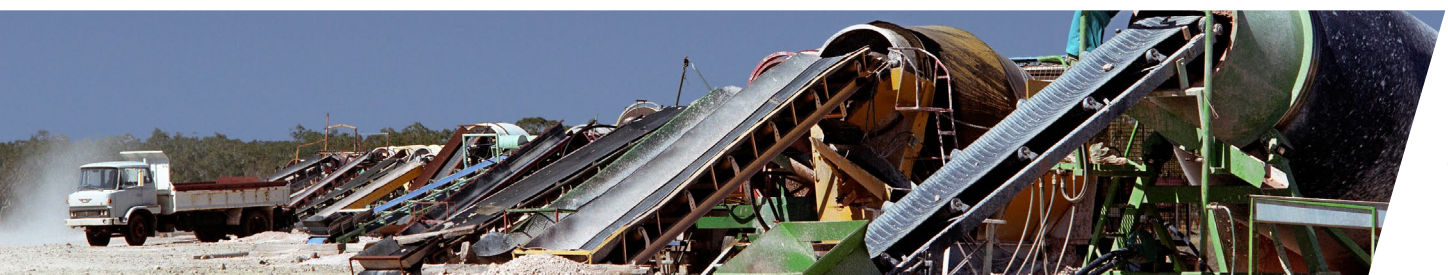
** excludes petroleum and geothermal

TABLE 6. OPAL MINES AND EXPLORATION SITES INCIDENT NOTIFICATIONS BY REQUIREMENT TO REPORT - OCTOBER 2020 TO DECEMBER 2021

SECTOR	REQUIREMENT TO REPORT	FY 2021 Q2	FY 2021 Q3	FY 2021 Q4	FY 2022 Q1	FY 2022 Q2
Opal mines	Death/serious injury or illness	1	0	0	0	0
	Death/serious injury or illness	0	1	1	1	0
Exploration sites	Medical treatment/lost time/restricted duty injury or illness	0	1	0	0	0

TABLE 7. OPAL MINES AND EXPLORATION SITES INCIDENT NOTIFICATION BY PRINCIPAL HAZARD - OCTOBER 2020 TO DECEMBER 2021

SECTOR	CLAUSE PH/PCP MAPPING	FY 2021 Q2	FY 2021 Q3	FY 2021 Q4	FY 2022 Q1	FY 2022 Q2
Opal mines	No related principal mining hazard or principal control plan	1	0	0	0	0
Exploration sites	No related principal mining hazard or principal control plan	0	2	1	1	0



Compliance and enforcement

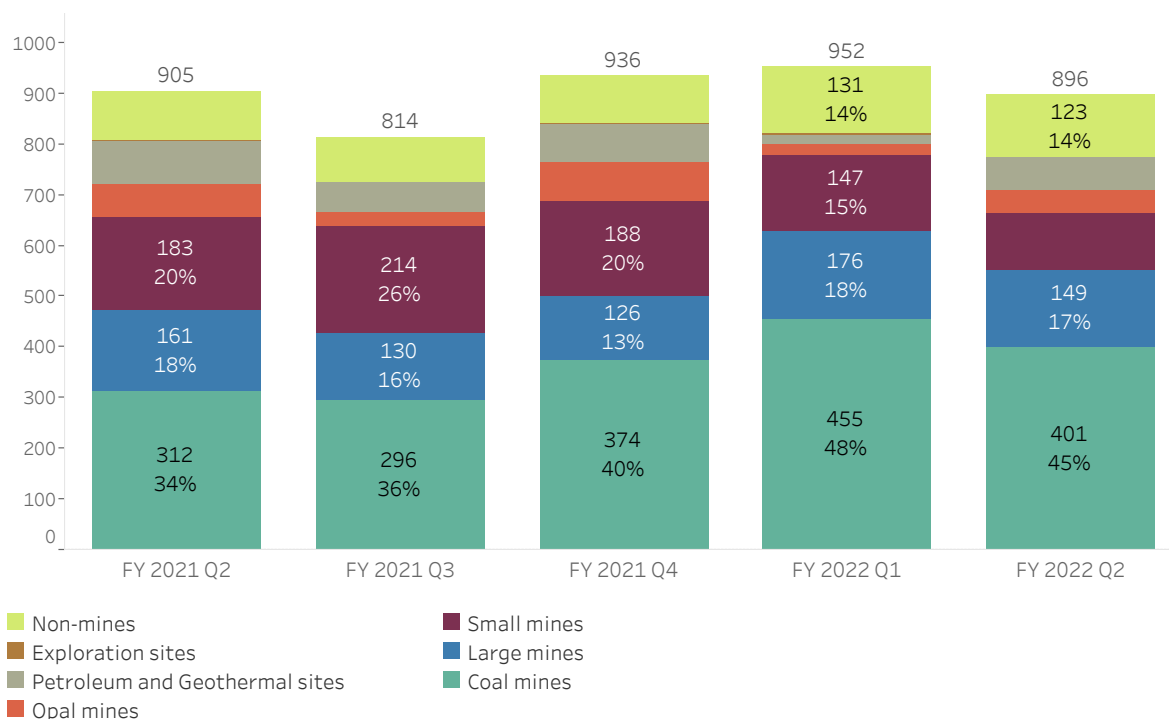
The Regulator uses a range of tools to promote and secure compliance in mines and petroleum sites in relation to work health and safety legislation. These include desktop assessments, site inspections, investigations and enforcement actions, such as issuing notices and commencing prosecutions.

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 decreases in the number of assessments conducted in all sectors except petroleum and geothermal sites and opal mines.

FIGURE 25. SAFETY ASSESSMENTS BY SECTOR - OCTOBER 2020 TO DECEMBER 2021



Safety assessments by category and nature

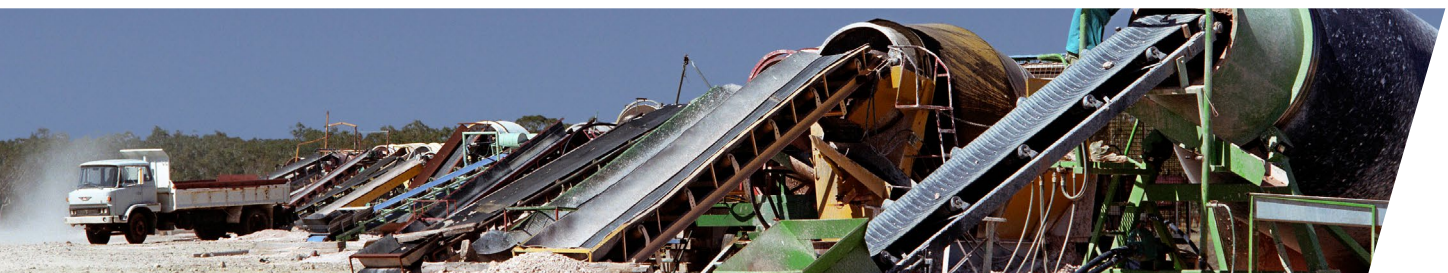
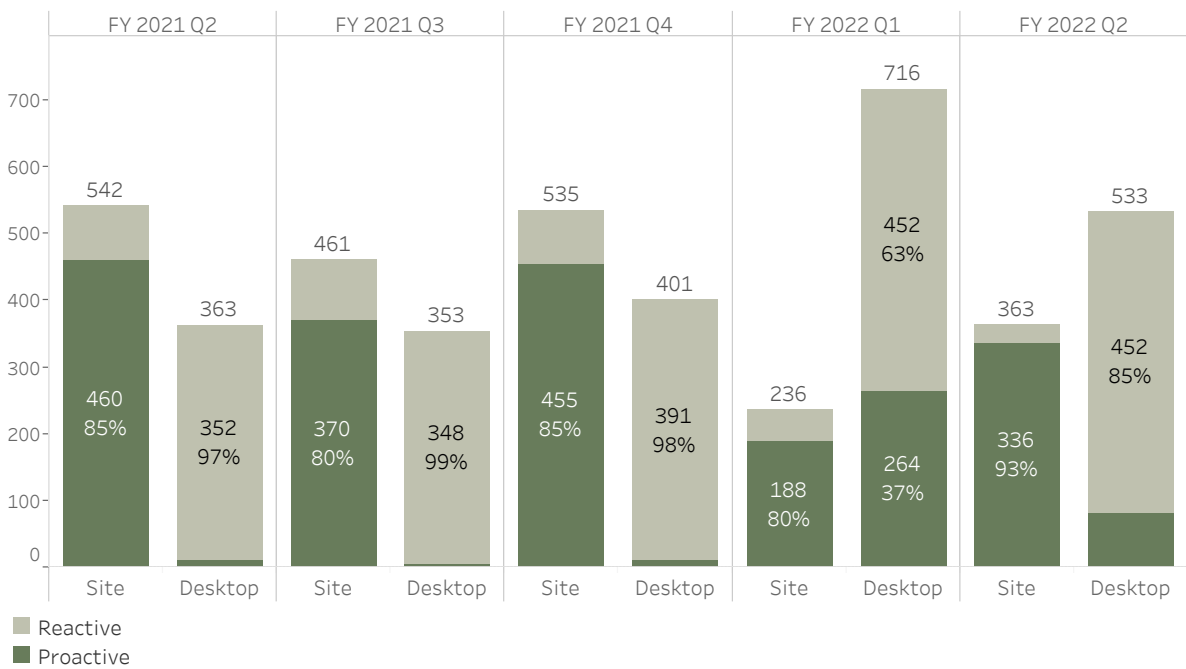
Site-based (visiting mine sites) and desktop activities are both important regulatory tools. While the main focus of our on-site compliance activity is on preventing incidents through planned risk-based proactive assessments, our desktop activities are mainly reactive.

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 increase in the number of proactive site assessments and a decrease in the number of proactive desktop assessments.

FIGURE 26. SAFETY ASSESSMENTS BY CATEGORY AND NATURE - OCTOBER 2020 TO DECEMBER 2021

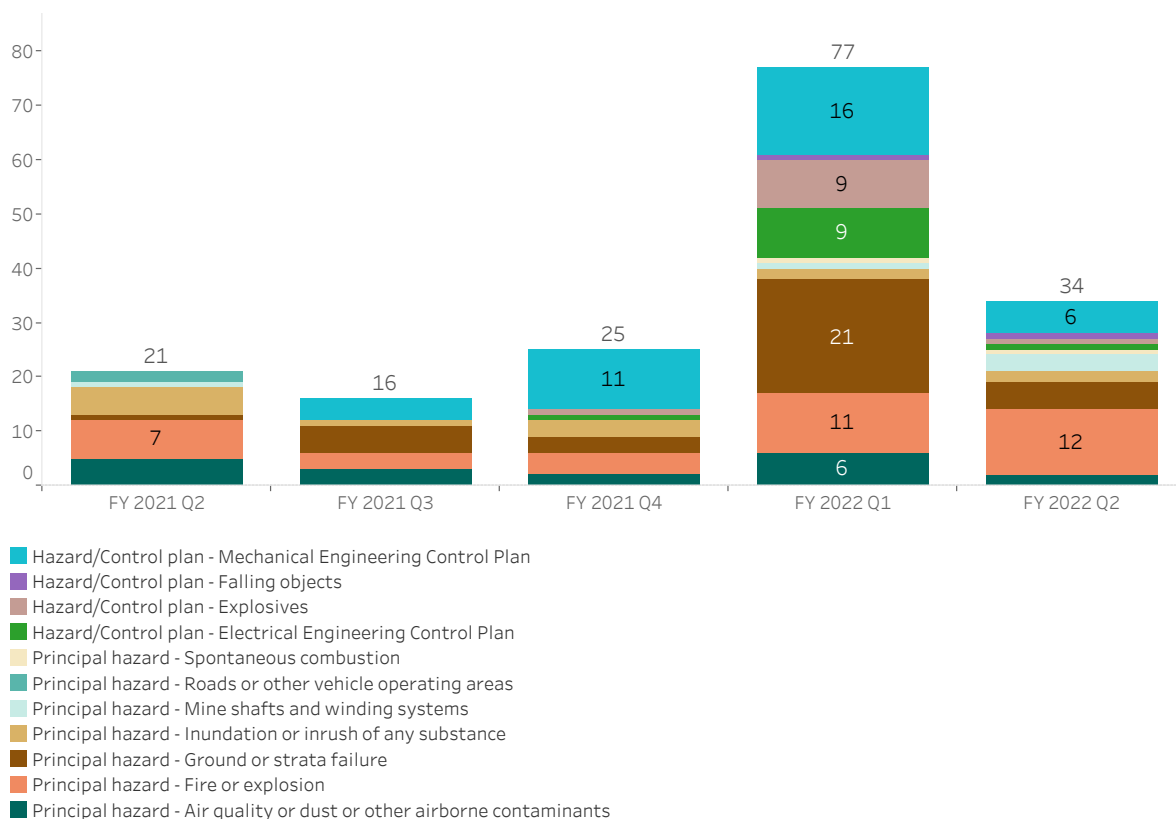


Targeted assessment program

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.

Targeted assessments focussed on the hazard of fire or explosion this quarter.

FIGURE 27. TARGETED ASSESSMENTS BY PRINCIPAL HAZARD, HAZARD/CONTROL PLAN AND OTHER - OCTOBER 2020 TO DECEMBER 2021

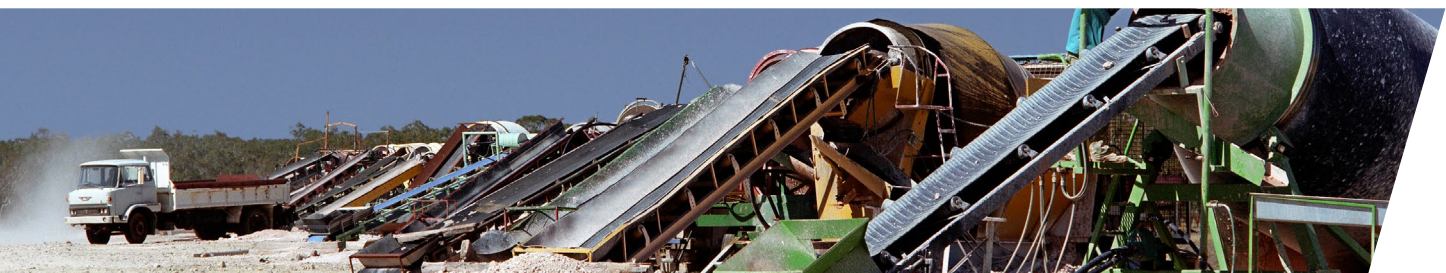
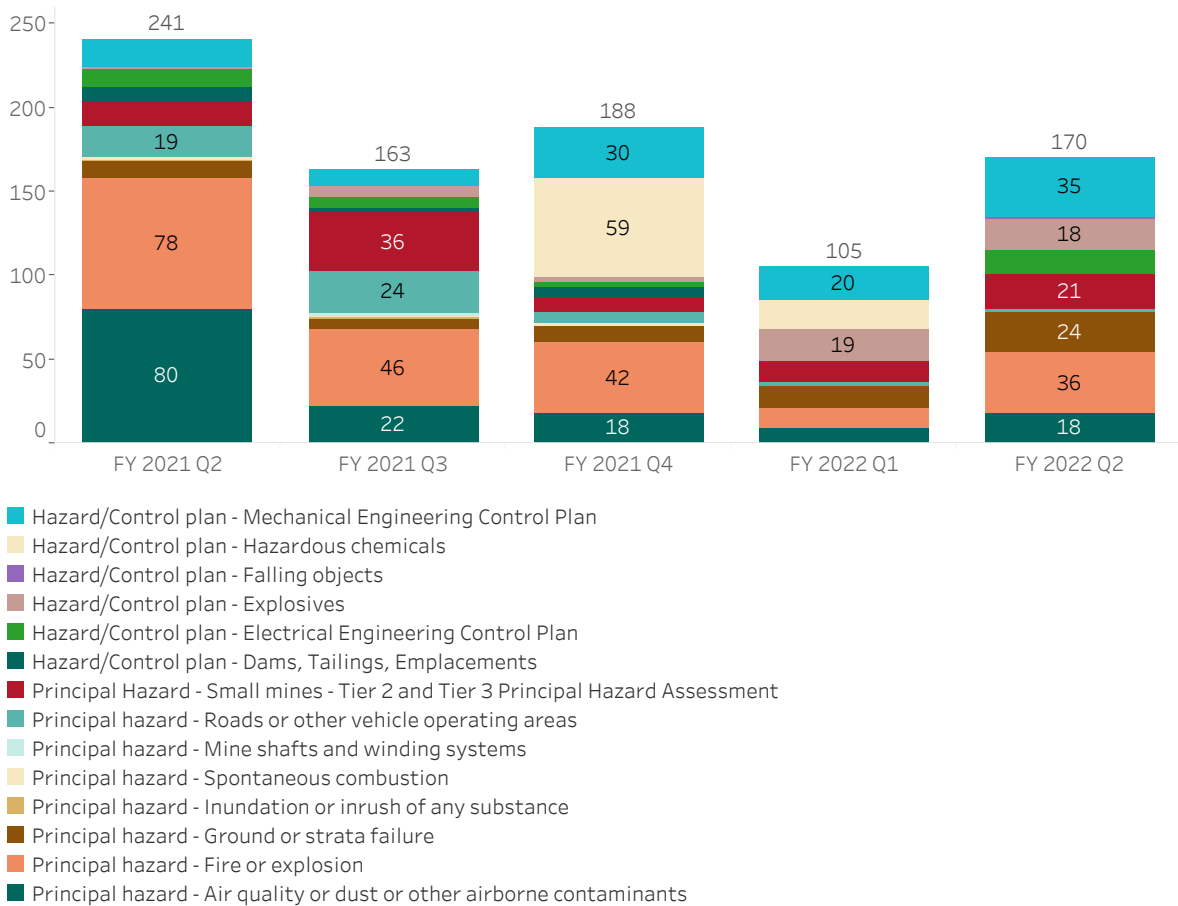


Planned inspections

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.

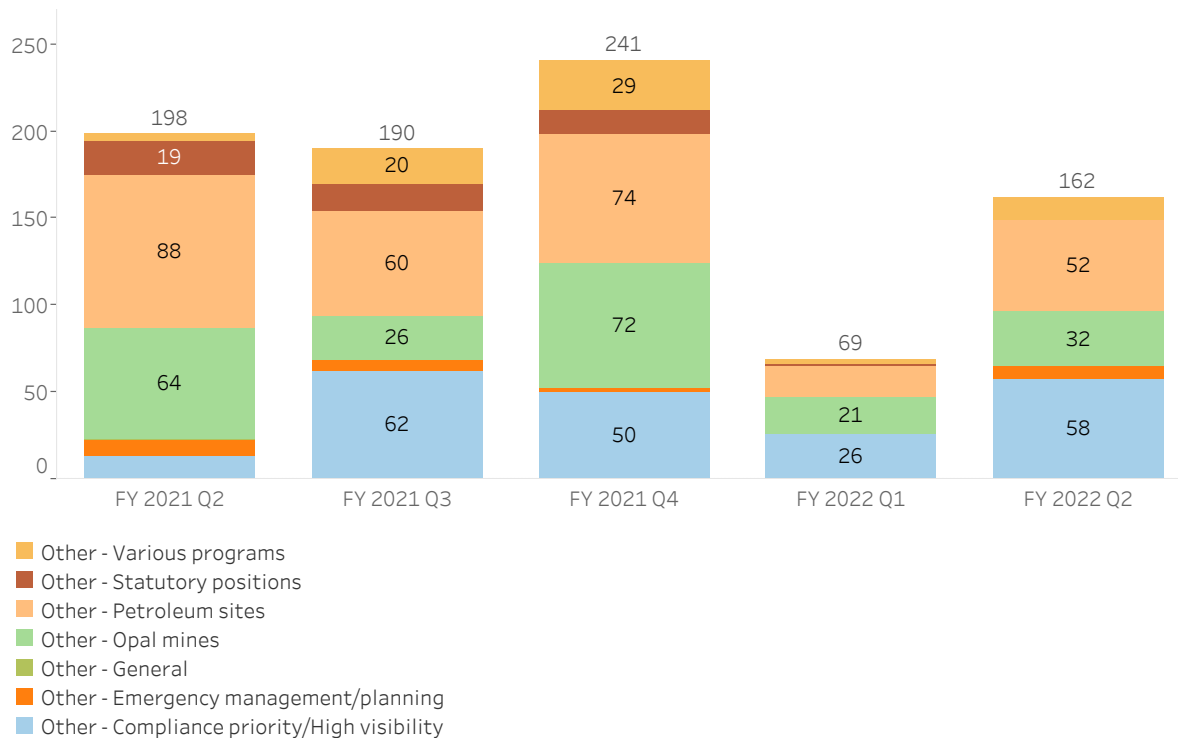
For principal hazards, this quarter included a focus on assessments relating to the hazards of fire or explosion and ground or strata failure, and mechanical engineering control plans.

FIGURE 28. PLANNED INSPECTIONS BY PRINCIPAL HAZARD AND HAZARD/CONTROL PLANS - OCTOBER 2020 TO DECEMBER 2021



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 - OCTOBER 2020 TO DECEMBER 2021

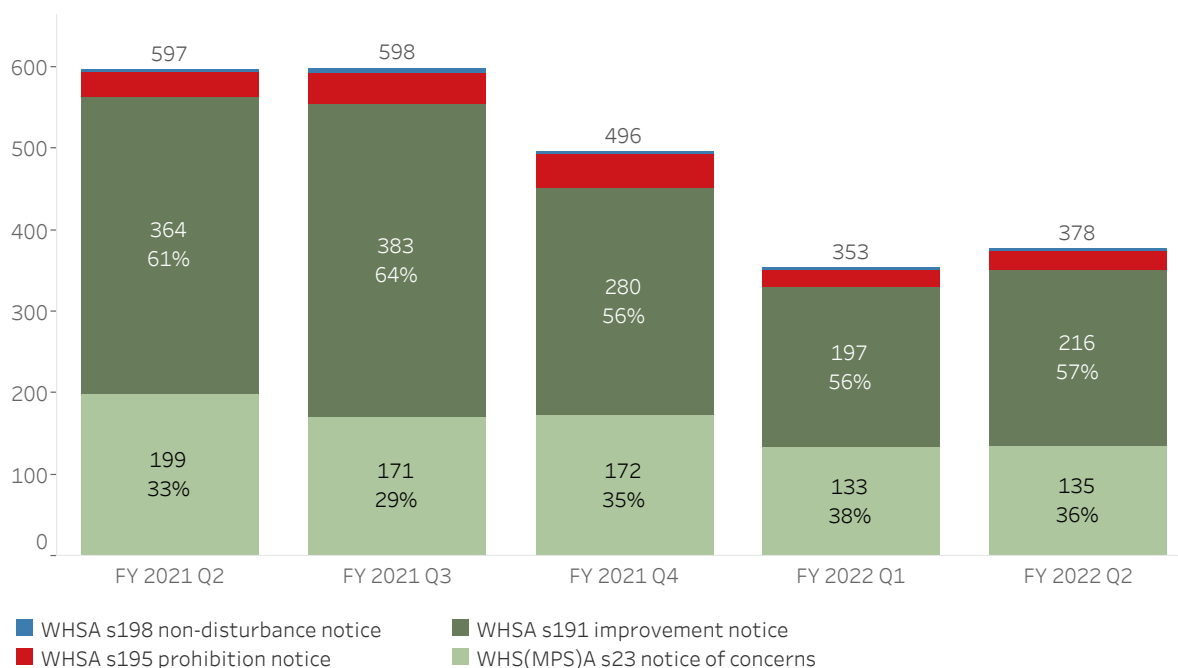


Safety notices issued

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 October 2020. This quarter saw an increase in the number of improvement notices issued, however they remain low compared to previous quarters. COVID restrictions contributed to the ongoing low number of notices issued.

FIGURE 30. SAFETY NOTICES ISSUED BY NOTICE TYPE - OCTOBER 2020 TO DECEMBER 2021



The proportion of safety notices issued to the coal sector has decreased over the last two quarters, while the proportion of safety notices issued to the metalliferous sector has increased. This indicates a return to proportions observed in previous quarters.

FIGURE 31. SAFETY NOTICES ISSUED BY SECTOR - OCTOBER 2020 TO DECEMBER 2021

