NSW GOVERNMENT

NSW Resources Regulator

Quarterly safety report

January to March 2022

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

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 6 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 January to March 2022 (FY2022 Qtr3). For selected measures, data is analysed over a 15-month period from January 2021 to March 2022.

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

In this quarter, total incident notifications received by principal hazard were down (from 178 to 161). This figure represents a 13% reduction from the quarterly average (185) recorded for the previous 4 quarters.

Of significance, notifications rose for the principal mining hazards of 'roads and other vehicle operating areas' (35 to 55) and for 'ground or strata failure' (18 to 27). Notifications for the principal mining hazards of 'fire or explosion', 'spontaneous combustion' and 'air quality or dust and other airborne contaminants' all saw reductions.

Incident notifications received by principal control plans increased across 3 of the 5 classifications, while both electrical engineering control plans and electrical and/or mechanical engineering control plans recorded slight reductions.

Quarterly snapshot

NSW Resources Regulator

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

85 Dangerous incidents	Work related deaths 0
95 Potentially dangerous incidents	Serious injuries/illnesses 12
142 Other high potential incidents	Lost time/restricted duty injuries/ illnesses >= 7 days 96
7 Explosives regulation incidents	Medical treatment injuries/illnesses 62

499* incident notifications received

* 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

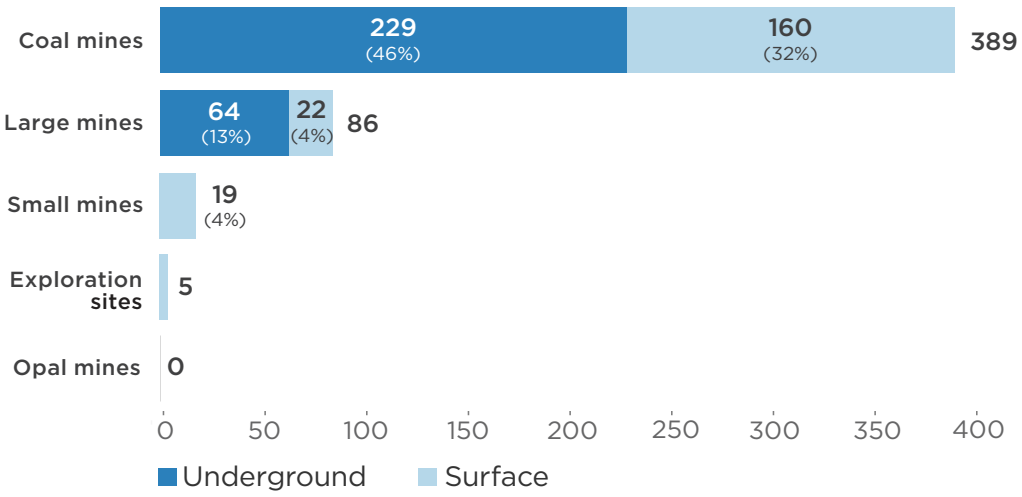
389 FROM 358 COAL MINES

86 FROM 74 LARGE MINES

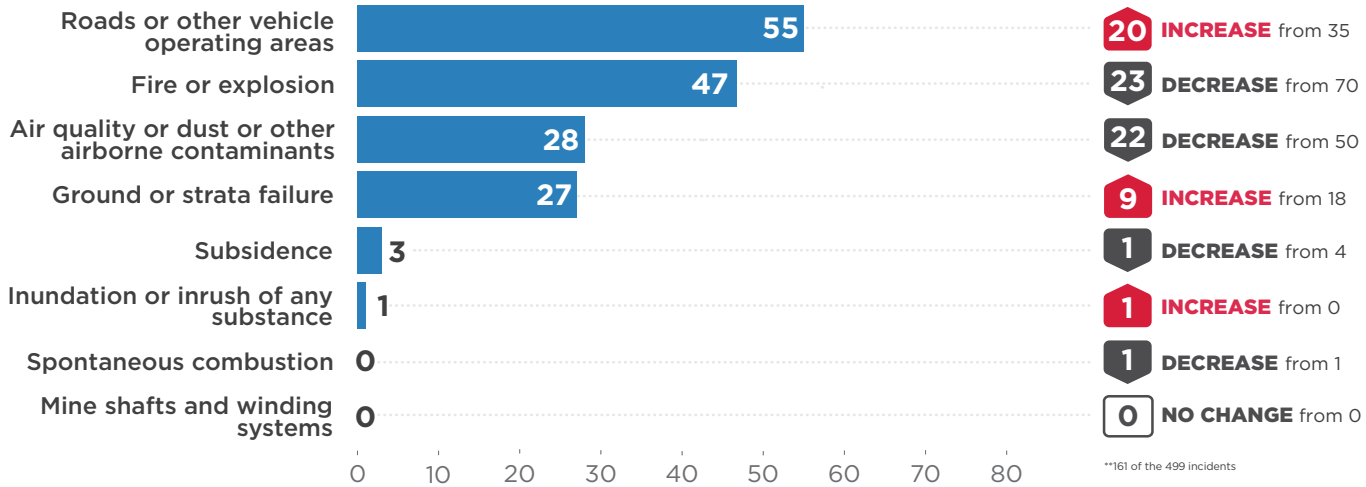
FROM 23 19 SMALL MINES

0 NO CHANGE OPAL MINES

5 FROM 0 EXPLORATION SITES



Incident notifications classified by principal hazard**



**161 of the 499 incidents

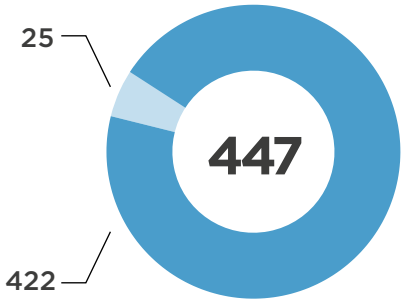
Quarterly snapshot

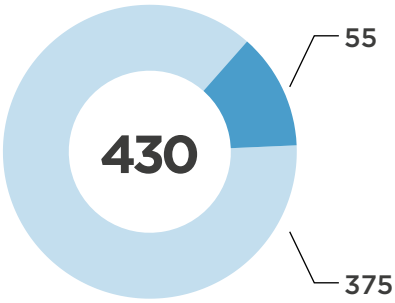
NSW Resources Regulator

877
Assessments commenced

Proactive

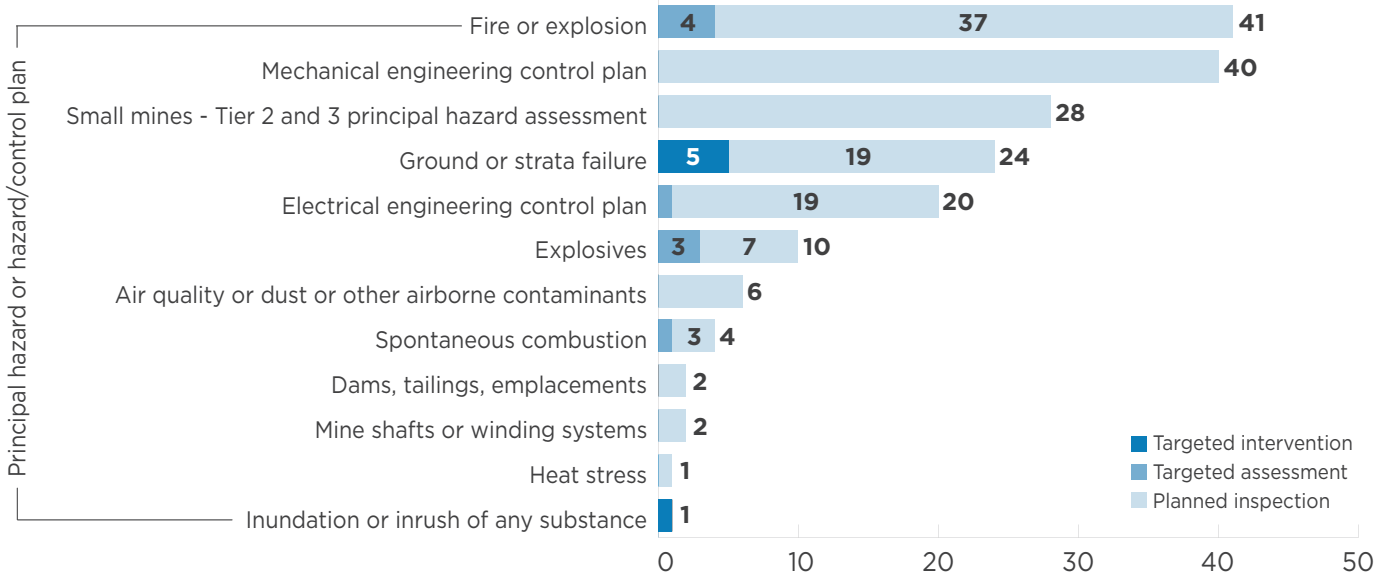
Reactive





COAL MINES	LARGE MINES	SMALL MINES	PETROLEUM AND GEOTHERMAL SITES	OPAL MINES	EXPLORATION SITES	NON-MINES
FROM 406 **383**	**149** FROM 147	**149** FROM 116	FROM 64 **50**	FROM 45 **19**	**3** FROM 0	**124** NO CHANGE

Programmed site assessments conducted*



433 notices issued

255 WHSA s191 improvement notices

154 WHS(MPS)A s23 notices of concerns

24 WHSA s195 prohibition notices

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SUBSCRIBE TO OUR YOUTUBE CHANNEL

VISIT OUR WEBSITE FOR MORE INFO

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 **January to March 2022**.

The incidents selected, were 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 25 March 2022, coal mine workers at the Moranbah North underground mine were conducting infrastructure activities involving the dismantling of conveyor equipment underground. This required the movement of a suspended load, using a block and tackle, lever hoist (come-along) and slings. The activity at the time of the incident involved a heavy load, estimated at 4 tonnes. The load shifted during the activity and resulted in fatal injuries to one worker.

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

- On 7 January 2022, a continuous mining machine (CMM) operator with nearly 10 years mining experience was fatally injured when he was pinned between the remote controlled CMM and the coal rib. Refer to fatality alert.

- On 7 January 2022, a front-end loader operator with 15 years of mining experience died when a large rock fell from the mine roof, crushing the cab of the front-end loader. When the accident occurred, the victim was loading material from a recently blasted shot. Refer to fatality alert.
- On 11 January 2022, a miner with over a decade of mining experience died while driving on a mine road, when a tree fell from a highwall onto the cab of his pickup truck. Refer to fatality alert.
- On 14 January 2022, a contract labourer with 13 years mining experience received fatal injuries when he fell 27 feet to a concrete surface. At the time of the accident, the contractor was on a belt conveyor in a preparation plant and was working to replace a belt conveyor roller. Refer to fatality alert.
- On 26 January 2022, a loader operator with just over 2 years mining experience went under a dump truck to resolve a park brake issue and was fatally injured when the tire of the dump truck rolled onto him. Refer to fatality alert.
- On 28 January 2022, a concrete mixer driver with 3 years mining experience was fatally injured when the truck he was operating overturned, and he was ejected from the truck. Another miner, who was in the truck, suffered serious injuries. Refer to fatality alert.
- On 14 February 2022, a maintenance technician with over 10 years mining experience died when the lube truck she was driving fell approximately 60 feet down a stope to the mine floor below. Refer to fatality alert.
- On 28 February 2022, a contractor with limited experience in the task was tramming a single boom face drill to the surface when he became pinned between the drill and the coal rib. Refer to fatality alert.
- On 2 March 2022, a scoop operator with over 15 years mining experience was fatally injured when a piece of rock from a brow along the mine rib fell and struck him. Refer to fatality alert.
- On 4 March 2022, a dozer operator with 8 years mining experience was fatally injured when the bulldozer he was operating rolled down a steep slope and came to rest on the cab. Refer to fatality alert.
- On 20 March 2022, a coal miner with over 13 years mining experience was fatally injured when the roof fell in the area where he was moving a line out-bye the retreat mining section. Refer to fatality alert.
- On 22 March 2022, a heavy equipment operator with less than a year's mining experience, drowned when the floating pump platform he was working on capsized, trapping him under water. Refer to fatality alert.

Alerts, bulletins, fact sheets and incident information releases

New South Wales

SAFETY BULLETINS

- SB22-04 Hand injuries
- SB22-03 Impacts of severe weather on slope stability
- SB22-02 Strata failure
- SB22-01 Welding fume extraction fans

FACT SHEETS

- Small mines slope stability
- Managing risks solar ultraviolet radiation (Safe Work Australia)

REPORTS

- Grawin Bryant investigation report
- Contractor management in coal mines – Compliance priority outcome report
- Blast exclusion zones in small mines – Compliance priority outcome report
- Fires on mobile plant - July to September 2021 report
- Planned Inspection Program-Consolidated-Report-Fire or explosion electrical underground coal mines
- Positive communication - Metalliferous mines and Tier-1 quarries - Compliance priority outcome report
- Consolidated report - Managing ground or strata failure risks in the underground metalliferous sector
- Consolidated report - Spontaneous combustion underground coal mines

Queensland

- **Safe use of portable generators**
  Incorrect use of portable generators caused by unsafe installation and operating practices have caused several high potential incidents in Queensland mines and quarries recently. These have included exploding batteries, fires, and electric shocks. Refer to Safety Alert.
- **Unplanned movement of conveyor belt**
  A crew was undertaking a belt retraction in an underground coal mine. The belt slipped through the belt clamp, and once released it travelled

approximately 300 metres before folding up within the confines of the belt structure. This high potential incident could have resulted in serious injury to coal mine workers. Fortunately, there were no workers in the travel path of the belt. There were no injuries resulting from the incident but significant learnings for industry. Refer to Safety Alert.

- **Pick and carry cranes**
  Pick and carry cranes (commonly referred to as Franna cranes) are widely used in coal mines. They have been involved in several concerning incidents involving rollovers, loads falling, mechanical failures as well as uncontrolled movements and collisions. The Crane Industry Council of Australia estimates articulated pick and carry cranes currently account for somewhere between 64% - 68% of all crane incidents.

  In the year to date, more than 10 high potential incidents including five rollovers involving pick and carry cranes have been reported to the Coal Mines Inspectorate. Refer to Safety Alert.
- **Managing exposure to heat in surface coal mines and surface areas of underground coal mines**
  The purpose of this guidance note is to provide practical guidance to coal mine operators, employers and employees about how to manage heat exposure at open cut coal mines and on surface areas of underground coal mines, in order to prevent heat-related illness. Refer to Guidance note.
- **Autonomous mobile machinery**
  A guidance note has been released to provide practical guidance on the requirements for safe introduction and use of autonomous mobile machinery and vehicles. It is designed to provide guidance on design, planning, change management, implementation and safe operation systems for mobile autonomous and semi-autonomous systems used in surface and underground coal mines. There is a focus on the identification of the unique risk profiles in relation to new or existing autonomous mining systems. Refer to Guidance note.
- **Failure of goaf well skid safety system**
  Lightning is believed to have struck one or more of three goaf gas blower skids, igniting the gas on one of them. The gas burned at the top of the evasee for an unknown period before being discovered by a seam gas operator who applied an emergency shutdown of the plant.

  The plant was running high purity of 100% methane and nil oxygen. A mine evacuation was ordered, and the plant scene was secured. Refer to Safety Alert.
- **Unplanned release of joint from elevators during CSG drilling operations**
  An uncontrolled opening of elevators occurred during drilling operations, resulting in a joint being released. The joint fell back, resting on the pipe arm. No persons were injured and there was no equipment damage. Refer to Safety Alert.

- **Mobile and tower crane hoist limits**
  A safety alert has been issued to highlight the risk of hoist rope failure and loads dropping from mobile and tower cranes, which can occur when the hoist limit is disabled or does not function correctly. Refer to Safety Alert.
- **Electric arc flash**
  An innovative new film produced by the Electrical Safety Office highlights the serious dangers of electrical arc flashes. Head of the Electrical Safety Office said arc flash incidents are far too common in Queensland's electrical industry and it was time to beef up the warnings. An arc flash is a release of electrical energy that causes an explosion which can reach temperatures of up to 20,000 degrees Celsius. An arc flash usually occurs in large switchboards but can also occur in smaller switchboards, electricity supply pillars or large electrical equipment. Refer to Safety Alert.

Western Australia

- **Damaged excavator recoil spring fragment became projectile**
  In February 2021, a damaged recoil spring assembly for an excavator had been removed from the track arrangement and stored outside a heavy mobile plant workshop. The following morning, a fragment of the spring separated while under compression and travelled approximately 28 metres across the yard and through a workshop wall, coming to rest in a walkway beside a workbench. Refer to Significant Incident Report.

Victoria

- **Sleeping of blasting shots in mining and quarrying**
  Recently, an increase in blasting delays have been reported which results in the loaded bench being slept (charged explosives remaining loaded in the blasting holes or loaded above ground) for an extended duration. These delays often occur due to breakdown of specialist vehicles, adverse weather, or misfire events. Refer to Safety Alert.

South Australia

- **Danger of explosion when modifying storage drums**
  SafeWork SA is currently investigating an incident in which a worker sustained serious burns whilst cutting into a steel drum using oxy-acetylene equipment. The worker was working alone at the time of the incident. The investigation is continuing. Refer to Safety Alert.

Northern Territory

- **Power tool battery fires**
  Lithium-ion batteries are sensitive to temperature and flammable. They are a serious safety risk to health and safety if used, transported, or stored

incorrectly. Businesses using lithium-ion powered devices are urged to make sure their workers are provided with information, training, and instruction to minimise the risk of flash burns, explosion, and exposure to hazardous chemicals. Businesses and workers who use any equipment fitted with lithium-ion batteries should consider control measures to prevent a similar incident from occurring. Refer to Safety Alert.

New Zealand

- **Fire on front end loader**
  A fire started suddenly in the engine of a front end loader at a quarry. Several extinguishers were used to put the fire out, but ultimately the fire brigade extinguished it. The fire was concentrated around the fuel water separator and could have resulted from fuel or hydraulic leaks. Refer to Safety Alert.
- **Fatal injury during hydraulic hose repair**
  The main hydraulic pressure hose failed on a wheeled loader, requiring replacement. While a mechanic was working under the loader's boom, it slumped unexpectedly fatally pinning the mechanic. Refer to Safety Alert.
- **Fall from height while working on a power screen**
  This safety alert highlights the serious health and safety risks involved when working at height and the need to carry out risk assessments before undertaking routine work carried out at a height. Refer to Safety Alert.
- **Dump truck 'runs' over tray of light vehicle**
  A CAT 789 dump truck was to be serviced by a mechanic in a truck-parking area during a lunch break. The mechanic arrived and parked their light vehicle about three metres in front and slightly off to the left-hand side of the truck. The driver of the adjacent truck was having a break in the cab. The truck driver finished their break, started the truck, and drove forward and to the right out of the parking area. As the truck operator drove from the park the front wheel of the truck just missed the rear of the light vehicle. However, the back wheel ran over the back of the tray. The truck operator drove off unaware of the collision. Refer to Safety Alert.
- **Uncontrolled movement of dozer**
  A mechanic was returning a dozer to a workshop along a sloping haul road. While shifting from reverse to first gear, the first gear would not engage, and the dozer started rolling backwards. As the dozer gathered backward momentum, the mechanic jumped from the cabin to the ground approximately 10 metres from the top of the slope. The dozer continued to travel approximately another 140 metres before stopping on the roadway below. The mechanic sustained no injuries while exiting the cabin and the dozer had minor damage to a window. Refer to Safety Alert.

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 499 incident notifications received in the current quarter. Of these, 32% (161) related to principal hazards, 28% (141) related to principal control plans, with the remainder being other notifiable incidents.

TABLE 1. INCIDENT NOTIFICATIONS CLASSIFIED BY PRINCIPAL HAZARD/PRINCIPAL CONTROL PLAN - JAN 2021 TO MAR 2022

INCIDENT CLASSIFICATION BY PRINCIPAL HAZARD OR PRINCIPAL CONTROL PLAN		FY 2021 Q3	FY 2021 Q4	FY 2022 Q1	FY 2022 Q2	FY 2022 Q3
Principal hazard	Fire or explosion	61	54	67	70	47
	Roads or other vehicle operating areas	45	38	55	35	55
	Air quality or dust or other airborne contaminants	43	52	50	50	28
	Ground or strata failure	27	15	28	18	27
	Spontaneous combustion	6	5	9	1	
	Subsidence	1	2	2	4	3
	Inundation or inrush of any substance	1				1
	Mine shafts and winding systems	2				
	Total	186	166	211	178	161
Principal control plan	Mechanical engineering control plan	42	45	40	57	60
	Electrical engineering control plan and/or Mechanical engineering control plan	38	37	33	48	40
	Electrical engineering control plan	23	23	23	20	13
	Explosives control plan	18	19	11	24	26
	Ventilation control plan	5	1	2	1	2
	Total	126	125	109	150	141
Other	No related principal mining hazard or principal control plan	160	188	176	127	197
GRAND TOTAL		**472**	**479**	**496**	**455**	**499**

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

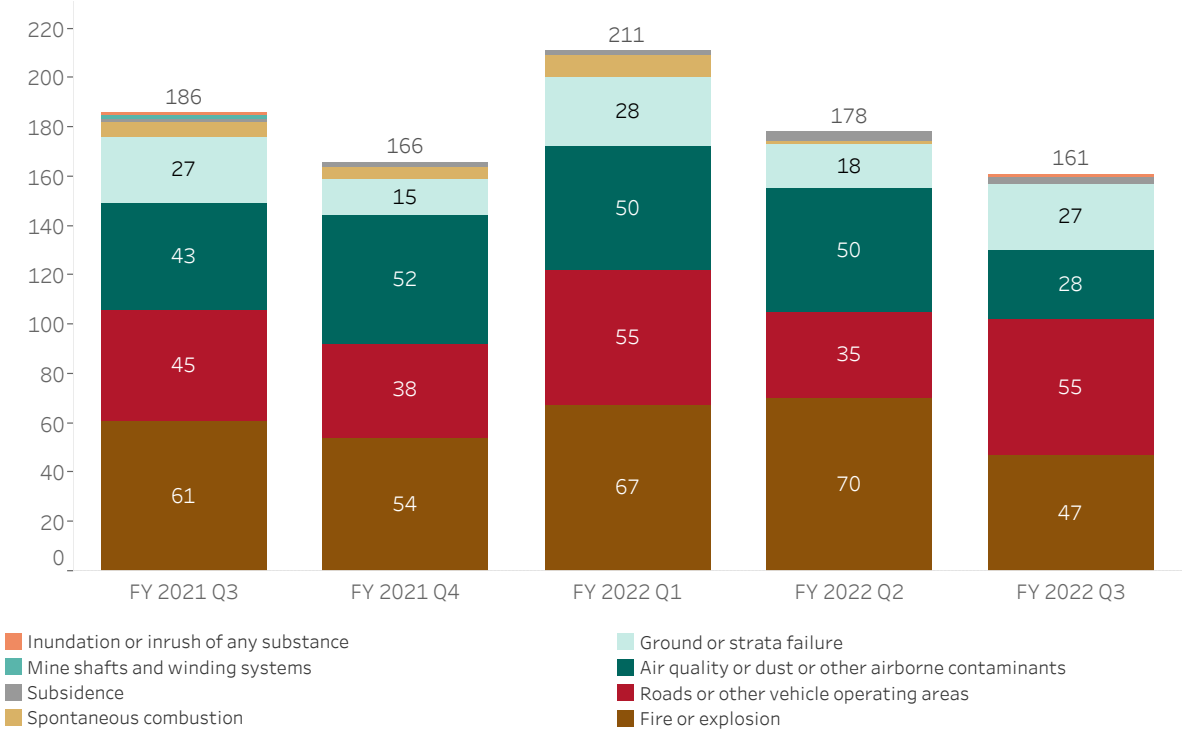
ROADS OR OTHER VEHICLE OPERATING AREAS

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.

FIGURE 1. INCIDENT NOTIFICATIONS RECEIVED BY PRINCIPAL HAZARD JANUARY 2021 TO MARCH 2022

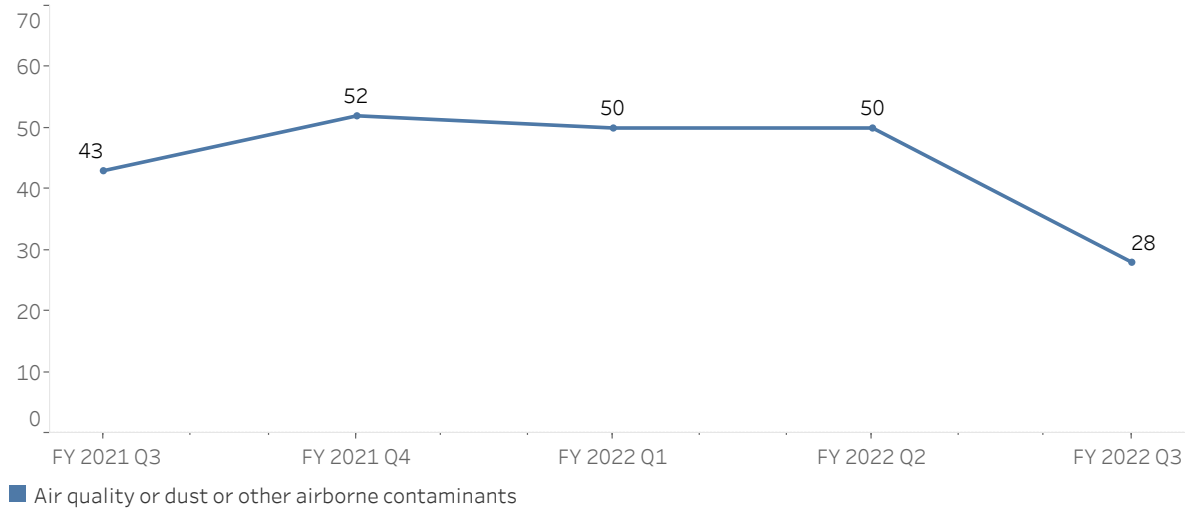


FROM 50
28

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_2) or over several years (coal/silica dust).

FIGURE 2. INCIDENT NOTIFICATIONS RELATED TO THE PRINCIPAL HAZARD AIR QUALITY, DUST OR OTHER AIRBORNE CONTAMINANTS - JANUARY 2021 TO MARCH 2022

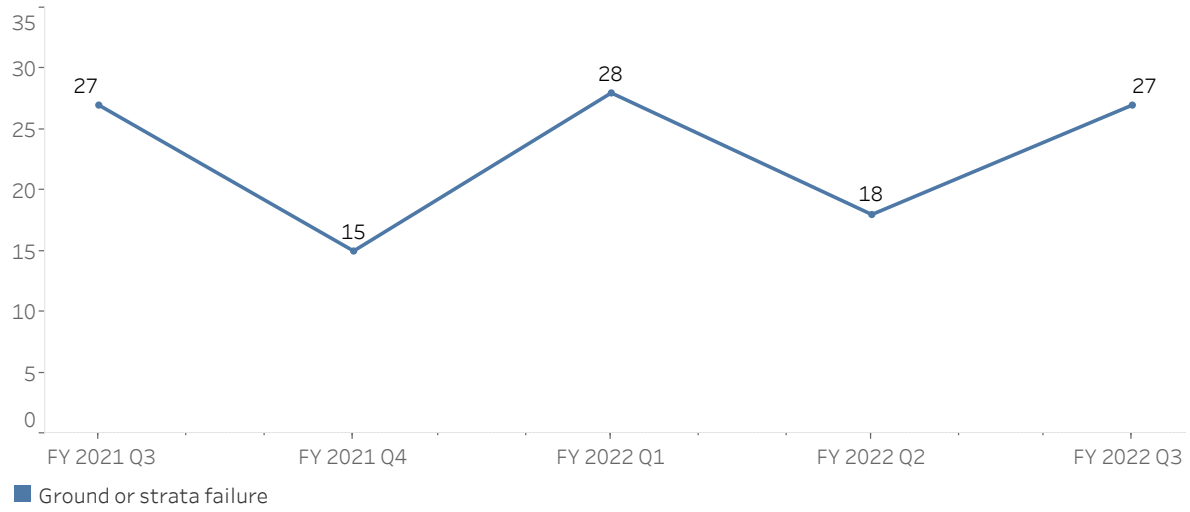


Ground or strata failure

27
FROM 18

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. A safety bulletin, SB22-03 Impacts of severe weather on slope stability, has recently been issued due to the impacts of wet weather on ground stability.

FIGURE 3. INCIDENT NOTIFICATIONS RELATED TO THE PRINCIPAL HAZARD GROUND OR STRATA FAILURE - JANUARY 2021 TO MARCH 2022



DANGEROUS INCIDENT – HIGHWALL FAILURE NEAR OPERATING GRADER

A highwall failed and material breached the exclusion control zone in a known geotechnical hazard area. A grader was operating in the area at the time. The operator felt a vibration, noticed dust and quickly drove away from the highwall. The worker was clear of the falling material.

Comments to industry

Recent highwall failures in NSW mines have resulted in material overwhelming catchment bunds and exclusion zones. Mine operators should ensure an adequate exclusion zone is established based upon the maximum reasonable potential of a failure occurring, including the potential for a failure to extend through to adjacent jointing/faults. Mine operators should also ensure water egress is minimised to highwall crests to reduce the potential of a failure occurring. Refer to Safety Bulletin: SB20-01 Failure of highwalls, low walls and dumps.

Below: Photograph showing the extent of the failure

DANGEROUS INCIDENT – OPERATOR ESCAPES FROM SUNKEN DUMP TRUCK

A dump truck was tipping a load when the ground failed, causing the rear of the truck to sink. The operator was assisted from the truck without injury.

Comments to industry

Tip heads and dumps must have suitable inspection regimes in place. Changes in conditions, such as wet weather, should trigger a change in inspection frequency. Design of dumps and catch bunds should consider areas where water can accumulate. When dumping near bodies of water or mud, strict controls should be implemented based on robust risk assessment processes. Refer to Safety Bulletin: SB20-01 Failure of highwalls, low walls and dumps.

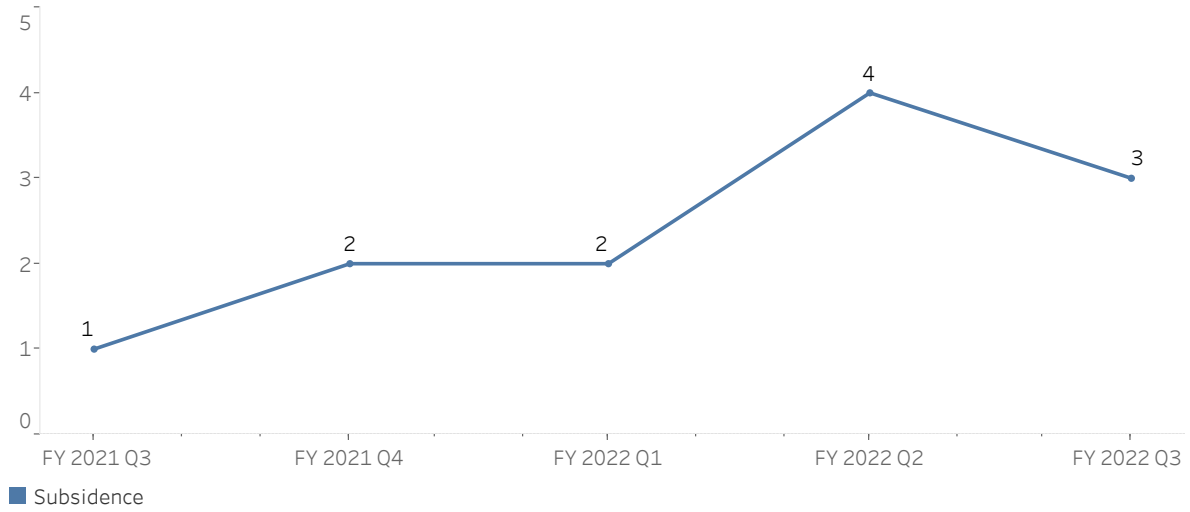
Below: The dump truck being stabilised by two dozers.

FROM 4
3

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 - JANUARY 2021 TO MARCH 2022

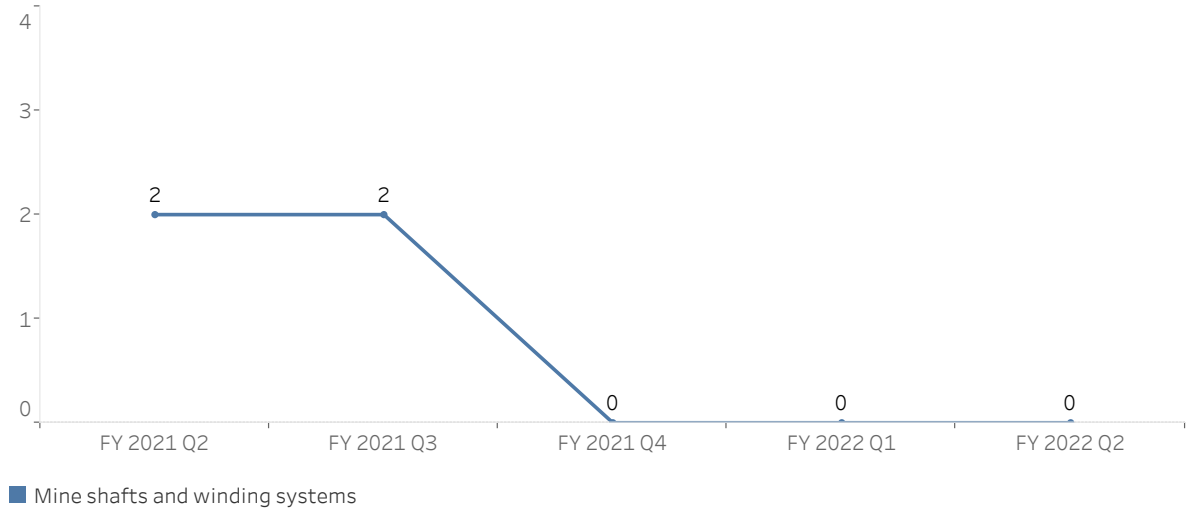


Mine shafts and winding systems

NO CHANGE
0

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 5. INCIDENT NOTIFICATIONS RELATED TO THE PRINCIPAL HAZARD MINE SHAFTS AND WINDING SYSTEMS - JANUARY 2021 TO MARCH 2022



OPAL MINING VIDEO LAUNCHED TO IMPROVE SAFETY FOR PEOPLE WORKING IN SHAFTS AND AT HEIGHT

The Resources Regulator has published a video to increase awareness within the opal mining community of the risks of working at height and working in shafts.

Falls from height are a significant safety risk that can lead to serious injury or death and we are committed to working closely with the opal industry to improve safety outcomes.

The falls from height safety awareness video was produced in partnership with the Lightning Ridge mining community and highlights the impact that safety incidents can have on family, friends and colleagues.

More information is available in the media release and the video can be accessed on our YouTube channel.

NO CHANGE
0

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.

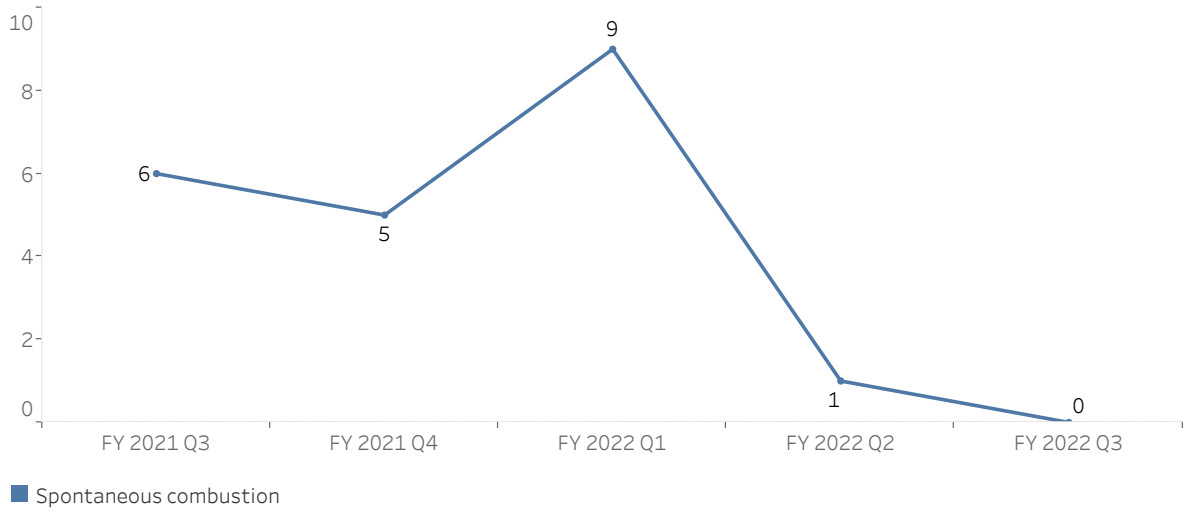
This hazard also includes the liberation of gases that can asphyxiate, explode or fuel a fire. These circumstances make this a principal hazard in NSW.

FROM 1
0

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 6. INCIDENT NOTIFICATIONS RELATED TO THE PRINCIPAL HAZARD SPONTANEOUS COMBUSTION - JANUARY 2021 TO MARCH 2022

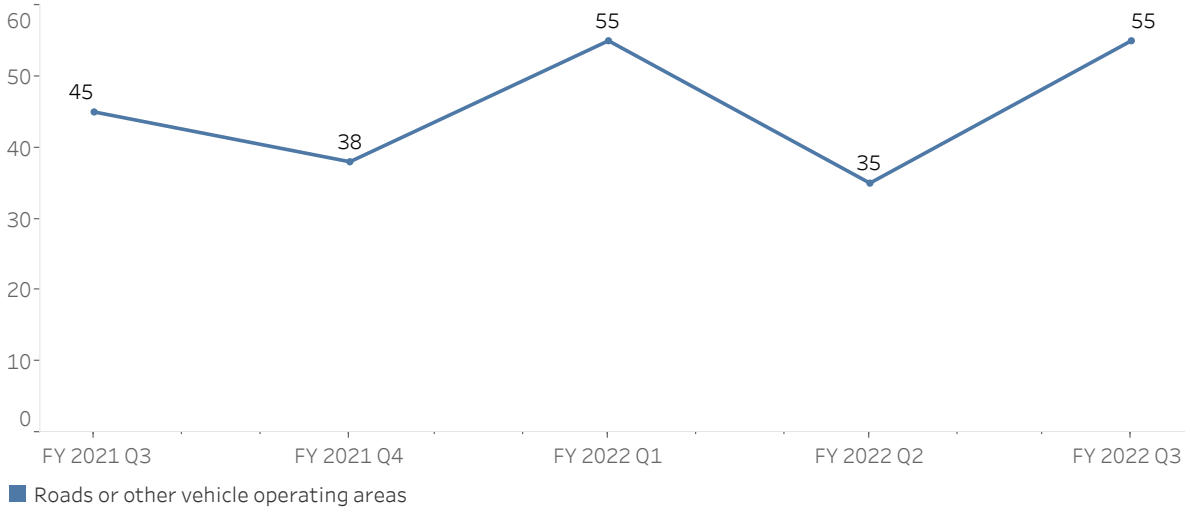


Roads or other vehicle operating areas

55
FROM 35

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 7. INCIDENT NOTIFICATIONS RELATED TO THE PRINCIPAL HAZARD ROADS OR OTHER VEHICLE OPERATING AREAS - JANUARY 2021 TO MARCH 2022



DANGEROUS INCIDENT– HAUL TRUCK MISS TURNS INTO ONCOMING TRAFFIC

A truck hauling reject incorrectly turned left into an outgoing lane intersection. A light vehicle was approaching the intersection. The operator of the vehicle identified the truck and came to a stop before the intersection. The truck identified the vehicle as it began its left-hand turn, at which point the vehicle was about 25 metres away from the intersection.

Comments to industry

Mine operators must ensure they have appropriate controls in place to manage the risks associated with heavy and light vehicle interactions. Mine operators must ensure all roadways, intersections and park up areas are designed, constructed, and maintained to safely manage interactions between mobile plant and light vehicles. Refer to Safety Alert: SA20-09 Operating mobile plant - Incidents and near misses.

Below: Aerial view showing the truck's intended and actual travel paths.

DANGEROUS INCIDENT – HAUL TRUCK LOSS OF CONTROL (LOC) INCIDENT

A haul truck lost control on a wet and muddy area of a roadway and collided with a stationary haul truck. The truck had stopped due to the poor roadway conditions. The ground was wet due to a machine having been washed down in the area.

Comments to industry

Vehicle collisions on mine sites continue to be a source of concern for the Resources Regulator. A recently published report shows that in relation to a high number of vehicle incidents in the surface coal sector:

- documentation relating to controls for roads or other vehicle operating areas was not relevant, current, or readily available
- active roads and intersections were not constructed to site standard or design guidelines.

Mine operators should:

- have verification processes in place to measure compliance with site road design and construction procedures
- ensure that supervision arrangements are adequate and area inspections are detailed enough to identify all the hazards.

All personnel who operate rubber-tyred, heavy mining equipment should be trained on driving techniques in wet conditions.

Refer to Managing roads or other vehicle operating areas in the surface coal sector.

Below: Area of wet ground and position of haul truck

DANGEROUS INCIDENT - FORKLIFT DRIVER HELPED BY SEATBELT

While travelling back to the workshop, a forklift stopped to give way to another vehicle. As the forklift moved off it hit the 'Give Way' sign and overturned. The operator was wearing a seatbelt at the time of the incident and was uninjured.

Comments to industry

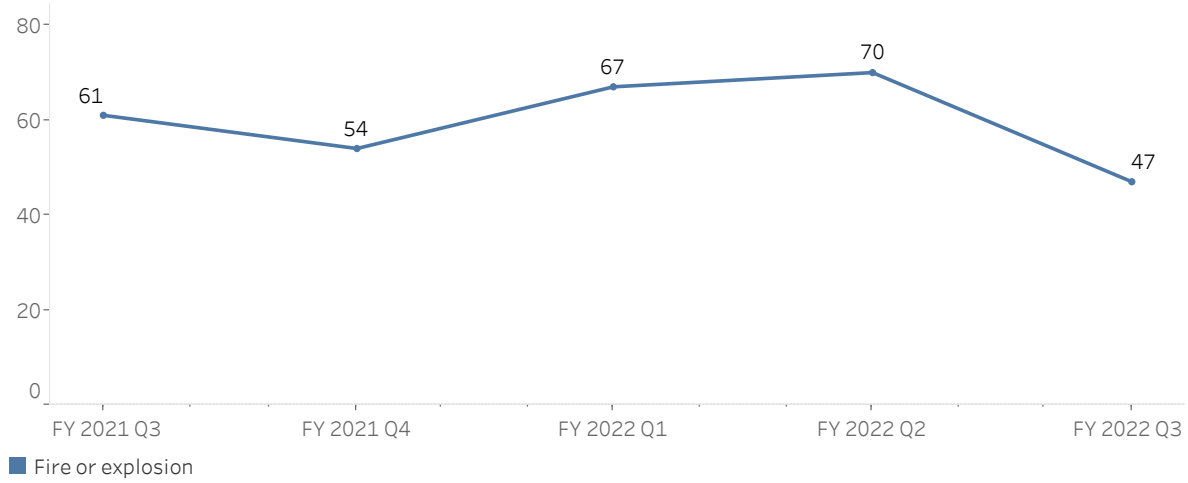
Mine operators should communicate this incident to their workers and reinforce relevant controls and the use of seatbelts. Equipment operators should maintain awareness of the environment around them and, before commencing travel should check their surrounds for hazards. Refer to Safety Alert- SA13-09 Seatbelt saves forklift driver.

Below: The forklift on its side after overturning.

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 8. INCIDENT NOTIFICATIONS RELATED TO THE PRINCIPAL HAZARD FIRE OR EXPLOSION - JANUARY 2021 TO MARCH 2022



DANGEROUS INCIDENT – MOBILE MANUFACTURING UNIT TRUCK FIRE

A fire occurred on a mobile manufacturing unit truck after it returned empty from the pit. The operator was checking the machine and observed a flame coming from above a cover over exhaust components behind the rear of the cab. Flames were visible about 10 cm high at the top of the cover. He extinguished the flame with a hand-held extinguisher. A preliminary investigation indicated that small amounts of explosive emulsion dripped off the delivery hose and accumulated on top of the cover.

The build-up contaminated the insulation behind the cover and on top of the unshielded exhaust components. The heat from the exhaust components ignited the hydrocarbons in the explosive product, resulting in a small fire.

Comments to industry

Owners of mobile manufacturing units should assess potential ignition points that make contact with raw or finished product. Areas where spillage may accumulate should have engineering controls in place to minimise the risk of fire. Mobile manufacturing unit operators should regularly inspect for spillage and should be trained to manage any spillage of emulsion.

Below: Exhaust components showing area of flames.

DANGEROUS INCIDENT– FIRE ON SPRAY RIG

A spray rig was being trammed up the decline when it stopped to allow traffic to pass. The operator exited the rig and noticed smoke coming from the offside near the exhaust. The operator extinguished the fire using a hand-held fire extinguisher.

Comments to industry

Hose management and protection is critical in preventing fires on mobile plant. Rubbing hoses are a well-known cause. Mine operators must have a system in place to identify defects and poor hose standards, assess the criticality and put controls in place to prevent a fire. MDG15 Guideline for mobile and transportable plant for use at mines (other than underground coal mines) and AS 5062 Fire protection for mobile and transportable equipment provide guidance for mines.

For more resources, refer to our webpage Fires on mobile plant safety.

Below: Poor hose standards can lead to fires.

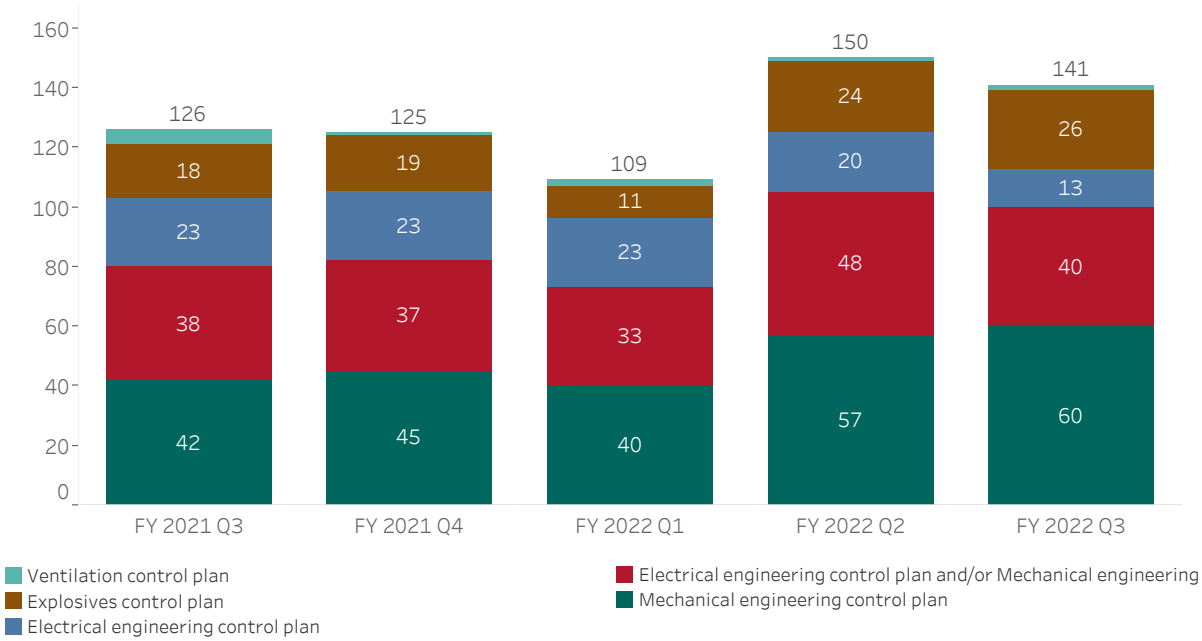
Principal control plans

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 9. INCIDENT NOTIFICATIONS RECEIVED BY PRINCIPAL CONTROL PLANS - JANUARY 2021 TO MARCH 2022

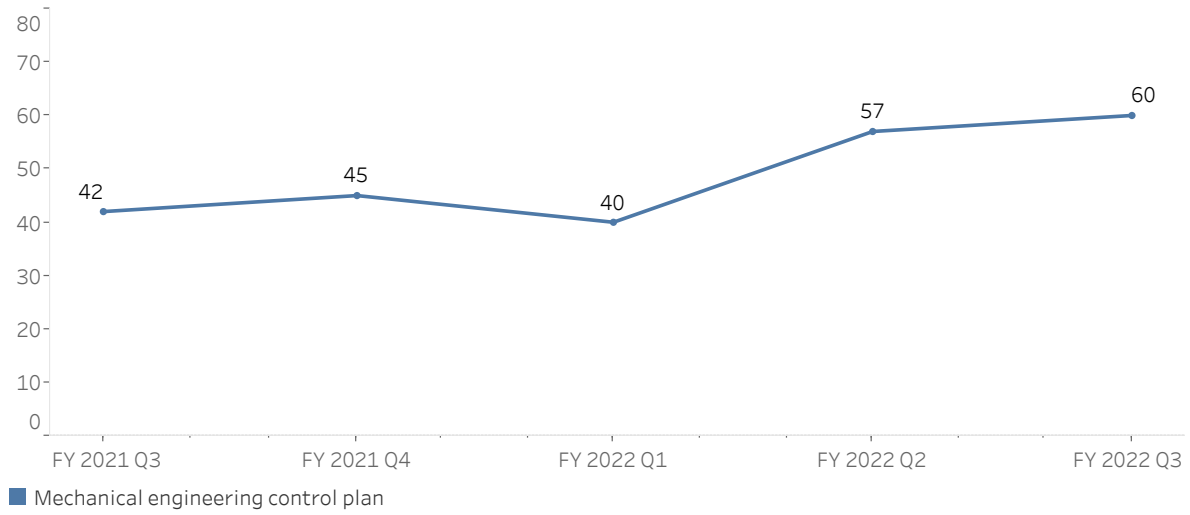


Mechanical engineering control plan

60
FROM 5740

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 10. INCIDENT NOTIFICATIONS RELATED TO MECHANICAL ENGINEERING CONTROL PLANS - JANUARY 2021 TO MARCH 2022



DANGEROUS INCIDENT – LOAD FAILURE UNDER INVESTIGATION

While lifting a motor stator up to the motor room of a winder, the overhead motor room crane stopped when the load was about 10 metres from ground level. The crane brake failed to hold the load, causing the load to descend in an uncontrolled manner to the ground floor, landing on the transport frame. No-go zones were implemented for the task and nobody was injured.

Comments to industry

The cause of this incident is under investigation and further information may be published later. Incidents such as this serve as a reminder of the need to have no-go zones and/or safe standing zones in place where there is a possibility for energy release such as objects falling from a height.

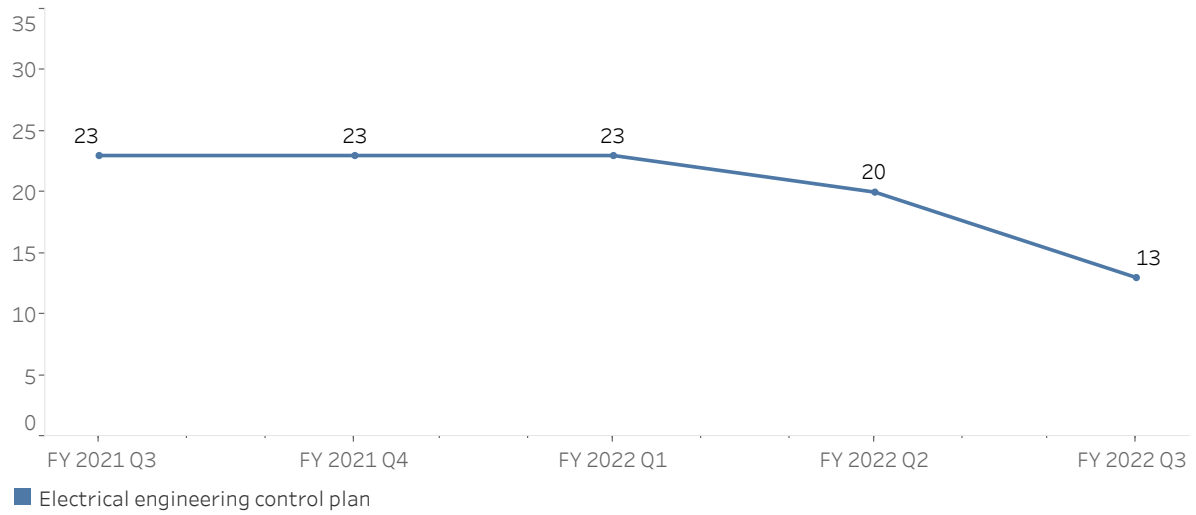
Below: Resting place of the fallen motor section.

FROM 20 13

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 11. INCIDENT NOTIFICATIONS RELATED TO ELECTRICAL ENGINEERING CONTROL PLANS - JANUARY 2021 TO MARCH 2022



DANGEROUS INCIDENT - JUMBO OPERATOR SHOCKED

A jumbo offsider suffered an electric shock while in contact with both the jumbo and the rib mesh. The offsider suffered the shock when the electrical supply to the machine was restored after moving the jumbo forward.

Comments to industry

The electrical engineering control plan for a mine must set out the control measures to manage risks to health and safety from electricity at each mine. When developing the control plan all electrical sources need to be considered including induced and static charge. Refer to SB20-03 Electric shocks in the mining industry.

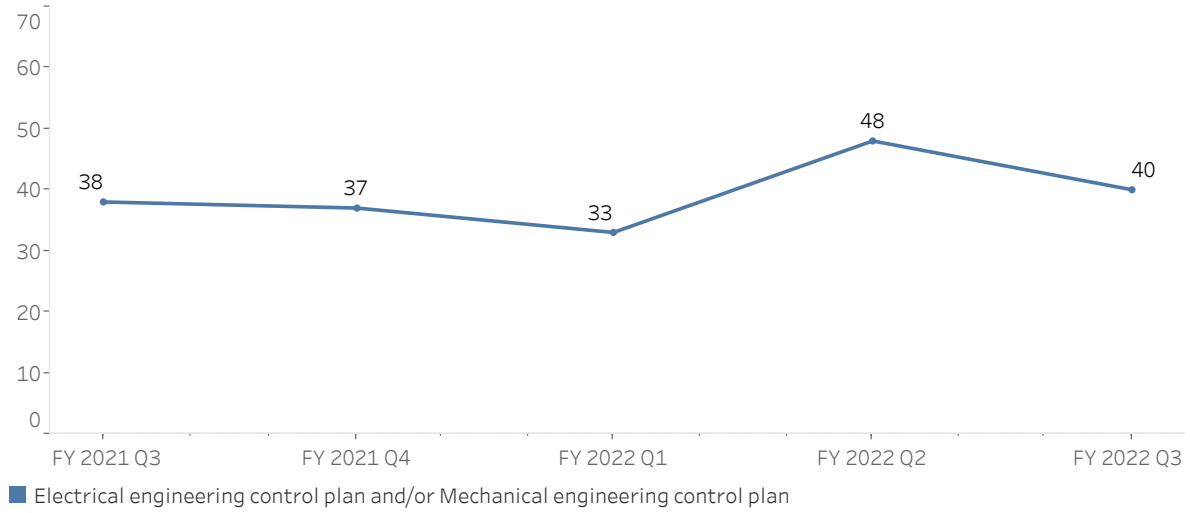
Below: Circuit breaker and control cabinet.

FROM 48
40

Electrical and mechanical engineering control plans

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

FIGURE 12. INCIDENT NOTIFICATIONS RELATED TO THE ELECTRICAL AND/OR MECHANICAL ENGINEERING CONTROL PLANS - JANUARY 2021 TO MARCH 2022

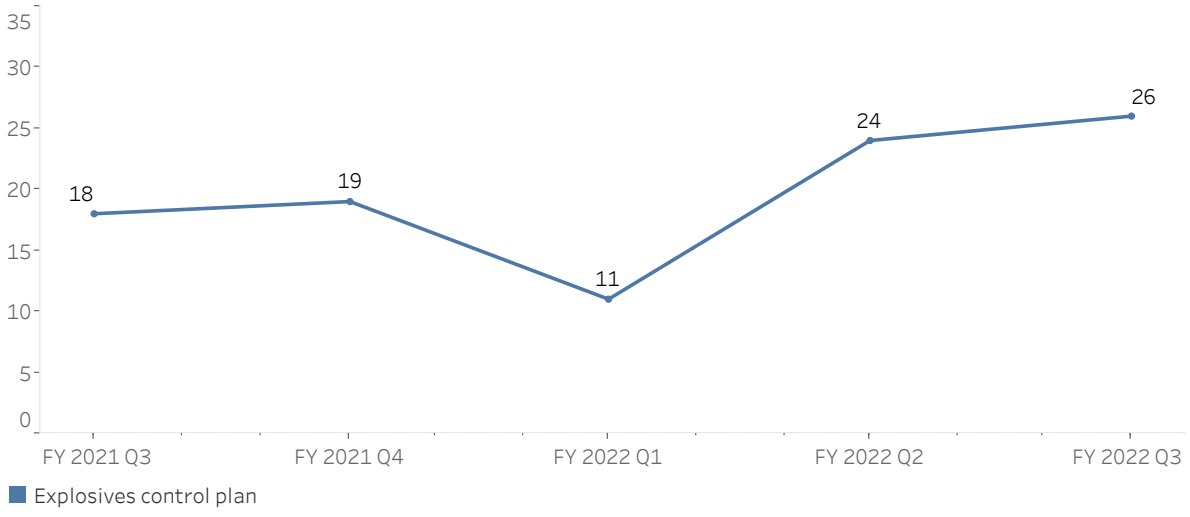


26
FROM 24

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 13. INCIDENT NOTIFICATIONS RELATED TO EXPLOSIVES CONTROL PLANS - JANUARY 2021 TO MARCH 2022



DANGEROUS INCIDENT - PREMATURE DETONATION DURING PLANNED SHOT

A blast hole prematurely detonated while preparing for a shot. There were eight personnel on foot and an additional three within machinery on the pattern. The minimum distance between the hole and personnel was about 100 metres. The shot hole was loaded on the day of the incident and recorded at 34-degree Celsius. One hour after the hole was loaded with emulsion, it prematurely detonated.

Comments to industry

This incident is under investigation and further information may be published later. Mine operators must have procedures when loading hot and reactive ground. Procedures must include timeliness of loading and firing and the control of persons on the shot. Adequate supervision must be in place to ensure compliance to shot firing procedures.

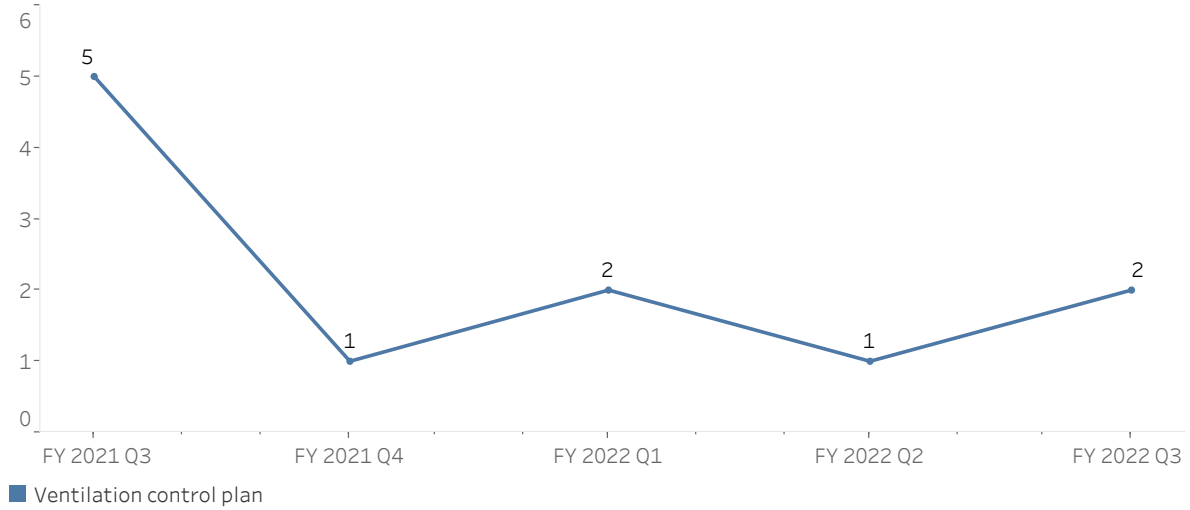
Below: Aerial view of shot area.

Ventilation control plan

2 FROM 1

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 14. INCIDENT NOTIFICATIONS RELATED TO VENTILATION CONTROL PLANS - JANUARY 2021 TO MARCH 2022



In the spotlight
Changes to COVID-19 rules

CRITICAL WORKER SELF ISOLATION EXEMPTION REVISED

The Minister for Health, being satisfied that it is necessary to protect the health, welfare, safety and wellbeing of members of the public, granted amendments to the exemption under clause 15 of the Public Health (COVID-19 Self-Isolation) Order (No 4) 2021 (the Order).

The critical worker exemption under the Public Health (COVID-19 Self-Isolation) Order (No 4) 2021 has been revised and it adds workers from the following categories.

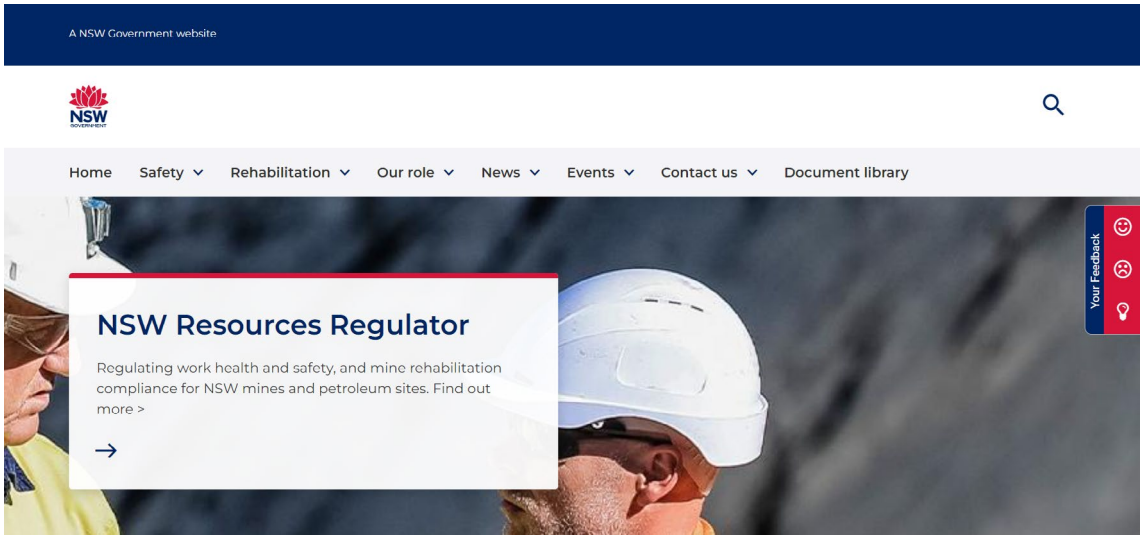
- Persons who are employed or engaged to undertake statutory functions under Schedule 10 of the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014
- A person who is employed or engaged at a major hazard facility, as defined in the Work Health and Safety Regulation 2017, and who is necessary to ensure the critical safety of the facility

For more information, view the Critical Worker Exemption from the Public Health (COVID-19 Self-Isolation) Order (No4). Use the following link for the full Public Health Orders and restrictions.

In the spotlight
Improved website: Digital data now more accessible

The Resources Regulator launched its new and improved website late last year. The website improves the overall user experience and has a focus on mobile device usability. The new site has also been designed to meet best practice and accessibility standards.

We hope you enjoy the new site and the new layout. We welcome your feedback to assist us with ongoing improvements to the website. Please email any feedback or suggestions to industry.engagement@planning.nsw.gov.au.



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.

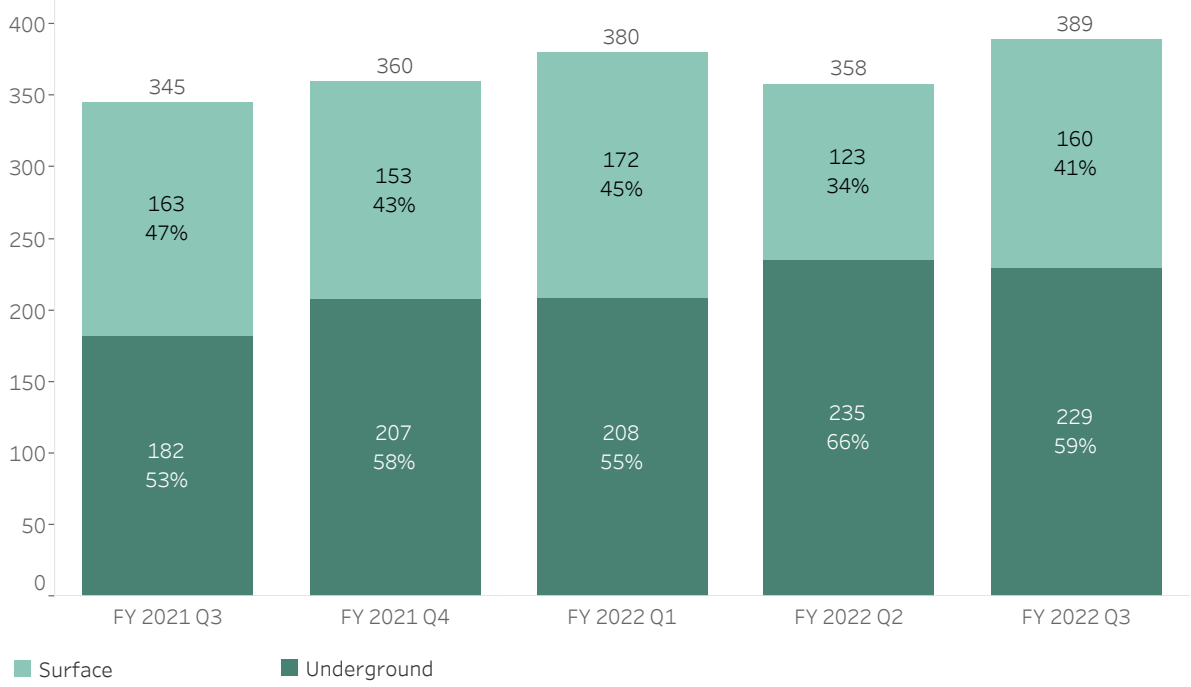
This quarter saw an increase in incidents reported by the coal sector.

TABLE 2. COAL SECTOR INCIDENT NOTIFICATION RECEIVED RATES - JANUARY 2021 - MARCH 2022

MEASURE	FY 2021 Q3	FY 2021 Q4	FY 2022 Q1	FY 2022 Q2	FY 2022 Q3
Incidents	345	360	380	358	389
Active mines	118	118	117	119	119
Incident rate per active mine	2.92	3.05	3.25	3.01	3.27
Mines that notified incidents	51	48	54	51	50
% of mines notifying an incident	43%	41%	46%	43%	42%
Incident rate per notifying mine	6.76	7.50	7.04	7.02	7.78

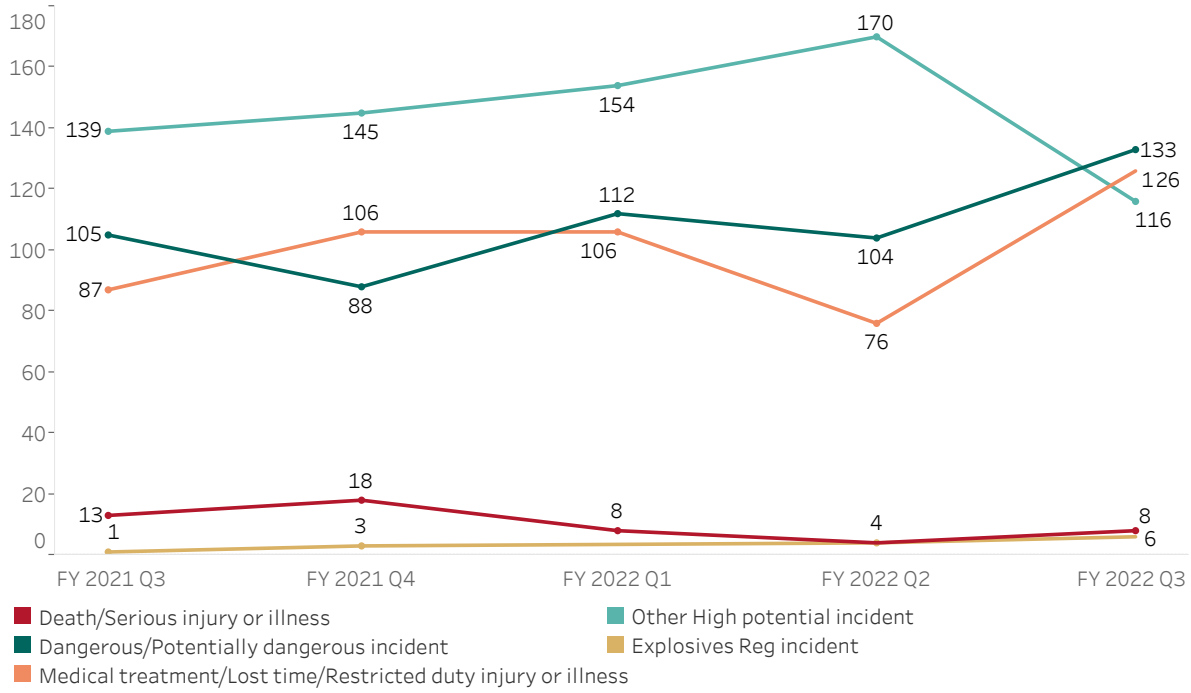
The following graph shows the proportion of safety incident notifications received from surface and underground coal operations. This quarter saw an increase in incident notifications in surface coal mines and a small decrease in underground coal mines.

FIGURE 15. COAL SECTOR INCIDENT NOTIFICATIONS BY OPERATION TYPE - JANUARY 2021 TO MARCH 2022



The graph below presents a breakdown of safety incidents notified by the coal sector by the requirement to report. This quarter saw substantial increases in notifications of dangerous/potentially dangerous incidents and medical treatment/ lost time/restricted duties injuries and illnesses, with smaller increases observed in death/serious injuries and illness and explosives incidents. A decrease was seen in other high potential incidents.

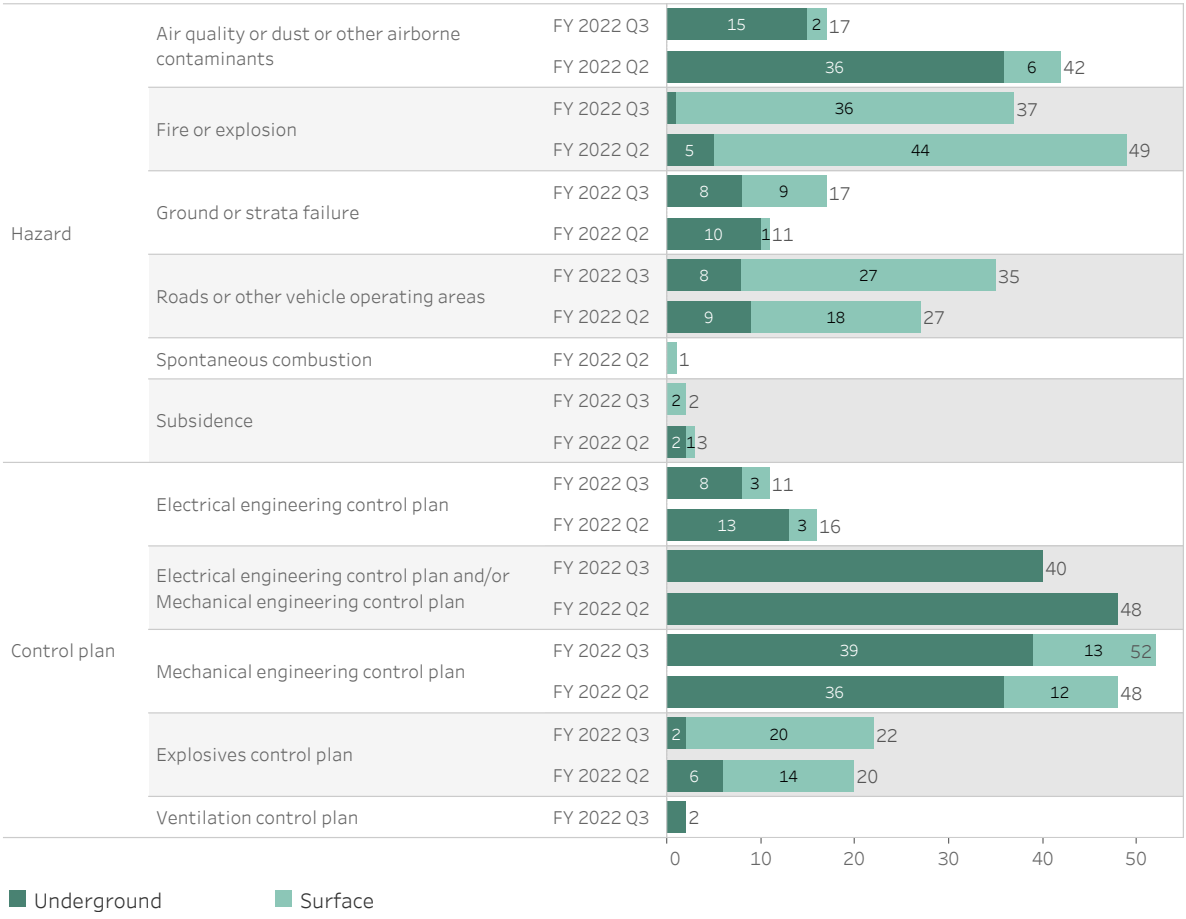
FIGURE 16. COAL SECTOR INCIDENT NOTIFICATIONS BY REQUIREMENT TO REPORT - JANUARY 2021 TO MARCH 2022



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 17. COAL MINE INCIDENTS CLASSIFIED BY PRINCIPAL HAZARD BY OPERATION TYPE - OCTOBER 2021 TO MARCH 2022



Large mines sector

Incident notifications

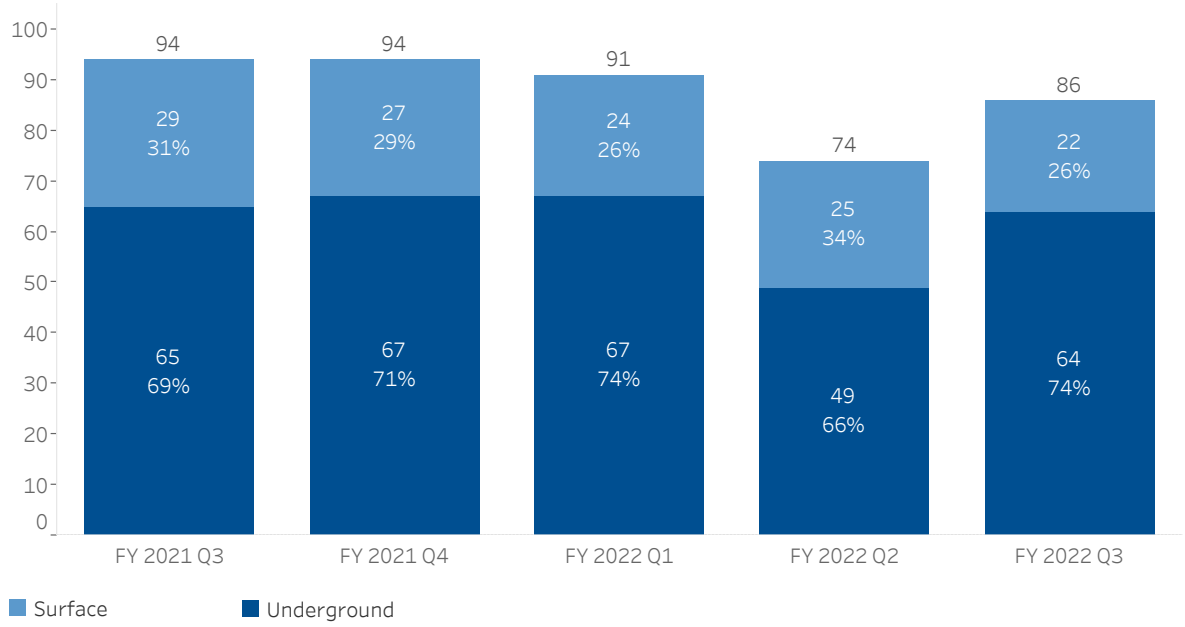
Under work health and safety legislation, mine operators must notify the regulator about the occurrence of certain types of safety incidents. Incident notification data (by active mine) provides insights into sector specific reporting trends. The increased number of active mines seen from Q4 2021 reflects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

TABLE 3. LARGE MINES AND QUARRIES SECTOR INCIDENT NOTIFICATIONS RECEIVED RATES - JANUARY 2021 TO MARCH 2022

MEASURE	FY 2021 Q3	FY 2021 Q4	FY 2022 Q1	FY 2022 Q2	FY 2022 Q3
Incidents	94	94	91	74	86
Active mines	44	62	59	59	58
Incident rate per active mine	2.14	1.52	1.54	1.25	1.48
Mines that notified incidents	29	28	27	24	24
% of mines notifying an incident	66%	45%	46%	41%	41%
Incident rate per notifying mine	3.24	3.36	3.37	3.08	3.58

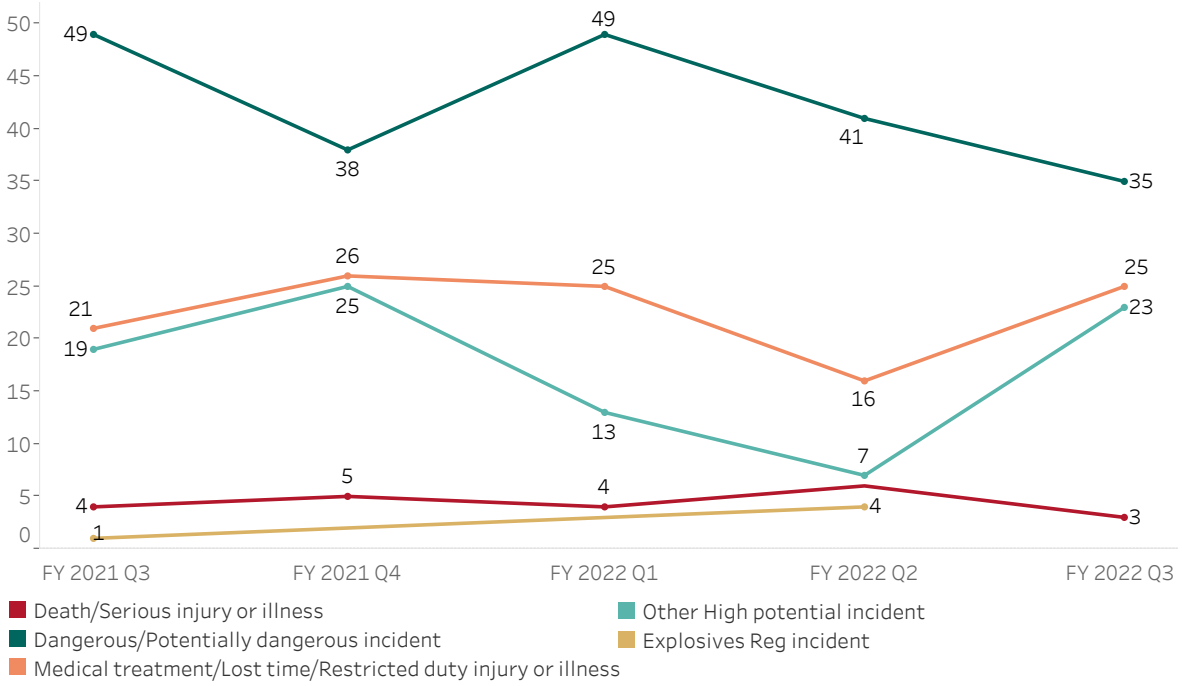
The following graph shows the proportion of safety incident notifications received from large mines and quarries by operation types. Consistently, underground large mines and quarries notify around 70% of all incidents for the sector.

FIGURE 18. LARGE MINES AND QUARRIES INCIDENT NOTIFICATIONS BY OPERATION TYPE - JANUARY 2021 TO MARCH 2022



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 dangerous/potentially dangerous incidents have continued to decrease this quarter, with increases observed in other high potential incidents and medical treatment/lost time/ restricted duty injuries and illnesses.

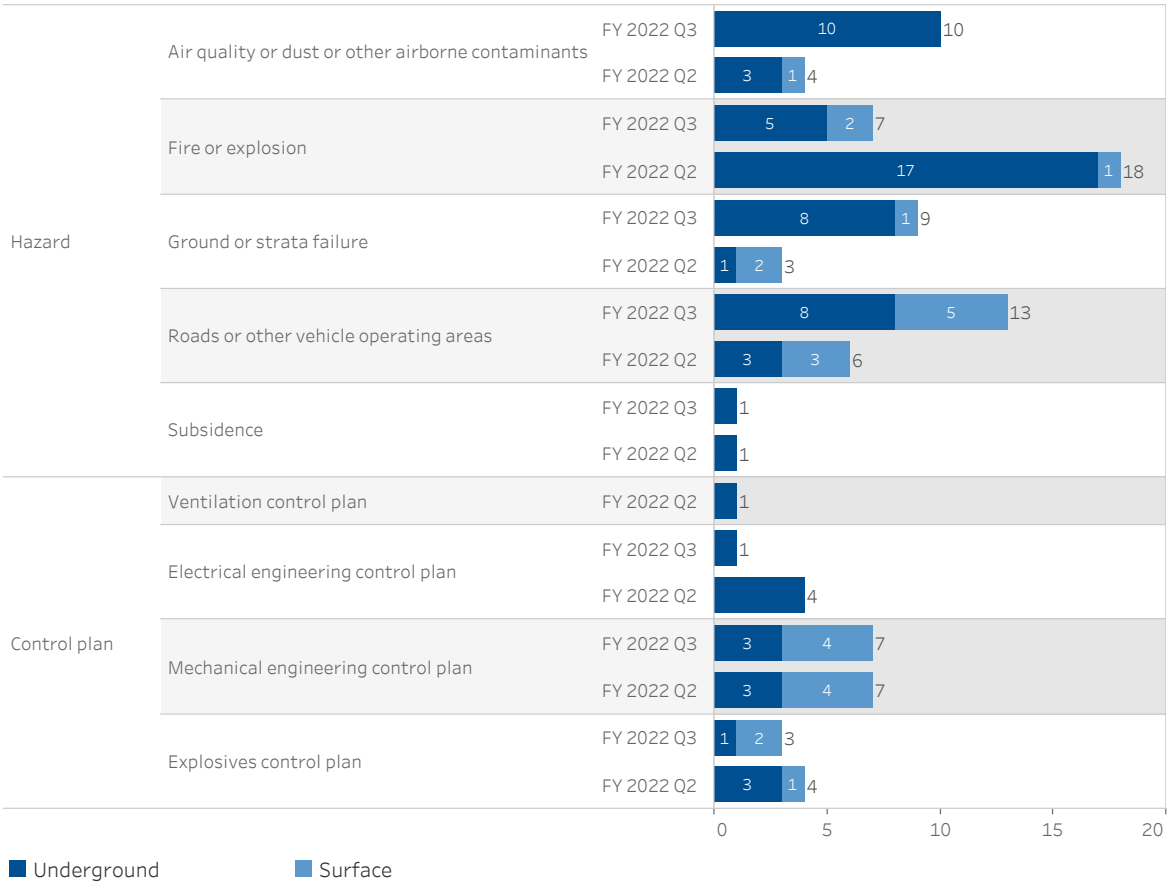
FIGURE 19. LARGE MINES AND QUARRIES INCIDENT NOTIFICATIONS BY REQUIREMENT TO REPORT - JANUARY 2021 TO MARCH 2022



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 hazards where mine operators need to ensure their risk management controls remain fully effective. This includes controls for managing hazards associated with fire or explosion and roads or other vehicle operating areas.

FIGURE 20. LARGE MINES AND QUARRIES INCIDENTS CLASSIFIED BY PRINCIPAL HAZARD BY OPERATION TYPE - OCTOBER 2021 TO MARCH 2022



Small mines sector

Incident notifications

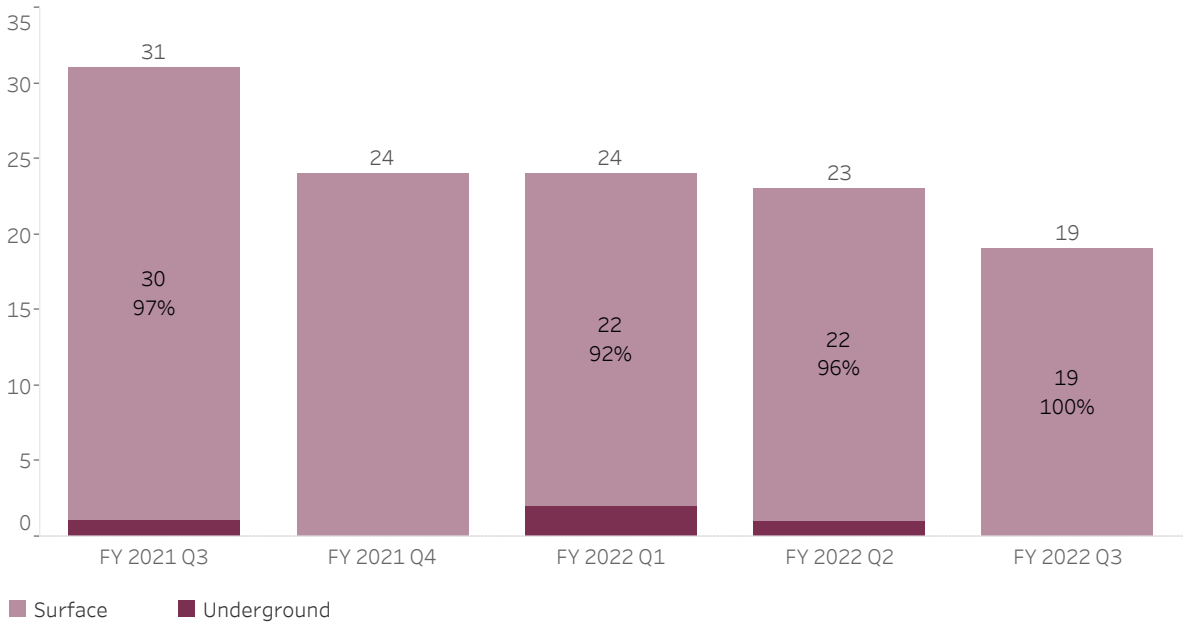
Under work health and safety legislation, mine operators must notify the regulator about the occurrence of certain types of safety incidents. Incident notification data (by active mine) provides insights into sector specific reporting trends.

TABLE 4. SMALL MINES AND QUARRIES SECTOR INCIDENT NOTIFICATIONS RECEIVED RATES - JANUARY 2021 TO MARCH 2022

MEASURE	FY 2021 Q3	FY 2021 Q4	FY 2022 Q1	FY 2022 Q2	FY 2022 Q3
Incidents	31	24	24	23	19
Active mines	2624	2588	2591	2592	2591
Incident rate per active mine	0.01	0.01	0.01	0.01	0.01
Mines that notified incidents	28	22	20	22	18
% of mines notifying an incident	1.07%	0.85%	0.77%	0.85%	0.69%
Incident rate per notifying mine	1.11	1.09	1.20	1.05	1.06

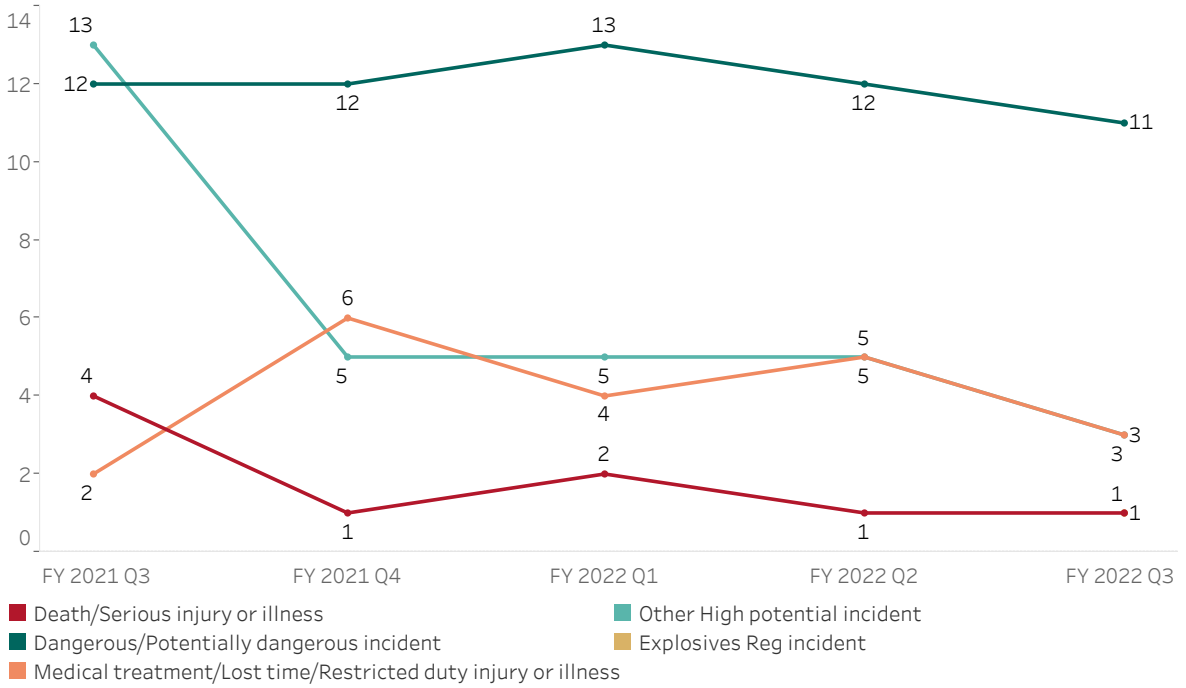
The following graph shows the proportion of safety incident notifications received from small mines and quarries.

FIGURE 21. SMALL MINES AND QUARRIES INCIDENT NOTIFICATIONS BY OPERATION TYPE - JANUARY 2021 TO MARCH 2022



The following graph presents a breakdown of safety incidents notified by the small mines sector by the requirement to report. This quarter saw decreases in dangerous/potentially dangerous incidents and other high potential incidents, as well as medical treatment/lost time/restricted duty injuries and illnesses. Comparatively, the number of incidents notified by the sector is substantially lower than what is reported by the coal and large mines and quarries sectors.

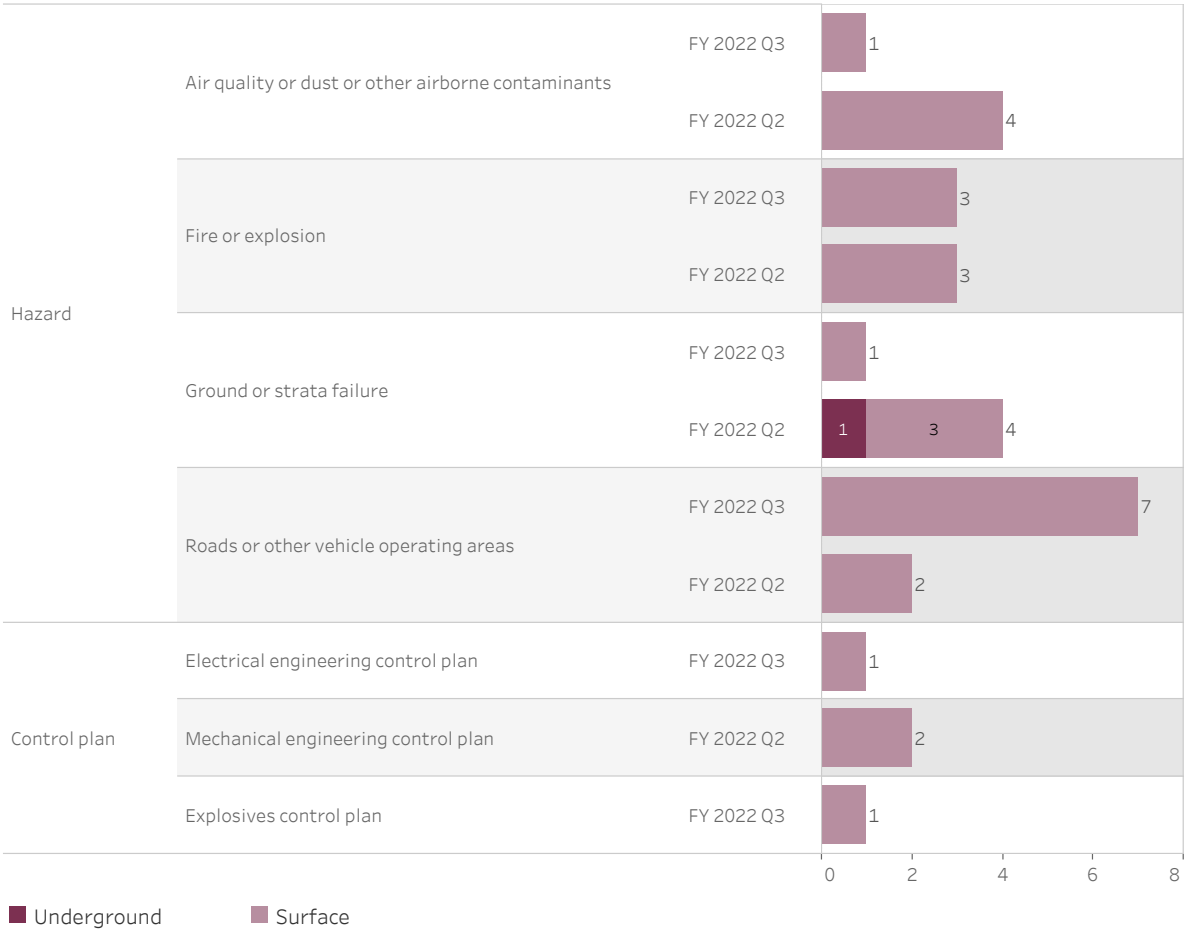
FIGURE 22. SMALL MINES AND QUARRIES INCIDENT NOTIFICATIONS RECEIVED BY REQUIREMENT TO REPORT - JANUARY 2021 TO MARCH 2022



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 23. SMALL MINES AND QUARRIES INCIDENTS CLASSIFIED BY PRINCIPAL HAZARD BY OPERATION TYPE - OCTOBER 2021 TO MARCH 2022



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 - JANUARY 2021 TO MARCH 2022

SECTOR	FY 2021 Q3	FY 2021 Q4	FY 2022 Q1	FY 2022 Q2	FY 2022 Q3
Petroleum and geothermal sites*	0	0	0	0	0
Opal mines	0	0	0	0	0
Explorations sites**	2	1	1	0	5

** includes exploration*

*** excludes petroleum and geothermal*

TABLE 6. EXPLORATION SITES INCIDENT NOTIFICATIONS BY REQUIREMENT TO REPORT - JANUARY 2021 TO MARCH 2022

REQUIREMENT TO REPORT	FY 2021 Q3	FY 2021 Q4	FY 2022 Q1	FY 2022 Q2	FY 2022 Q3
Death/serious injury or illness	1	1	1	0	0
Dangerous/potentially dangerous incident	0	0	0	0	1
Medical treatment/lost time/restricted duty injury or illness	1	0	0	0	4
TOTAL	2	1	1	0	5

TABLE 7. EXPLORATION SITES INCIDENT NOTIFICATIONS BY PRINCIPAL HAZARD - JANUARY 2021 TO MARCH 2022

CLAUSE PH/PCP MAPPING	FY 2021 Q3	FY 2021 Q4	FY 2022 Q1	FY 2022 Q2	FY 2022 Q3
Mechanical engineering control plan	0	0	0	0	1
No related principal mining hazard or principal control plan	2	1	1	0	4
TOTAL	2	1	1	0	5

Compliance and enforcement

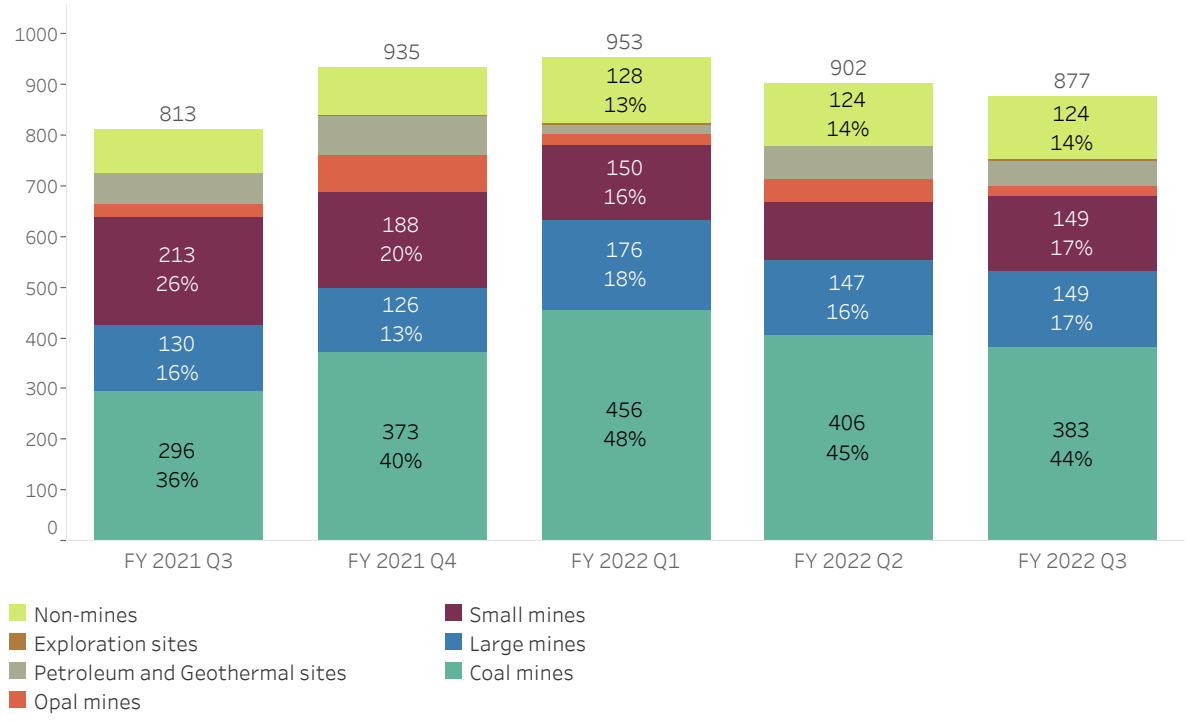
The Regulator uses a range of tools to promote and secure compliance in mines and petroleum sites in relation to work health and safety legislation. These include desktop assessments, site inspections, investigations and enforcement actions, such as issuing notices and commencing prosecutions.

Detailed information regarding compliance activities, priorities, outcomes and reports are published on our website.

Safety assessments by sector

This quarter saw increases in the number of assessments in the large and small mines sectors and decreases in all other sectors, except non-mines.

FIGURE 24. SAFETY ASSESSMENTS BY SECTOR - JANUARY 2021 TO MARCH 2022



Safety assessments by category and nature

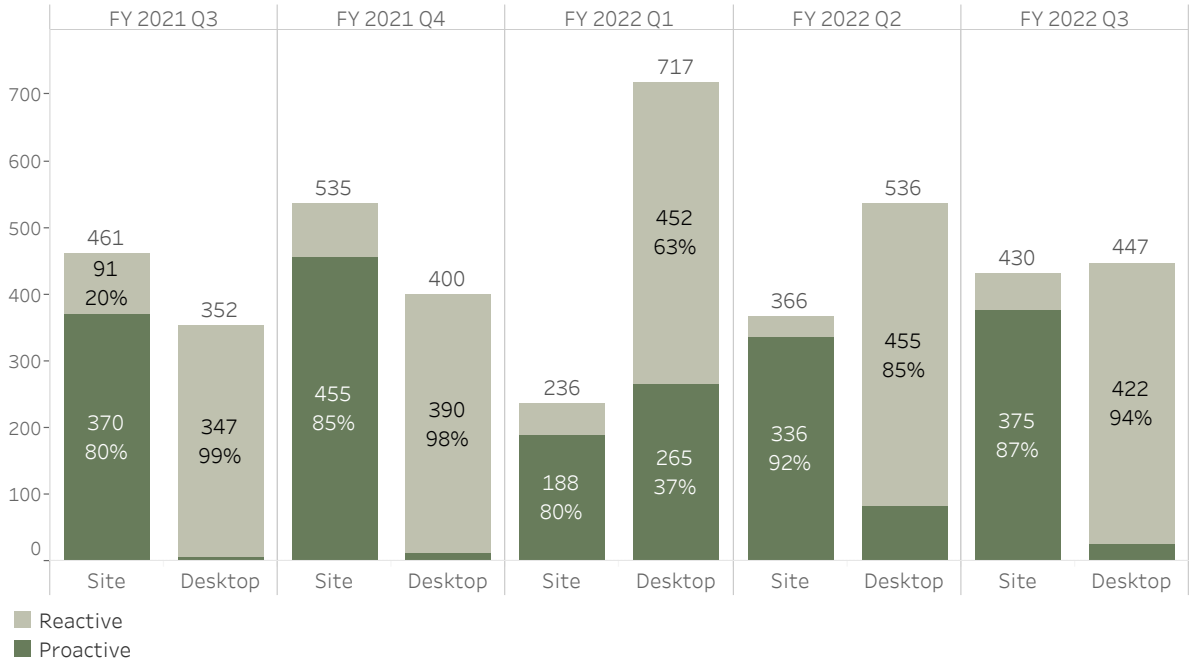
Site-based (visiting mine sites) and desktop activities are both important regulatory tools. While the main focus of our on-site compliance activity is on preventing incidents through planned risk-based proactive assessments, our desktop activities are mainly reactive.

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, however these were at the lowest level seen for the past three quarters.

Site assessments have increased this quarter while desktop assessment have decreased.

FIGURE 25. SAFETY ASSESSMENTS BY CATEGORY AND NATURE - JANUARY 2021 TO MARCH 2022

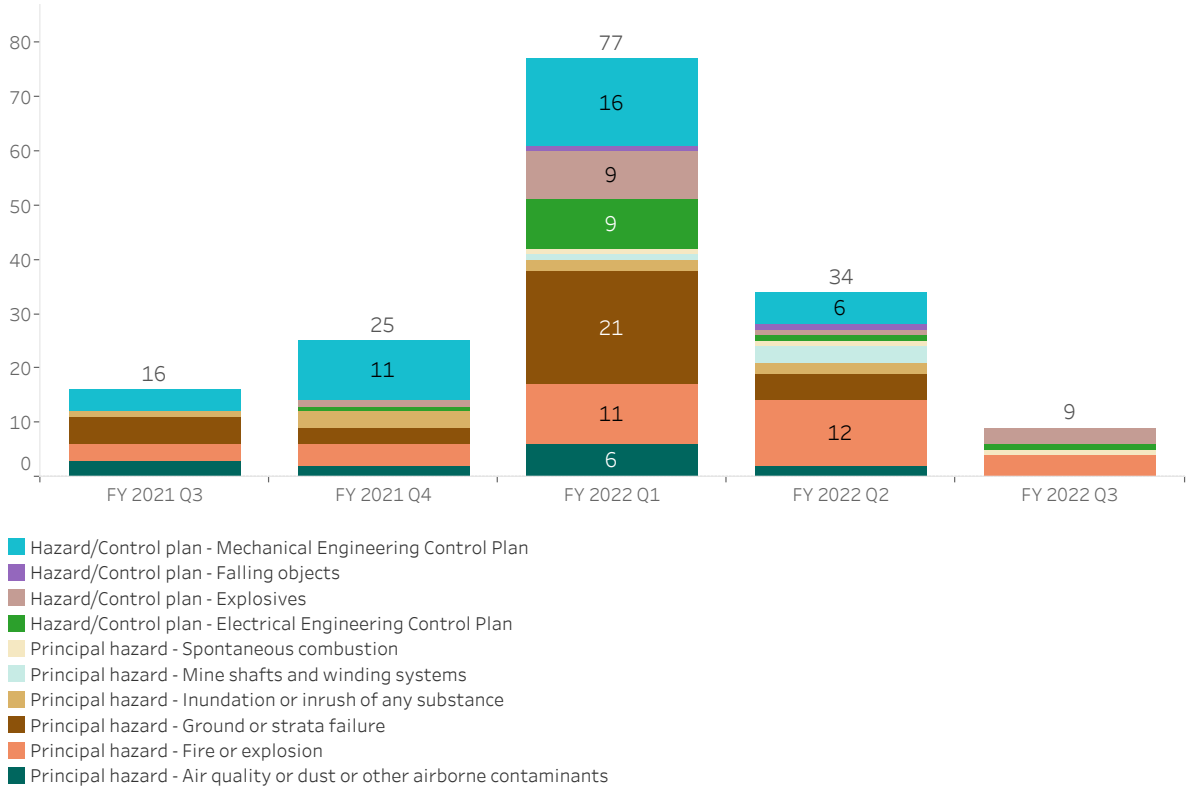


Targeted assessment program

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 and explosives control plans this quarter.

FIGURE 26. TARGETED ASSESSMENTS BY PRINCIPAL HAZARD, HAZARD/ CONTROL PLAN AND OTHER - JANUARY 2021 TO MARCH 2022



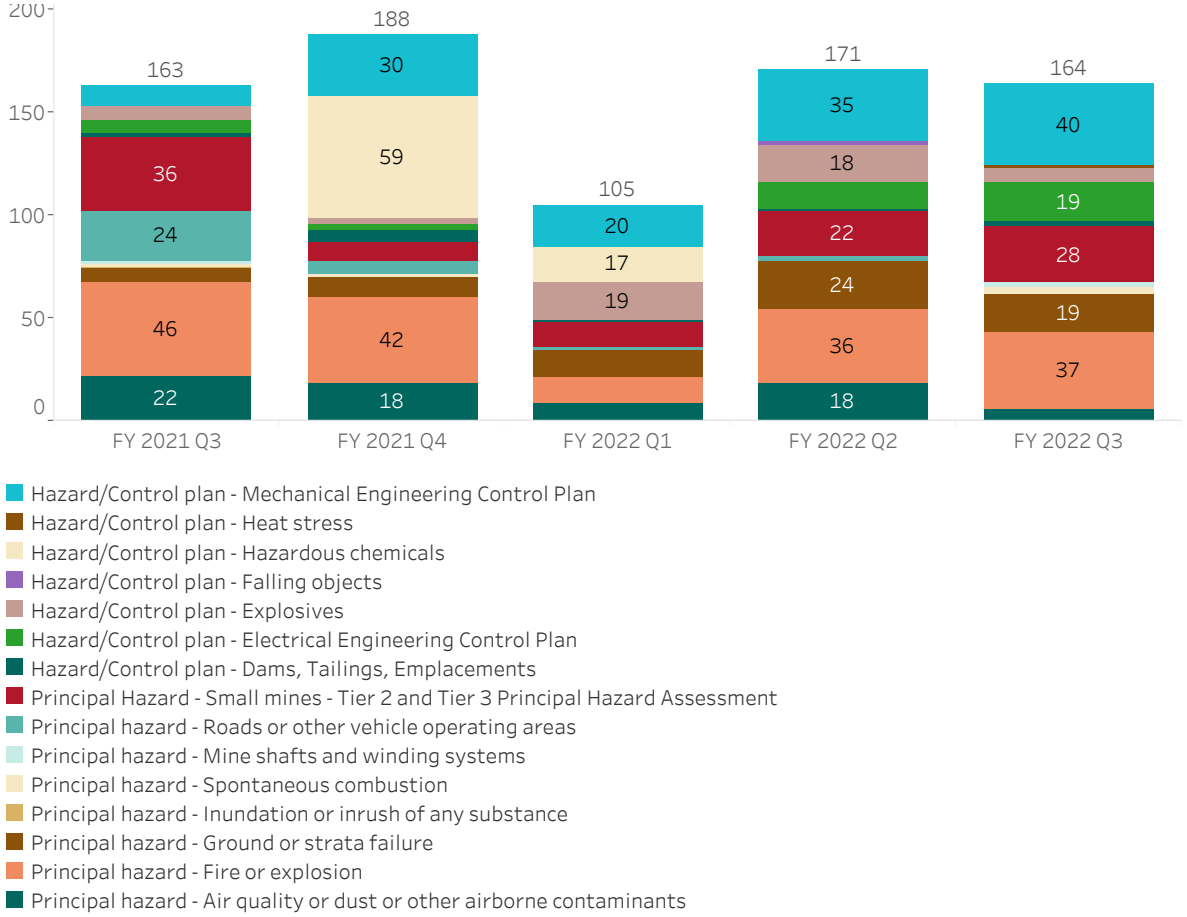
Planned inspections

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 continued to focus on assessments relating to the hazards of fire or explosion and ground or strata failure, and mechanical engineering control plans.

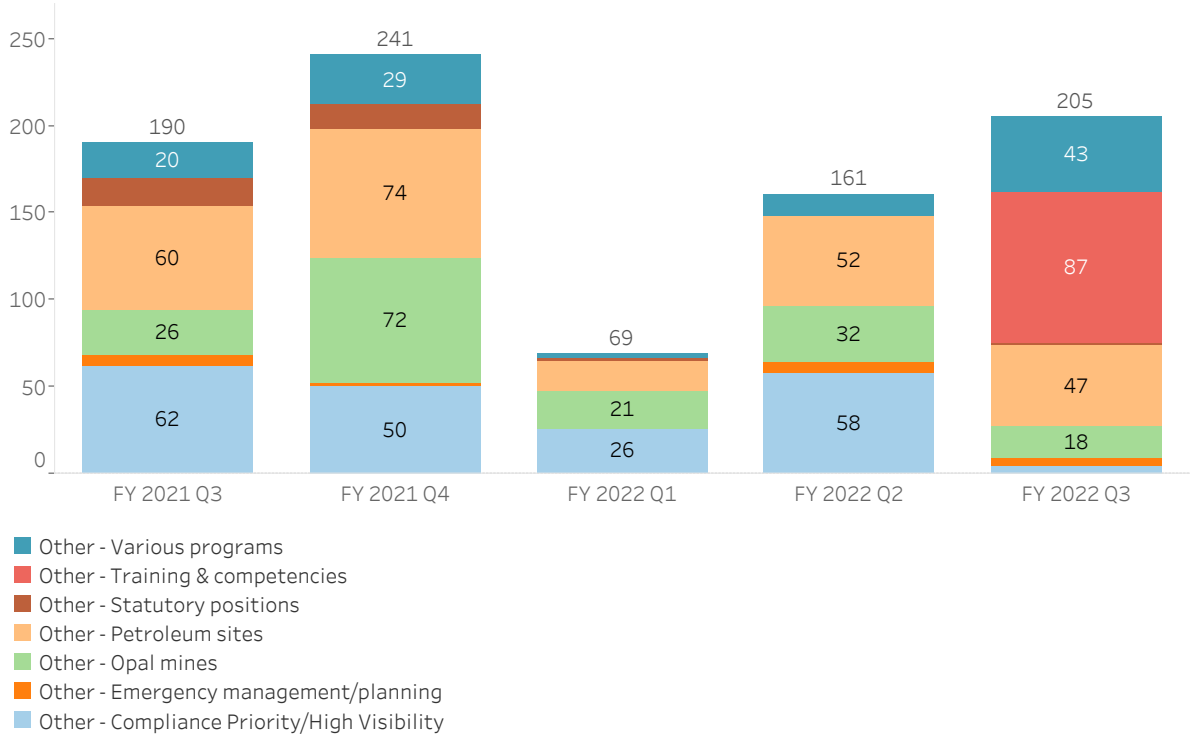
Planned site inspections were commenced on the principal hazards shown in the graph below.

FIGURE 27. PLANNED INSPECTIONS BY PRINCIPAL HAZARD AND HAZARD/ CONTROL PLANS - JANUARY 2021 TO MARCH 2022



For planned inspections categorised as 'other', this quarter included a focus on training and competencies, and petroleum site inspections.

FIGURE 28. PLANNED INSPECTIONS BY 'OTHER' HAZARD - JANUARY 2021 TO MARCH 2022

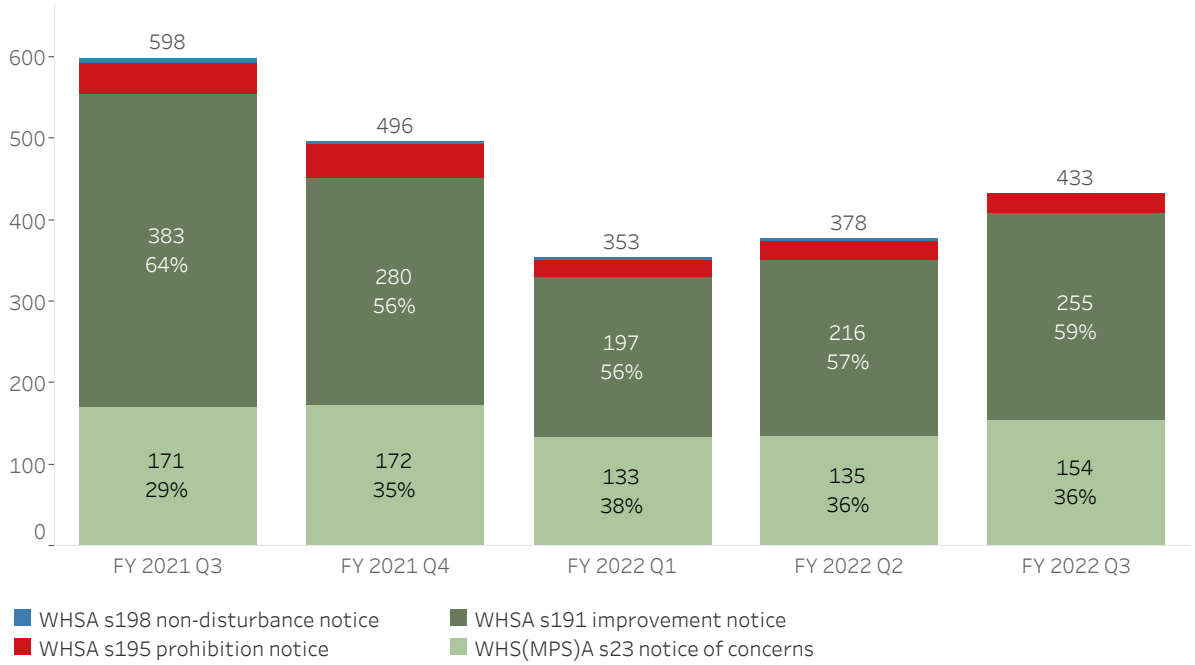


Safety notices issued

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 January 2021. This quarter saw an overall increase in the number of notices issued across all notice types, except non-disturbance notices. The number of notices issued remains low compared to the same period last year, with COVID restrictions a contributing factor.

FIGURE 29. SAFETY NOTICES ISSUED BY NOTICE TYPE - JANUARY 2021 TO MARCH 2022



The proportion of safety notices issued to the coal sector has increased this quarter, the highest observed in three quarters. The proportion of safety notices issued to the large mines sector has decreased, while small mines has remained steady

FIGURE 30. SAFETY NOTICES ISSUED BY SECTOR - JANUARY 2021 TO MARCH 2022