Resources Regulator
Department of Regional NSW

Quarterly safety report

July to September 2022

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NSW GOVERNMENT

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.

Document control

Published by NSW Resources Regulator
Title: Quarterly safety report – July to September 2022
First published: November 2022
Authorised by: Executive Director, NSW Resources Regulator
CM9 Reference: RDOC22/213456

Amendment schedule

Date	Version	Amendment
November 2022	1	First published

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, and summarises safety incident notifications, compliance activities and outcomes for the quarter of July to September 2022 (FY2023 Qtr1). For selected measures, data is analysed over a 15-month period from July 2021 to September 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 176 to 159. This figure also represents a reduction from the quarterly average (182) recorded for the previous four quarters.

Notifications decreased for most principal hazards, including fire or explosion (58 to 52), air quality or dust or other airborne contaminants (43 to 40), ground or strata failure (22 to 18), subsidence (4 to 2), spontaneous combustion (3 to 1) and mine shafts and winding systems (1 to 0).

Gas outburst notifications increased (0 to 1) and no change was observed in notifications related to the principal hazards of roads or other vehicle operating areas (44) and inundation or inrush of any substance (1), which has remained steady for the third consecutive quarter.

Incident notifications decreased slightly for electrical engineering control plans (25 to 23), with notifications across the other control plans recording increases – mechanical engineering (36 to 60), electrical engineering and/or mechanical engineering (37 to 53), explosives (13 to 17) and ventilation (0 to 2).

Quarterly snapshot

0 Work-related deaths

15 Serious injuries or illnesses

89 Dangerous incidents

86 Potentially dangerous incidents

491
Incident notifications
received

178 Other high potential incidents

39 Medical treatment injuries or illnesses

80 Lost time/restricted duty injuries or illnesses

4 Explosives Reg incidents

*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

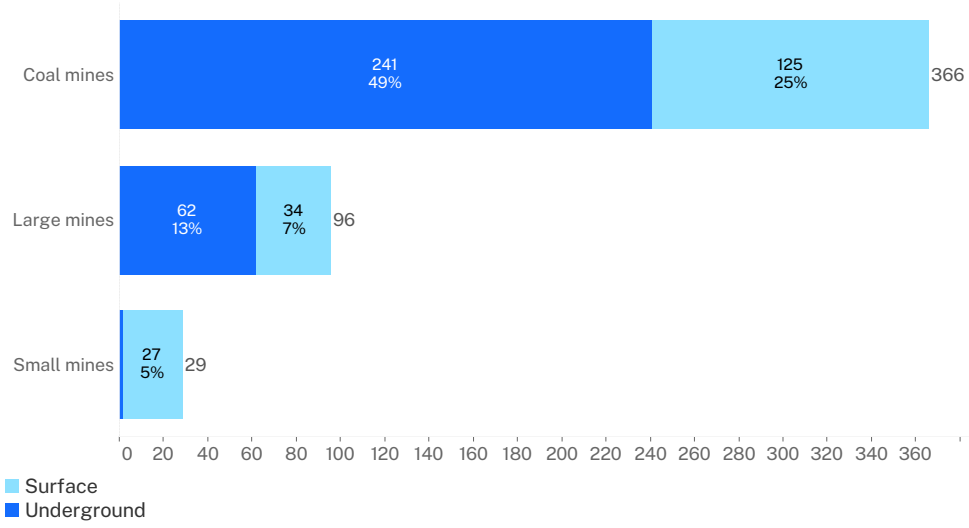
Coal mines
366
up from 328

Large mines
96
up from 93

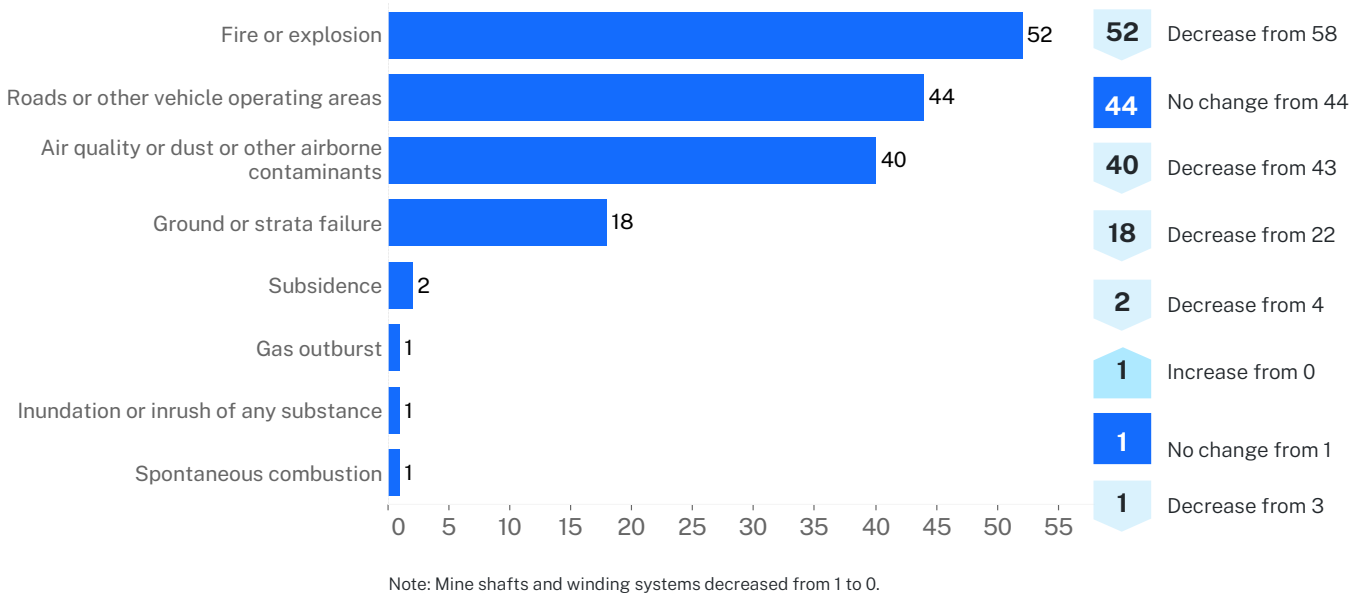
Small mines
29
up from 23

Opal mines
0
down from 2

Exploration sites
0
from 0
-no change

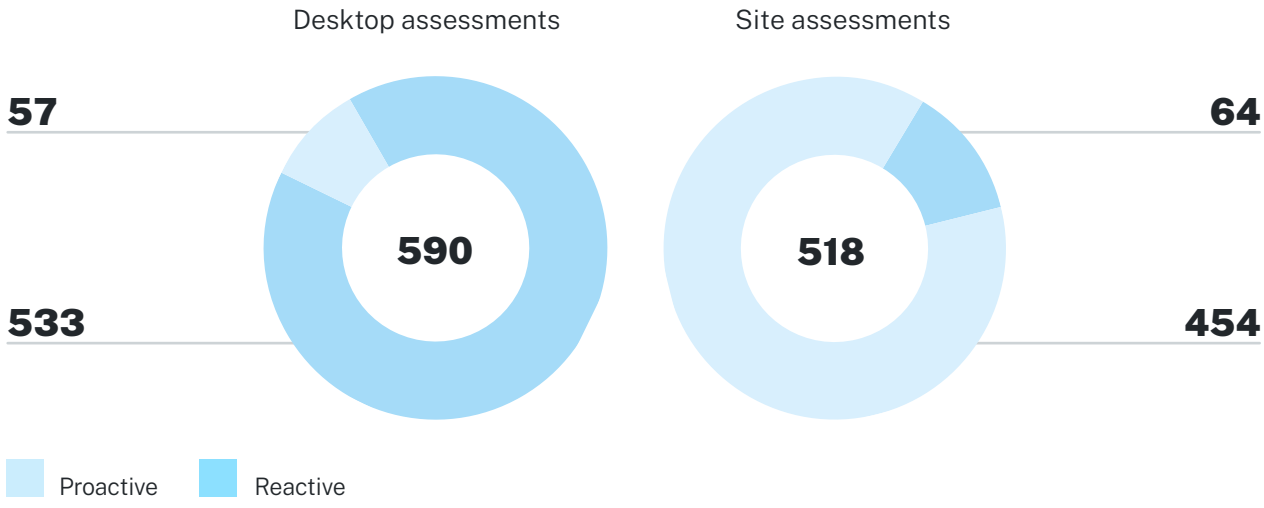


Incident notification classified by principal hazard



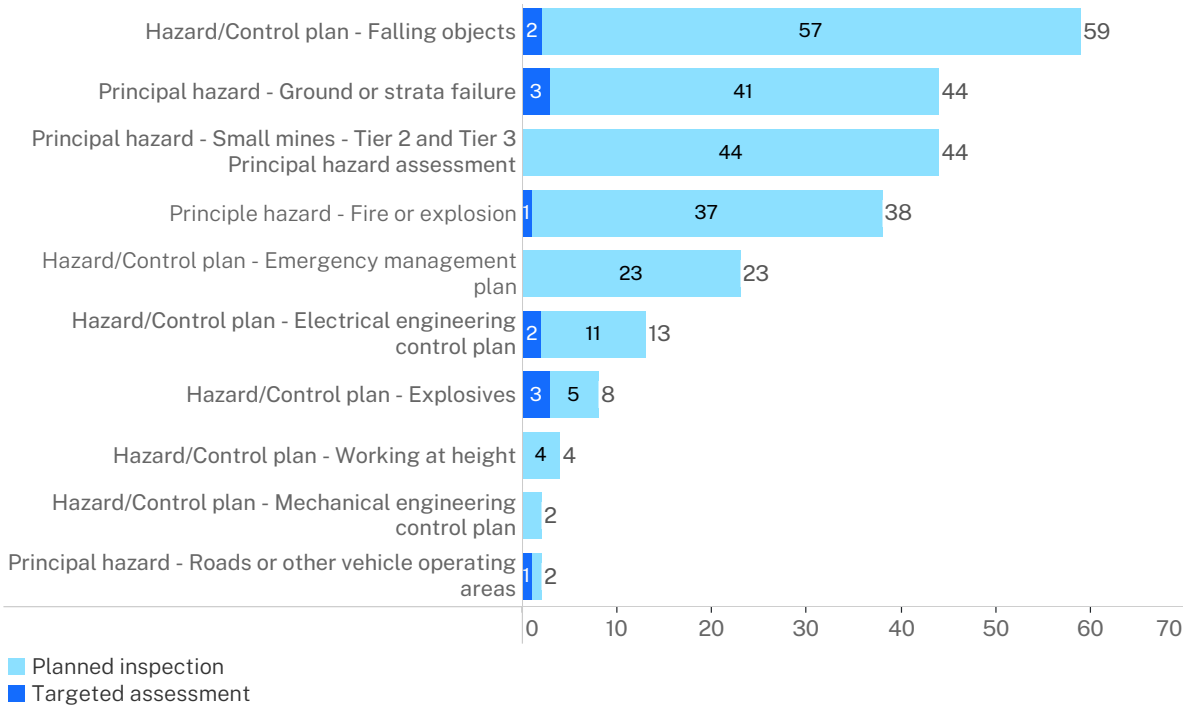
Note: Mine shafts and winding systems decreased from 1 to 0.

256 Assessments commenced



Coal mines	Large mines	Small mines	Petroleum & Geothermal sites	Opal mines	Exploration sites	Non-mines	To be determined
408 up from 310	166 up from 138	242 up from 152	48 down from 64	29 no change	4 up from 2	210 up from 157	1 -

Programmed site assessments conducted



468 Notices issued

1
WHSA s198
non-disturbance notice

59
WHSA s195
prohibition notice

255
WHSA s191
improvement notice

153
WHS(MPS)A s23
notice of concerns

National and international significant events

The 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 1 July and 30 September 2022.

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

Fatal injuries

Australia

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

International

United States of America

There were 7 mining or quarry related fatality alerts recorded (published) by the United States of America's Mine Safety and Health Administration (MSHA), during the quarter:

- On 21 July 2022, a miner received fatal injuries when his right arm became entangled in an auger (screw) conveyor. Refer to fatality alert
- On 4 August 2022, a mine manager died while performing maintenance on a bulldozer. While kneeling on the bulldozer's track, the victim accidentally engaged the lever that put the bulldozer in reverse. The bulldozer track moved the victim to the rear of the bulldozer where he was run over. Refer to fatality alert
- On 17 August 2022, a general inside labourer died when he was caught between a supply car and its coupler. The victim was sitting on the supply car which was coupled to a locomotive parked in a track spur. The locomotive was struck by another locomotive pulling 3 loaded cars into the mine. The impact knocked the victim off the supply car, killing him. Refer to fatality alert
- On 23 August 2022, a contract mechanic received fatal injuries while performing maintenance on the bucket (dipper) of an electric rope shovel. A plastic block, used to prop open the dipper door, dislodged causing the dipper door to close and pin the victim against the back edge of the dipper. Refer to fatality alert
- On 1 September 2022, a roof bolter was electrocuted when he contacted a metal hook that became energised after it penetrated the 480-volt cable that supplied electrical power to a roof bolting machine. Refer to fatality alert
- On 9 September 2022, a dredge operator drowned while working in a dredge pond. Refer to fatality alert
- On 28 September 2022, a miner died when he was engulfed in material from a collapsing stockpile. The miner was removing material off the top of a surge tunnel's feeder to clear a blockage. Refer to fatality alert

Canada

A fatality occurred on 7 July 2022 at an oilsands shovel pad location. A team was lowering a pendant cable assembly from a crane when the pendant cable fell resulting in a fatal injury. Refer to fatality alert

India

ENVIS reported a mining fatality on 5 July 2022, at the Rajgamar mine in Korba, Chhattisgarh. One worker was killed when an overhead coal collection container fell on a truck parked underneath. The worker was in the driving seat of the truck which was crushed by the impact. The incident occurred when coal was being loaded in the truck from a bunker. Refer to link and related media

Portugal

Lundin Mining Corporation reported a fatality at its Neves-Corvo mine in Portugal on 30 September 2022. In an isolated incident underground, the employee of a materials handling contractor was fatally injured while operating a piece of mobile equipment. Refer to link

Alerts, bulletins, fact sheets and incident information releases

New South Wales

Safety alerts & bulletins

- SA22-02 Worker rescued from active tailings dam
- SA22-03 Pontoon pump and boat sink
- SB22-10 Mobile lighting plant
- SB22-11 Photovoltaic and battery energy supply systems
- SB22-12 Fires on mobile manufacturing unit trucks

Fact sheets

- Recognition of qualifications and units of competence
- New standard rehabilitation conditions on mining leases – FAQs on implementation for large mines
- Sampling airborne dust at non-coal mines
- Licensed activities – applicants
- Diesel particulate matter – personal exposure monitoring and exceedance notification
- Exposure to carbon dioxide in underground coal mines
- Assessment program – Roads or other vehicle operating areas
- Winding systems for small gemstone mines
- Consulting workers
- Exercising work health and safety Regulator functions outside mine or petroleum sites
- Contractors and other business at mines and petroleum sites
- Mine or petroleum site records
- Lead risk work notifications
- Assessment program – Roads and other vehicle operating areas – underground metalliferous mines
- Falling objects
- Planned inspection program – health control plan
- Identifying respirable crystalline silica as a hazard in non-coal mines
- Coal mine safety and health representatives

Reports

- Consolidated report – Entanglement – Metalliferous mines
- Consolidated report – Fire or explosion – mechanical underground coal
- Investigation report – Dangerous incident at Boggabri Mine
- Causal investigation – Unplanned initiation of explosives at Peak Gold Mine
- Investigation report – Serious injury of a worker at Myuna Colliery

Investigation information releases

- IIR2022-03 Worker's leg fractured during strata support work in coal mine drift

Queensland

- **Truck rolls down dump face after breaching tip head bund**
  A CAT 789 haul truck backed position 5 and 6 wheels through a safety berm on an overburden dump during a night shift. After teetering for a brief period at the tip head, the truck rolled side-over-side for 2 complete revolutions, before finally coming to rest 26.7m below on its wheels. The driver sustained injuries that required hospitalisation overnight. Refer to Safety Alert
- **Spinal injury resulting from mobile plant contact**
  The bucket of an excavator working a double bench operation collided with the dovetail of a rear dump truck when swinging towards the truck tray. The excavator was on the lower 3.5m high bench at the time of the incident. The impact caused a significant amount of movement to the truck and injury to the operator. The injured operator received a fracture to the C5 vertebrae, resulting in hospitalisation for a number of days. Refer to Safety Alert
- **Underground grader – unplanned movement**
  While driving an underground grader, the operator stopped the grader to let traffic past. The operator applied the park brake, but the grader moved approximately 2 metres before coming to a halt. The grader service brake remained operational throughout the incident. Refer to Safety Alert
- **Hauling equipment failure during conveyor belt change out – worker loses eye**
  A 14mm synthetic fibre rope failed when the breaking strain was exceeded during installation of a new conveyor belt. When the rope failed it whiplashed, striking a worker in the face. As a result of the accident, the worker later had surgery to remove one of his eyes. Refer to Safety Alert
- **Bolt projectile from failed final drive**
  During routine servicing of a Caterpillar D11T Dozer, the machine was being moved when the right-hand final drive locked up and subsequently failed, splitting the outer case. 2 bolt heads sheared off (projectiles) from the outer casing of the final drive, travelling approximately 4.6 metres, and impacting into a nearby toolbox.
  The machine locked as it began reversing and was unable to move forward or backwards. The operator jacked the machine up to see if it would rotate. During this attempt to move the track backwards, the right final-side drive casing split, ejecting the bolt heads. The technique to remove the plugs contributed to the incident.
  The plug was struck prior to being loosened and removed using an impact wrench. Refer to Safety Alert
- **Incorrect consignment of security sensitive ammonium nitrate**
  A full, (20 tonne) off-spec shipping container of security sensitive ammonium nitrate (SSAN) was incorrectly stored in the empty container area. A transport triple road train combination vehicle attended the mine site to collect empty residual bulk SSAN containers and the full container was loaded onto the centre trailer and incorrectly recorded by the site consignor as an empty residual container. During the journey from the reload location, the driver identified that a container was full and activated his security plan and travelled to a secure location. Refer to Safety Alert
- **Uncontrolled movement of equipment causing a serious eye injury**
  A truck driver was assisting with dismantling plant and equipment in preparation to relocate a rig camp. This task included storing removed equipment into a tool shack. An earthing rod was placed vertically inside a tool shack where it fell and rebounded, striking the worker in the eye. The injury required immediate surgery with medical advice indicating that there will be permanent damage to the eye. Refer to Safety Alert
- **Radiator chute finger crush injury**
  An experienced worker was filling in as a rig manager, working on a different rig to his normal work environment and conducting a routine rig-up. The setup and layout of the rig was identical to his normal work site, but the equipment used for the task was slightly different. When lowering the radiator chute, the worker temporarily lost control and attempted to slow the momentum of the chute by placing his right hand above the designated handle. This pinched the end of his right middle finger between the chute stopper tab and the wall of the trailer, causing a crush injury. Refer to Safety Alert
- **Worker suffers serious crush injury from reversing mobile plant**
  A fuel truck driver received serious injuries which required hospitalisation after being crushed between the rear of a front-end wheel loader and the rear of a stationary fuel truck. The incident is under investigation however the preliminary findings are that the driver parked the fuel truck close to the crushing plant and was fuelling plant in that area. Part of the fuelling task required the worker to be at the rear of the fuel truck and whilst at the rear of the fuel truck, the worker was crushed between the rear of the front-end loader and the rear of the fuel truck. Refer to Safety Alert
- **Emergency Response Capability**
  Operations were recently suspended at an underground coal mine in Queensland upon discovery that the mine was not compliant with legislation relating to the required number of certified Emergency Response Team (ERT) members available to respond to a potential emergency situation. Coal mine operators and Site Senior Executives (SSEs) should be aware that any future breaches of legislative requirements will result in the Inspectorate taking immediate compliance action. Refer to Safety Alert

South Australia

- **Serious injury to underground miner**
  SafeWork SA reminds all mine operators to develop, implement and maintain safe systems of work following a serious injury to an underground miner on 3 August 2022. The incident occurred when a Jumbo operator was in the process of installing a dewatering pump using the Jumbo boom. While tramming forward, it is believed that the Jumbo ran over the dewatering pump line hose, causing the hose connection to fail on the pump. The hose connection has consequently flung back under pressure and struck a worker standing near the rear of the Jumbo, causing serious facial injuries. Refer to Safety Alert
- **Thumb amputation prompts dozer maintenance warning**
  SafeWork SA reminds all mine operators and contractors to develop, implement and maintain safe systems of work following a serious injury to a worker on 5 September 2022. The incident occurred when a worker was assisting with changing out a ripper tine on a CAT D9 Dozer at a quarry. The tine was being lifted into position using a lifting chain, attached to an excavator. The worker was using his hands to position the tine as it was being lifted, when it moved unexpectedly resulting in the workers thumb being amputated. Refer to Safety Alert

Victoria

- **Screening plant side conveyor fails suddenly**
  On 4 August 2022, a side discharge conveyor on a screening plant at a quarry collapsed suddenly while operating. The supporting structure failed at the midpoint, instantly causing the discharge end of the conveyor to collapse. A steel diversion chute had been retro-fitted to the discharge end of the conveyor several months before the incident. Clay material had also built up inside the chute. The extra weight of the steel chute and built up material caused the failure. The steel diversion chute was not supplied, installed or checked by the manufacturer of the plant. Refer to Safety Alert

New Zealand

- **Threaded rod failed on cap press**
  A hydraulic porta pack was being used to pull a strut pin bush into position on a dump truck, deck pivot. This is completed by inserting a threaded rod of about 25mm diameter and 600mm long through the bush with nuts securing it at each end. During the task, the rod has failed adjacent to one of the nuts and the rod has been propelled across the workshop – about 5m distance and 3m above floor level. The rod has penetrated the cab window of a drill rig parked adjacent and came to rest on the operator's seat. Refer to Safety Alert
- **Burn to leg from air arc gouging**
  A contractor's apprentice was arc gouging a backing plate on an excavator to repair cracks. The position of the apprentice during the work resulted in the slag and sparks falling towards their feet, resulting in their overalls catching on fire. An extinguisher was used to put out the flame before removing the overalls and providing first aid. The apprentice received burns that required medical treatment including a skin graft. Refer to Safety Alert
- **Failure to follow lockout procedure**
  A quarry worker finished clearing spillage from around the primary feeder. The plant operator went to restart the crusher but did not give verbal warning of his intention to start the plant. As the feeder started some overspill rock fell and could have landed on the other worker, if not for the reaction of a third worker who deflected the overspill rock back onto the feeder. No workers were injured by spillage rock. Refer to Safety Alert
- **Worker struck by excavator boom**
  An excavator was being used to lift crusher screens in and out during screen replacement at a quarry. As the operator entered the cab, his wet weather coat covered the control lever and as he sat down, he automatically released the dead-man lever while reaching for his seatbelt. When he released the dead-man, the coat pressure on the control lever caused the digger to slew round, striking a fellow worker, knocking him off his feet and onto the grid above the jaw crusher. The worker sustained a crush injury to one of his legs and broken bones in the other, requiring hospital treatment. Refer to Safety Alert
- **Tip failure due to saturated ground**
  On 26 July 2022 an articulated dump truck (ADT) was in the process of dumping a load of overburden on a tip when the ground underneath the truck gave way beneath it. The ADT operator was approaching an edge bund when the failure occurred. The ADT and flowing ground material cascaded to the quarry floor below. The cab of the ADT rolled over however the operator was wearing their seatbelt and was not seriously harmed. It appears that the tip edge was virgin ground that had become saturated following an abnormally high rainfall event. Refer to Safety Alert

Notifiable incidents relating to hazards

The Work Health and Safety (Mines and Petroleum Sites) Regulation 2022 (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 table below 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 491 incident notifications received in the quarter. Of these, 32% (159) related to principal hazards, 32% (155) related to principal control plans, with the remainder (36%) related to other incident types.

Table 1. Incident notifications classified by principal hazard/principal control plans – July to September 2022

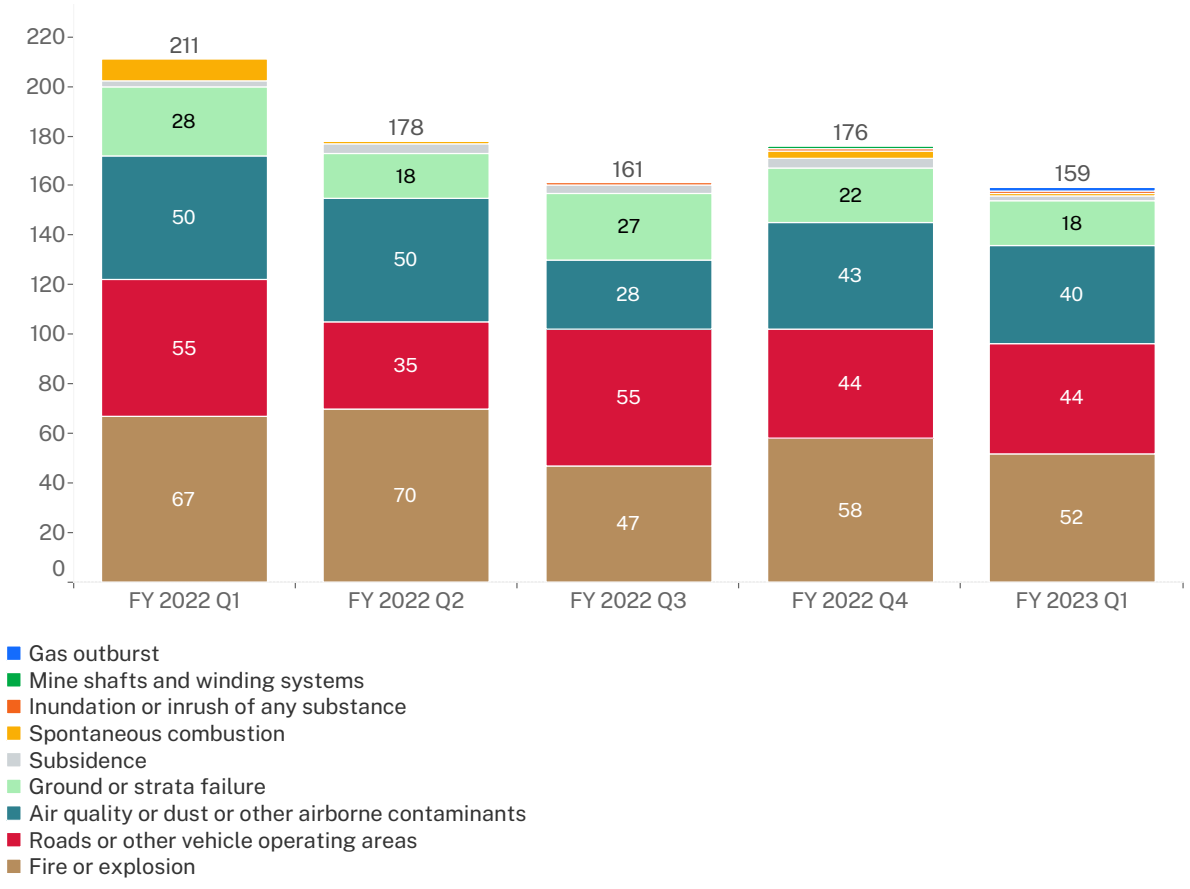
Hazard or Control plan (reporting)	Hazard/Control plan (reporting)	FY 2022 Q1	FY 2022 Q2	FY 2022 Q3	FY 2022 Q4	FY 2023 Q1	Grand total
Hazard	Fire or explosion	67	70	47	58	52	**294**
	Roads or other vehicle operating areas	55	35	55	44	44	**233**
	Air quality, dust or other airborne contaminants	50	50	28	43	40	**211**
	Ground or strata failure	28	18	27	22	18	**113**
	Subsidence	2	4	3	4	2	**15**
	Spontaneous combustion	9	1		3	1	**14**
	Inundation or inrush of any substance			1	1	1	**3**
	Gas outburst					1	**1**
	Mine shafts and winding systems				1		**1**
	Total	**211**	**178**	**161**	**176**	**159**	**885**
Control plan	Mechanical engineering control plan	40	57	60	36	60	**253**
	Electrical engineering control plan and/or Mechanical engineering control plan	33	48	40	37	53	**211**
	Electrical engineering control plan	23	20	13	25	23	**104**
	Explosives control plan	11	24	26	13	17	**91**
	Ventilation control plan	2	1	2		2	**7**
	Total	**109**	**150**	**141**	**111**	**155**	**666**
Other	No related principal mining hazard or principal control plan	**176**	**127**	**195**	**159**	**177**	**834**
Grand total		**496**	**455**	**497**	**446**	**491**	**2,385**

Principal mining hazards

Note: 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.

The chart below presents a further breakdown of numbers of incident notifications received by quarter related to principal hazards as defined in clause 4 of the Regulation.

Figure 1. Incident notifications received by principal hazard – July to September 2022

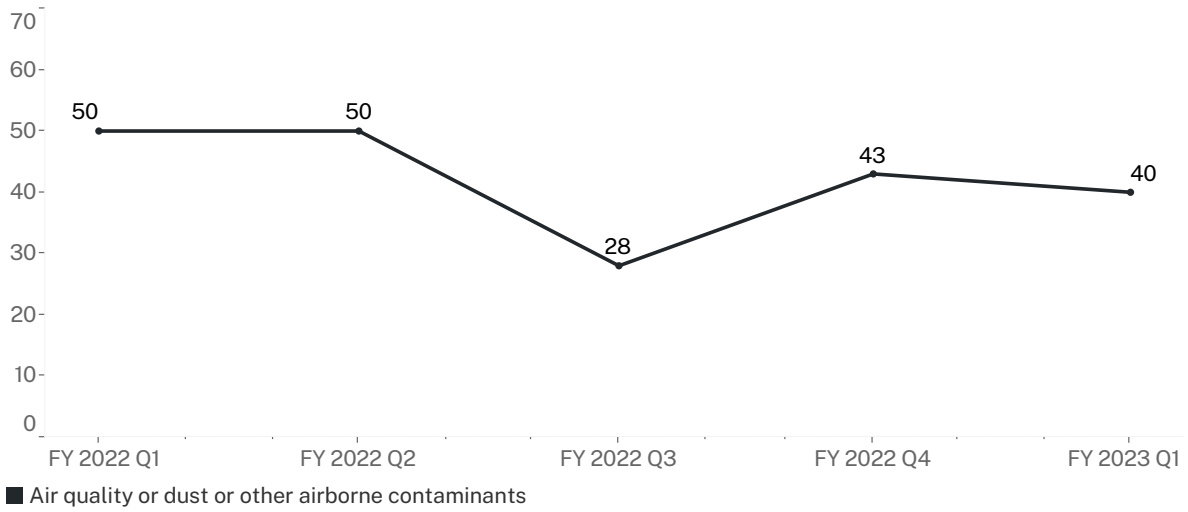


Air quality, dust or other airborne contaminants

↓ from 43 to 40

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



Dangerous incident | IncNot0042382 – workers exposed to silica dust

Summary: During routine dust sampling of a development crew, the deputy exceeded the occupational exposure limit for respirable quartz. At the time of sampling, the continuous miner was cutting 0.4-0.6m of stone.

Comments to industry: When cutting stone, controls to manage airborne dust must be maintained to the site's documented standards. This includes keeping ventilation tubes advanced to the face, tube length within design limits, maintaining picks and sprays, having dust curtains in place and workers positioned in safe locations.

High potential | IncNot0042472 – truck driver exposed to silica dust

Summary: A truck driver was exposed to respirable silica above the occupational exposure limit during routine Order 42 monitoring.

Comments to industry: Mine operators should ensure that control measures are implemented and maintained for minimising dust in operator cabins. This includes filtration of incoming air and sealing of cabs. Mine operators have a duty to manage risks and implement a range of control measures including:

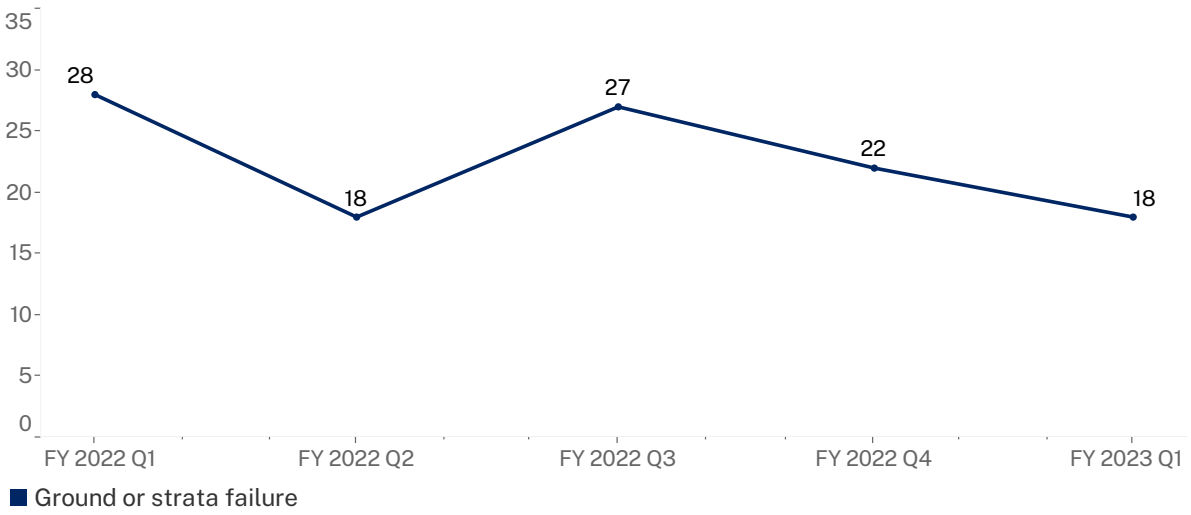
- a principal hazard management plan for air quality, dust or other airborne contaminants
- ensuring the exposure standards for respirable and inhalable dust are not exceeded
- implementing air quality, monitoring and ventilation arrangements

Ground or strata failure

↓ from 22 to 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.

Figure 3. Incident notifications related to the principal hazard ground or strata failure



Dangerous incident | IncNot0041908 – highwall failure

Summary: 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.

Picture 1.
Material from the highwall failure.

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

Dangerous incident | IncNot0042170 – roof fall

Summary: A fall of roof occurred, extending above a bolted horizon. The roadway was supported with bolts and mesh. The fall was about 15m long, partial width and extended 500mm above the centre bolts.

Picture 2.
Extent of the fall debris.

Comments to industry: Mine operators should have a process in place to identify changes in roof structure and the required support in that area (TARPS). Strata support should be designed with a suitable factor of safety. Workers must be trained in the correct installation of support to ensure 'gloving' does not occur and the chemical is correctly mixed. Regular verification of encapsulation needs to be completed and any bolt installation that does not meet the requirements of the support rules should be replaced. Statutory officials must verify support placement is as per the support rules.

Dangerous incident | IncNot0042051 – corroded bolts lead to fall of ground

Summary: A fall of ground occurred when corroded roof bolts failed. The fall of material was estimated to be 1.5 tonnes. Nobody was in the area at the time.

Picture 3.
Showing plates still in place.

Picture 4.
Close up of the corrosion damage.

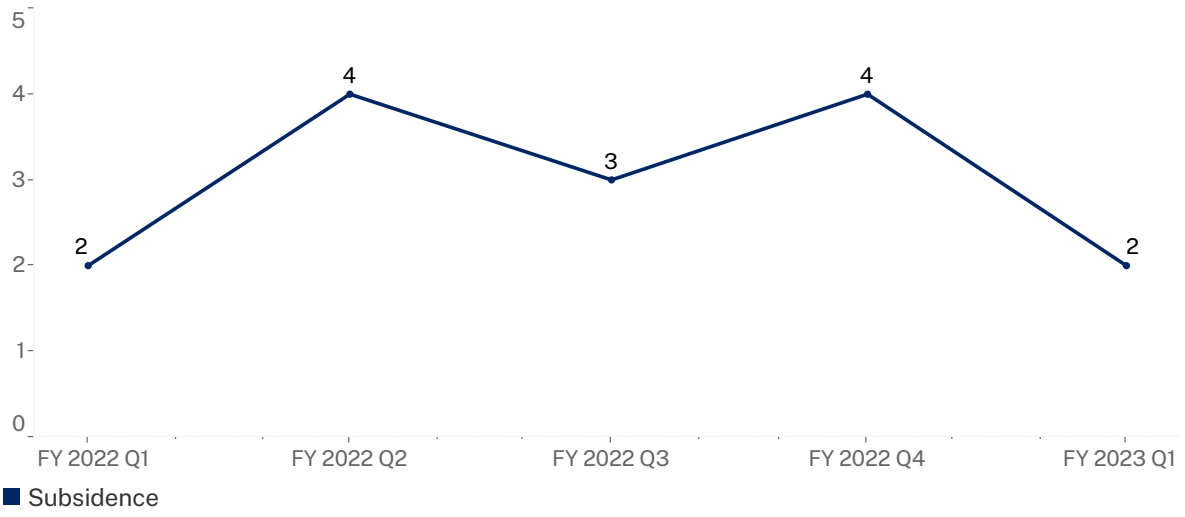
Comments to industry: Underground mine operators should review the adequacy of support that was installed historically under different support regimes. The review should check that the age of installed support is taken into account and that the support continues to be effective. Refer to Fall of ground risks at NSW underground metalliferous mines

Subsidence

↓ from 4 to 2

Surface subsidence hazards may exist 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

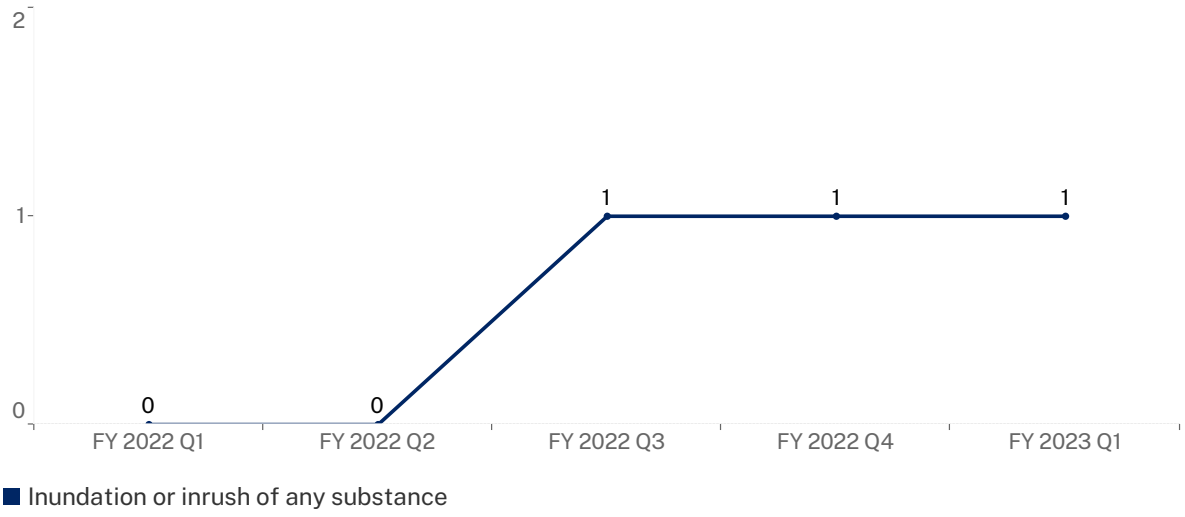


Inundation or inrush of any substance

No change (1)

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

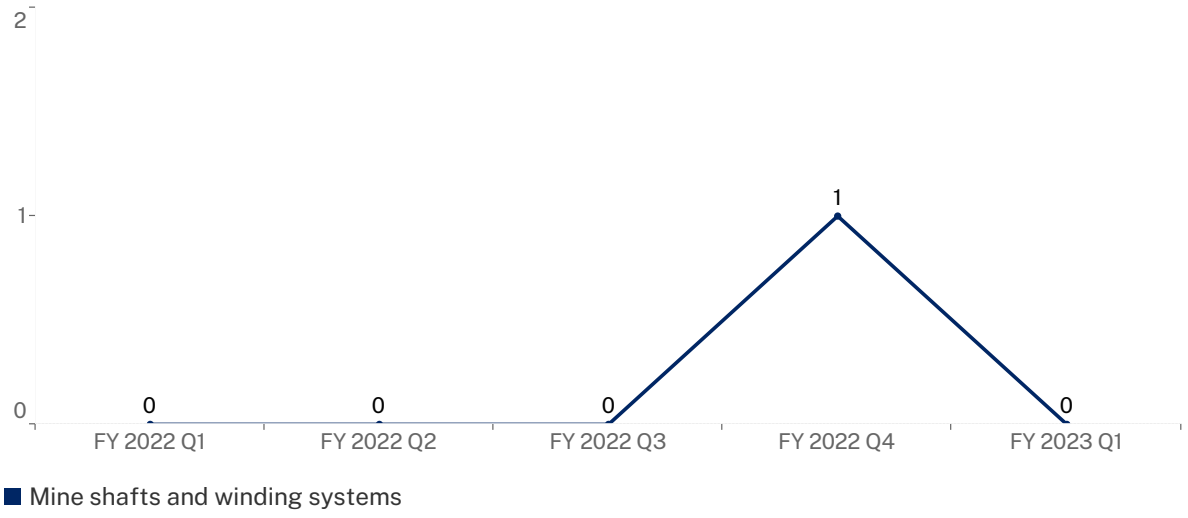


Mine shafts and winding systems

↓ from 1 to 0

Mine shaft integrity and the operation of winding systems require specific focus. The safe movement of material and workers up and 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

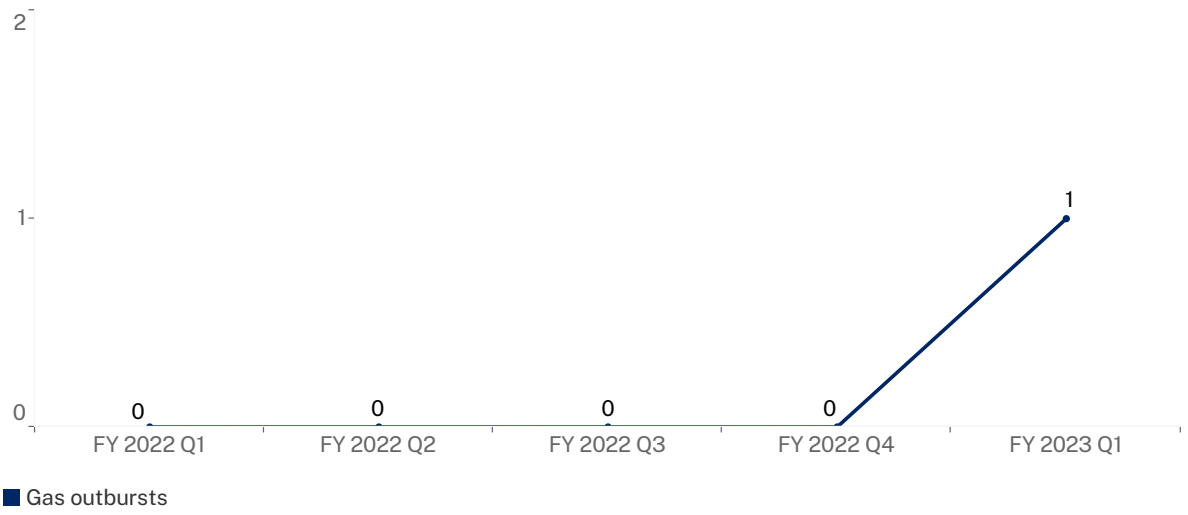


Gas outbursts

↑ from 0 to 1

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

Figure 7. Incident notifications related to the principal hazard gas outburst

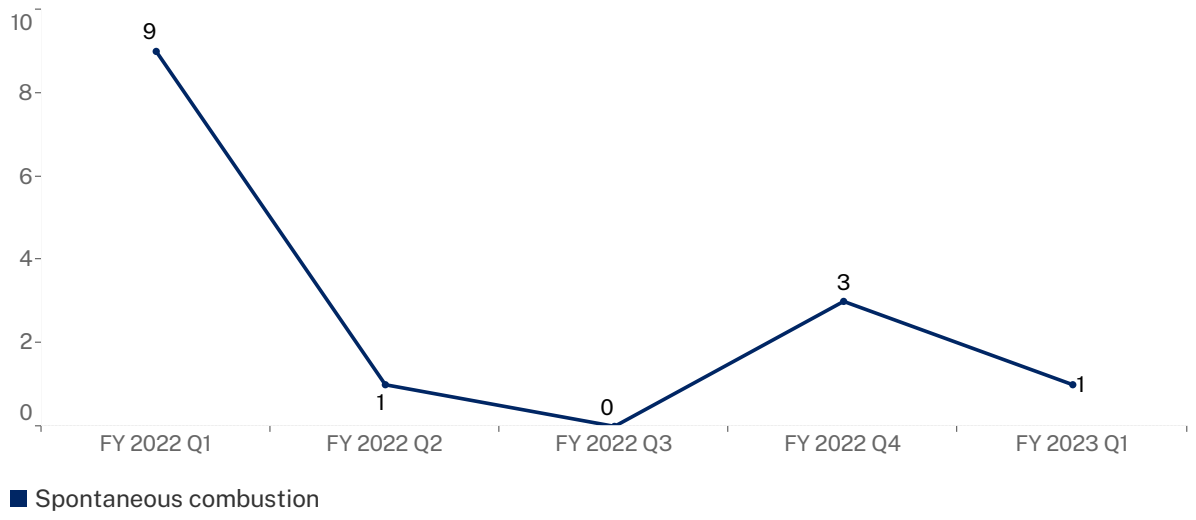


Spontaneous combustion

↓ from 3 to 1

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 8 below includes spontaneous combustion incidents underground and on the surface of coal mines.

Figure 8. Incident notifications related to the principal hazard spontaneous combustion

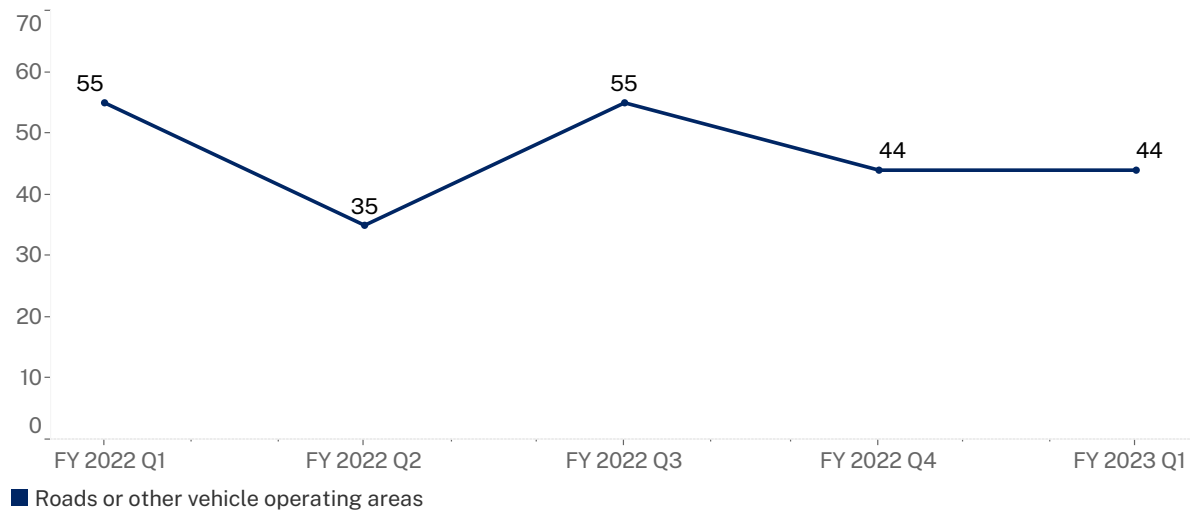


Roads or other vehicle operating areas

No change (44)

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 9. Incident notifications related to the principal hazard roads or other vehicle operating areas



Dangerous incident | IncNot0042016 – distraction leads to overturn

Summary: A light vehicle was travelling along a haul road. The operator was distracted by an open lid on a toolbox and has driven up a windrow and rolled onto the roof. The driver exited the cab of the vehicle with no injuries.

Picture 5.
The overturned light vehicle.

Comments to industry: Workers must always remain focused on controlling their vehicle. If a situation develops that requires their attention, such as an open toolbox, operators should safely stop the vehicle before addressing the issue.

Dangerous incident | IncNot0042123 – microsleep leads to collision

Summary: A grader collided with a stationary dump truck after the operator suffered a microsleep. Nobody was injured and the damage was minor.

Picture 6.
Vehicles after collision.

Comments to industry: Mine operators should review their fatigue policy and site compliance. Contractor work groups should be included in this review. Schedule 2 of the Work Health and Safety (Mines and Petroleum Sites) Regulation 2022 includes the requirement that a health control plan must address control measures for minimising the risk that a worker will be impaired by fatigue. Mine operators should include worker fatigue monitoring and response technology as a part of their fatigue risk analysis.

Dangerous incident | IncNot0042181 – microsleep leads to vehicle overturn

Summary: A mine supervisor had a microsleep while driving along a light vehicle road. The vehicle drove up onto a windrow and rolled onto the driver's side. The supervisor was not injured. The supervisor failed to preserve the scene and arranged for the vehicle to be righted and taken to a park-up area.

Picture 7.
Light vehicle after rolling over.

Comments to industry: Workers must present to work fit for duty. This involves having suitable sleep before starting a night shift. Mine operators are reminded of their obligations under the health control plan to ensure control measures have been identified and implemented to ensure workers are fit to carry out work and minimise the risk that workers could be impaired by fatigue.

Dangerous incident | IncNot0042136 – haul truck breaches windrow

Summary: A haul truck operator was reversing at an angle into a corner to tip its load when the right side rear wheels pushed through a windrow, causing the truck to bottom out on the windrow. The driver safely exited the truck.

Picture 8.
Haul truck (centre left) over windrow.

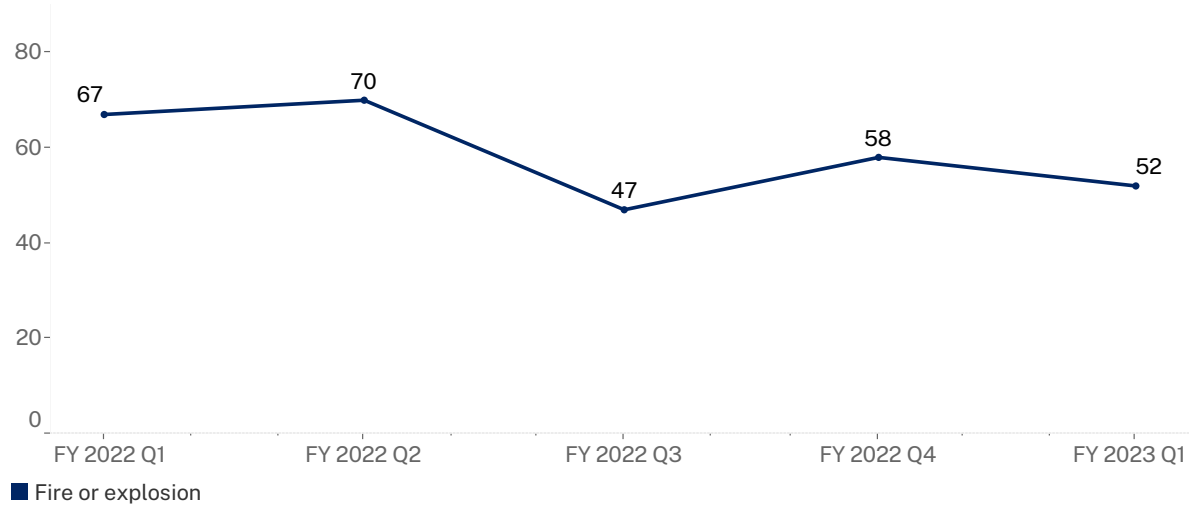
Comments to industry: Mine operators should review their tipping procedures and consider controls such as tipping short in corners, using a spotter in similar circumstances and training/competency/experience of operators.

Fire or explosion

↓ from 58 to 52

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 10. Incident notifications related to the principal hazard fire or explosion



Dangerous incident | IncNot0042169 – flames in coal under drift belt

Summary: A deputy smelled and witnessed smoke coming down a drift in an underground coal mine and contacted the control room. A dolly car operator immediately started an inspection and identified a small flame and smoldering coal under the drift belt. The fire was immediately extinguished. An idler had collapsed and the belt was rubbing on the frame. Excess coal around the roller had ignited.

Picture 9.
Coal build up under belt.

Picture 10.
Contact point under belt.

Comments to industry: Workers conducting inspections on conveyors must diligently inspect for fire risks such as accumulation of coal, failing or collapsed idlers and contact between conveyor belts and fixed structures. Mine operators must have systems in place to assess issues and plan a response to avoid the risk of fire, including immediately stopping the conveyor when necessary. No worker should be hesitant to stop a conveyor if it poses a fire risk.

Dangerous incident | IncNot0042256 – engine damage starts fire

Summary: A haul truck had dumped a second load for a shift and was leaving the dump. The operator smelled something burning then saw flames around the back of the cabin. The operator shut down the truck and unsuccessfully attempted to deploy the fire suppression system. The operator then escaped safely. The fire was extinguished with the aid of a water cart and on-board fire suppression. Upon inspection, it was discovered that a significant mechanical failure resulted in a large hole in the bottom of the engine which initiated the fire. The truck was recently down for maintenance. A further examination of the truck found that the emergency ladder access gate was extremely stiff and not easily opened. The operator did not use this means of egress.

Picture 11.
Parts of the haul truck on the road.

Comments to industry: Following the maintenance and repair of mobile plant, the plant should be inspected, tested and verified as fit-for-purpose before being returned to service. Mine operators should also confirm that emergency access systems are included in routine maintenance inspections on all plant.

Dangerous incident | IncNot0042452 – safety device override leads to fire

Summary: A diesel pump was being refuelled during commissioning. The auto-fill nozzle clicked off indicating the system was full. The fuel gauge indicated the tank was 87% full, so the operator pushed the nozzle back on and held it in position to continue filling the diesel tank. The operator noticed diesel flowing from the breather, so they disconnected and reeled the hose back to the truck. Fuel contacted the exhaust lagging and ignited. The flame was extinguished using a fire extinguisher.

Picture 12.
Ignition point on pump.

Comments to industry: Workers must never override safety devices when refuelling. This includes repeatedly filling after the nozzle has clicked off, tying the nozzle handle back to avoid holding it or modifying nozzles to fill machines that are not compatible. Breathers should be position clear of ignition points and hot surfaces. Refer to: Safety Bulletin SB15-03 Fires ignite while refuelling mobile plant with quick-fill fuel systems, Investigation Information Release IIR17-10 Serious burns while refuelling mobile plant.

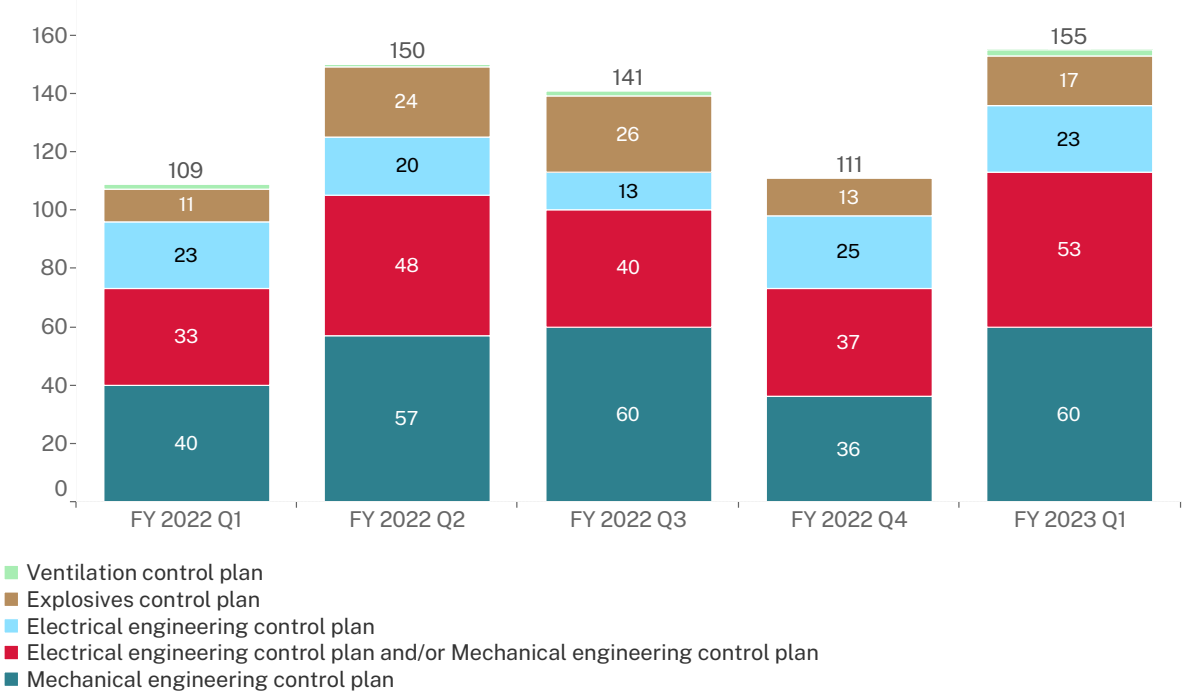
Principal control plans

The Work Health and Safety (Mines and Petroleum Sites) Regulation 2022 specifies principal control plans for managing certain risks associated with hazards at mine and petroleum sites.

There are 7 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 sections 2, 3, 4 and 65 of the Regulation.

Figure 11. Incident notifications received, by principal control plans

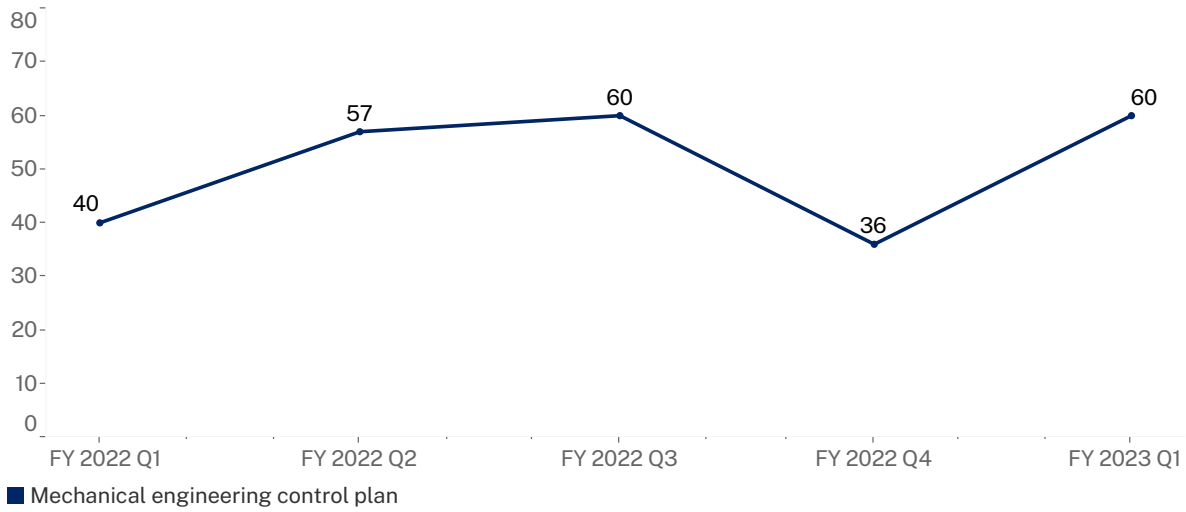


Mechanical engineering control plans

↑ from 36 to 60

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 12. Incident notifications related to mechanical engineering control plans



Serious injury | IncNot0042186 – release of pressure

Summary: Two workers sustained serious injuries when high pressure air unexpectedly escaped from a compressed air pipe in the vicinity of where they were working.

Comments to industry: An investigation has commenced. Refer to IIR22-01 Two mine workers injured during pipe installation work.

Dangerous incident | IncNot0041965 – unplanned conveyor movement

Summary: A conveyor belt moved approximately 300 mm when a splice clamp was released. The movement caused the conveyor lifters to topple over near where a roller change was being carried out. The belt was isolated at the time of the incident and the counterweight was on the deck. There were no injuries.

Picture 13.
Showing lifters caught under the belt.

Comments to industry: Safe systems of work for people dealing with plant or structures must include the isolation, dissipation of energy and control of all mechanical energy sources from plant or structures.

Dangerous incident | IncNot0041952 – plug ejected under pressure

Summary: A mechanical technician removed a plug from the right-hand rear strut of a dump truck believing it was a grease port. The plug was tapped into the chamber of the strut and the technician was using a hand ratchet and socket. The plug was forced out under pressure (approximately 170-200 psi). The technician was just outside the direct line of fire of the plug and was covered in fluid from the strut. The plug was found on the ground a couple of metres away from the technician.

Picture 14.
Close up of the ejected plug.

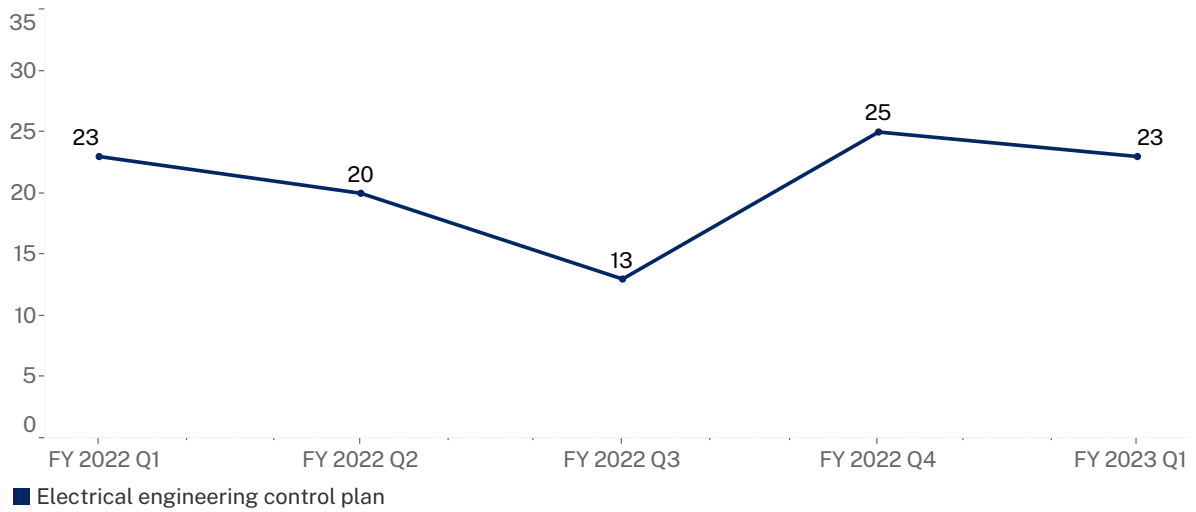
Comments to industry: Workers who are unfamiliar with a task(s) must be provided with adequate information, instructions and supervision. Pre-task hazard assessments should include the assessment of pressurised systems and identification of controls.

Electrical engineering control plans

↓ from 25 to 23

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

Figure 13. Incident notifications related to electrical engineering control plans

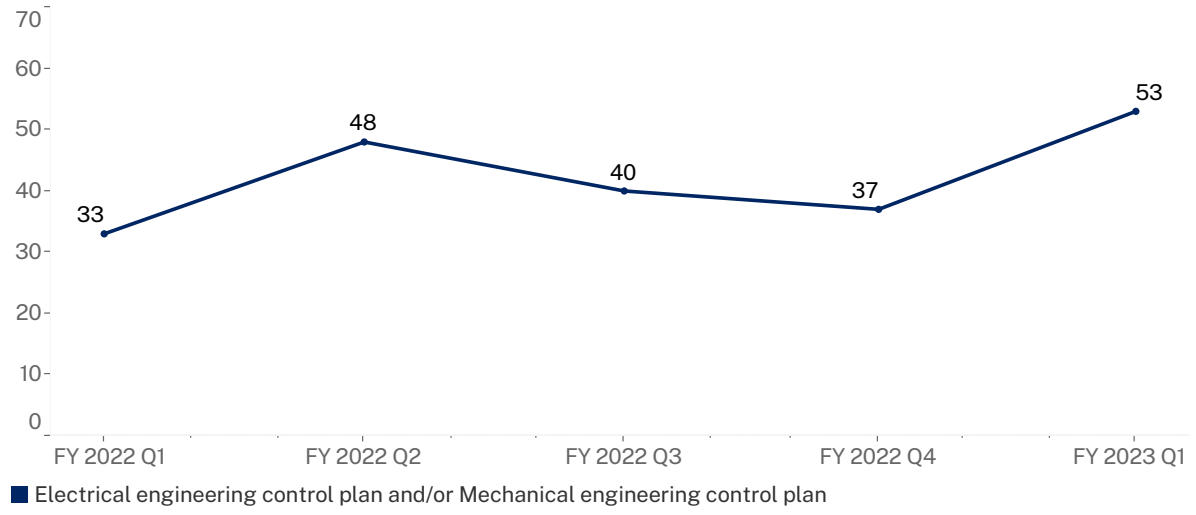


Electrical and/or Mechanical engineering control plans

↑ from 37 to 53

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

Figure 14. Incident notifications related to electrical and/or mechanical engineering control plans

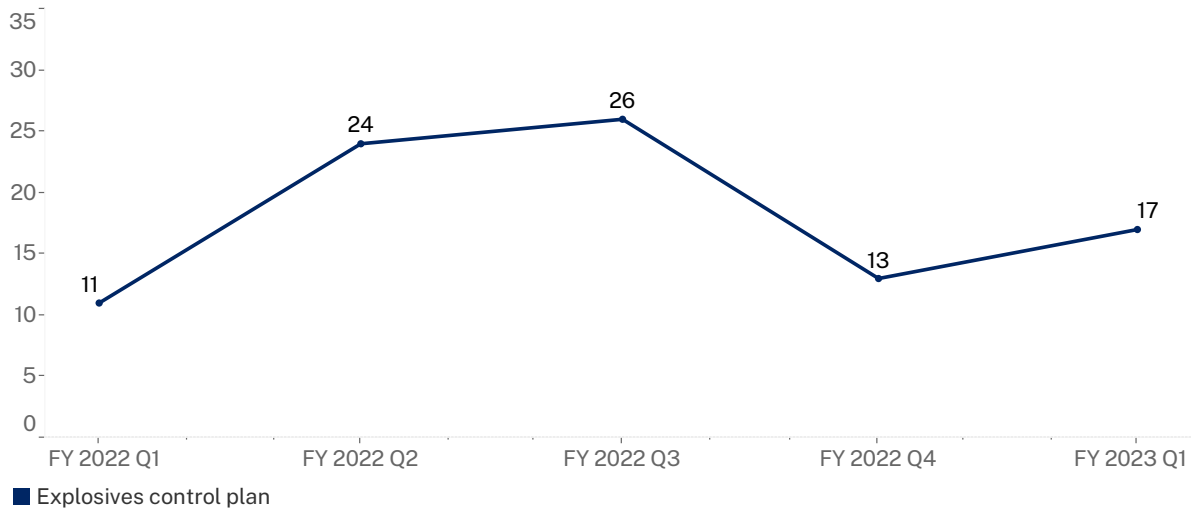


Explosives control plans

↑ from 13 to 17

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

Figure 15. Incident notifications related to explosives control plans



Dangerous incident | IncNot0042197 – unexpected detonator initiation

Summary: A development face and a stope were loaded for firing in an underground metalliferous mine using electronic detonators. The system was set up to fire both shots simultaneously, however there was a communication issue and the system would not initiate. The development shotfirer went to the development face and replaced the electronic detonators with electric detonators. The stope detonators were not disconnected. The development shot was fired using the conventional 240 volt firing line in the mine. The development face fired as expected but the stope partially initiated. This was not expected and should not have occurred. No-one was injured.

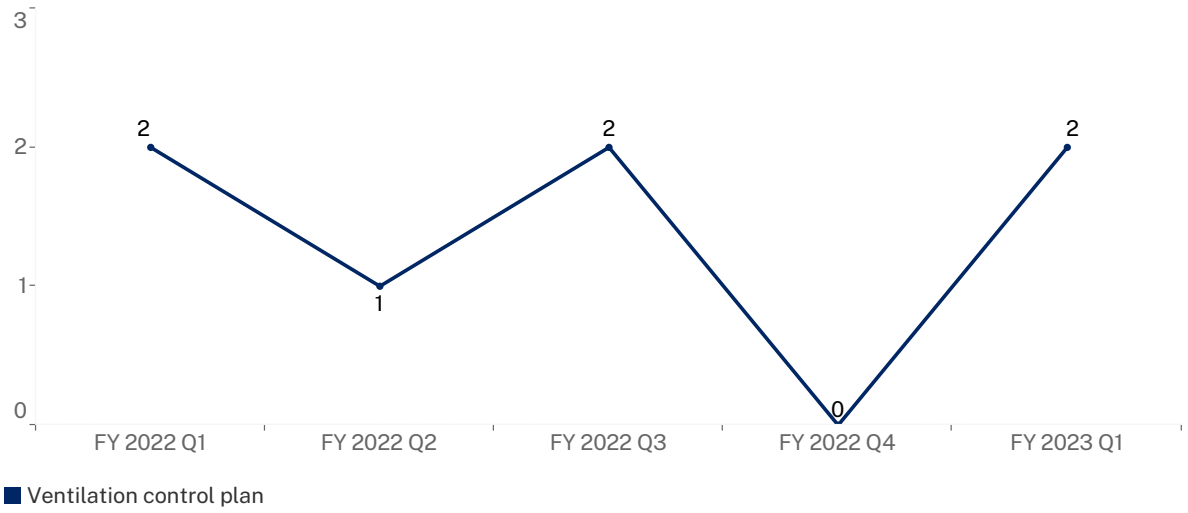
Comments to industry: A causal investigation has commenced. Refer to IIR22-02 Unplanned initiation of explosives at Peak Gold Mine

Ventilation control plans

↑ from 0 to 2

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 16. Incident notifications related to ventilation control plans



Sector profiles

NSW Resources Regulator
Sector reporting

Coal mines

Opencut, underground and coal preparation plants

Large mines

Metalliferous and quarries
Quarries that produce >900,000 tonnes pa and large opencut or underground metalliferous mines

Small mines

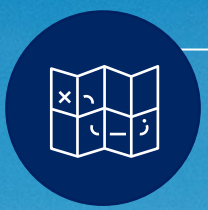
Metalliferous, quarries and other gemstones
Quarries and other mine types (eg. sand, clay, lime) that produce >900,000 tonnes pa, opencut or underground metalliferous mines and gemstone mines

Petroleum and Geothermal

Onshore petroleum and geothermal productions and exploration sites

Opal mines

Opal mines at Lightning Ridge and White Cliffs



Exploration

Exploration sites (excluding petroleum)

Non-mine

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.

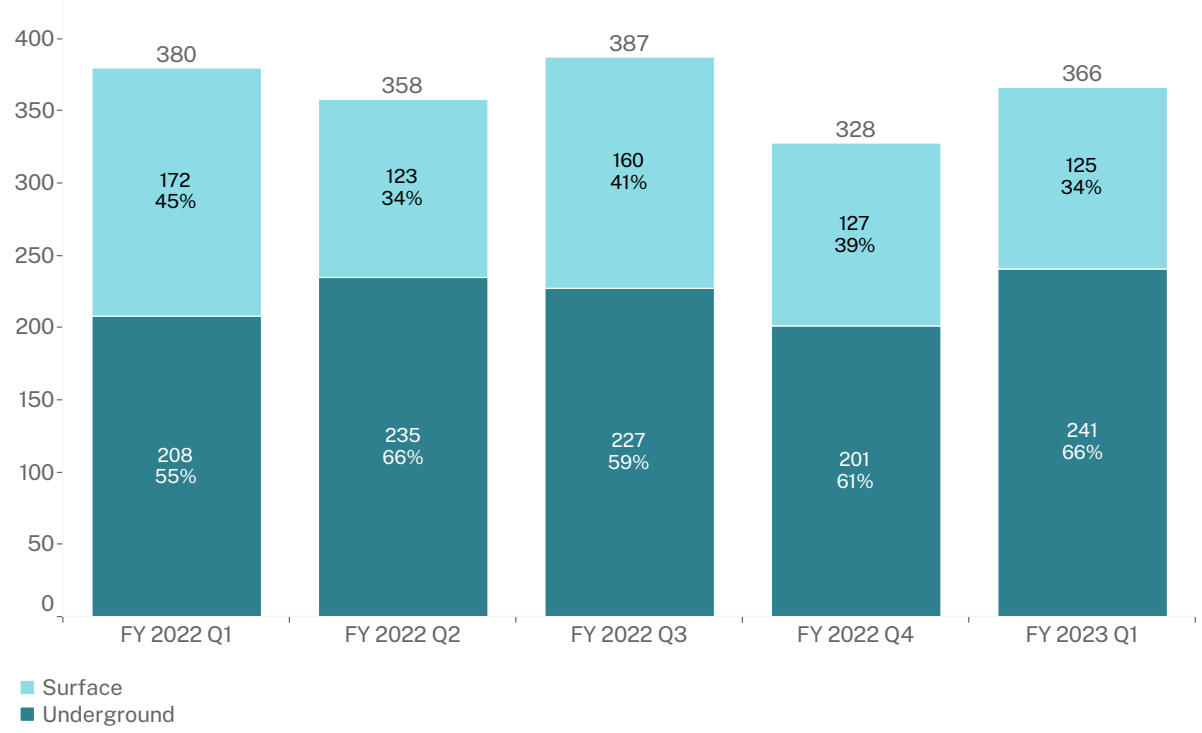
Table 2. Coal sector incident notification rates July 2021 to September 2022

Measure	FY 2022 Q1	FY 2022 Q2	FY 2022 Q3	FY 2022 Q4	FY 2023 Q1
Incidents	380	358	387	328	366
Active mines	117	119	119	120	103*
Incident rate per active mine	3.25	3.01	3.25	2.73	3.55
Mines that notified incidents	54	51	50	48	50
% of mines notifying an incident	46%	43%	42%	40%	49%
Incident rate per notifying mine	7.04	7.02	7.74	6.83	7.32

* The change in active mine numbers represents recategorisation within Resources Regulator's systems

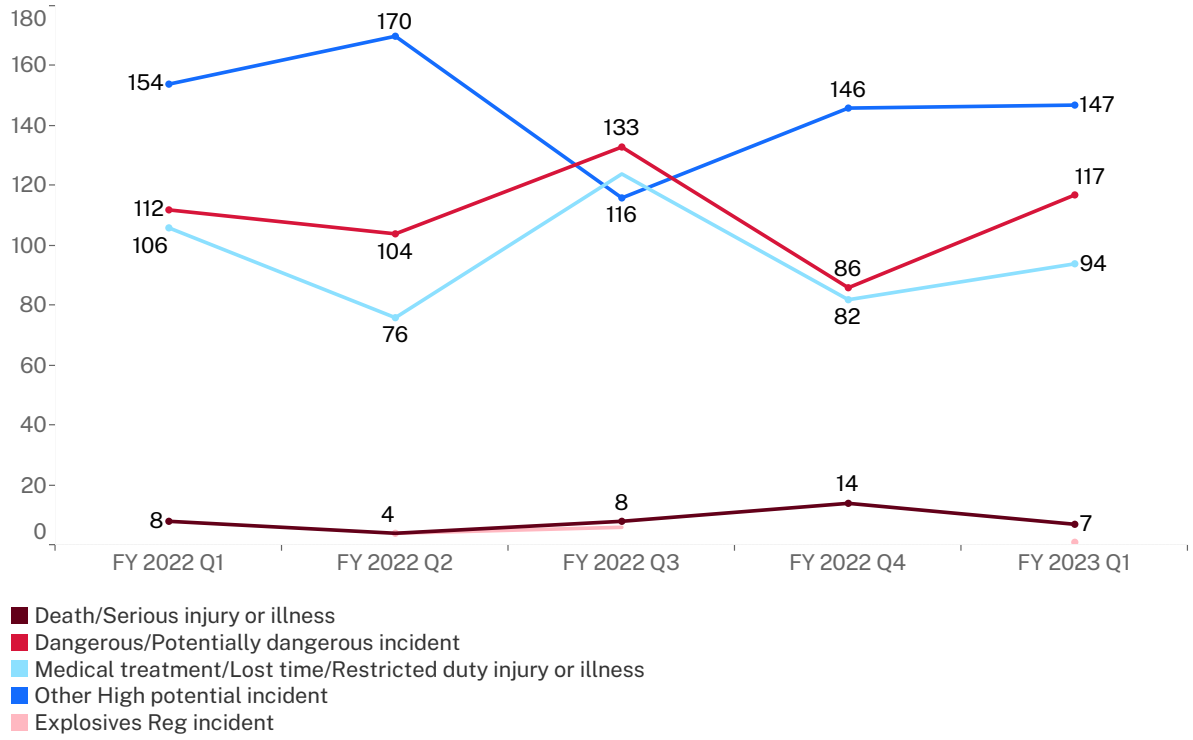
The following graph shows the proportion of safety incident notifications received from surface and underground coal operations. This quarter there was an increase in the number of incidents notified by underground coal operations.

Figure 17. Coal sector incident notifications by operation type – July 2021 to September 2022



The graph below presents a breakdown of safety incidents notified to the Regulator by the coal sector by the requirement to report under safety legislation. While this quarter saw notifications of serious injuries decrease by half to return to previously observed levels, increases were observed across the other breakdown categories.

Figure 18. Coal sector incident notifications by requirement to report – July 2021 to September 2022

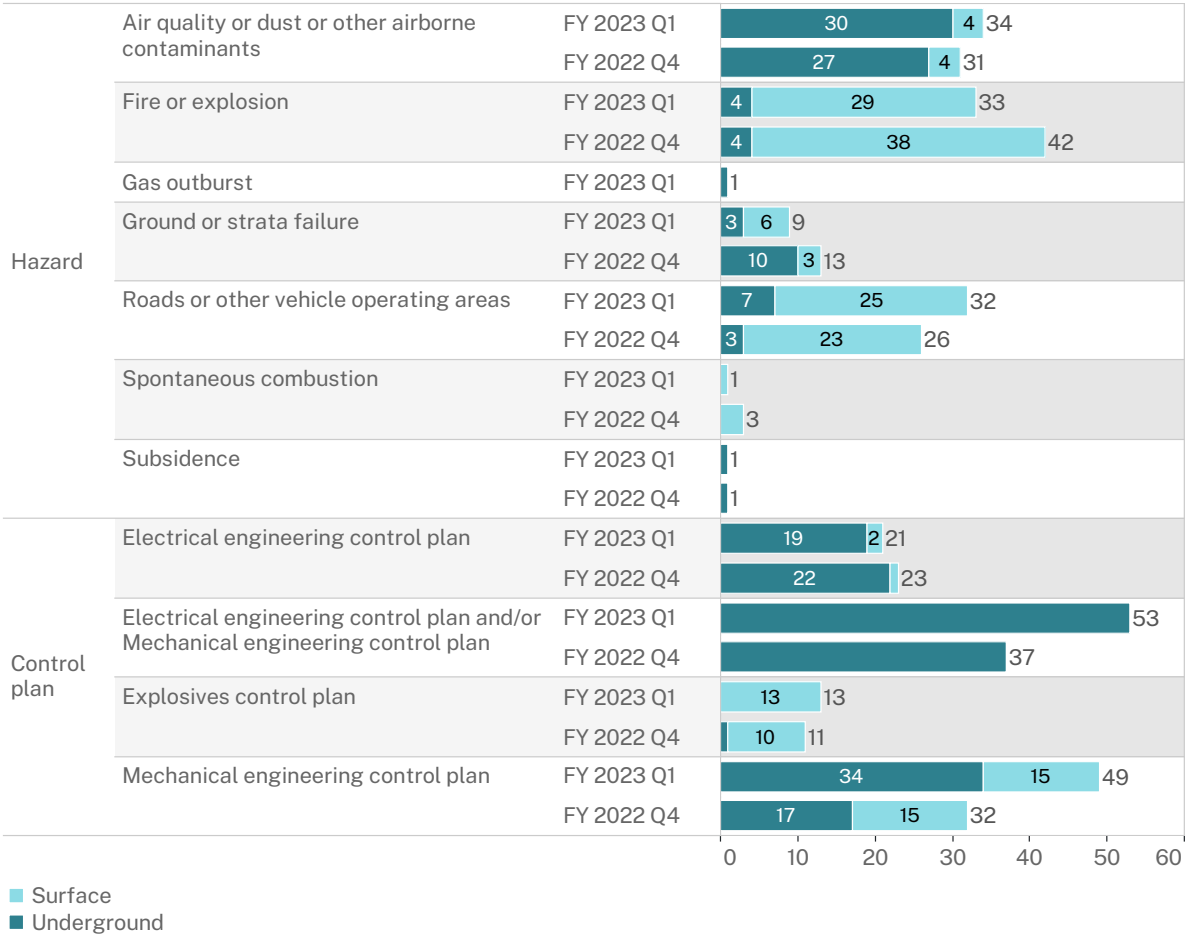


Incident notifications by principal hazard

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.

In this quarter, increases were observed in notified incidents relating to electrical engineering and mechanical engineering control plans in underground coal operations.

Figure 19. Coal mine incidents classified by principal hazard by operation type – April to September 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.

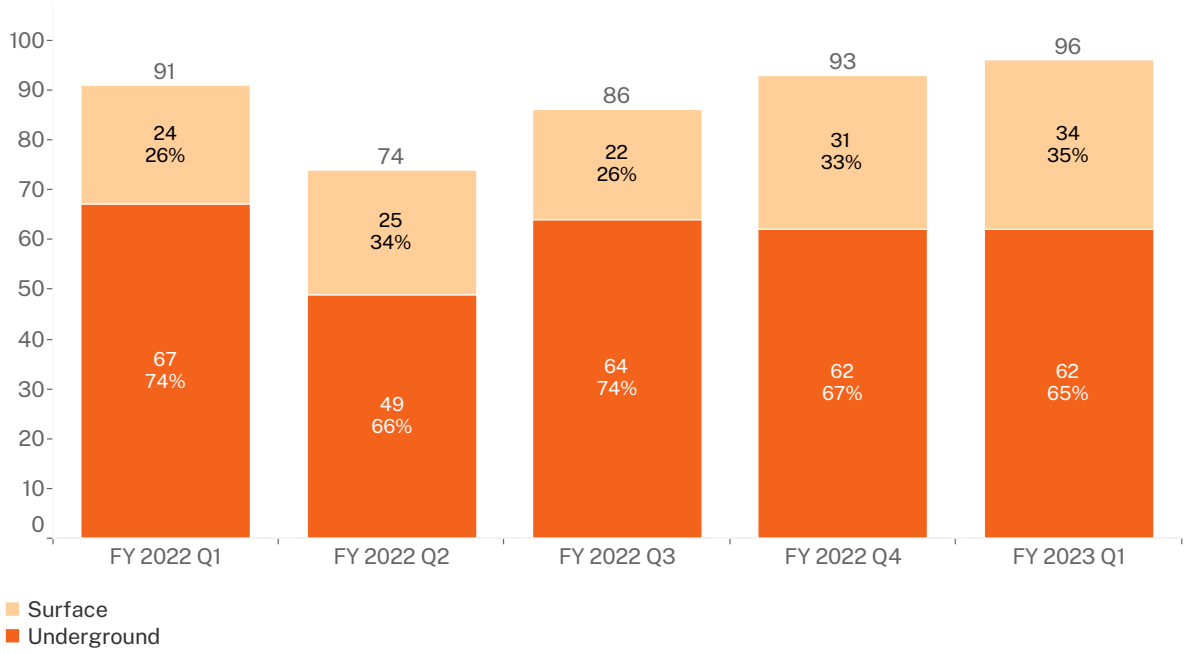
Table 3. Large mines and quarries sector incident notification rates July 2021 to September 2022

Measure	FY 2022 Q1	FY 2022 Q2	FY 2022 Q3	FY 2022 Q4	FY 2023 Q1
Incidents	91	74	86	93	96
Active mines	59	59	58	58	57*
Incident rate per active mine	1.54	1.25	1.48	1.60	1.68
Mines that notified incidents	27	24	24	29	27
% of mines notifying an incident	46%	41%	41%	50%	47%
Incident rate per notifying mine	3.37	3.08	3.58	3.21	3.56

* The change in active mine numbers represents recategorisation within Resources Regulator's systems

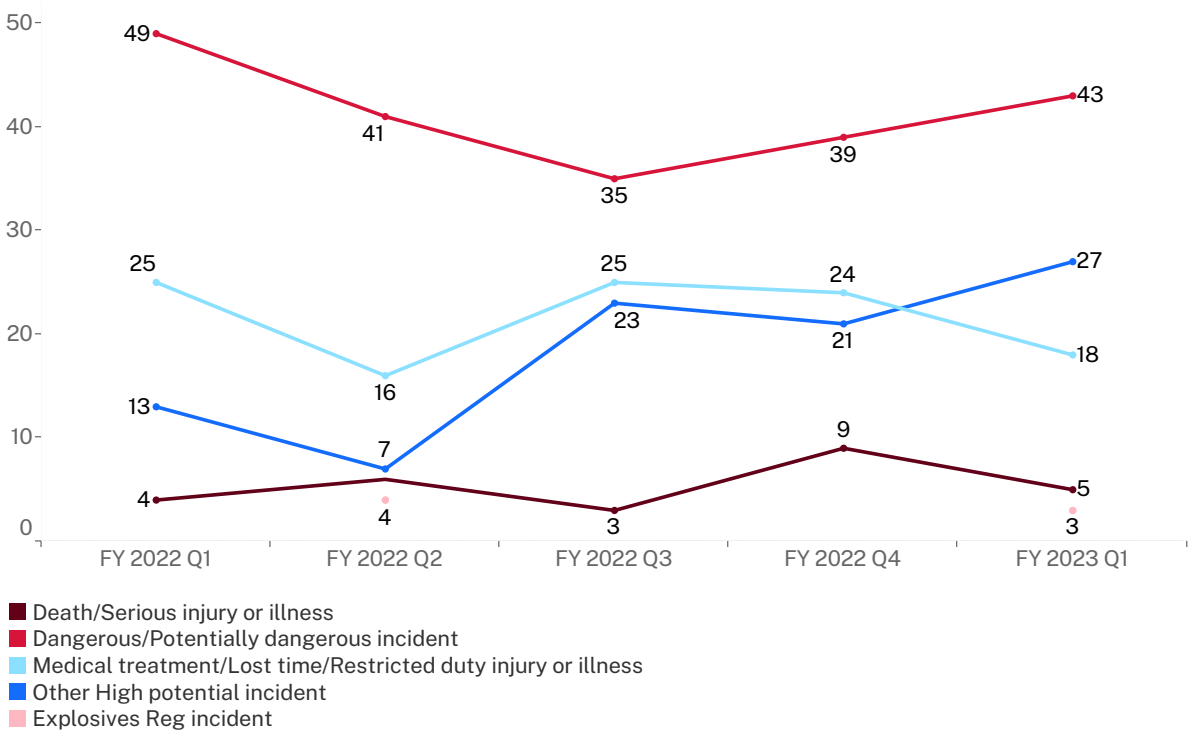
The following graph shows the proportion of safety incident notifications received from large mines and quarries by operation type.

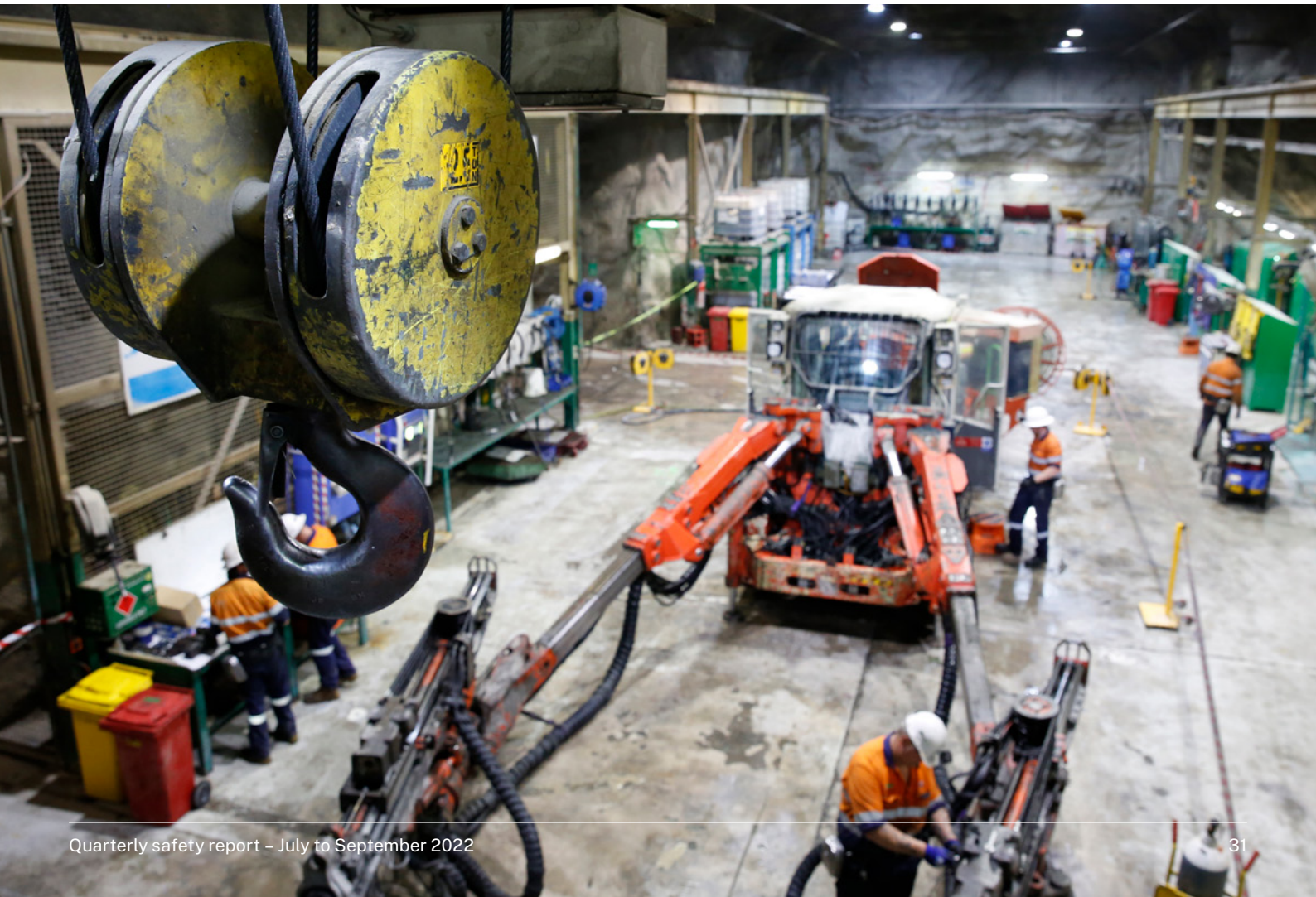
Figure 20. Large mines and quarries incident notifications by operation type – July 2021 to September 2022



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. Decreases in serious injuries and illnesses and medical treatment/lost time/restricted duty injuries and illnesses are noted for this quarter. Small increases in dangerous and potentially dangerous incidents, and other high potential incidents were also observed.

Figure 21. Large mines and quarries incident notifications by requirement to report – July 2021 to September 2022



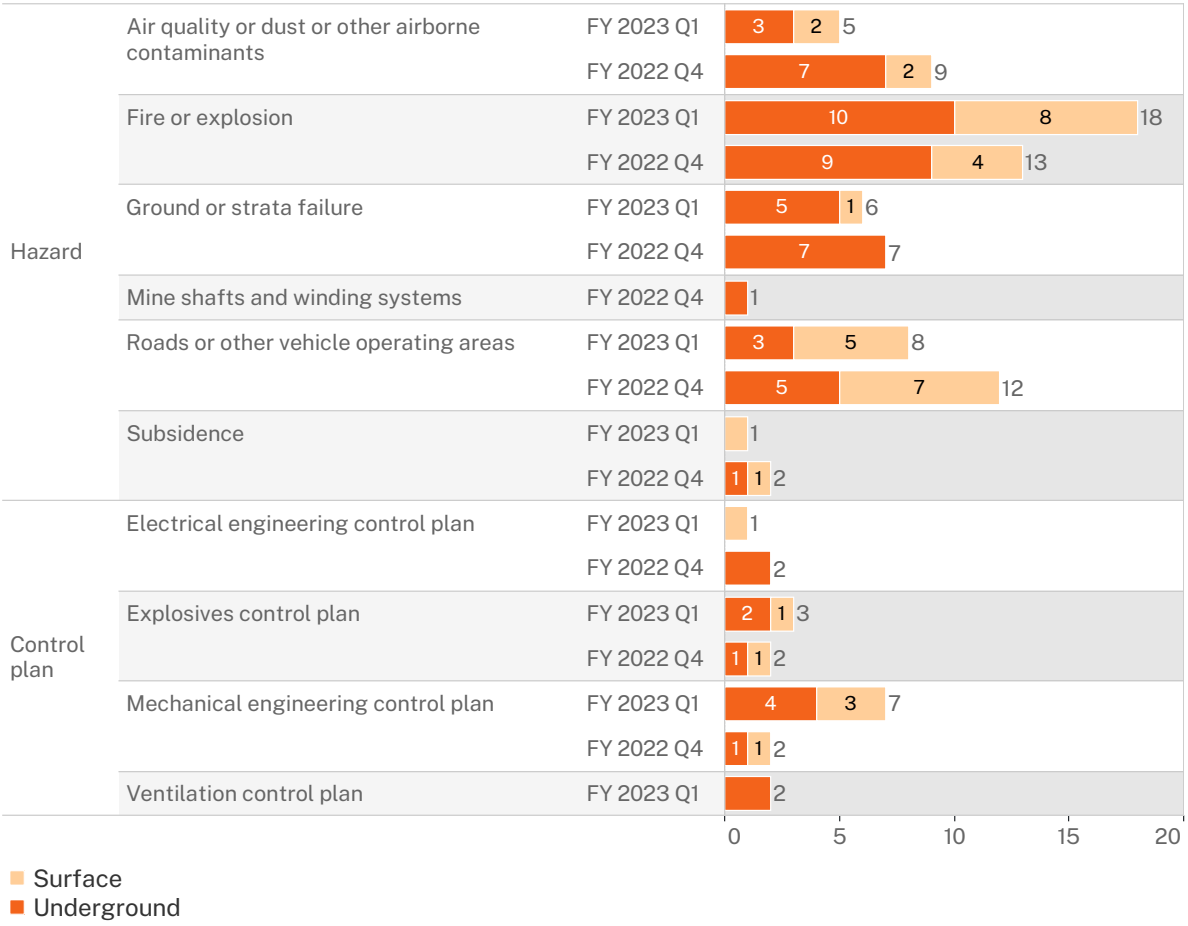


Incident notifications by principal hazard

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.

In this quarter, notable increases were observed in notified incidents relating to fire or exploration and mechanical engineering control plans.

Figure 22. Large mines and quarries incidents classified by principal hazard by operation type – April to September 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.

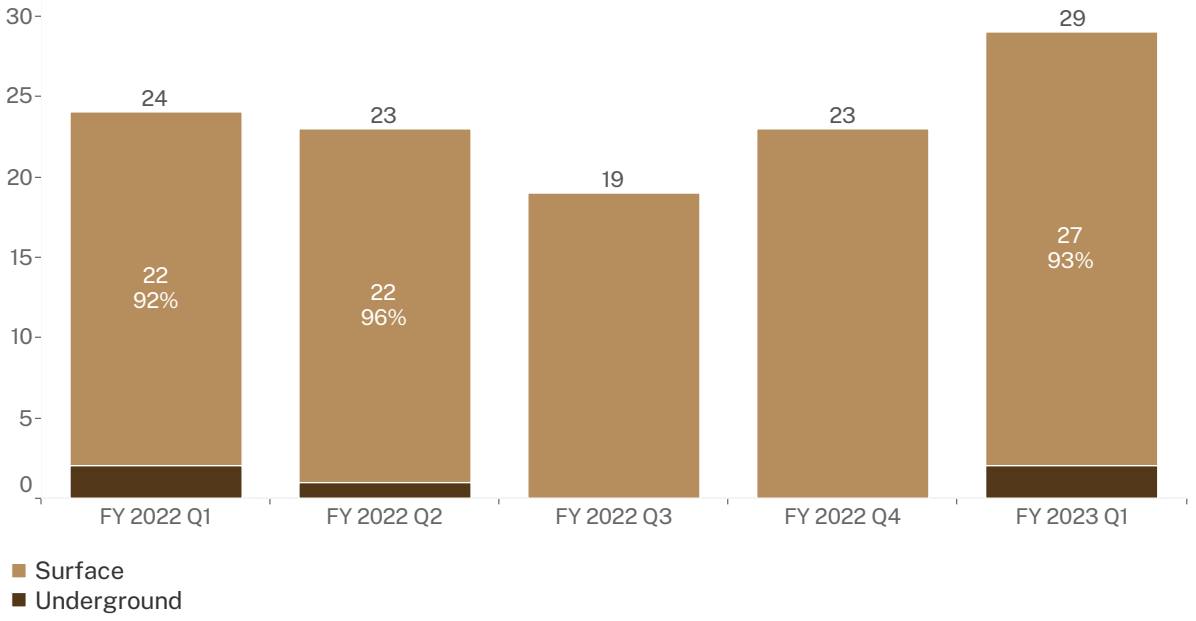
Table 4. Small mines and quarries sector incident notification rates – July 2021 to September 2022

Measure	FY 2022 Q1	FY 2022 Q2	FY 2022 Q3	FY 2022 Q4	FY 2023 Q1
Incidents	24	23	19	23	29
Active mines	2591	2592	2591	2589	2542*
Incident rate per active mine	0.01	0.01	0.01	0.01	0.01
Mines that notified incidents	20	22	18	20	25
% of mines notifying an incident	0.77%	0.85%	0.69%	0.77%	0.98%
Incident rate per notifying mine	1.20	1.05	1.06	1.15	1.16

* The change in active mine numbers represents recategorisation within Resources Regulator's systems.

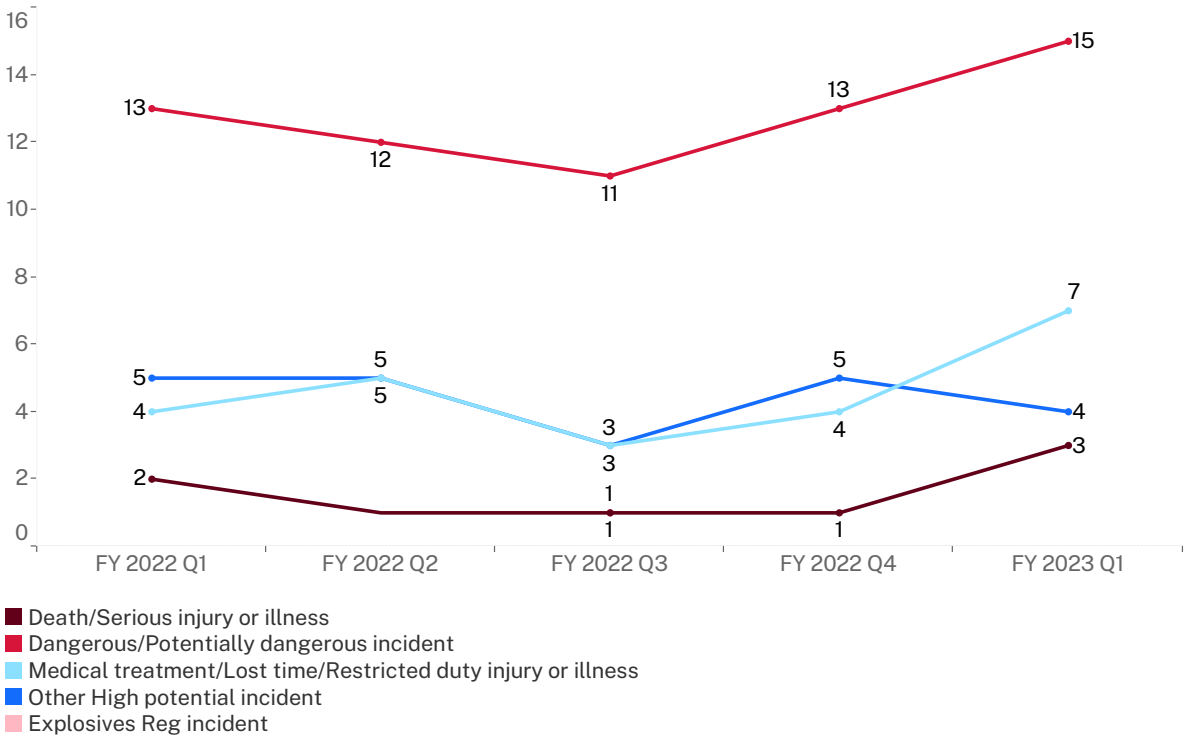
The graph below shows the proportion of safety incident notifications received from small mines and quarries.

Figure 23. Small mines and quarries incident notifications by operation type – July 2021 to September 2022



The graph below presents a breakdown of safety incidents notified to the Regulator by the small mines and quarries sector by the requirement to report under safety legislation. This quarter saw an increase in notified incidents in all injury and illness categories except 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 sectors.

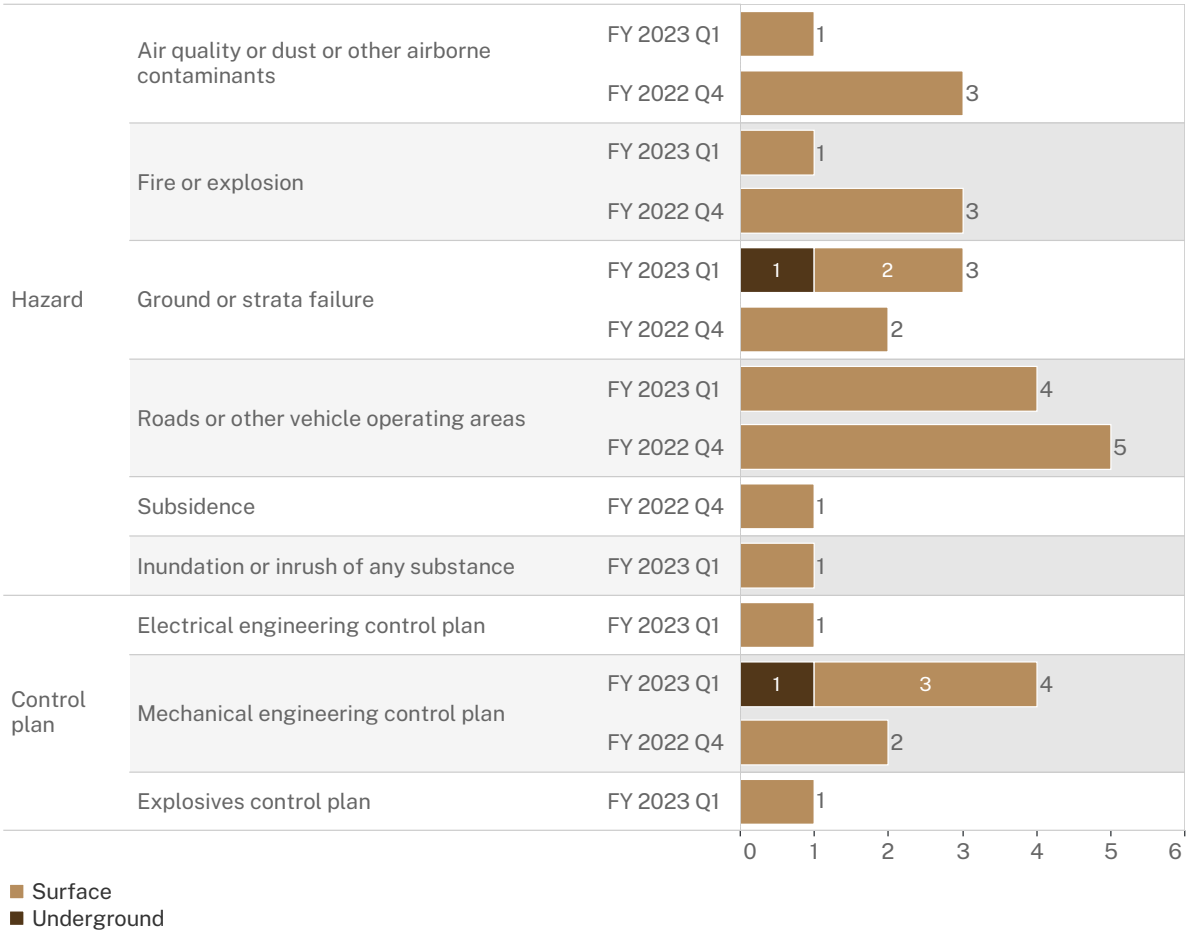
Figure 24. Small mines and quarries incident notifications by requirement to report – July 2021 to September 2022



Incident notifications by principal hazard

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

Figure 25. Small mines and quarries incidents classified by principal hazard by operation type – April to September 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 exploration sites incident notifications – July 2021 to September 2022

Sector	Measure	FY 2022 Q1	FY 2022 Q2	FY 2022 Q3	FY 2022 Q4	FY 2023 Q1
Petroleum & geothermal sites*	Incidents	0	0	0	0	0
Opal mines	Incidents	0	0	0	2	0
Exploration sites**	Incidents	1	0	5	0	0

* includes exploration

** excludes petroleum and geothermal

Table 6. Opal mines and exploration sites incident notifications by requirement to report – July 2021 to September 2022

Sector	Incident notification requirement to report	FY 2022 Q1	FY 2022 Q2	FY 2022 Q3	FY 2022 Q4	FY 2023 Q1
Opal mines	Dangerous/Potentially dangerous incident	0	0	0	2	0
Exploration sites	Death/Serious injury or illness	1	0	0	0	0
	Dangerous/Potentially dangerous incident	0	0	1	0	0
	Medical treatment/Lost time/ Restricted duty injury or illness incident	0	0	4	0	0
	Total	**1**	**0**	**5**	**2**	**0**

Table 7. Opal mines and exploration sites incident notifications by principal hazard and principal control plan – July 2021 to September 2022

Sector	Incident notification PH/PCP classification	FY 2022 Q1	FY 2022 Q2	FY 2022 Q3	FY 2022 Q4	FY 2023 Q1
Opal mines	Inundation or inrush of any substance	0	0	0	1	0
	Roads or other vehicle operating areas	0	0	0	1	0
	Total	**0**	**0**	**0**	**2**	**0**
Exploration sites	Mechanical engineering control plan	0	0	1	0	0
	No related principal mining hazard or principal control plan	1	0	4	0	0
	Total	**1**	**0**	**5**	**4**	**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.

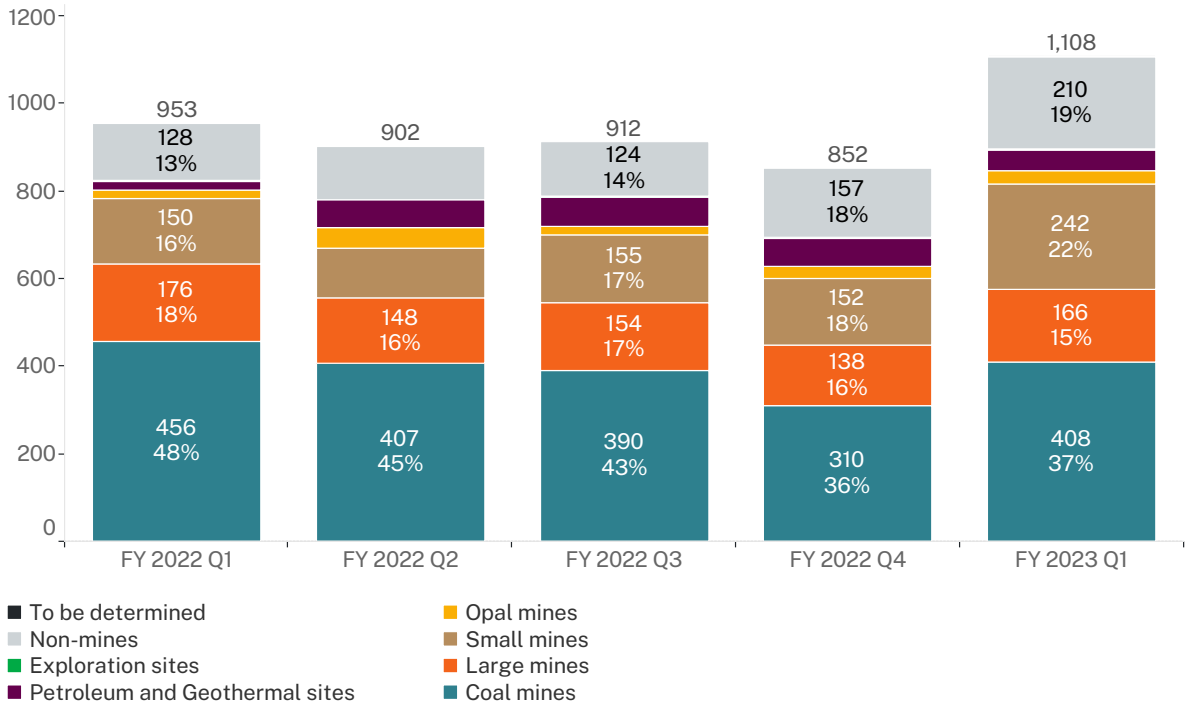
Detailed information regarding compliance activities, priorities, outcomes and reports are published on our website and in our business activity reports.

Safety assessments by sector

This quarter saw an increase in the number of assessments with the highest figure of the previous five quarters. The previously observed quarter-on-quarter increases in the small mines sector had been driven by multiple assessments being undertaken during a single inspection.

Non-mines assessments predominantly relate to licensing and practising certificate applications and renewals.

Figure 26. Safety assessments by sector – July 2021 to September 2022

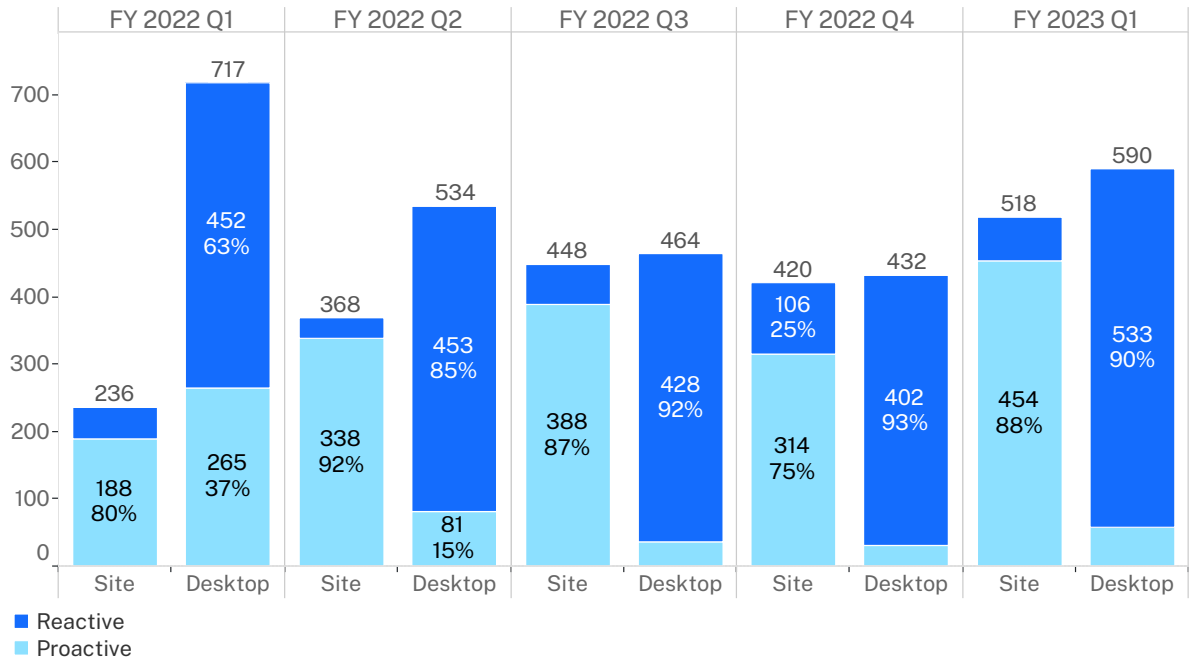


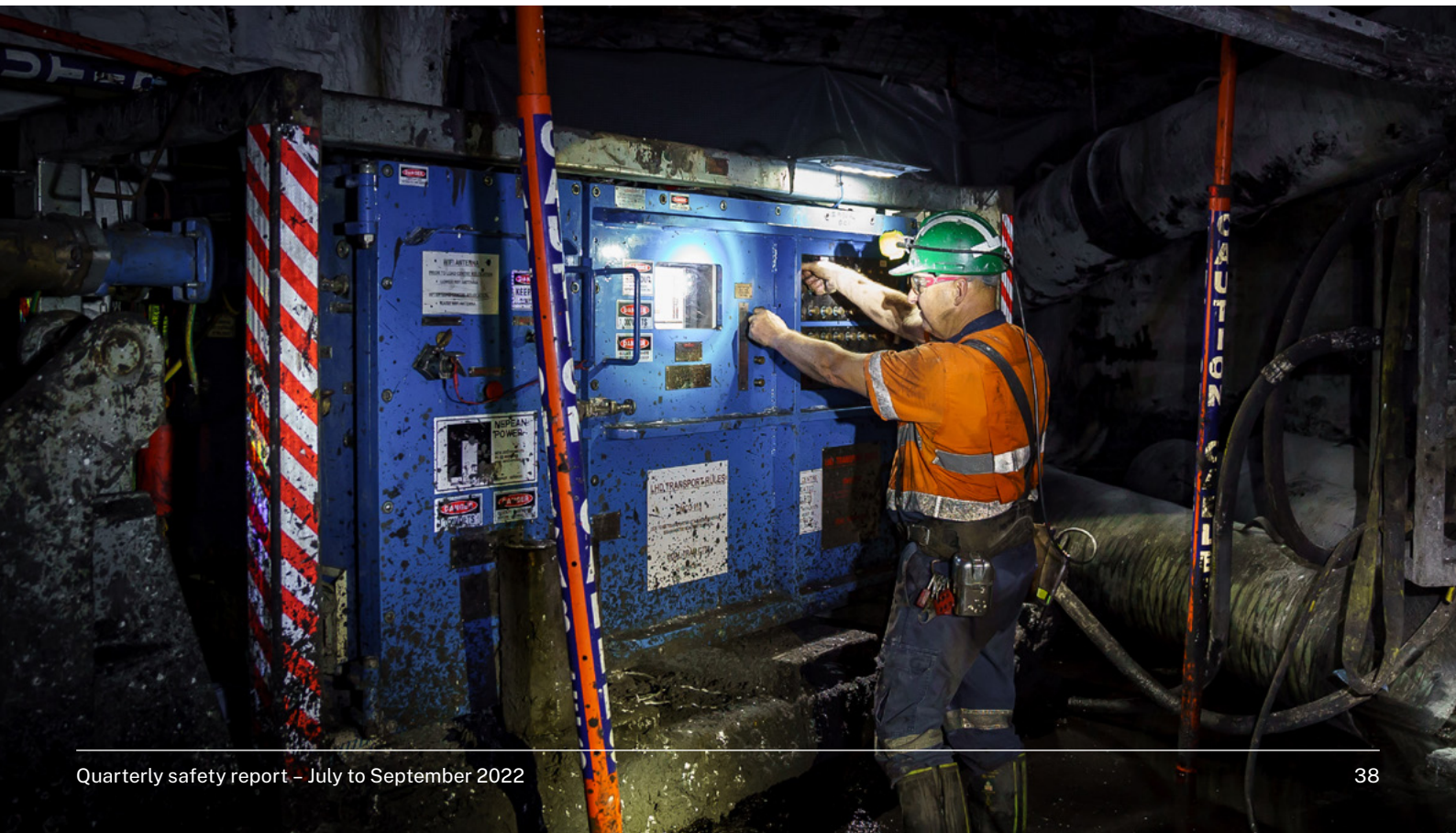
Safety assessments by category and nature

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.

Figure 27. Safety assessments by category and nature – July 2021 to September 2022

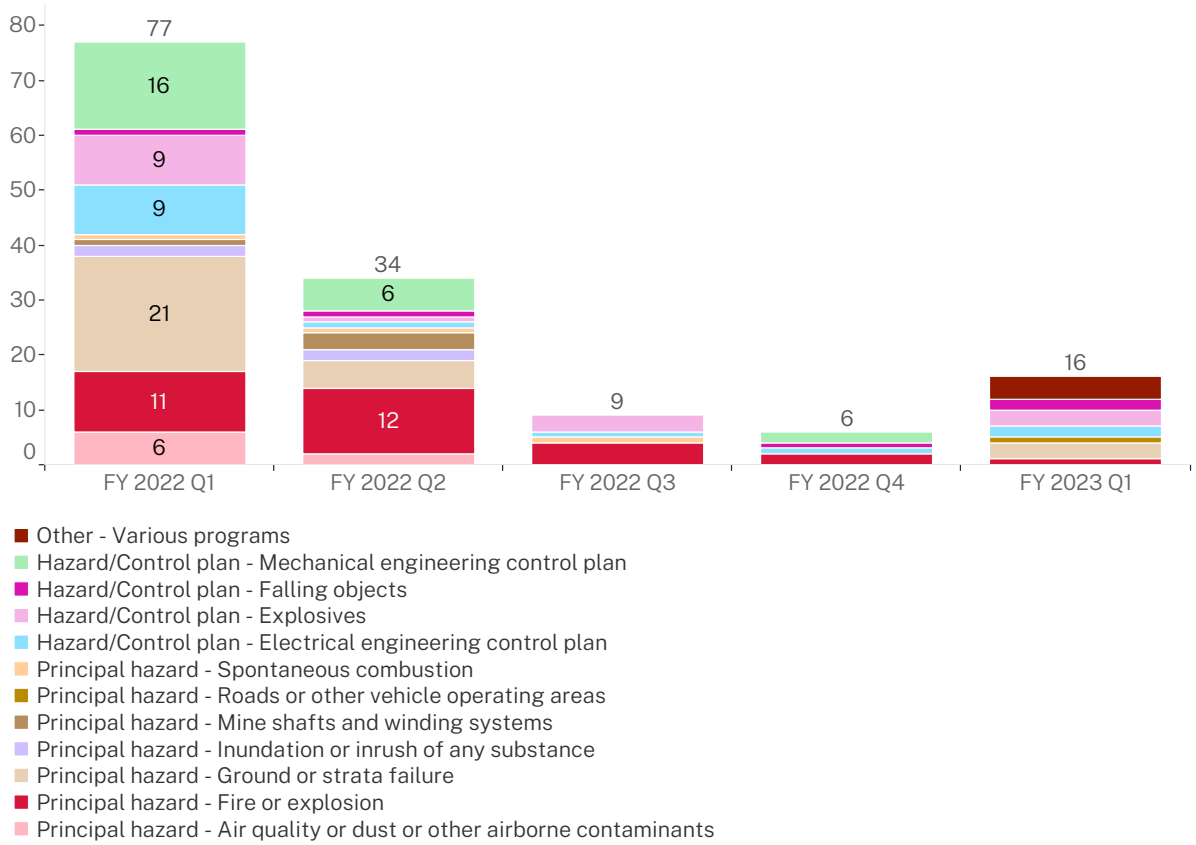


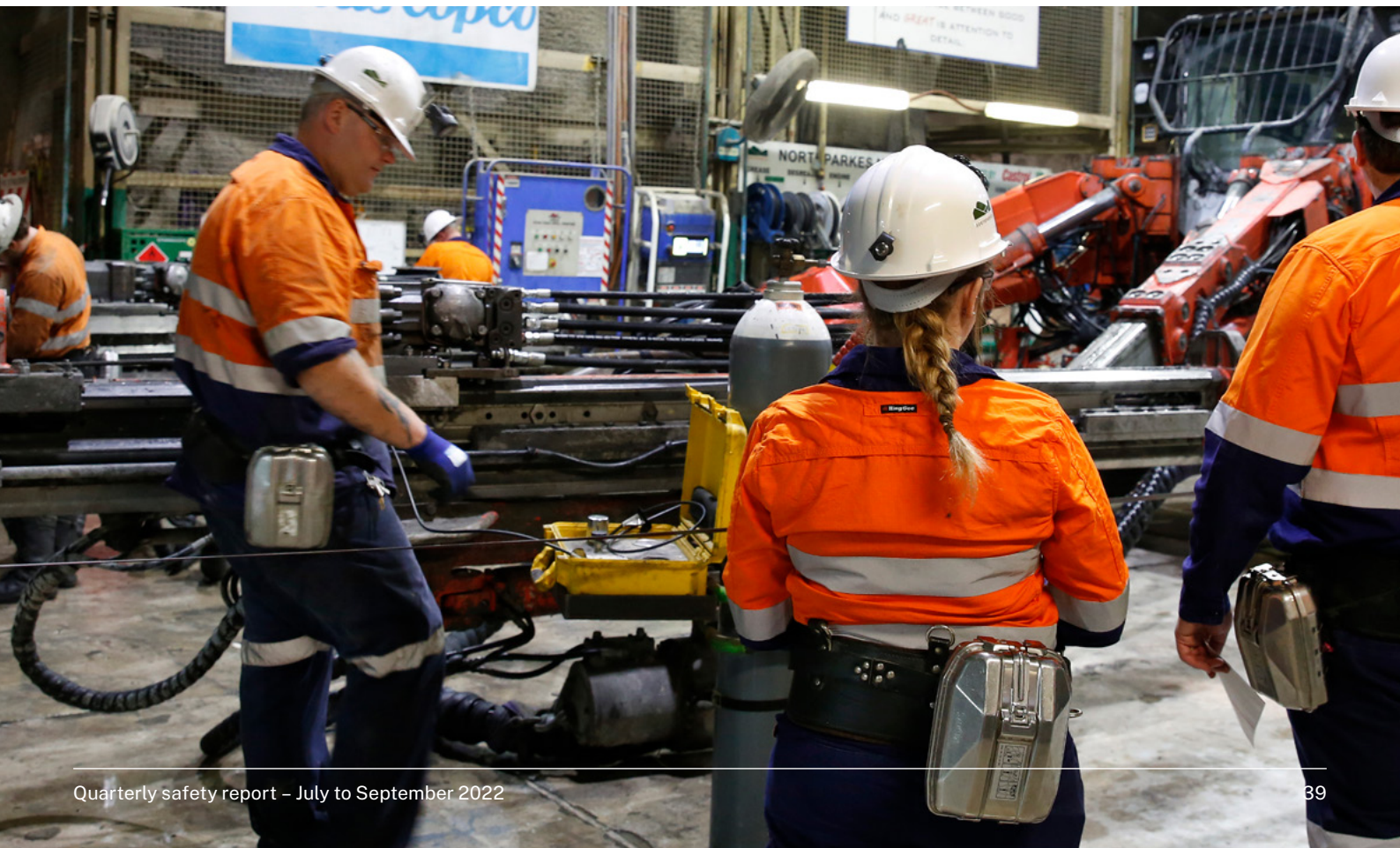


Targeted assessment program

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.

Figure 28. Targeted assessments by hazard – July 2021 to September 2022



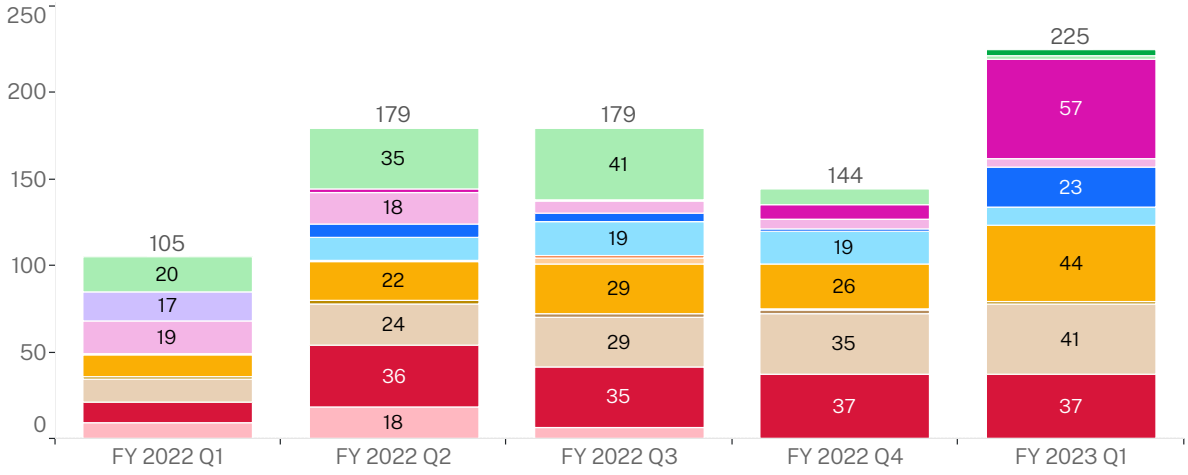


Planned inspections

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.

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

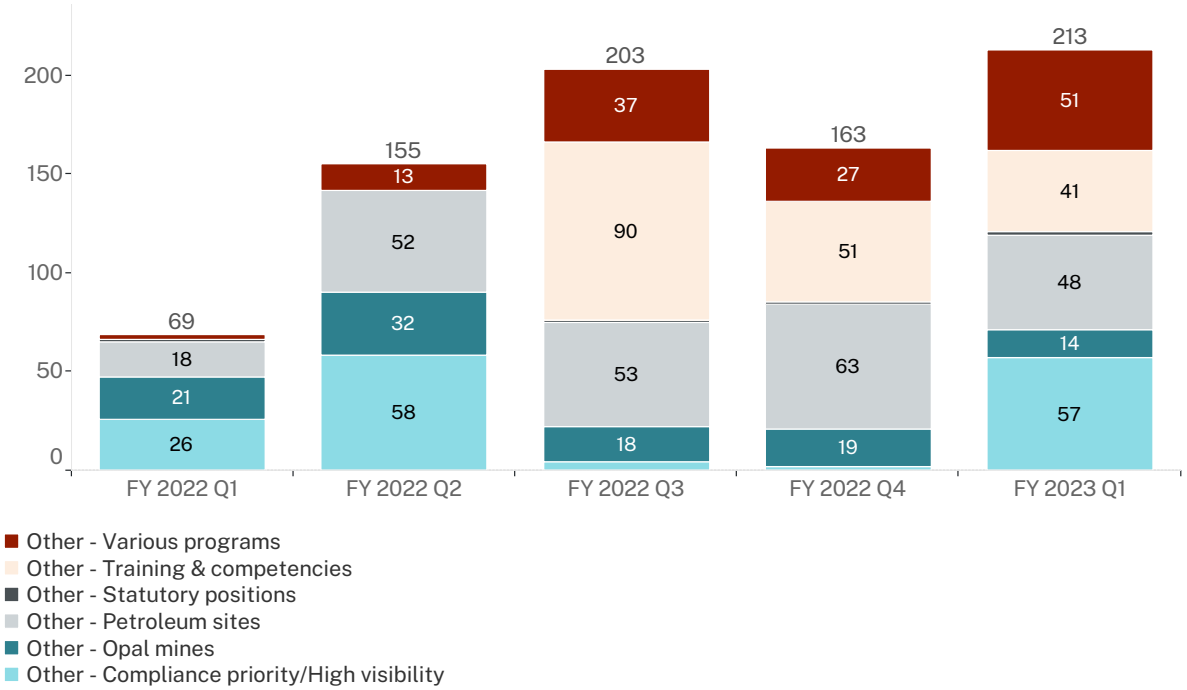
Figure 29. Planned inspections by principal hazard – July 2021 to September 2022



- Hazard/Control plan - Working at height
- Hazard/Control plan - Mechanical engineering control plan
- Hazard/Control plan - Heat stress
- Hazard/Control plan - Hazardous chemicals
- Hazard/Control plan - Falling objects
- Hazard/Control plan - Explosives
- Hazard/Control plan - Emergency management plan
- Hazard/Control plan - Electrical engineering control plan
- Hazard/Control plan - Dams, tailings, emplacements
- Principal hazard - Spontaneous combustion
- Principal hazard - Small mines - Tier 2 and Tier 3 Principal hazard assessment
- Principal hazard - Roads or other vehicle operating areas
- Principal hazard - Mine shafts and winding systems
- Principal hazard - Ground or strata failure
- Principal hazard - Fire or explosion
- Principal hazard - Air quality or dust or other airborne contaminants

The graph below shows planned site inspections commenced for 'other' hazards.

Figure 30. Planned inspections by 'other' hazard – July 2021 to September 2022

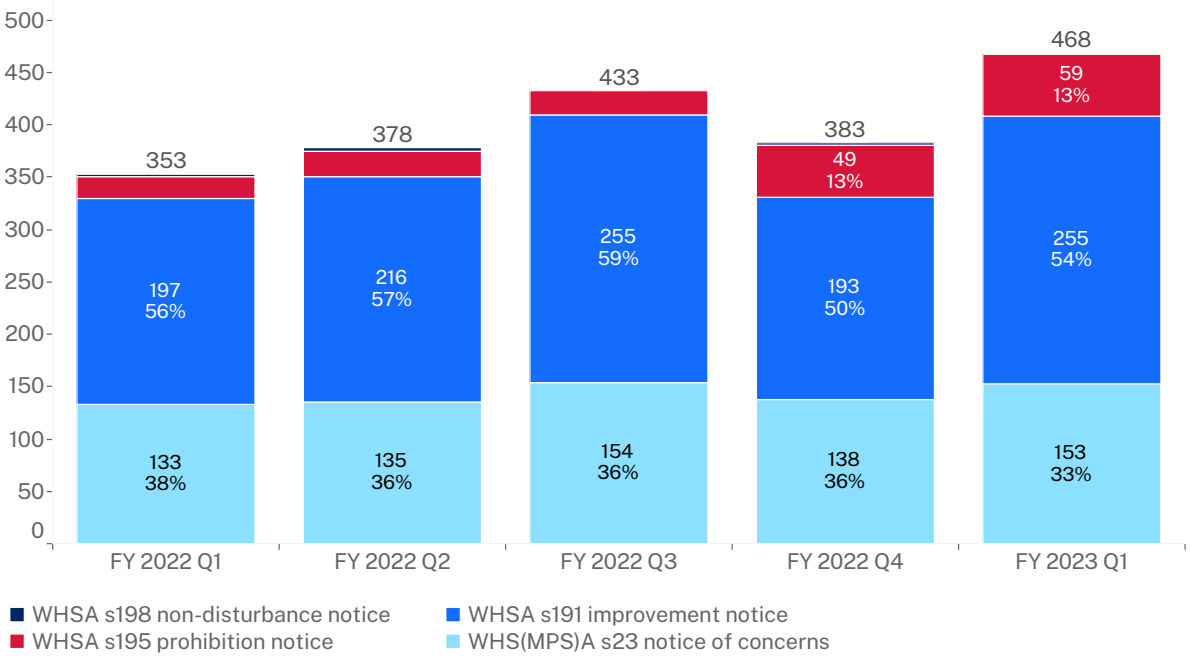


Safety notices issued

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

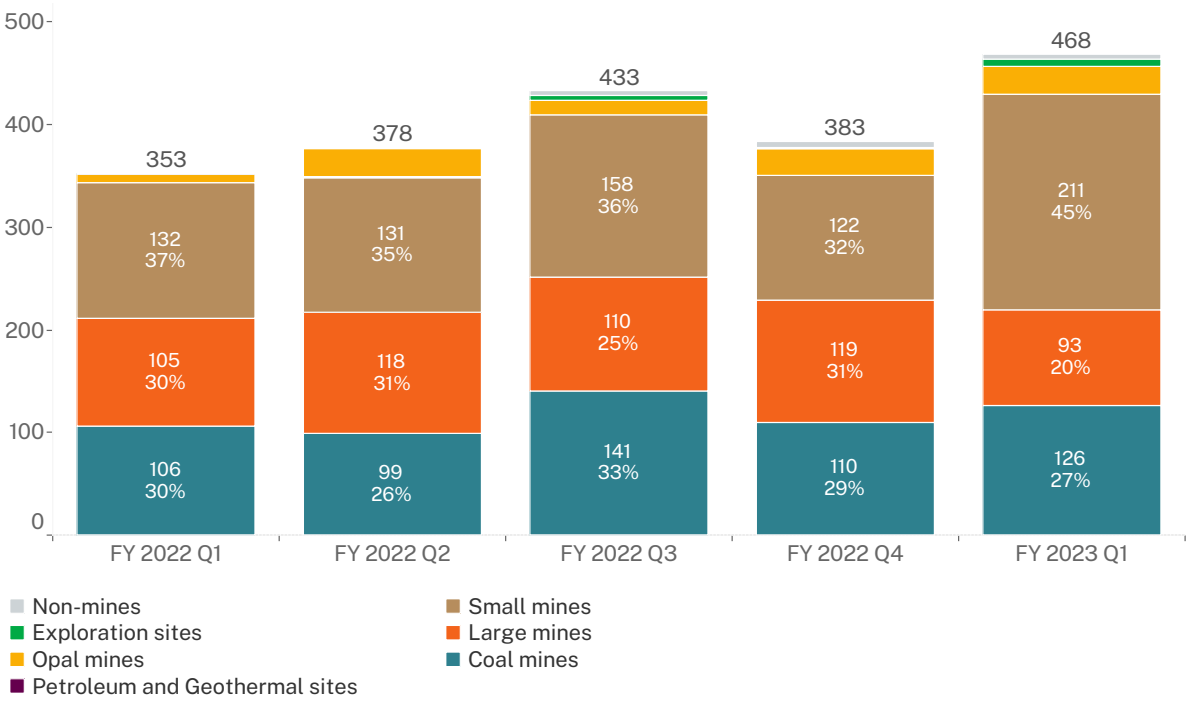
The graph below shows the number and types of safety notices issued during each of the five quarters since July 2021. This quarter saw an increase in the number of notices issued following a decrease in the previous quarter.

Figure 31. Safety notices issued by notice type – July 2021 to September 2022



The proportion of safety notices issued to the coal mines and large mines sectors have decreased this quarter, with an increase observed in the small mines and quarries sector.

Figure 32. Safety notices issued by sector – July 2021 to September 2022



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