
Quarterly safety report

January to March 2023

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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, under care and maintenance, open tourist mines 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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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, ventilation 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 'fire 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 in six sectors: coal mines, 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 January to March 2023 (FY2023 Q3). For selected measures, data is analysed over a 15-month period from January 2022 to March 2023.

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

In this quarter, safety incident notifications received by the Regulator from the underground coal sector increased by 20% from the previous quarter, while notifications from large underground mines decreased by 28%. Of note, the number of dangerous or potentially dangerous incidents notified by both the large and small mines and quarries sectors continued the upward trend observed over the past 5 quarters.

Medical treatment/lost time/restricted duty injuries and illnesses in the large mines and quarries sector decreased to numbers seen in Q2 and Q3 of FY 2022.

Notifications increased for the principal hazards of spontaneous combustion (250% – 2 to 7), roads and other vehicle operating areas (34%), with decreases observed in air quality, dust and other airborne contaminants (36%) and ground or strata failure (43%). Notable increases were also seen in notifications for electrical engineering principal control plans (63%) and both electrical and mechanical engineering principal control plans (56%). Ventilation control plan incident notifications remained comparatively high for the second consecutive month.

Substantial increases were seen in proactive assessments undertaken by the Regulator – 524% (17 to 106) for desktop assessments and 42% (339 to 480) for site assessments.

More notices were issued this quarter, largely due to a 6% increase in improvement notices.

Incident notification rates per active coal mine (4.17) and notifying coal mine reached the highest rate for the previous 5 quarters (8.25).

The upward trend observed in dangerous and potentially dangerous incidents notified by the large mines and quarries sector continued this quarter, with decreases seen across all other incident types.

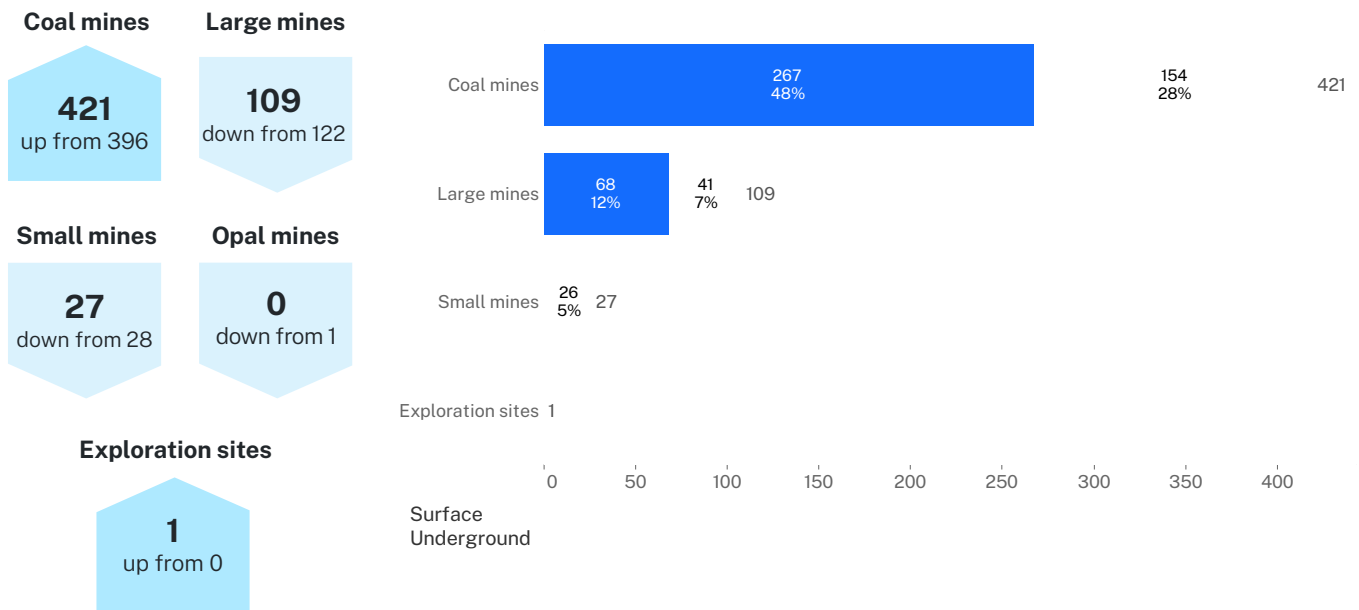


Quarterly snapshot

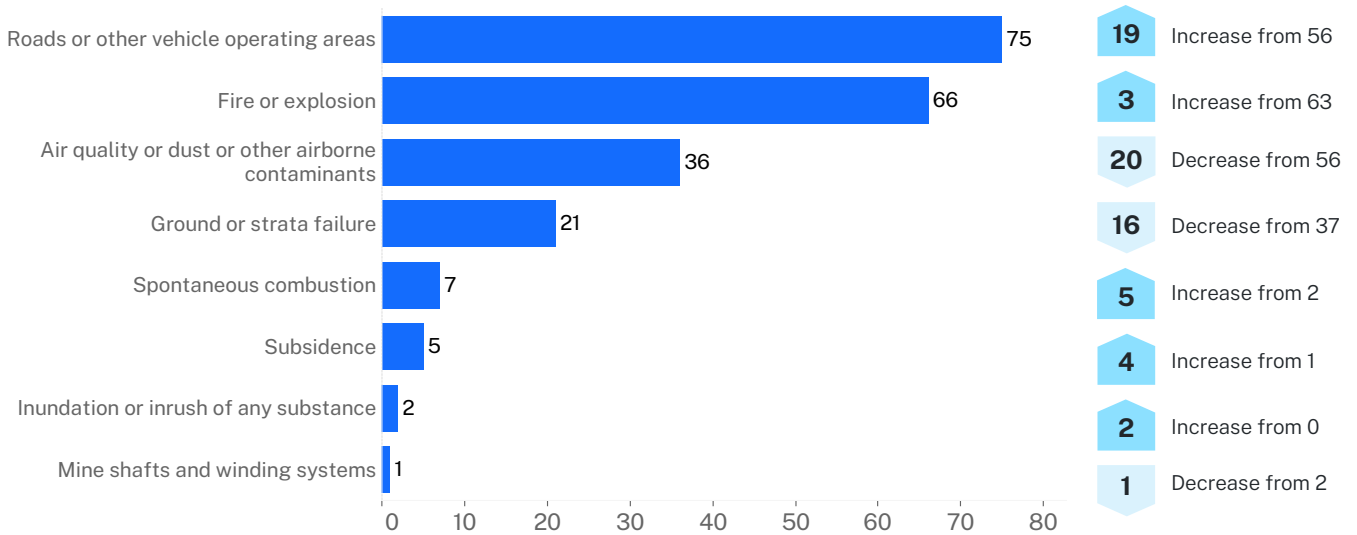
0 Work-related deaths	558 Incident notifications received	196 Other high potential incidents
23 Serious injuries or illnesses		23 Medical treatment injuries or illnesses
99 Dangerous incidents		105 Lost time/restricted duty injuries or illnesses
107 Potentially dangerous incidents		5 Explosives Reg incidents

*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

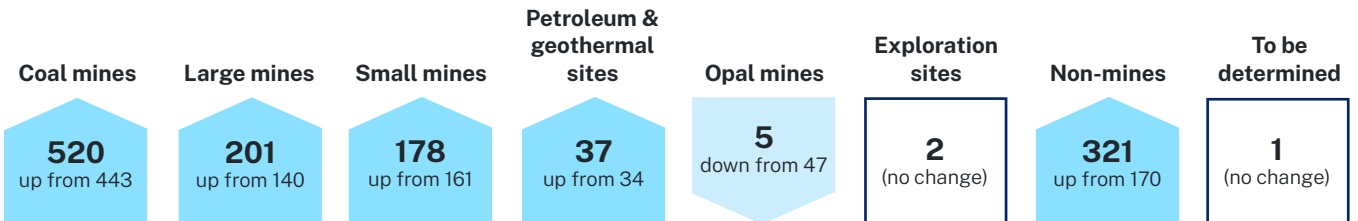
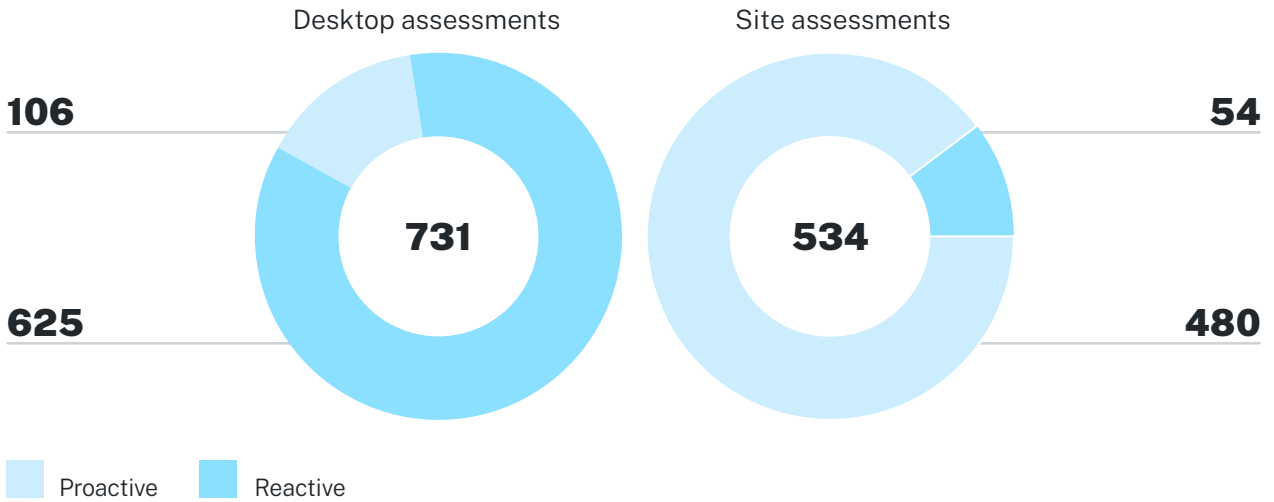


Incident notifications classified by principal hazard

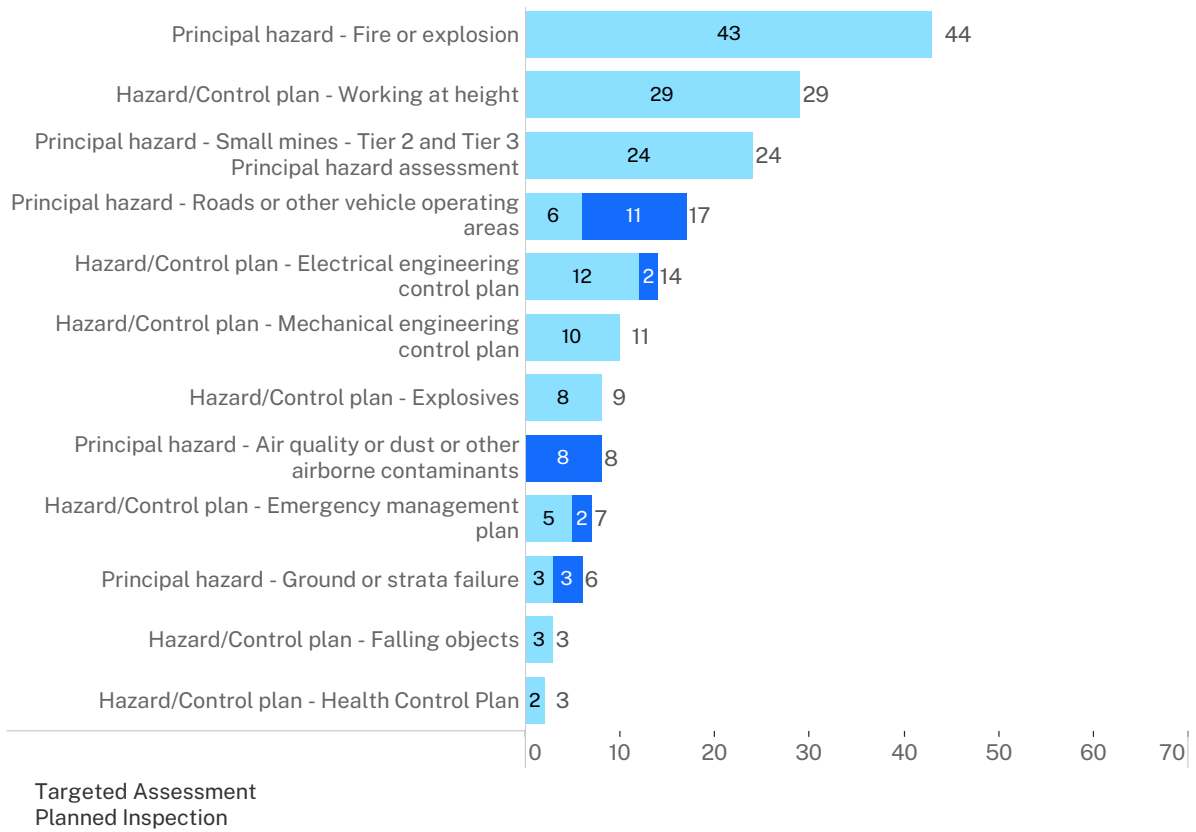


Note: Gas outburst decreased from 2 to 0.

1265 Assessments commenced



Programmed site assessments conducted



431 Notices issued



3

WHS(A) s198
non-disturbance notices



42

WHS(A) s195
prohibition notices



216

WHS(A) s191
improvement notices



170

WHS(MPS)A s23
notices of concern

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 January and 31 March 2023.

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

Fatal injuries

Australia

Queensland

- On 26 November 2022, an opal mine worker sustained fatal injuries when he fell from the roof of a workshop. Refer to [RSHQ fatality alert dated 19 January 2023](#)
- Two contractors were fatally injured on 15 February 2023 after the light vehicle they were travelling in fell into a void within a previously backfilled stope. Refer to [RSHQ safety alert dated 17 February 2023](#)

Other Australian States and Territories

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

International

United States of America

During this quarter, 12 mining or quarrying related fatality alerts published by the USA's Mine Safety and Health Administration (MSHA):

- On 4 January 2023, a miner was fatally injured while being positioned between a pitman assembly and crusher housing of a jaw crusher to remove a toggle bearer. The pitman assembly rotated, pinning the miner against the crusher housing. Refer to [MSHA fatality alert dated 4 January 2023](#)
- On 17 January 2023, a miner was fatally injured when his personal vehicle collided with a customer truck while both vehicles were travelling in opposite directions on an icy mine access road. Refer to [MSHA fatality alert dated 17 January 2023](#)
- On 23 January 2023, two miners were removing steel waterlines with hand tools when one of the waterlines suddenly broke apart, striking and killing one miner. The other miner was seriously injured. Refer to [MSHA fatal alert dated 23 January 2023](#)
- On 27 January 2023, two contractors were fatally electrocuted when a 14,400-volt overhead power line came into contact with their off-road dump trucks. The contractors were outside the cabs of their trucks and encountered the electrical energy. Refer to [MSHA fatality alert dated 27 January 2023 re victim Bloodsaw](#) and [MSHA fatality alert dated 27 January 2023 re victim Asberry](#)
- On 30 January 2023, a miner died when he fell approximately 35 feet to the ground through a void in the walkway where a piece of grating had been removed. Refer to [MSHA fatality alert dated 30 January 2023](#)
- On 6 February 2023, a haul truck driver raised the truck bed into an overhead 13,200-volt power line. The driver exited the truck to extinguish a fire on the truck's tire and was electrocuted when he tried to re-enter the truck. Refer to [MSHA fatality alert dated 6 February 2023](#)
- On 25 February 2023, a miner drowned after the excavator he was operating travelled over a berm into a sediment pond. Refer to [MSHA fatality alert dated 25 February 2023](#)

- On 26 February 2023, a contractor employee died when the bulldozer he was operating left the haul road and rolled down a hill. The contractor employee was not wearing a seat belt and was ejected from the bulldozer. Refer to [MSHA fatality alert dated 26 February 2023](#)
- On 1 March 2023, a contractor employee died when the bulldozer he was operating backed over a spoil bank, left the bench area, and rolled down an embankment. The contractor employee was ejected from the bulldozer. Refer to [MSHA fatality alert dated 1 March 2023](#)
- On 9 March 2023, a truck driver died when the tractor's rear wheels ran over him. A front-end loader struck the tractor-trailer from behind, causing the tractor to move forward. Refer to [MSHA fatality alert dated 9 March 2023](#)
- On 15 March 2023, a miner was operating an excavator along the bank of a water-filled pit when it fell into the pit and submerged. The miner was fatally injured. Refer to [MSHA fatality alert dated 15 March 2023](#)
- On 18 March 2023, a miner died when a section of roof fell while he and other miners were building cribs during the recovery of longwall shields. Refer to [MSHA fatality alert dated 18 March 2023](#)
- On 22 March 2023, a miner died when a battery powered personnel carrier he was riding on overturned. Another miner riding on the personnel carrier accidentally actuated the emergency stop causing the personnel carrier to drift backwards down a grade. The personnel carrier overturned after striking the coal rib, pinning the victim beneath it. The victim was not riding in a designated seating area. Refer to [MSHA fatality alert dated 22 March 2023](#)

Zimbabwe

- Caledonia Mining Corporation Plc reported that a mine employee was killed on 16 February 2023 in connection with a secondary blasting accident. Refer to [statement published by Caledonia Mining Corporation Plc on 17 February 2023](#)



Alerts, bulletins, fact sheets and incident information releases

New South Wales

Safety alerts and bulletins

- [SA23-01–Unintended movement of haul truck](#)
- [SB23-01–Explosion risk of battery units for underground battery electric vehicles](#)
- [SB23-02–Ongoing monitoring and reporting for escape breathing apparatus](#)

Fact sheets

- [Assessment program–Roads or other vehicle operating areas](#)
- [Quarry manager practising certificate–3-tier approach](#)
- [Auditing of WHS practising certificate holders for Maintenance of Competence](#)
- [Assessment program–Structural collapse–metalliferous mines and tier-1 quarries](#)
- [Informative note–Human and organisational factors](#)

Reports

- [Investigation report–Death of a worker at West Wyalong Quarry](#)
- [Compliance priority report–Emergency planning–self-escape and refuge–underground mines](#)
- [Compliance priority report–Surface coal-windrows and edge protection standards](#)
- [Compliance priority report–Hazard reporting of safety-related issues–surface and underground coal mines](#)
- [Consolidated report–Fire or explosion–electrical–metalliferous mines and tier-1 quarries](#)
- [Consolidated report–Ground or strata failure–underground coal mines–secondary extraction](#)
- [Consolidated report–Falling objects–lifting and craneage–tier-1 quarries and surface metalliferous mines](#)
- [Consolidated report–Electrical engineering control plan–exposure to an uncontrolled release of electrical energy–coal mines–stage 1](#)

Investigation information releases

- [IIR23-01–Uncontrolled dozer travels 230m down ramp](#)

Queensland

- **Firing cables exceed maximum resistance**

Recent inspections have identified the use of firing cables that do not comply with the requirements prescribed in the Australian Standard. The resistance measured in the electric initiation systems exceed the limits prescribed in Australian Standard 2187.2, Appendix B, paragraph B7. Where firing cables exceed the maximum prescribed resistance per 100 metres, the output current from the exploder may be reduced between the exploder and the detonators. A reduction in output current may cause detonators within the circuit to fail to initiate, or not function as intended. Refer to [RSHQ Explosives Inspectorate Bulletin 81](#)

- **High speed bearing fires on underground loaders**

In the last 12 months, there have been five fires involving the high-speed (drive shaft) bearings on underground loaders in Queensland metalliferous mines. These have occurred across different mines, with some mines having multiple fires. Although no one was injured in the incidents, the fires had the potential to cause significant adverse effect to the safety or health of workers. One of the fires was unable to be extinguished, causing a mine evacuation and shutdown for several days and total loss of the machine. A common cause of the incidents was found to be the overheating of the high-speed (drive shaft) bearing of the loader. Refer to [RSHQ Mineral Mines & Quarries Inspectorate Bulletin 209](#)

- **Dozers entrapped in stockpile voids above feed valves**

Two recent incidents have resulted in coal mine workers being exposed to an unacceptable level of risk when bulldozers they have been operating on coal stockpiles have sunk into voids above feed valves.

The first incident occurred at a surface coal mine on 27 January 2023. Coal taken through the feed valve to the load out bin created a “rathole”, because the void did not reach the stockpile surface. The coal that bridged above the void, due to the “rathole”, failed beneath the weight of the bulldozer. This resulted in the bulldozer inverting and becoming engulfed with coal, with the operator trapped in the cabin for approximately 10 hours.

The second incident occurred at an underground mine on 30 January 2023. In this case the separation distance of the bulldozer from the caving profile visible above the feed valve was insufficient to prevent the entrapment occurring.

These two events follow an early event in December 2022, which was communicated to industry through the publication of Safety Alert 420 Bulldozer drops into a void above a conveyor feed valve point.

Initial information suggests that these events have occurred due to failures to implement controls capable of ensuring operators are informed about and aware of hazard areas and exclusion zones on stockpiles. Refer to [RSHQ Coal Inspectorate Alert 424](#)

- **Fall of equipment and persons into a stope void**

On 15 February 2023, a light vehicle and drill rig fell approximately 15 metres into a stope void in the underground workings of the Dugald River mine in North-West Queensland. The operator of the drill rig was rescued with minor injuries but sadly on 16 February, when the light vehicle was recovered from the stope, it was confirmed that two workers were deceased in the vehicle. Early investigations suggest that the stope void had been caused due to bogging operations on the level below the area where the light vehicle and drill rig had been operating. It is unknown at this stage why those bogging operations were being carried out. Refer to [RSHQ Mineral Mines & Quarries Inspectorate Alert 425](#)

- **Noise Health Risk Assessment on drilling and completion operating plant and activities**

The Petroleum and Gas Inspectorate (PGI) has conducted Noise Health Risk Assessments (HRAs) across several operating plants to establish a baseline for hazardous noise. Noise-induced hearing loss (NIHL) is caused by exposure to loud noises over a period depending on the loudness, pitch, and length of time. NIHL is painless, progressive, permanent, and preventable. The Inspectorate conducted personal noise monitoring and area noise sampling in late 2022 to gather data across operating plant activities and provide thorough, qualitative evidence to assess the risk of hazardous noise. Refer to [RSHQ Petroleum & Gas Inspectorate Bulletin 18](#)

- **Rubber seal missing from gravity feed fuel cap on explosives charge up vehicle**

A mobile processing unit fitted with a dual fuel fill system was fitted with a faulty fuel cap. The fuel cap was missing the rubber seal, which created a potential fire hazard. An oversight has failed to identify the fuel cap for the gravity feed refuelling system was missing a rubber seal. The seal is critical to maintaining fuel tank pressurisation during the fast fuel process. Refer to [RSHQ Explosives Inspectorate Alert 109](#)

- **Vehicle collision resulting in ammonium nitrate spill**

An explosives Mobile Processing Unit (MPU) towing a trailer was involved in a collision with a B-Double truck on a public highway. The incident resulted in a spillage of ammonium nitrate. An MPU was towing a fully loaded trailer of Ammonium Nitrate Prill (AN) and Emulsion (ANE) when it slowed down to stop at roadworks. The trailer was struck from behind by a loaded commercial freight B-Double truck. The impact caused the MPU trailer to roll over onto its side, which resulted in a spillage of approximately 1.5 tonnes of AN. Refer to [RSHQ Explosives Inspectorate Alert 110](#)

- **Review the silica exposure risk and associated controls when encountering stone**

Over the past six months, Coal Mine Workers have recorded personal respirable crystalline silica exceedances (11) while conducting stone drivage tasks, and mining through faults and/ or cavities. These exceedances have occurred across different underground mines indicating that this isn't a site-specific issue. The magnitude of some of these exposures has been significant. On three occasions the concentration has been up to five times the shift-adjusted exposure limit. Directives have been issued to mines to review their dust management plans and the effectiveness of existing dust control strategies. Refer to [RSHQ Coal Inspectorate Bulletin 210](#)

- **Effective implementation of hazard control for continuous-miner rib-protection system**

On 27 July 2020 two coal mine workers (CMWs) received serious injuries from rib spall while working on a continuous miner (CM) in an underground development panel heading. The incident occurred as the CMWs were installing roof support and extending ventilation tubes. An inspection of the site revealed that the machine mounted rib protection system installed on the continuous miner did not provide an effective control for this hazard.

Safety Alert 377 was published on 27 August 2020 soon after the incident occurred, and the Inspectorate commenced a detailed investigation into the incident. The investigation has now been finalised with all factors –including the design, installation and practical application of the engineering controls–being considered. The findings and recommendations from this investigation follow. Refer to [RSHQ Coal Inspectorate Alert 422](#)

South Australia

- **Aerosol fire ignites warning**

Businesses are being warned against using aerosols in enclosed areas after a worker suffered serious burns to his hands and face in an incident in Adelaide's northern suburbs last month. The experienced industry tradesperson was applying a protective aerosol spray to a heavy vehicle battery to prevent corrosion of the terminals on 24 February as part of regular pre-delivery maintenance tasks. As the worker reached over to access the battery area and lift the terminal cover, he bumped his hand and dropped the aerosol can. The can landed on the battery-positive terminal and touched the intercooler manifold pipe, piercing the can and releasing its contents, which ignited from electrical sparks. The worker was wearing Personal Protective Equipment (PPE) to protect his eyes, body, and chest but sustained severe burns to his face, hands and arms. Refer to [SafeWork SA Safety Alert dated 10 March 2023](#)

- **Drum explosion sparks warning**

A fireball that burned a man in an Adelaide workshop has prompted a SafeWork SA warning about the dangers of modifying storage drums. The worker was attempting to tack weld a metal thread ring on an oil drum after cleaning the drum with brake fluid to remove impurities on 17 March. Fumes were still present in the drum and when the weld started it sparked a fireball that engulfed the worker's head and shoulders as he leaned over the drum. The man was taken to the Royal Adelaide Hospital burns unit for treatment. Refer to [SafeWork SA Safety Alert dated 21 March 2023](#)

Notifiable incidents relating to hazards

The Work Health and Safety (Mine 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 558 incident notifications received in the quarter. Of these, 38% (213) related to principal hazards, 29% (161) related to principal control plans, with the remainder (33%) related to other incident types.

Table 1. Incident notifications received by principal hazard/principal control plan – January to March 2023

Hazard or Control plan (reporting)	Hazard/Control plan (reporting)	FY 2022 Q3	FY 2022 Q4	FY 2023 Q1	FY 2023 Q2	FY 2023 Q3	Grand total
Hazard	Fire or explosion	47	58	52	63	66	286
	Roads or other vehicle operating areas	55	44	46	56	75	276
	Air quality, dust or other airborne contaminants	28	43	39	56	36	202
	Ground or strata failure	27	22	18	37	21	125
	Subsidence	3	4	1	1	5	14
	Spontaneous combustion		3	1	2	7	13
	Inundation or inrush of any substance	1	1	1		2	5
	Mine shafts and winding systems		1		2	1	4
	Gas outburst			1	2		3
	Total		161	176	159	219	213
Control plan	Mechanical engineering control plan	60	36	58	39	42	235
	Electrical engineering control plan and/or Mechanical engineering control plan	40	37	46	39	61	223
	Electrical engineering control plan	13	25	23	19	31	111
	Explosives control plan	26	13	17	21	18	95
	Ventilation control plan	2		2	11	9	24
	Total		141	111	146	129	161
Other	No related principal mining hazard or principal control plan	195	159	186	199	184	923
Grand total		497	446	491	547	558	2,539

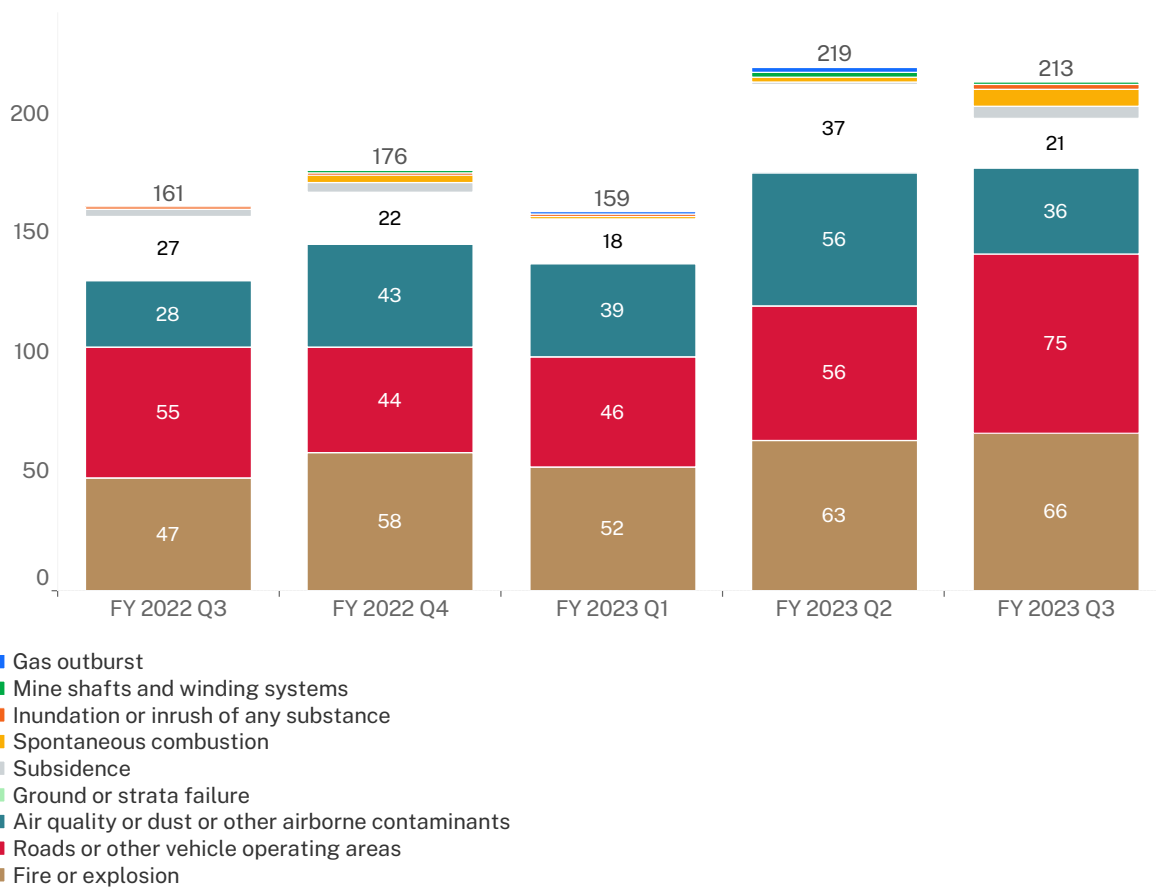
Principal mining hazards

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.

	GROUND OR STRATA FAILURE		FIRE OR EXPLOSION
	INUNDATION OR INRUSH OF ANY SUBSTANCE		GAS OUTBURSTS
	MINE SHAFTS AND WINDING SYSTEMS		SPONTANEOUS COMBUSTION
	ROADS OR OTHER VEHICLE OPERATING AREAS		SUBSIDENCE
	AIR QUALITY, DUST OR OTHER AIRBORNE CONTAMINANTS		(HAZARDS IDENTIFIED BY THE MINE OPERATOR) PROHIBITED ITEMS OR SUBSTANCES

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

Figure 1. Incident notifications received by principal hazard – January to March 2023





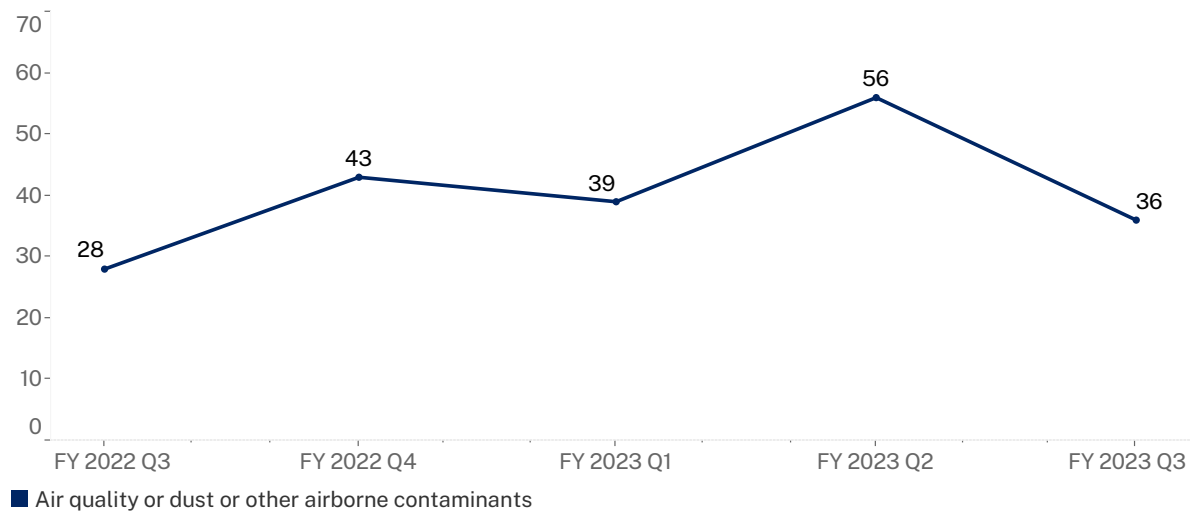
Air quality, dust or other airborne contaminants

↓ from 56 to 36

Airborne contaminants comprise a large and varied range of substances and forms. Coal and silica particles, along with methane and carbon monoxide, are regularly present in mining as dusts, fumes and vapours. These contaminants have exposure standards and can affect workers rapidly (CO or CO₂) or over several years (coal/silica dust).

There has been a 36% decrease in incident notifications relating to air quality, dust or other airborne contaminants from Q2.

Figure 2. Incident notifications received related to the principal hazard air quality, dust or other airborne contaminants – January to March 2023



Dangerous incident | IncNot0044203 – Diesel particulates exposure exceedance

Summary: During a longwall move, diesel particulate monitoring was carried out on a weekend night shift. One worker recorded an exceedance for exposure to diesel particulates. Three other workers recorded an exposure between 50-100% of the exposure limit. The mine investigated the activities carried out during the shift. It was identified that the cut through on the inbye side of the longwall face only had the required ventilation for one diesel machine to be operating. It was reported that 3 machines were in this cut through waiting to be unloaded at one point during the shift.

Comments to industry: Mine operators must have systems in place to manage the ventilation and number of diesel machines that can operate. This must be based on the ventilation requirement specified on the registration documents of the diesel engine system. Supervisors must be aware of the limits on the amount of diesel machines that can be used in air splits within their district. This must be factored in when planning tasks throughout the shift. Workers must be monitored for compliance with diesel machine limits with regards to ventilation.



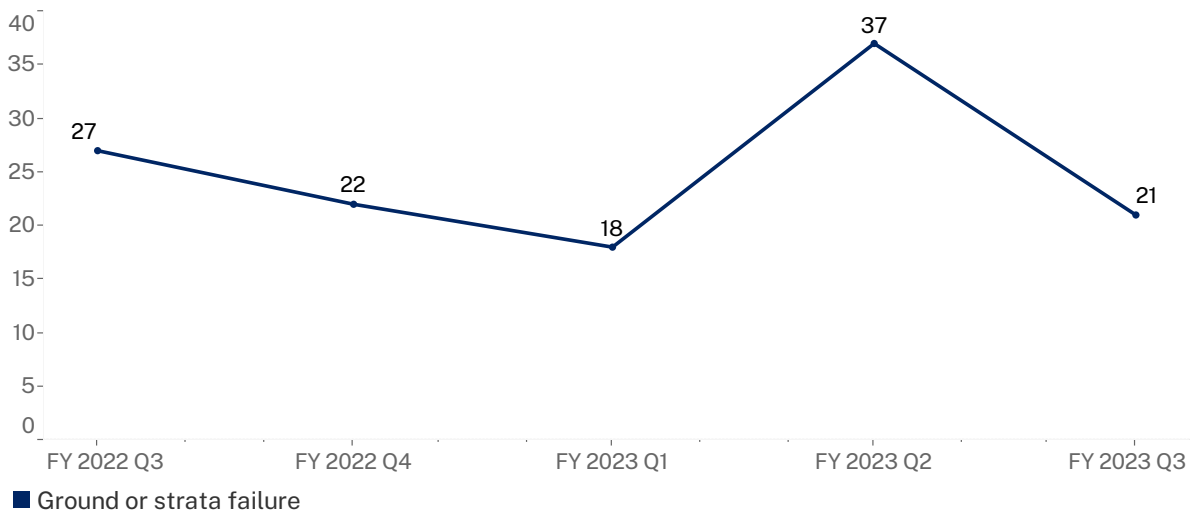
Ground or strata failure

↓ from 37 to 21

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.

There has been a 43% decrease in incident notifications relating to ground or strata failure from Q2.

Figure 3. Incident notifications received related to the principal hazard ground or strata failure – January to March 2023



Dangerous incident | IncNot0043936 – Longwall coal burst

Summary: A small coal burst occurred on a longwall during remote production. The face was being operated at the distribution circuit board (DCB) in the main gate. At the time of the burst, the shearer was cutting the roof into the tailgate and the burst threw a small amount of coal over the tailgate ranging arm. About one 20 litre bucket of small fines and various lumps of coal (up to 80 x 50 mm in size) was seen on the goaf side of the spill trays. The face was on remote mining due to a thrust fault running sub-parallel to the main gate (noting that the burst occurred towards the tailgate end).

It was noted that the goaf was standing about 15m back behind the chocks in the area of the burst. There was no gas make to the longwall face or tailgate during or after this event.

Comments to industry: The control of remote mining has been shown to effectively prevent exposing workers to a risk of serious injury or death. However remote mining should not replace other controls which also reduce the likelihood of the coal burst as well as the exposure. Where reasonably practicable, mine operators should consider remote mining as part of a multi-tiered approach to the management of risk in the mining workplace.

Dangerous incident | IncNot0044101 – Excavator hit by large stone falling from face

Summary: A large excavator was loading a mobile crusher on the pit floor when a 2-3 tonne stone fell from the face and hit the counterweight of the excavator. The operator was not injured.



Picture 1.
Material spalled from face.

Comments to industry: Wall design (mine planning) must consider slip planes, hydrology and other environmental factors that may reduce high wall integrity. Blast designs must be reviewed and changed when the correct fragmentation is not being achieved. Dig faces must not be undercut when large material is present in the face. This practice exposes workers and equipment to unnecessary risk.

Dangerous incident | IncNot0044167 – Failure of ground at end wall

Summary: A significant failure of ground occurred at an end wall. No workers were in the vicinity at the time of the failure.



Picture 2.
End wall ground failure.

Comments to industry: Mine designs should be guided by a robust geotechnical assessment, conducted by a qualified person. Geotechnical assessments and reviews should be conducted at appropriate intervals. Where geotechnical hazards are known to exist, monitoring systems should be installed and monitored, with an early warning capability. Clear withdrawal conditions (such as a TARP) should be part of any ground or strata failure principal hazard management plan.

Dangerous incident | IncNot0044349 – Pressure bump caused material to push through mesh

Summary: A deputy was advancing the spear duster in the tailgate of a longwall. A pressure bump occurred causing material to push the mesh past the rib bolt and plate. Material slid out knocking the worker into a swilly - a large, deep puddle. Larger material then slid out hitting the worker. The worker took some time to free himself from the coal and water. The worker was not injured, only suffering grazing on his arm.



Picture 3.
Rib material spalled following a pressure bump.

Comments to industry: The adequacy of installed strata support should be assessed before extraction commences. Additional support should be installed where required.

Dangerous incident | IncNot0044368 – Rib slump

Summary: A rib slump occurred in an underground coal mine. The slump was 4 metres long, floor to roof in height and 2.5 metres into the rib. At the time of the failure, the crew was preparing to use the miner to grade through a large reverse fault. Two workers in the heading were alerted to the failure when they heard coal being sucked along the ventilation tube. There were no indicators of outburst or seismic activity.



Picture 4.
A rib slump.

Comments to industry: When mining towards predicted geological features, mine workers should take a proactive approach towards reviewing and enacting triggers on strata support trigger action response plans (TARPs).

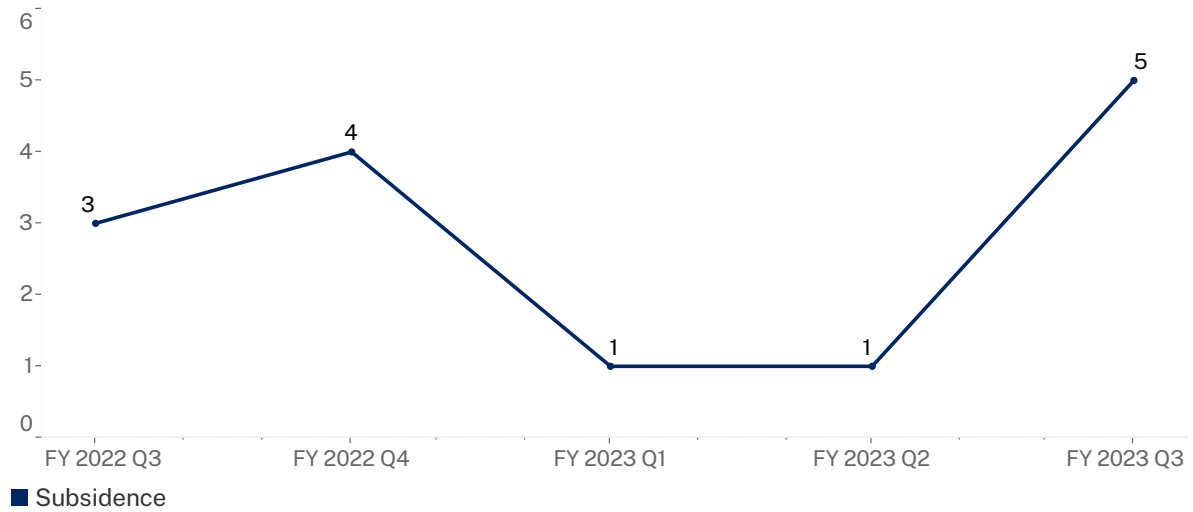


Subsidence

↑ from 1 to 5

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 received related to the principal hazard subsidence – January to March 2023



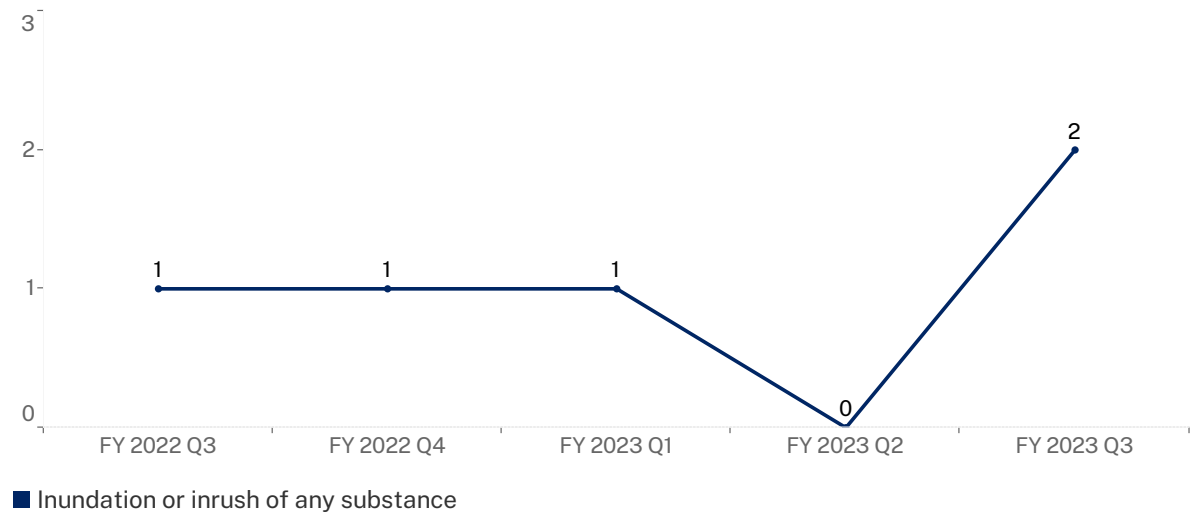


Inundation or inrush of any substance

↑ from 0 to 2

Inundation or 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 received related to the principal hazard inundation or inrush – January to March 2023



Dangerous incident | IncNot0044171 – Uncontrolled flow of material from draw point

Summary: While loading from a draw point, an uncontrolled flow of material came from the draw point. The flow started slowly and flowed back into the drive.



Picture 5.
Material flowed uncontrolled into roadway.

Comments to industry: Mine operators must assess the risk of inrush and inundation. When the risk exists, a principal hazard management plan must be in place.

Dangerous incident | IncNot0044289 – Fault-related void containing water exposed

Summary: While mining in a development panel, a continuous miner exposed a fault-related void that contained water. The water entered the working face. The inflow of water slowed significantly by the end of the shift.



Picture 6.
Rib where water flowed into heading.

Comments to industry: Mine operators should review their procedures for advancing towards a known geological structure to ensure the presence of gas and/or water has been considered and controls are in place.

Mine operators should then consider what equipment is required to have on standby.

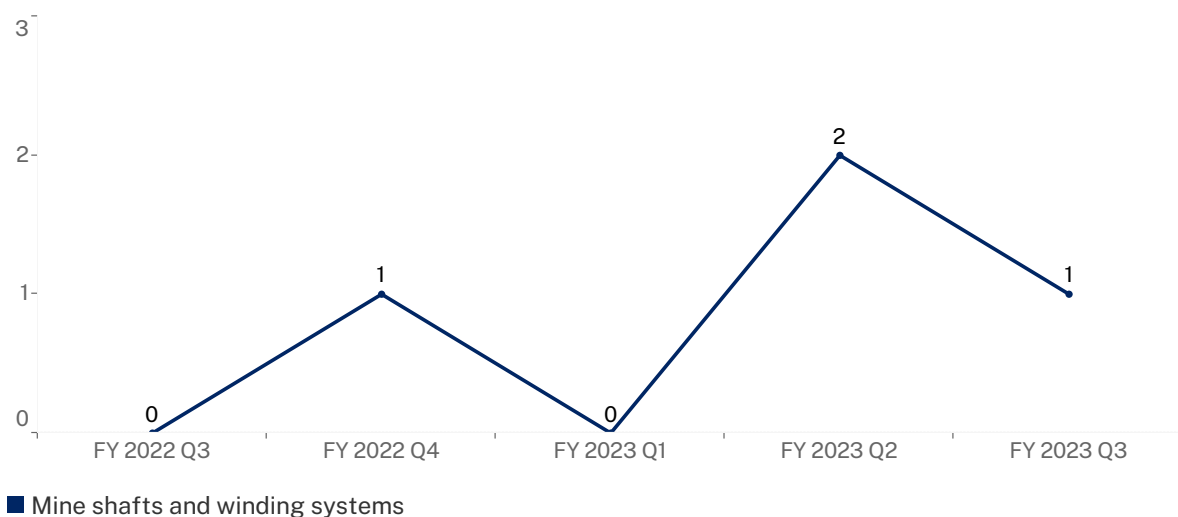


Mine shafts and winding systems

↓ from 2 to 1

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 received related to the principal hazard mine shafts and winding systems – January to March 2023



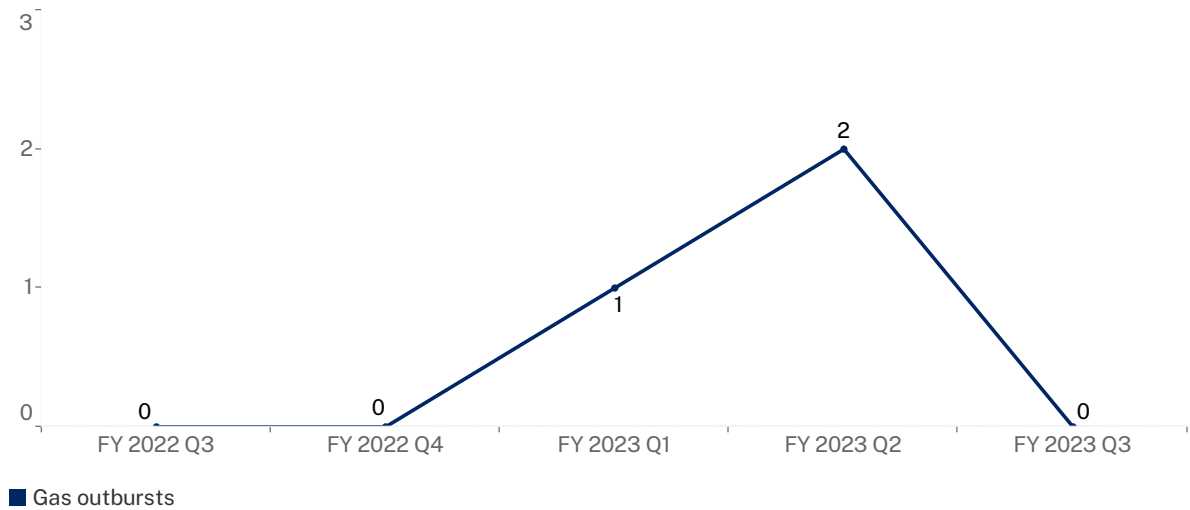


Gas outbursts

↓ from 2 to 0

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 received related to the principal hazard gas outburst – January to March 2023

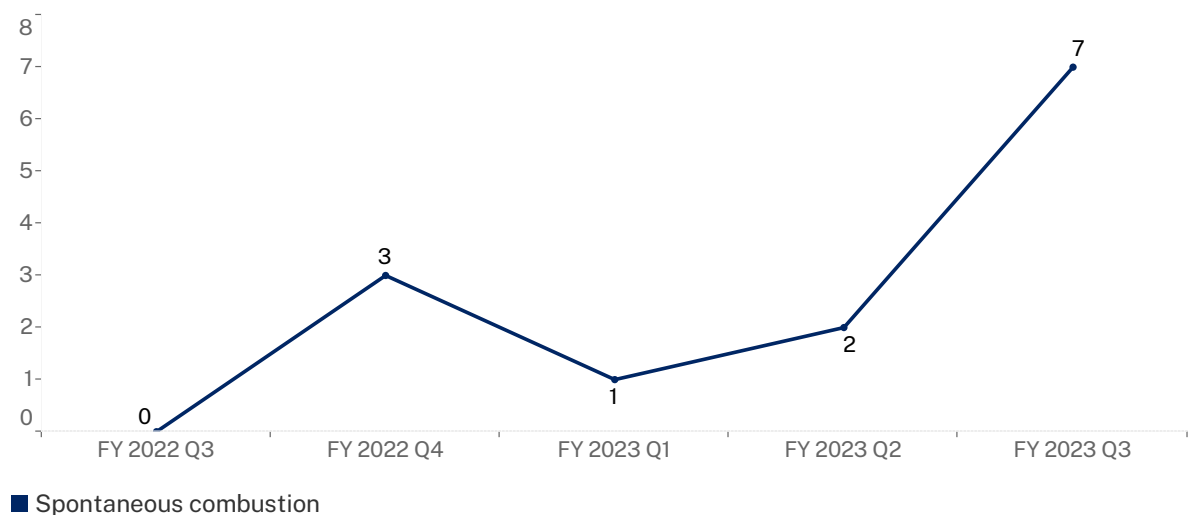


Spontaneous combustion

↑ from 2 to 7

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 received related to the principal hazard spontaneous combustion – January to March 2023



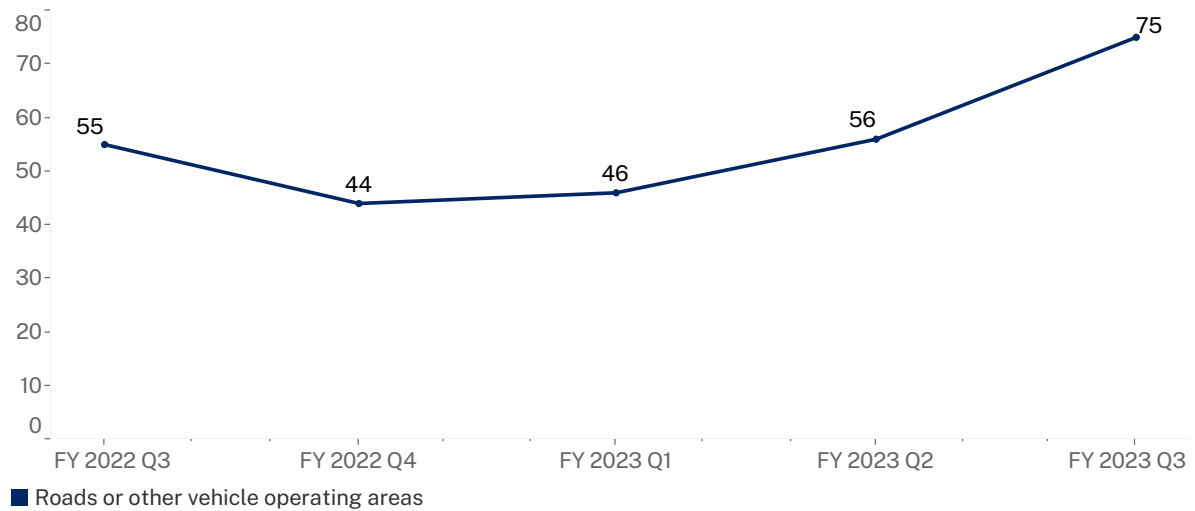


Roads or other vehicle operating areas

↑ from 56 to 75

Vehicle movements in and around mine sites require specific design considerations and controls to ensure that collisions and other vehicular accidents do not occur, placing workers 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 received related to the principal hazard roads or other vehicle operating areas – January to March 2023



Dangerous incident | IncNot0043823 – Haul truck near miss

Summary: Two haul trucks were approaching a t-intersection. The truck that had right of way observed the other truck not slowing so braked hard, stopping their truck and sounding the horn. The second truck continued through the intersection. This truck was being driven by a trainee who was being assessed at the time.

Comments to industry: Mines should review the triggers for when a trainee operator is assessed. This should be driven by the competence level of the trainee, familiarity with the task, the mine, and their confidence, not driven by an arbitrary number of training shifts completed, or production demands.

Dangerous incident | IncNot0043703 – Dozer crushed light vehicle

Summary: A worker was tasked with creating a park up area in a new work area at an open cut coal mine. The operator of a dozer reversed into and crushed the light vehicle they drove to the area. There were no other workers in the vehicle or working in the area at the time.



Picture 7.
Dozer impacted light vehicle.

Comments to industry: Mines should review their park up procedures when workers are accessing parts of the mine without designated park up areas. Operators must always remain vigilant and focused on the area surrounding the machinery they are operating.

Dangerous incident | IncNot0043840 – Failure to control loaded haul truck

Summary: The operator of a loaded haul truck was using a two-way radio while descending a ramp. The operator failed to control the speed of the truck and could not stop. The operator drove through an intersection and into a flat park-up area beside a crib room. The truck was safely brought to a stop. Another truck was approaching the intersection and was 40 metres away, no other workers or vehicles were in the park-up area. The worker had only recently been deemed competent to operate a haul truck.

Comments to industry: When operating machinery, workers' primary focus must remain on the operation and control of the plant or vehicle. Interactions with radios, dispatch systems and vehicle controls should only occur when safe to do so.

Mines should review the triggers for competency assessment and the minimum level of competence required before workers are authorised for solo operations.

Dangerous incident | IncNot0043912 – Fuel truck rolled during refuelling

Summary: A worker reversed a fuel truck up a grade and parked the truck with the wheels turned. The worker applied the park brake, engaged the PTO for the fuel pump and left the engine running. The truck rolled away when the worker started refuelling. The truck rolled 8 metres, hitting an A frame of a mobile stacker. The worker was exposed to a risk of serious injury.



Picture 8.
Truck rolled hitting crusher.

Comments to industry: Workers should ensure their vehicles are parked appropriately and are fundamentally stable before exiting them. For areas where mobile plant is regularly required to park, level park-up areas should be provided.

Dangerous incident | IncNot0043877 – Haul truck turned into path of light vehicle

Summary: A haul truck was stopped at a give-way sign at an intersection. Another haul truck was approaching with a light vehicle in convoy. After the haul truck passed the intersection, the stationary truck began to move forward, turning right into the path of the light vehicle. The light vehicle operator was distracted while looking for the two-way approaching the intersection and when looking up had to take evasive action to avoid a collision. The proximity detection system alarmed.



Picture 9.
Intersection of near miss between light vehicle and haul truck.

Comments to industry: Workers must ensure that intersections are clear before proceeding. Mine operators should take a risk-managed approach considering the hierarchy of controls when reviewing their principal hazard management plans to ensure that all workers show appropriate situational awareness of their surroundings and other vehicles on the road. Mine operators should have regard for human and organisational factors when reviewing the number of systems devices that may alarm in haul trucks. Mine operators should assess the risk of white noise and desensitising workers to alarms.

High potential incident | IncNot0043870 – Inoperable dozer rolled after excavator sling broke

Summary: A Caterpillar D10 dozer was inoperable and required towing to an in-pit maintenance area, which was several hundred metres down a ramp. A JHA was completed and required a D11 dozer and a large wheel loader to carry out the task. The D10 dozer would be unmanned for the task. The wheel loader was not available, so a 36-tonne excavator was used instead. The JHA was not reviewed. The task commenced and, in the process, the sling attached to the excavator broke. The inoperable dozer rolled 19 metres until the slack was taken up by the D11 dozer. While the D11 dozer was repositioning, the sling slipped off the ripper. The D10 dozer then rolled approximate 230 metres down a ramp. The dozer stopped when it struck a windrow.



Picture 10.
Travel path and final position of runaway dozer.

Comments to industry: When changes are required to procedures, workers must stop, assess the risk of the changes and raise the matter with their supervisor. When towing mobile plant, the attachment method must be suitably rated with slings securely attached to both vehicles involved. Slings must not be pulled over sharp edges.

Dangerous incident | IncNot0043933 – Collision between dozer and electric rope shovel

Summary: An electric rope shovel was loading a truck on the offside. A cat wheel dozer was hit with the shovel counterweight on the front left-hand corner, striking the front walkway, handrail and cabin.



Picture 11.
Location of shovel and dozer following collision.

Comments to industry: Collisions between mobile plant during clean-up activities are well known. It is recommended that when mine operators review their documented systems of work about working on or around excavation equipment, they consider the hierarchy of controls and the reliance on administrative controls (positive communications), which are subject to human factors.

Dangerous incident | IncNot0044034 – Light vehicle rolled after hitting rock

Summary: An apprentice was driving a light vehicle on a haul road when it hit a rock and rolled the vehicle. The sun was in the drivers' eyes at the time of the incident. The worker was uninjured.



Picture 12.
Rolled light vehicle.

Picture 13.
The rock that the light vehicle struck before rolling.

Comments to industry: Mine operators must ensure that regular inspections are undertaken to ensure that travel roads do not contain unexpected hazards. Workers are reminded to travel at an appropriate speed based on the road and weather conditions.

Dangerous incident | IncNot0044000 – Near miss between light vehicle and haul truck

Summary: A light vehicle was travelling on a haul road approaching an intersection. A haul truck was turning right onto the haul road to travel in the opposite direction to the light vehicle. The haul truck slowed for the give way sign. The light vehicle driver also slowed as a precaution while confirming that the haul truck was going to give way. The haul truck driver assumed that as the light vehicle had slowed, it was going to turn left. The haul truck started to turn right, moving across the path of the light vehicle. The light vehicle took evasive action by turning left.

Comments to industry: Traffic management rules must be unambiguous and consider likely situations of human error. Workers must always know the traffic management rules and abide by them. This incident demonstrates the need for all vehicle operators to be alert and anticipate the actions of other road users, even when holding right of way.

Dangerous incident | IncNot0044036 – Light vehicle rolled in fatigue related incident

Summary: A light vehicle was travelling along an access road at 3.40am when the vehicle left the road and rolled. It is believed that the operator had a fatigue event. The worker exited the vehicle without injury.



Picture 14.
Rolled light vehicle.

Comments to industry: Workers must present as fit-for-work. Fatigue and fitness for work must be managed in accordance with the mine's health control plan. This includes ensuring workers show up to work with adequate sleep and are free of alcohol and drugs. Adequate fatigue breaks should be built into shift patterns and work plans.

Mine operators should review that adequate windrows are in place where vehicles are at risk of driving over embankments. This should be consistent with the mine's roads and other vehicle operating areas – principal hazard management plan.

Dangerous incident | IncNot0044061 – Collision between haul truck and dozer

Summary: A dozer was on the left-hand side of a dump. The dozer was stationary. A haul truck operator with 8 weeks' experience approached the tip head and did a U turn before reversing to the dump. The dozer operator attempted to contact the truck operator to warn of their presence but was unsuccessful. The truck's right rear tyre made contact with the front right corner of the blade.



Picture 15.
Truck's right rear tyre impacting the dozer blade.

Comments to industry: Mine operators should continually review the suitability of collision avoidance technology as it evolves, and new products become available.

Operators should prioritise segregation between dozers and haul trucks on dumps over lower order controls such as positive communication and work procedures.

Dangerous incident | IncNot0044100 – Collision between 2 haul trucks

Summary: The operator of a haul truck was trying to park next to a parked haul truck. The operator misjudged and the rear left of the tray hit the front right tray of the truck.



Picture 16.
Impacted front right tray of the haul truck.

Comments to industry: Equipment operators must check their surroundings before parking. Workers must ensure the correct separation distance between equipment is applied when parking and not rush to park up for breaks or shift end. Park-up areas should be designed and constructed to drive through to prevent reverse parking and have adequate lighting and demarcation.

Dangerous incident | IncNot0044140 – Truck slipped into drain and rolled onto side

Summary: A truck and dog were loaded and leaving a quarry on a single lane road. Another truck had stopped on the road, so the first truck tried to drive around it, leaving the roadway. The truck drove into a drain and slipped, rolling onto its side. The driver was unable to climb out of the truck. Emergency services were called to help the driver to exit the vehicle. The driver was not injured.



Picture 17.
Truck after rolling into drain.

Comments to industry: When operating vehicles and machinery, workers must follow procedures related to roads and other vehicle operating areas, in this case, the worker should not have attempted to pass on a single lane road. Mine operators should review bunding and delineation of access roads. Control measures in place around sumps and drains near roads and vehicle operating areas should be reviewed.

Dangerous incident | IncNot0044124 – Haul truck rolled after park brake applied

Summary: A haul truck was stationary in a queue for a digger when a ladder alarm sounded in the cabin. The operator contacted the workshop and was directed to shut down the truck and isolate it. The operator applied the park brake and exited the cabin. A second alarm sounded. The operator sought further advice from the workshop and was directed to isolate the truck. The operator reached the ground and once the truck was isolated, it began to roll forward. The operator then climbed back up the stairs, entered the cabin and applied the service brake, which needed to be held on with the park-brake activated.



Picture 18.
Final position of truck after truck rolled forward.

Comments to industry: Safety alert [SA23-01 Unintended movement of haul truck](#) was published regarding this incident.

Dangerous incident | IncNot0044166 – Light vehicle hit wall on decline

Summary: A light vehicle was driving down a decline when the vehicle contacted the wall. Preliminary information suggests an issue with the brakes. No workers suffered any injuries.



Picture 19.
Contact point of vehicle with wall.

Comments to industry: Vehicles need to be fit-for-purpose with regular maintenance and inspection systems in place. This must include critical systems such as steering and brakes.

Operational testing of service and park brakes should be included in pre-use inspections.

Dangerous incident | IncNot0044279 – Dozer blade made contact water after being unable to reverse up slope

Summary: A dozer was cutting down a dump at a coal mine. As there was a water body below the dump, the trigger action response plan (TARP) required a double windrow and stand-off from the edge. The operator started dump edge cutting (slot push). The operator cut down to a point where the dozer was unable to reverse back up the slope. The operator decided to continue down the slope towards the water body. The dozer stopped when the blade made contact with the ground in the water. The water was about one metre deep. The worker was uninjured. The Emergency Response Team assisted the worker back up the slope.



Picture 20.
Location of dozer after it slid down the face towards a water body.

Comments to industry: When stand-off distances are specified in procedures, workers must abide by them and protect themselves from further hazards. Supervisors must continually monitor worker compliance with procedures and the controls specified such as windrows and stand-off distances.

Dangerous incident | IncNot0044292 – Collision between haul truck and dozer

Summary: On night shift, a haul truck entered a dump and lost sight of a dozer when it was reversing. The truck was positioned between a lighting tower and the dozer, casting a shadow over the dozer. The truck did not feel any contact, so the operator drove out to re-set, reversed in and dumped. The dozer operator called to stop the truck. The worker was uninjured.



Picture 21.
Damage to dozer after being struck by haul truck

Comments to industry: Mine operators should review dump procedures and consider segregation or banded areas for dozers. Lighting plants must be positioned to avoid glare and shadowing work areas. When workers identify hazards for inadequacy with lighting in their work area, they should immediately report this to their supervisor.



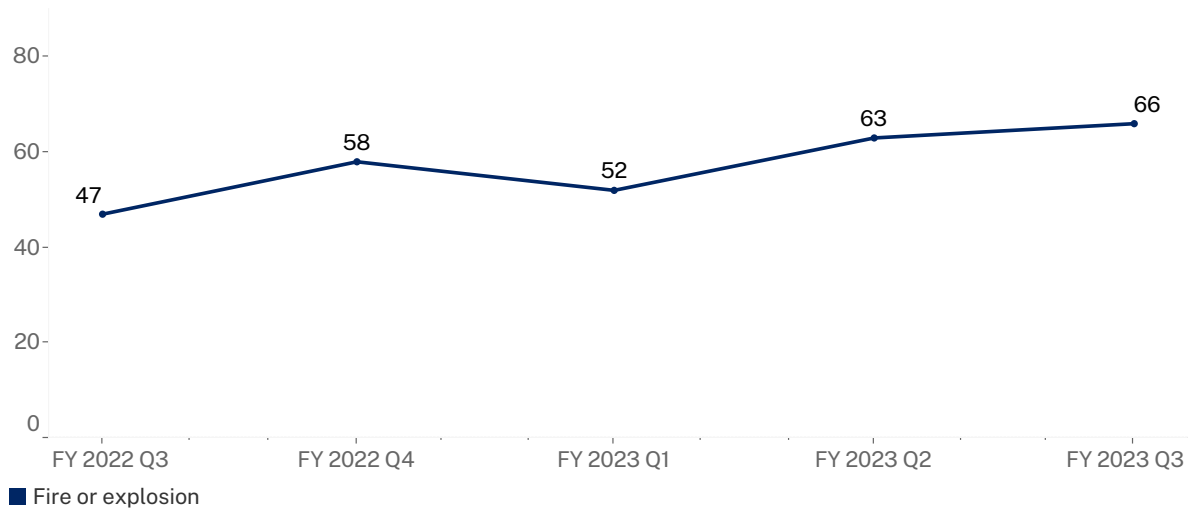


Fire or explosion

↑ from 63 to 66

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 received related to the principal hazard roads or other vehicle operating areas – January to March 2023



High potential incident | IncNot0043820 – Dump truck fire

Summary: A dump truck was being driven into a crib hut parking area when it lost power. The operator called maintenance who instructed the operator to park the truck. A mechanical tradesman was entering the park up area at the same time and saw steam coming from the engine. As they approached the truck, there was the smell of coolant, and coolant could be seen dripping under the truck. After opening the covers, a flame was seen between the lagging on the turbo.



Picture 22.
Damaged lagging on the turbo.

Comments to industry: When lagging is used as a control for hot surfaces, joints and transitions must be managed to minimise gaps and prevent flammable fluids flowing onto hot surfaces.

Where products are used near hot engine components such as cleaners and degreasers the ignition point should be assessed and compared with surface temperatures to manage the risk of fires. When selecting products, higher ignition point products should be used.

AS 5062:2022 Fire prevention and protection for mobile and transportable equipment was published in November 2022. Mines should review this document and update their systems and site procedures.

High potential incident | IncNot0043811 – Degreaser ignited lagging

Summary: A contractor commenced cleaning a drill rig engine bay with degreaser. The lagging became soaked with degreaser and when some was sprayed on a gap in the lagging it ignited. The contractor yelled out to another worker on the ground who immediately got into the water cart, moved it to the side of the drill rig and extinguished the fire using the watercart’s cannon. The water cart was parked at the drill to assist in cleaning.



Picture 23.
Damaged lagging following the fire.

Comments to industry: Where products are used near hot engine components such as cleaners and degreasers the ignition point should be assessed and compared with surface temperatures to manage the risk of fires. When selecting products, higher ignition point products should be used.

High potential incident | IncNot0043767 – Ignition of methane gas

Summary: An ignition of methane gas occurred on a longwall face. The flames self-extinguished after several seconds. The investigation identified the causal factors being a rib bolt jammed in the bottom race of the armoured face conveyor (AFC) as the ignition source and a floor break emitting methane gas in the immediate area.

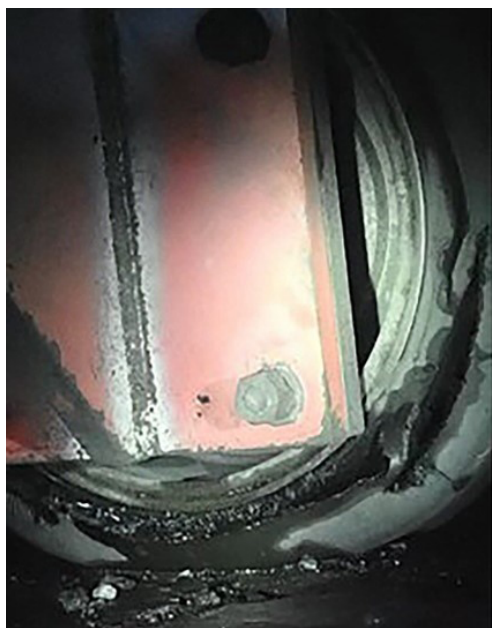


Picture 24.
Rib bolt recovered from the bottom race.

Comments to industry: Where products are used near hot engine components such as cleaners and degreasers the ignition point should be assessed and compared with surface temperatures to manage the risk of fires. When selecting products, higher ignition point products should be used.

High potential incident | IncNot0043761 – Delaminated tyre caught fire

Summary: A load haul dump (LHD) was towing a supply trailer into an underground coal mine. The operator of another vehicle saw a flame on one of the off-driver's side wheels, stopped the LHD and used an extinguisher to put out the fire. Inspections identified a delaminated tyre.



Picture 25.
Delaminated tyre following the fire.

Comments to industry: An uncontrolled tyre fire in an underground coal mine can have catastrophic consequences. Tyres should be inspected closely as part of pre-use inspections. Operators should receive training to assist them in identifying tyre defects.

The suitability of tyres for the duty cycle must be considered. Analysis should be reviewed when changes are made to payload, operating speeds or cycle distances. Tyre data such as the Tonnes Kilometres Per Hour (TKPH) rating should be included in this review.

High potential incident | IncNot0043845 – Engine fluid ignition destroyed tractor

Summary: A large tractor was working on rehab carting topsoil. Fluid sprayed from the engine bay over the windscreen and shortly after flames appeared around the engine. The operator received minor burns to their wrist and was taken to hospital for assessment. Several nearby workers immediately rendered assistance and attempted to extinguish the fire. The workers were unable to directly raise the emergency and relied on another worker to relay the emergency message. The mine's emergency response team responded with a fire tender, and water carts were used to extinguish the fire. The tractor was destroyed.



Picture 26.
Tractor during the fire.

Comments to industry: An investigation into this incident has commenced and further information may be released in the future.

Mines must ensure all work groups have suitable means to raise emergencies, including when working in isolated or locations remote from mine infrastructure.

High potential incident | IncNot0043872 – Spark inside vents of battery rattle gun

Summary: A battery-operated drill was being used in an underground coal mine while building a ventilation stopping. A spark was observed inside the vents at the rear of a battery rattle gun.

Comments to industry: When battery-operated tools are used in hazardous zones of an underground coal mine, procedures must include the requirements of section 82 of the Work Health and Safety (Mines and Petroleum Sites) Regulations, additionally, only brushless motors should be used to avoid the possibility of sparking. A safety bulletin was recently released about batteries and charging.

High potential incident | IncNot0043970 – Fire in engine bay of shotcrete rig

Summary: A shotcrete rig was set up to spray in an ore drive. As the agitator reversed into position behind the shotcrete rig, the shotcrete rig operator noticed a 200 mm high flame in the engine bay above the turbo. The shotcrete rig operator activated the emergency stop and the fire suppression system using the rear activation point on the agitator. The fire suppression system extinguished the flames and a hand-held fire extinguisher was also deployed as a precaution.



Picture 27.
Agitator after the fire was extinguished.

Comments to industry: Mine operators must have systems in place to ensure that mobile plant is cleaned following a service to ensure that flammable substances are removed from potential heat sources.

Dangerous incident | IncNot0043971 – Red embers observed in underground load haul dump truck

Summary: An underground load haul dump (LHD) vehicle was unable to start due to the loss of compressed air in an underground coal mine. Another underground mine vehicle (personnel transporter) was used to provide air to the LHD so that it could start. While the personnel transport was at high revs the operators reported that they saw red embers come from the exhaust and smelled an unusual burning smell. The workers immediately shut down the machine and preserved the scene. No further evidence of fire was observed.

Comments to industry: The failure of an explosion-protected diesel engine underground has the potential to be extremely serious. Maintenance systems must be robust and ensure that failures of explosion protection are identified as soon as reasonably practicable. Investigations into the cause and circumstance are ongoing.

Dangerous incident | IncNot0043987 – Engine bay fire on water cart

Summary: The operator of a water cart noticed a strange smell and returned to the workshop. An inspection did not identify any issues. The truck left the workshop heading to a dump when the operator noticed a loss of power and saw smoke in the rear mirrors. The truck was immediately parked up. Flames then started coming from the engine bay around the front of the truck. The fire was extinguished by other water carts. The operator complained of breathing issues and was taken to hospital. After being assessed, the worker was released and returned to the mine to complete their shift.



Picture 28.
Smoke and soot damage to watercart.

Comments to industry: Maintenance systems must be comprehensive and consider all reasonably foreseeable risks of fire or explosion. When operators report defects or concerns, thorough inspection and testing should be conducted to ensure the plant is safe to operate.

Dangerous incident | IncNot0044225 – Fire in shed at batch plant

Summary: A fire started in a shed at a batch plant at an underground metalliferous mine. The mine evacuated all personnel on the surface, as there was the potential for the smoke to enter the decline. Those workers underground went to refuge chambers. Emergency services were called, and the fire was extinguished. Chemicals that were stored in the area contributed to the fuel load of the fire.



Picture 29.
Shed following the fire.

Comments to industry: Mine withdrawal plans and trigger action response plans (TARPS) must be in place and tested regularly. Hazardous chemicals need to be appropriately stored, banded, labelled and signposted. Housekeeping standards around chemical storage areas must be maintained and inspected. Firefighting systems need to be inspected regularly and maintained.

Dangerous incident | IncNot0044294 – Methane shutdown system triggered

Summary: An operator drove a load haul dump (LHD) into an inadequately ventilated heading. The onboard methane shutdown system was triggered and shut down the LHD. The operator had a hand-held methanometer that reached 2.5% methane. The worker immediately withdrew and notified the control room. Ventilation was re-established to the heading and degassed. It was found that a brattice stopping had been removed, which allowed the ventilation to short circuit, leaving the heading unventilated.

Comments to industry: Workers must be able to verify that statutory ventilation inspections have been completed and that there is adequate ventilation for themselves and the machines they are operating before entering a roadway. This is being treated as a serious incident by the Resources Regulator and is the subject of an ongoing investigation.

Dangerous incident | IncNot0044375 – Fuel spray ignited fire on engine components

Summary: A Caterpillar 16M grader was parked-up for refuelling by a service cart. The service cart operator attached and activated the dry break fuel connector. The fuel gun immediately shut off. The operator activated the fuel dispense for a second time. Fuel was immediately sprayed out of the overflow area. The fuel ignited on the hot engine components. The fire suppression system on the machine was automatically activated. Two workers unsuccessfully tried to extinguish the fire with hand-held extinguishers. The fire was finally extinguished by water carts.



Picture 30.
Damaged engine components following the fire.

Comments to industry: Refuelling systems must be engineered and matched with the fuel tank, breather, and delivery systems. Confirm that overflow piping and breathers direct fuel away from ignition points.



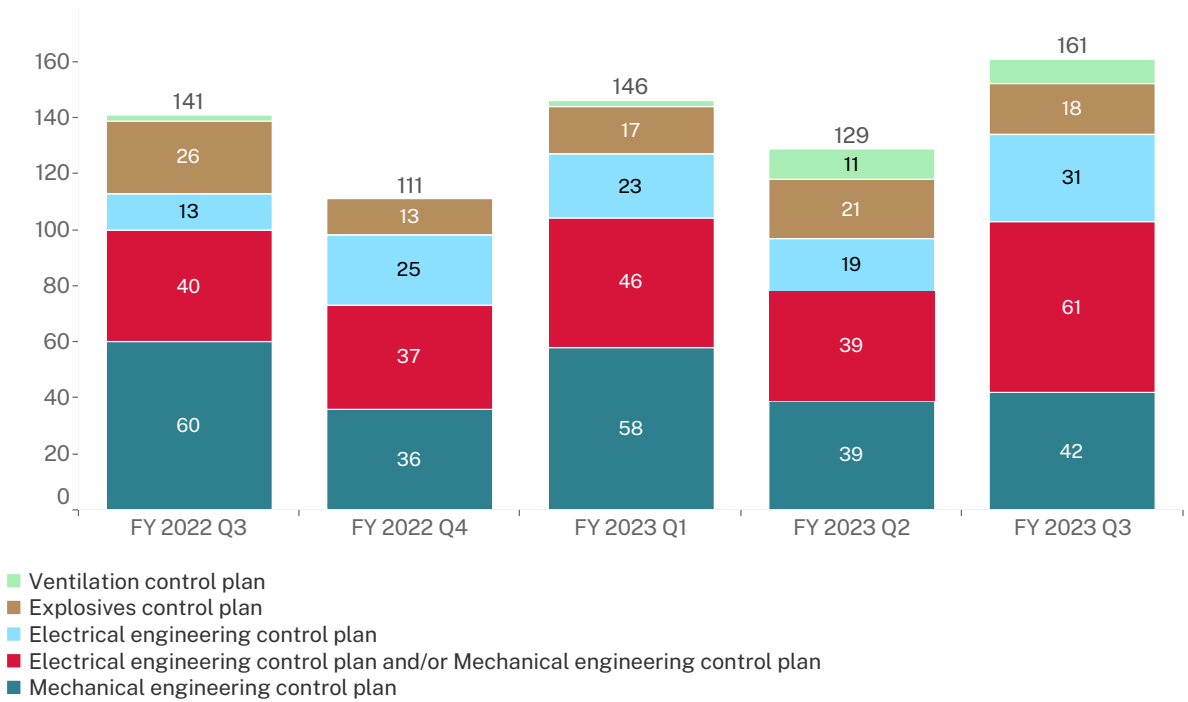
Principal control plans

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 5 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 section 19 and Schedule 2 of the Regulation. Note: no incidents were notified in relation to health control plans or well integrity control plans.

Figure 11. Incident notifications received by principal control plans – January to March 2023



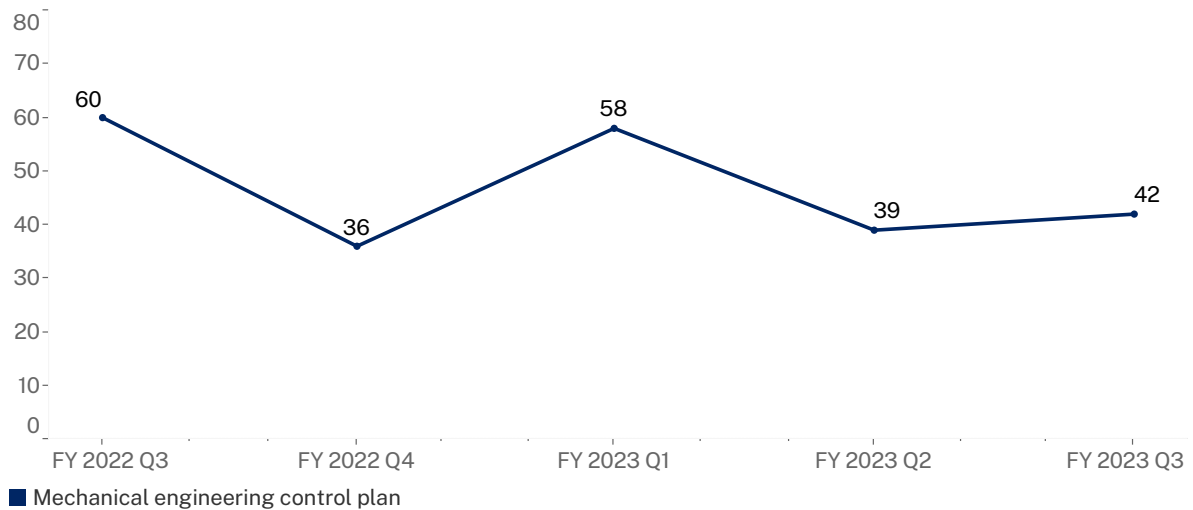


Mechanical engineering control plans

↑ from 39 to 42

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 received related to mechanical engineering control plans – January to March 2023



Dangerous incident | IncNot0043978 – Uncontrolled movement

Summary: A worker was operating a Merlo JVE03 loading salvage pack onto 6m sled. While operating the raise function, it became stuck, causing the load to raise. Operating the down function stopped the load. Releasing the down function raised the load again. The load was lowered to the ground. After placing the load on the ground, the operator did a function test again and the event repeated. The machine was placed out of service and the incident scene was secured.



Picture 31.
Telehandler involved in unplanned movement.

Comments to industry: Uncontrolled vehicle movements like this one are a known risk. Mine operators should consider the risk of uncontrolled machine movements when developing controls for the safe egress of pedestrians in and around mobile plant operating areas.

Dangerous incident | IncNot0043983 – Worker injured by uncontrolled air hose

Summary: A worker was disconnecting compressed air lines while removing a monorail section as part of a longwall relocation. The worker removed a staple on an air hose when the hose whipped around, knocking off the worker's helmet and hitting him into the rib. The worker also suffered abrasions that were treated at hospital. The investigation identified that the air pressure had been isolated but not dissipated.



Picture 32.
Break point in monorail where worker was struck by compressed air hose.

Comments to industry: Inexperienced operators must have appropriate training and supervision. Systems of work should be unambiguous when it comes to discharging stored energy before work is undertaken.

Dangerous incident | IncNot0043982 – Worker hit with hydraulic fluid hose

Summary: A worker was operating a rib bolter on a continuous miner when a hose failed. The worker was hit on the forehead and arm with hydraulic oil. The worker was assessed at hospital and cleared of injury.



Picture 33.
A recreation of the scene of the incident.

Comments to industry: Mine operators must ensure that hydraulic systems are maintained appropriately to prevent loss of hydraulic fluid under pressure. Controls such as shielding must be considered to protect workers from the risk of fluid release near a workstation or area where workers are likely to be.

Dangerous incident | IncNot0044173 – High pressure hydraulic oil spray

Summary: A fourth year mechanical apprentice was removing hoses on the retrieval circuit of a load haul dump (LHD). While undoing a hose, high pressure hydraulic oil sprayed the apprentice’s left arm. The apprentice was cleared of injury.



Picture 34.
Hoses being worked on at the time of the incident.

Comments to industry: Workers must ensure hydraulic systems are isolated and stored pressure is released before working on hydraulic systems. Apprentices must be supervised and trained in workplace tasks.

Dangerous incident | IncNot00 – Pressure gauge failure

Summary: A control room operator changed a pressure gauge on a regulator fitted to a nitrogen bottle. When pressure was applied, the gauge failed and burst. A piece that was ejected grazed the worker’s jaw. The bottle contained nitrogen at 200 bar. The installed gauge was rated to 200psi (14 bar).



Picture 35.
Burst pressure gauge.

Comments to industry: Workers must ensure any component being changed out is like-for-like. Where like-for-like components are not available, alternatives must undergo a thorough assessment to ensure the replacement is suitable and without risk. Work involving pressurised systems and components must only be carried out by workers who are competent, trained and appointed.

Dangerous incident | IncNot0044382 – Block pressure washer nozzle

Summary: While using a pressure washer, the nozzle became blocked. The operator used their thumb to clean the tip. The operator was then hit by the stored water pressure in the lance. The operator was sent to hospital and cleared of any injury.



Picture 36.
Nozzle of pressure washer.

Comments to industry: Workers must be trained and competent in the use of pressure washing equipment. Training and procedures must include awareness regarding fluid injection injuries.



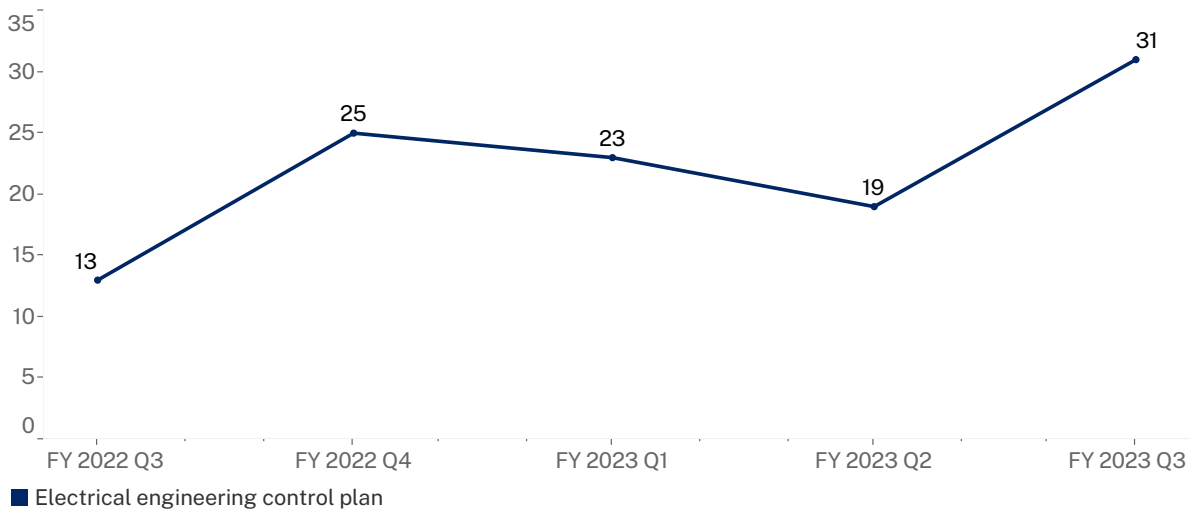


Electrical engineering control plans

↑ from 19 to 31

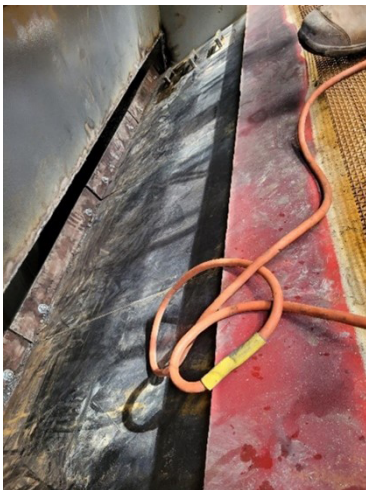
The electrical engineering control plan covers 'lifecycle' risks associated with electrical hazards (supply, vehicles, plant or infrastructure) that workers may be exposed to.

Figure 13. Incident notifications received related to electrical engineering control plans – January to March 2023



Dangerous incident | IncNot0044093 – Electric shock using a portable welder

Summary: A contract boilermaker felt a tingle while using a portable 240-volt welder. He was using the welder during muggy conditions and attributed the shock to sweat. He was taken to hospital for an ECG and cleared of injury.



Picture 37.
Area welder was working in at the time of the electric shock.

Comments to industry: Appropriate personal protective equipment (PPE) must always be worn when welding. PPE must remain dry. Appropriate electrical protection must be in place on all portable electrical equipment.

Portable equipment leads should be regularly tested and tagged. Any leads with visible damage should be repaired or discarded before use.

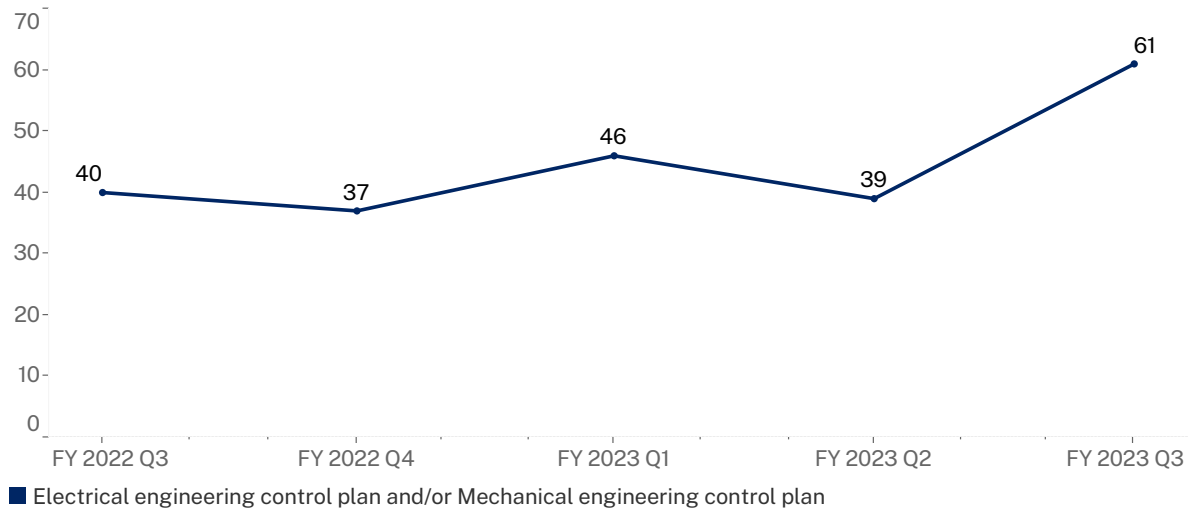


Electrical and/or Mechanical engineering control plans

↑ from 39 to 61

Notified incidents may relate to either electrical and mechanical engineering control plans or both. This is a distinct category so there is no duplication of incidents in other categories.

Figure 14. Incident notifications received related to electrical and/or mechanical engineering control plans – January to March 2023

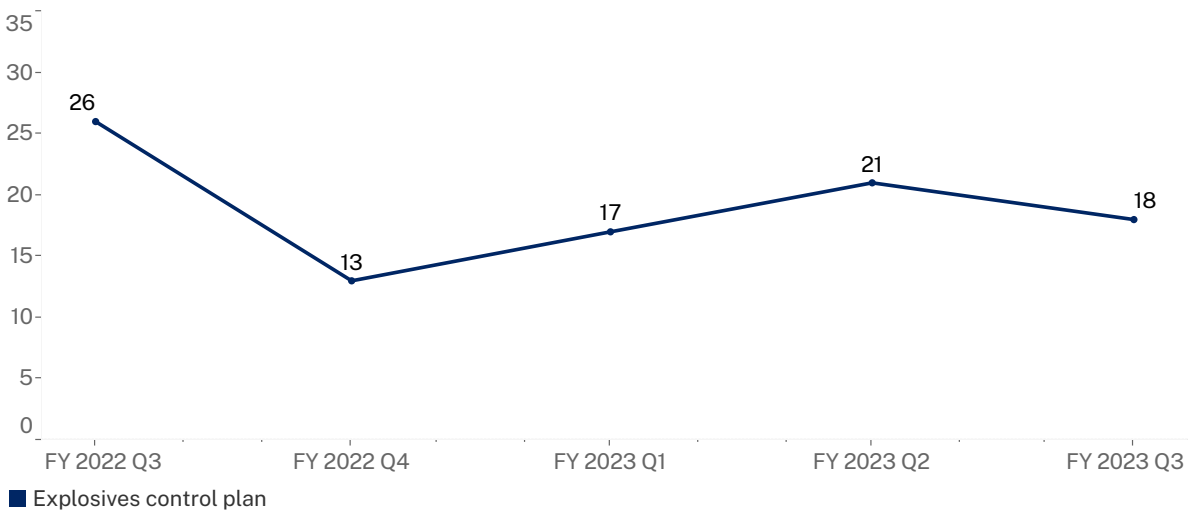


Explosives control plans

↓ from 21 to 18

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 received related to explosives control plans – January to March 2023



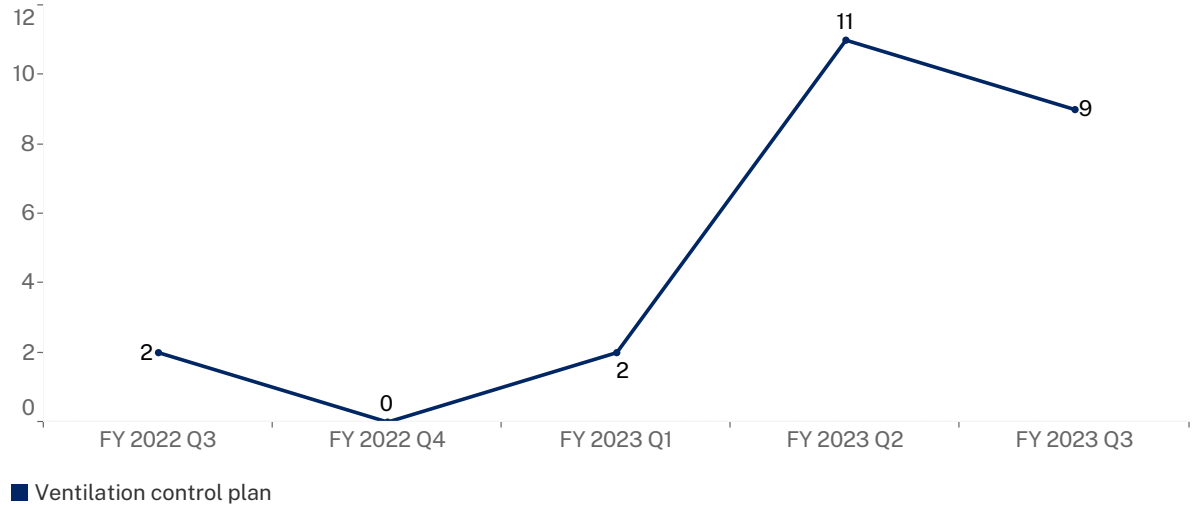


Ventilation control plans

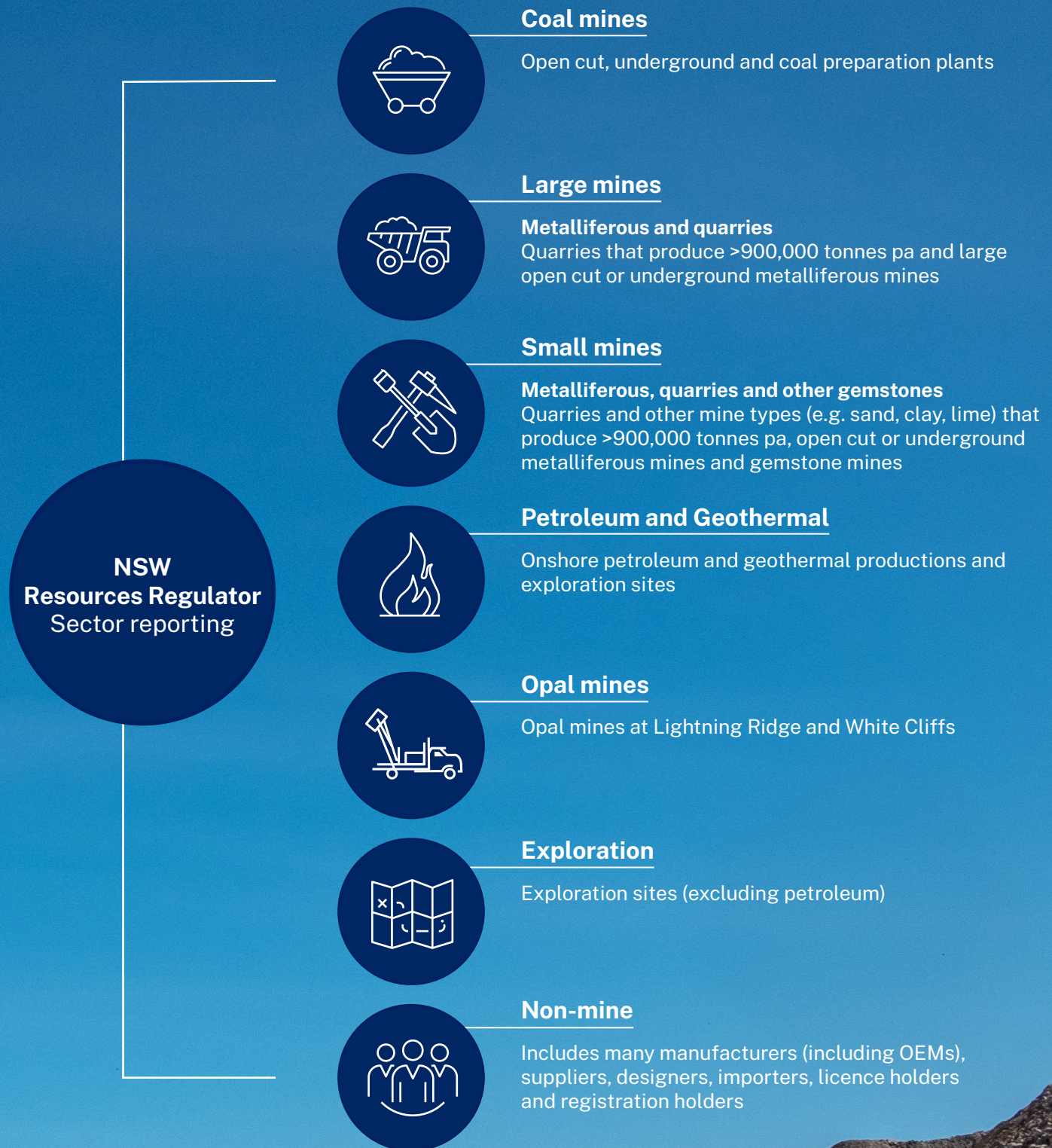
↓ from 11 to 9

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 received related to ventilation control plans – January to March 2023



Sector profiles



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.

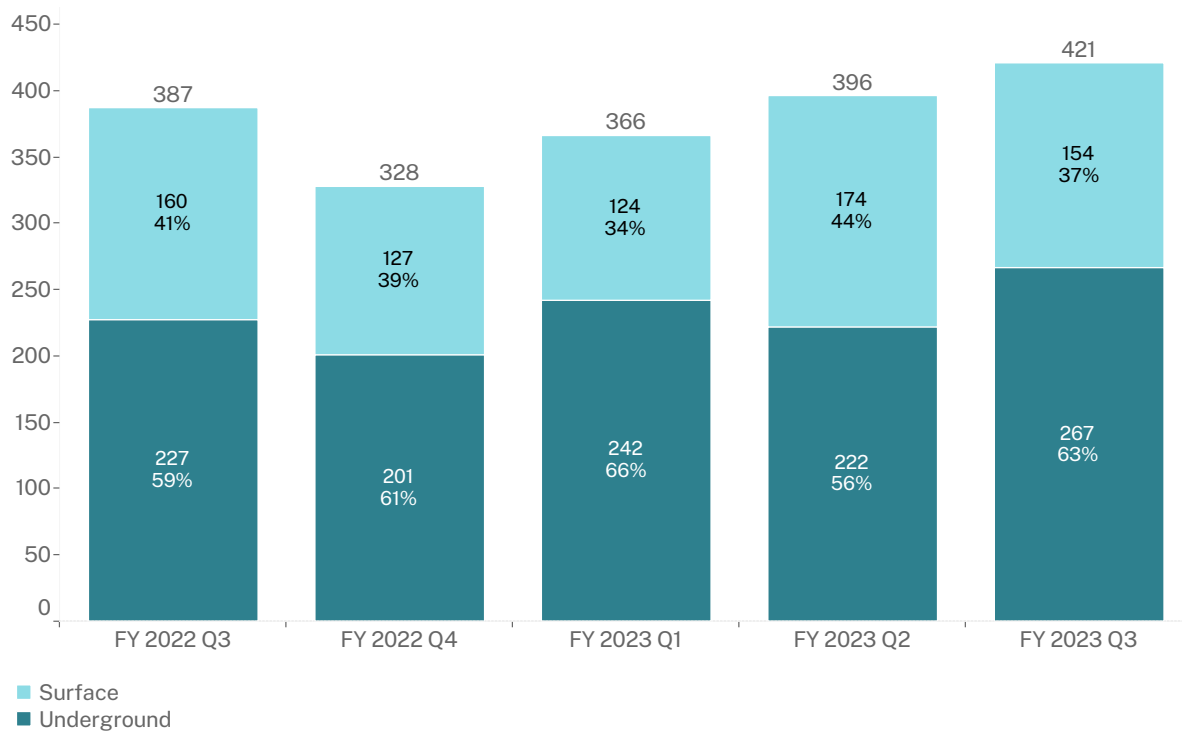
Table 2. Coal sector incident notification rates – October 2021 to December 2022

Measure	FY 2022 Q3	FY 2022 Q4	FY 2023 Q1	FY 2023 Q2	FY 2023 Q3
Incidents	387	328	366	396	421
Active mines	119	120	103*	102	101
Incident rate per active mine	3.25	2.73	3.55	3.88	4.17
Mines that notified incidents	50	48	50	57	51
% of mines notifying an incident	42%	40%	49%	56%	50%
Incident rate per notifying mine	7.74	6.83	7.32	6.95	8.25

* The change in active mine numbers represents re-categorisation within NSW Resources Regulator's systems

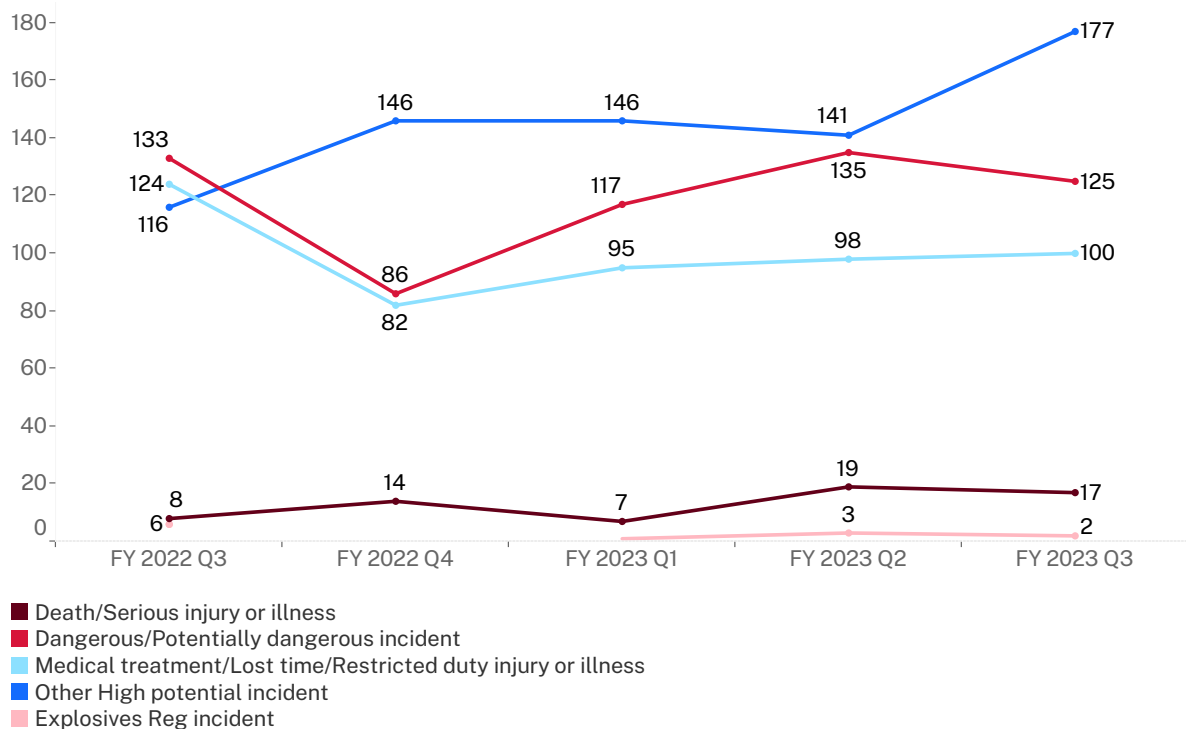
The following graph shows the proportion of safety incident notifications received from surface and underground coal operations. This quarter there was an increase in the number of incidents notified by underground coal operations.

Figure 17. Coal sector incident notifications received by operation type – January to March 2023



The graph below presents a breakdown of safety incidents notified to the Regulator by the coal sector by the requirement to report. This quarter saw a 26% increase in other high potential incidents, with minor changes observed across the other breakdown categories.

Figure 18. Coal sector incident notifications received by requirement to report – January to March 2023

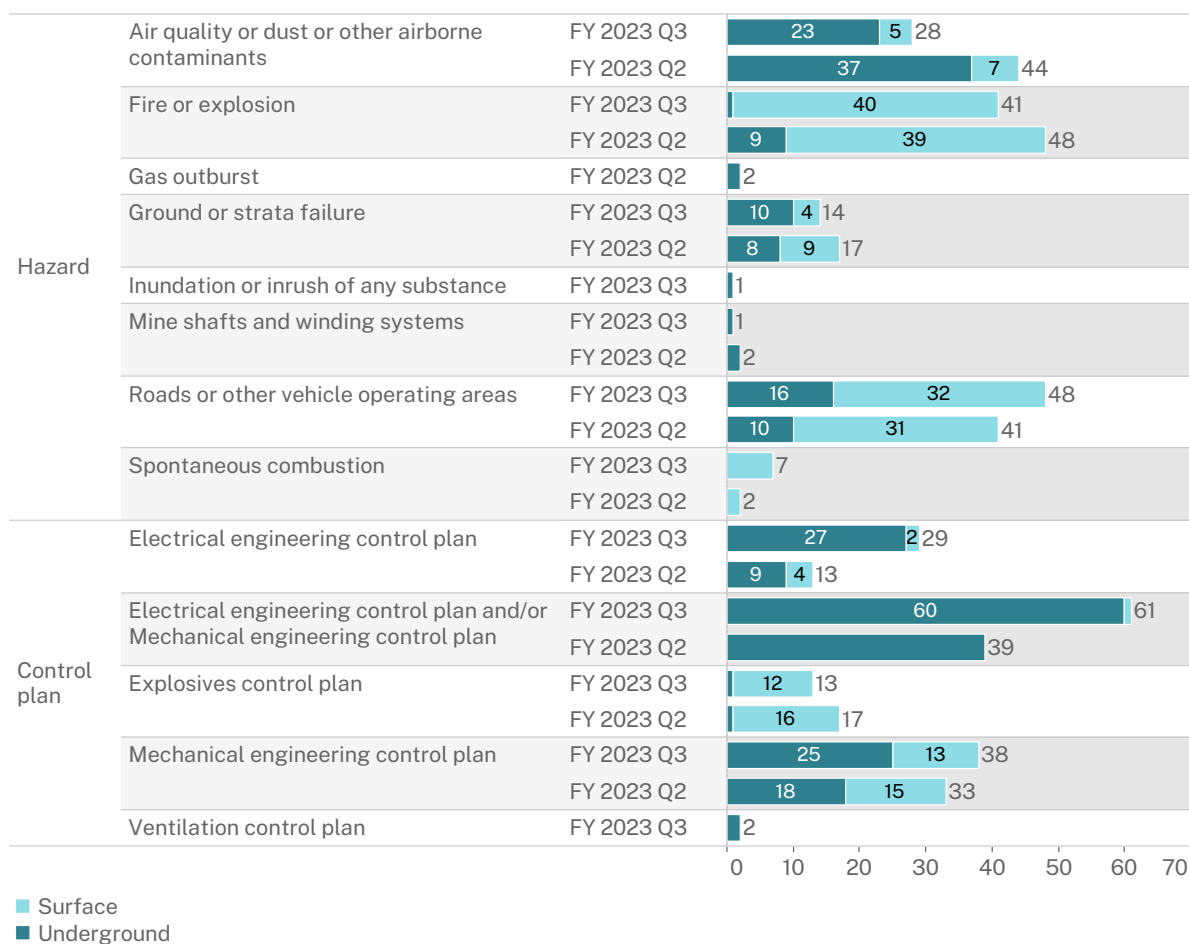


Incident notifications by principal hazard

The figure below shows the number of incident notifications received from the coal sector during the past 2 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 incident notifications received by principal hazard and by operation type – October 2022 to March 2023



Large mines sector

Incident notifications

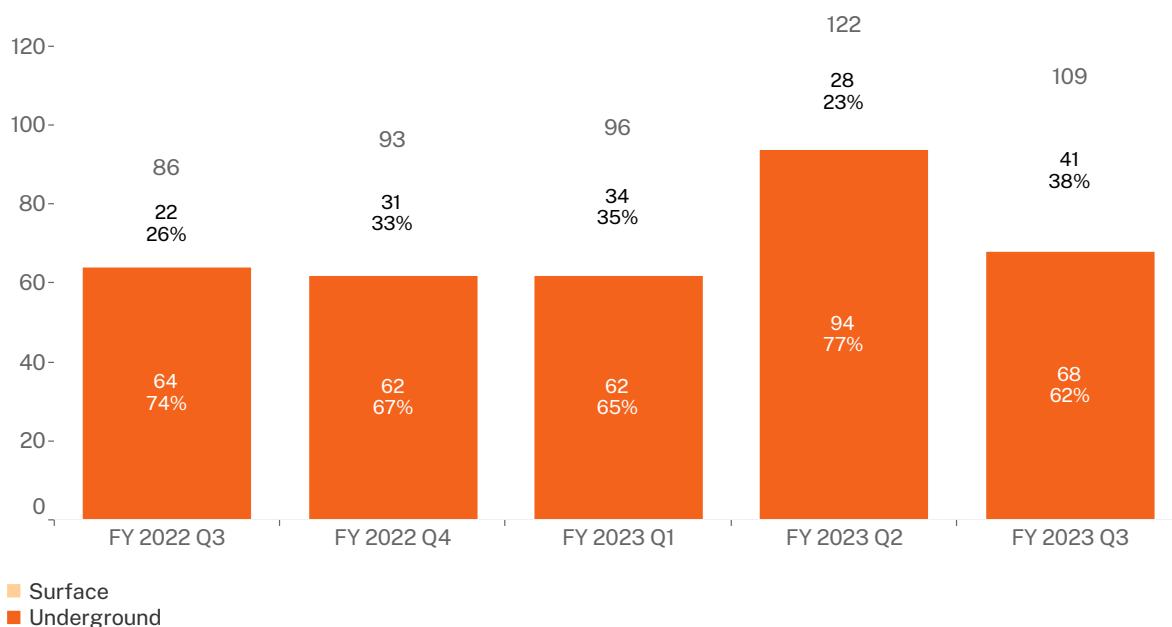
Under work health and safety legislation, mine operators must notify the Regulator about the occurrence of certain types of safety incidents. Incident notification data (by active mine) provides insights into sector specific reporting trends.

Table 3. Large mines and quarries sector incident notification received rates – January 2022 to March 2023

Measure	FY 2022 Q3	FY 2022 Q4	FY 2023 Q1	FY 2023 Q2	FY 2023 Q3
Incidents	86	93	96	122	109
Active mines	58	58	57	57	57
Incident rate per active mine	1.48	1.60	1.68	2.14	1.91
Mines that notified incidents	24	29	27	27	34
% of mines notifying an incident	41%	50%	47%	47%	60%
Incident rate per notifying mine	3.58	3.21	3.56	4.52	3.21

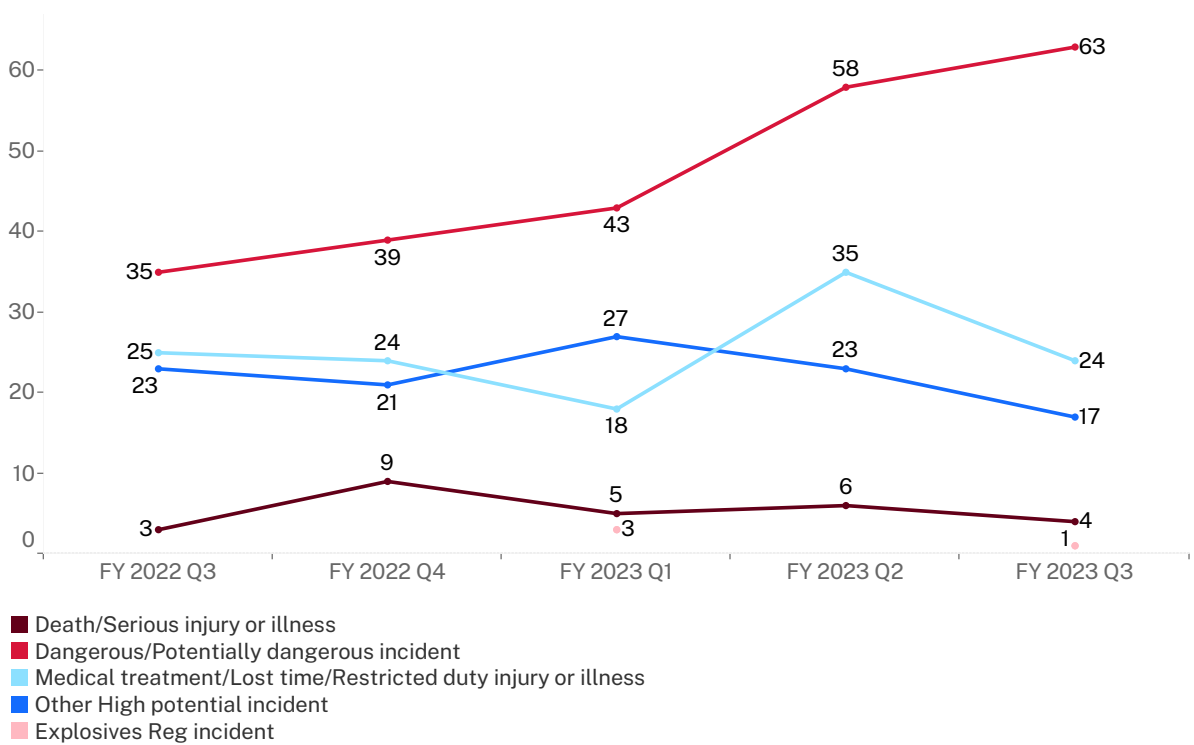
The following graph shows the proportion of safety incident notifications received from large mines and quarries by operation types.

Figure 20. Large mines and quarries incident notifications received by operation type – January 2022 to March 2023



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. An increase in dangerous and potentially dangerous incidents notified this quarter was observed, with decreases across all other categories.

Figure 21. Large mines and quarries incident notifications received by requirement to report – January 2022 to March 2023

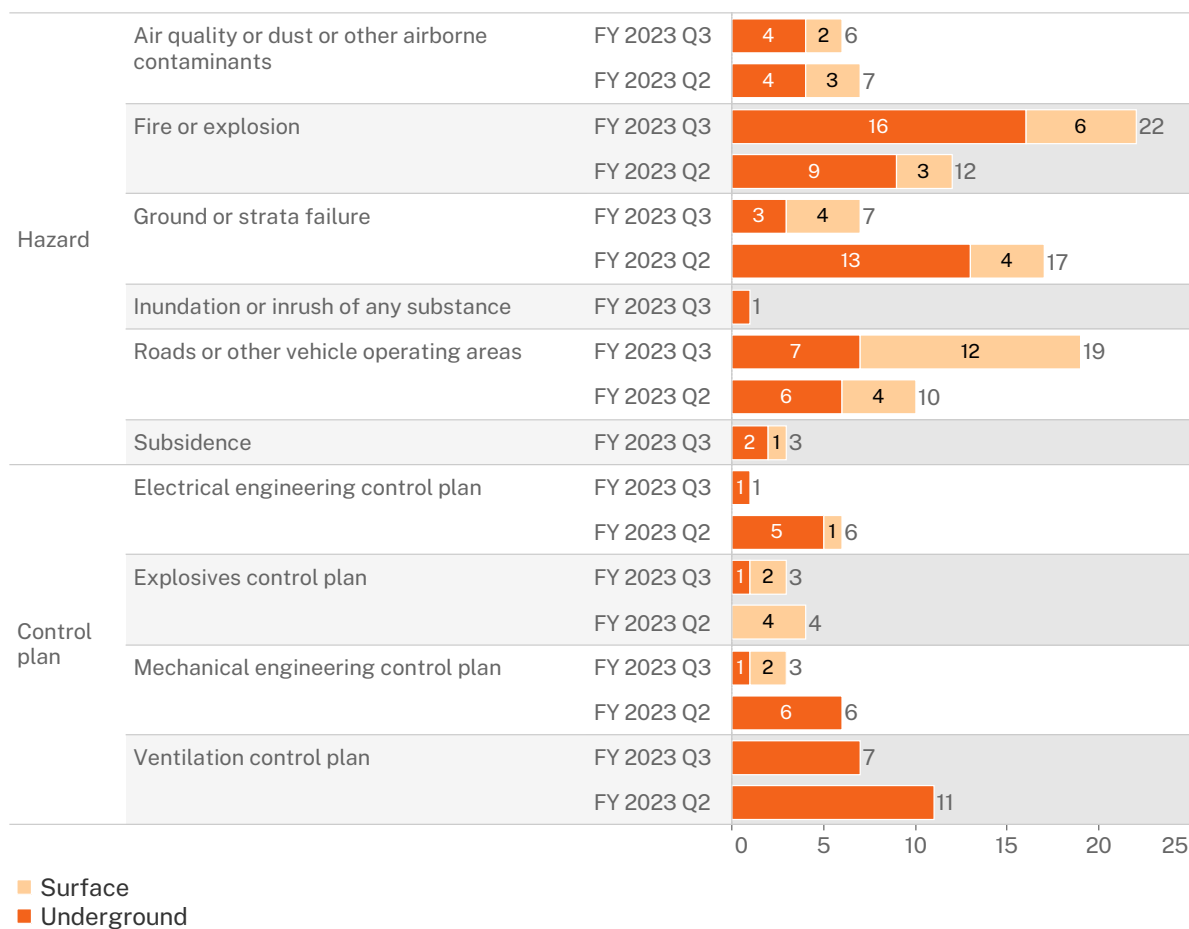


Incident notifications by principal hazard

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 roads or other vehicle operating areas (90%) and fire or explosion (83%).

Figure 22. Large mines and quarries incident notifications received by principal hazard and operation type – October 2022 to March 2023



Small mines sector

Incident notifications

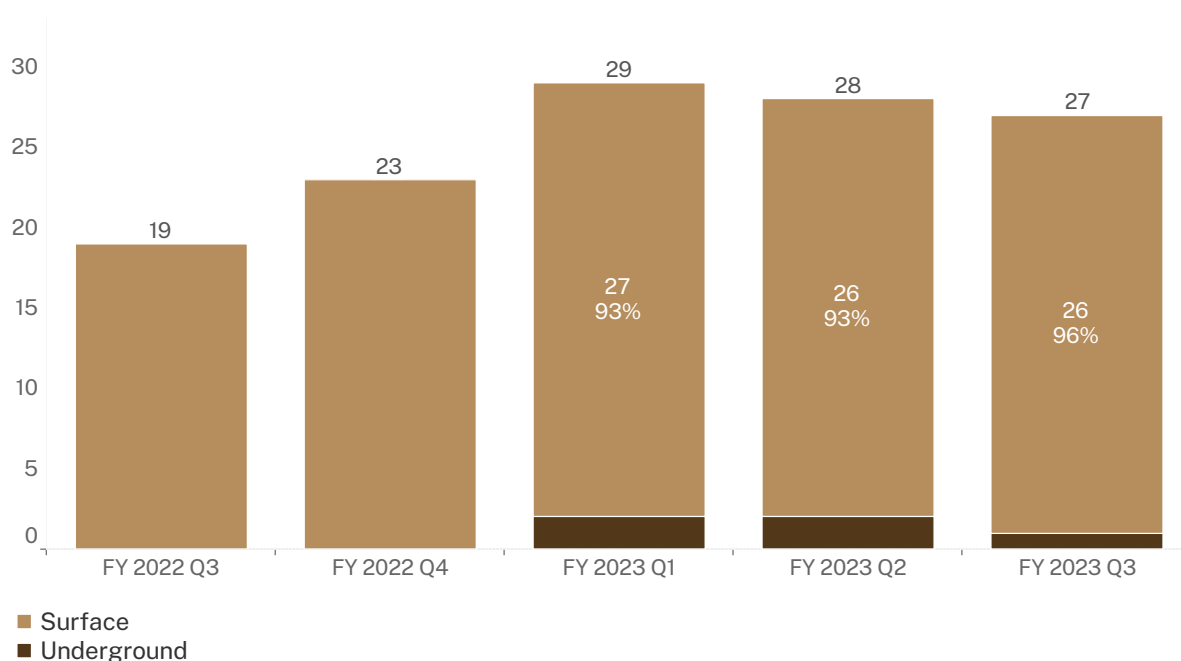
Under work health and safety legislation, mine operators must notify the Regulator about the occurrence of certain types of safety incidents. Incident notification data (by active mine) provides insights into sector specific reporting trends.

Table 4. Small mines and quarries sector incident notification received rates – January 2022 to March 2023

Measure	FY 2022 Q3	FY 2022 Q4	FY 2023 Q1	FY 2023 Q2	FY 2023 Q3
Incidents	19	23	29	28	27
Active mines	2591	2589	2542	2542	2527
Incident rate per active mine	0.01	0.01	0.01	0.01	0.01
Mines that notified incidents	18	20	25	25	22
% of mines notifying an incident	0.69%	0.77%	0.98%	0.99%	0.87%
Incident rate per notifying mine	1.06	1.15	1.16	1.12	1.23

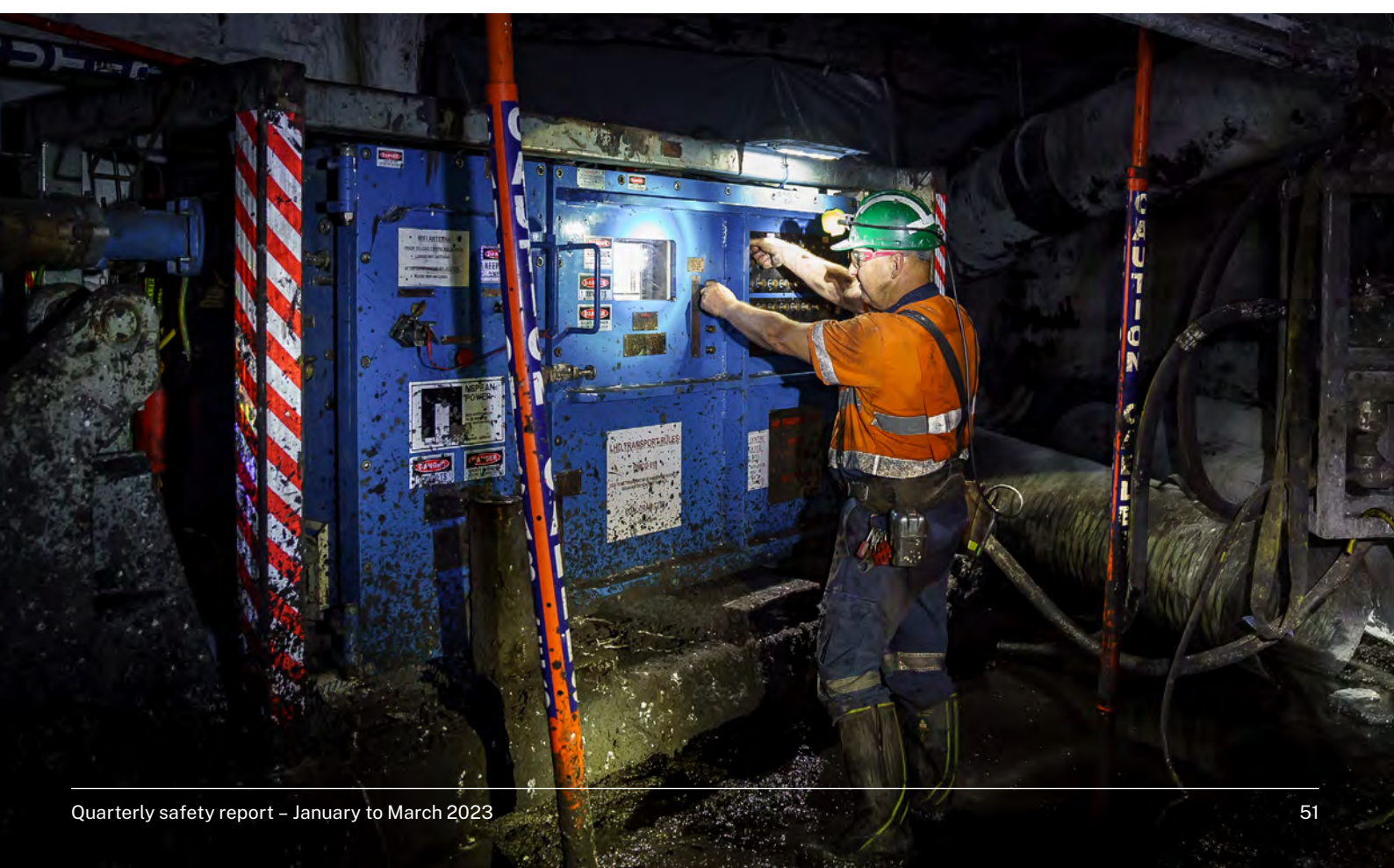
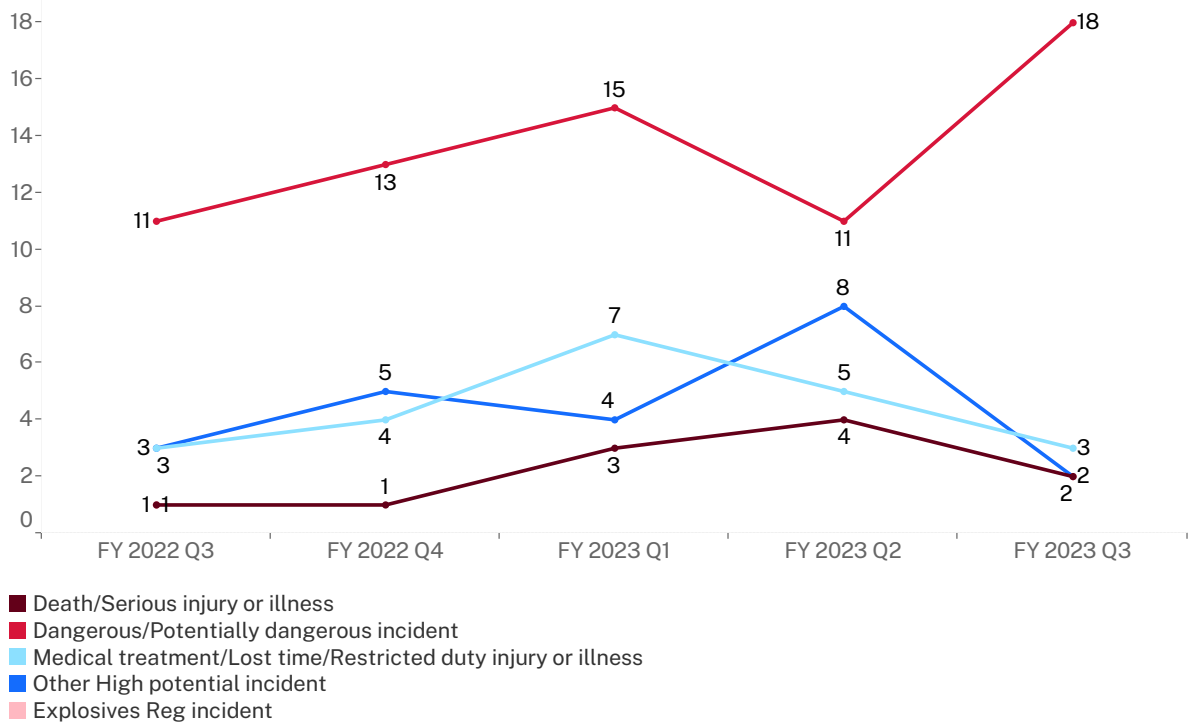
The graph below shows the proportion of safety incident notifications received from small mines and quarries.

Figure 23. Small mines and quarries incident notifications received by operation type – January 2022 to March 2023



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. This quarter saw a decrease in notified incidents in all injury and illness categories except dangerous and potentially dangerous incidents which increased by 64%. Comparatively, the number of incidents notified by the sector is substantially lower than what is reported by the coal and large mines sectors.

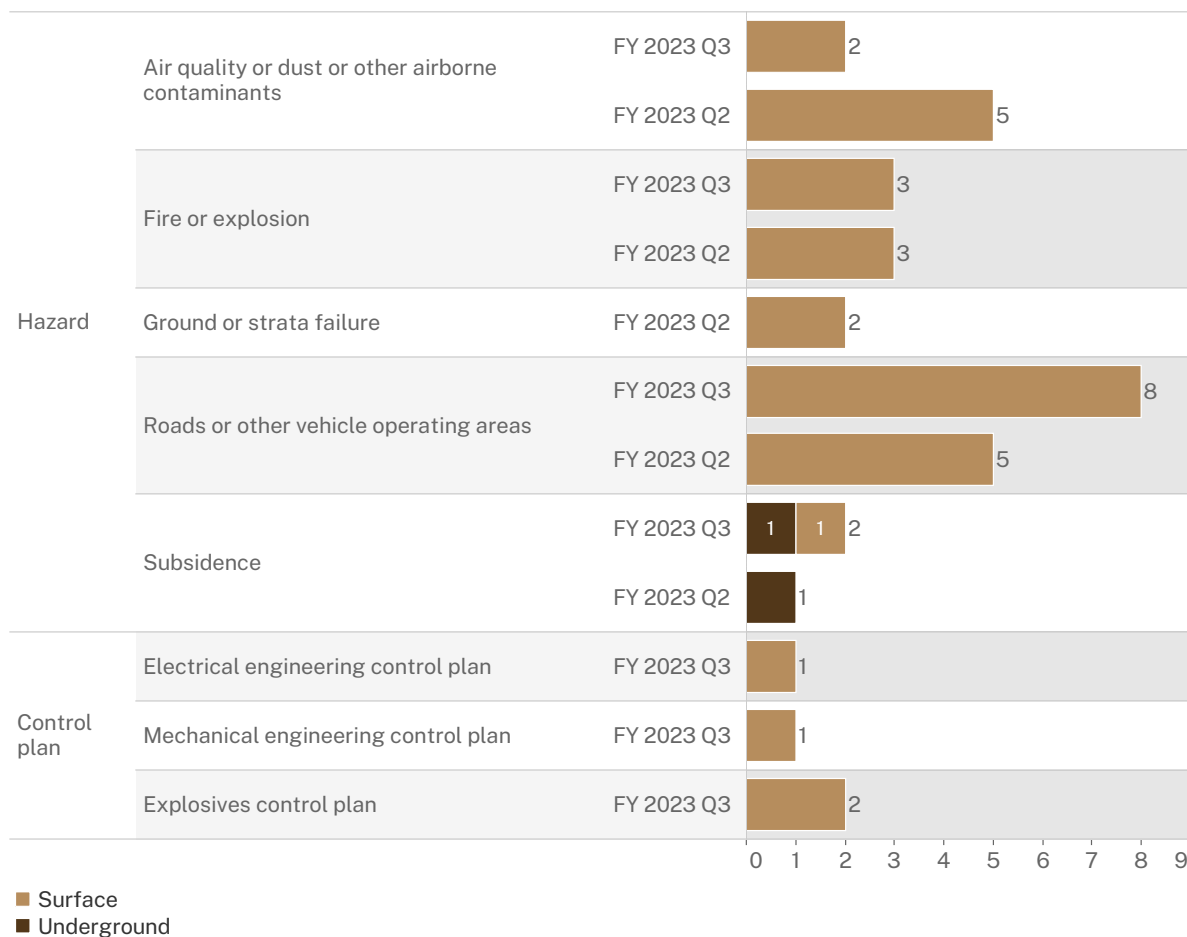
Figure 24. Small mines and quarries incident notifications received by requirement to report – January 2022 to March 2023



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 incident notifications received by principal hazard and operation type – October 2022 to March 2023



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 notification received by requirement to report and by principal hazard.

Table 5. Petroleum and geothermal sites, opal mines and exploration sites incident notifications received – January 2022 to March 2023

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

* includes exploration

** excludes petroleum and geothermal

Table 6. Opal mines and exploration sites incident notifications received by requirement to report – January 2022 to March 2023

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

Table 7. Opal mines and exploration sites incident notifications received by principal hazard – January 2022 to March 2023

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

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.

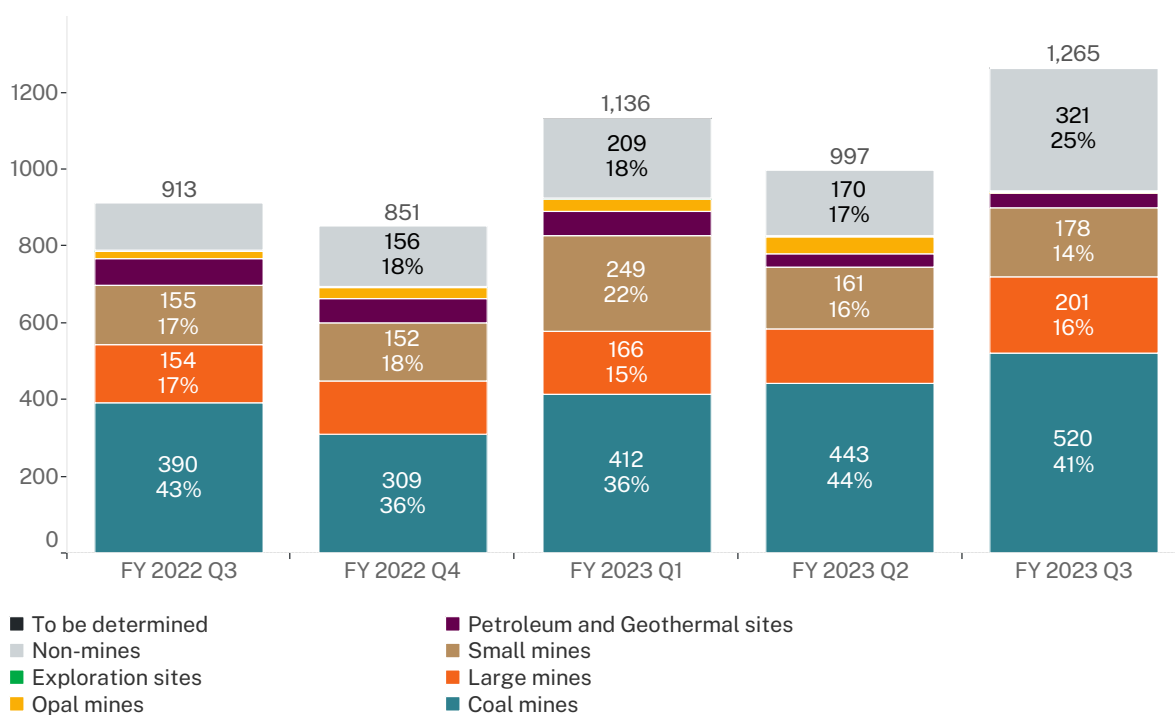
Detailed information regarding compliance activities, priorities, outcomes and reports are published on our [website](#) and in our [business activity reports](#).

Safety assessments by sector

This quarter saw the highest number of assessments of the previous 5 quarters, with increases observed in all mine types except opal mines.

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

Figure 26. Safety assessments by sector – January 2022 to March 2023

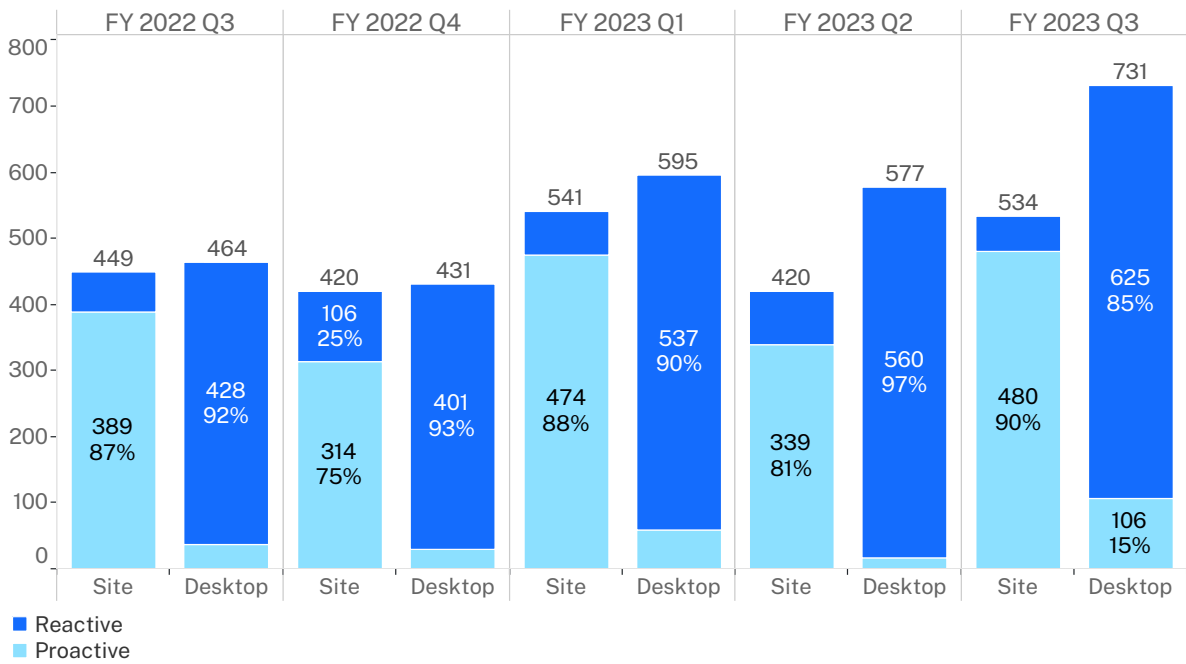


Safety assessments by category and nature

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 – January 2022 to March 2023

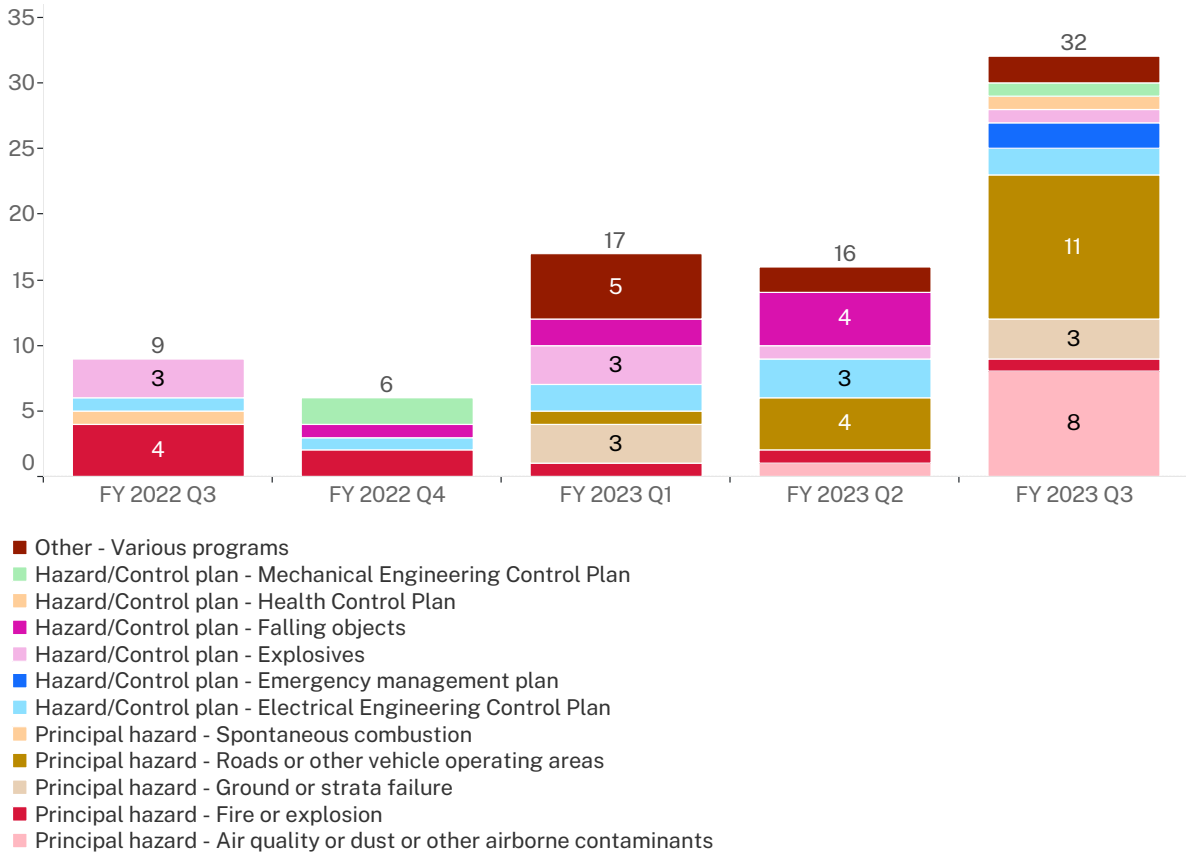


Programmed site assessments

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.

The number of targeted assessments undertaken by the Regulator doubled this quarter.

Figure 28. Targeted assessments by hazard – January 2022 to March 2023

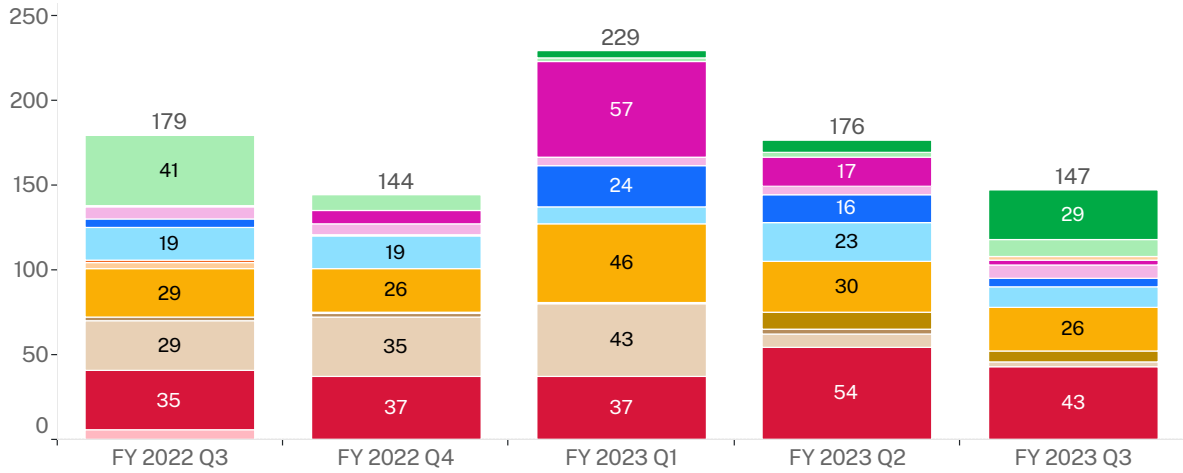


Planned inspections

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 – January 2022 to March 2023

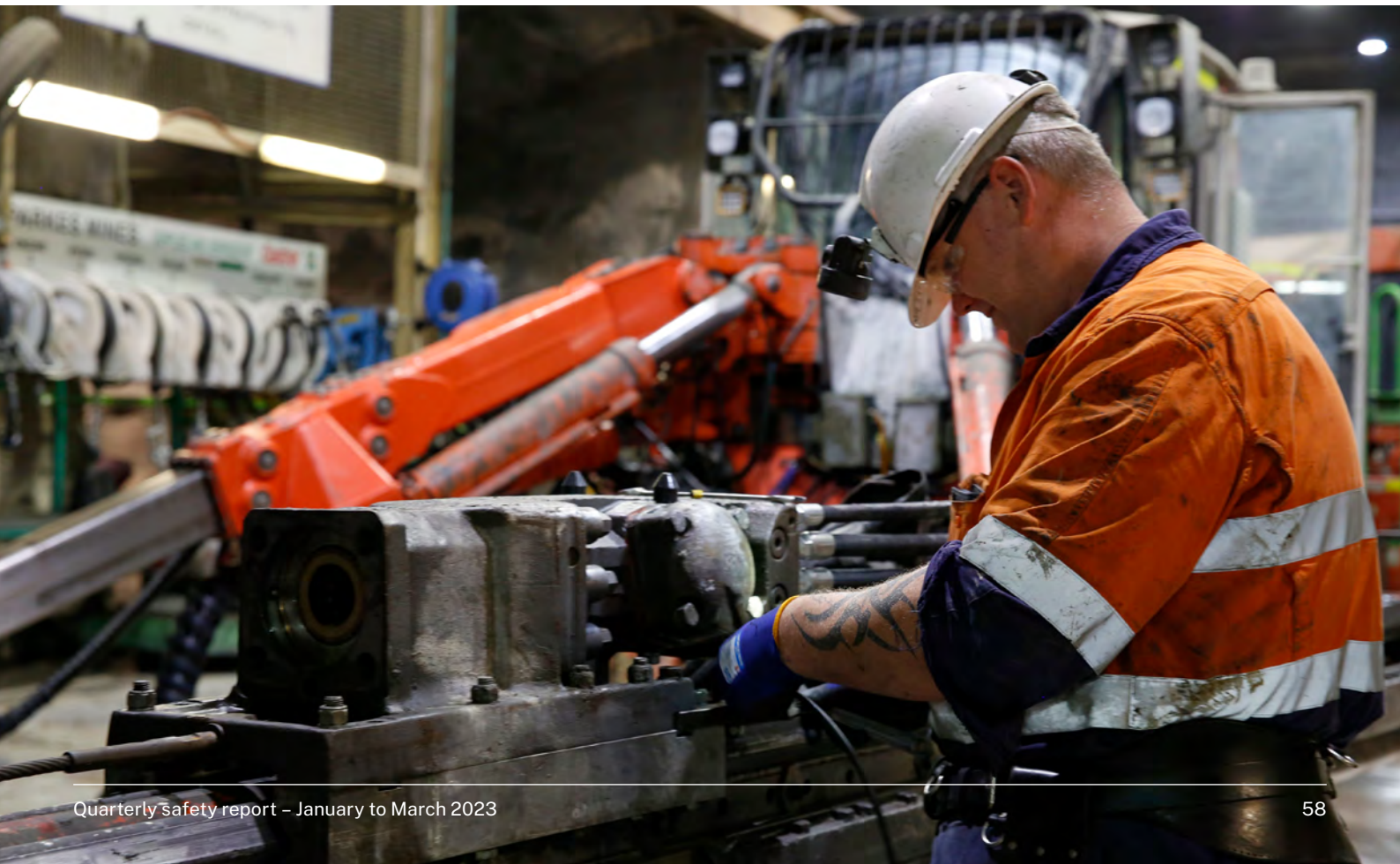
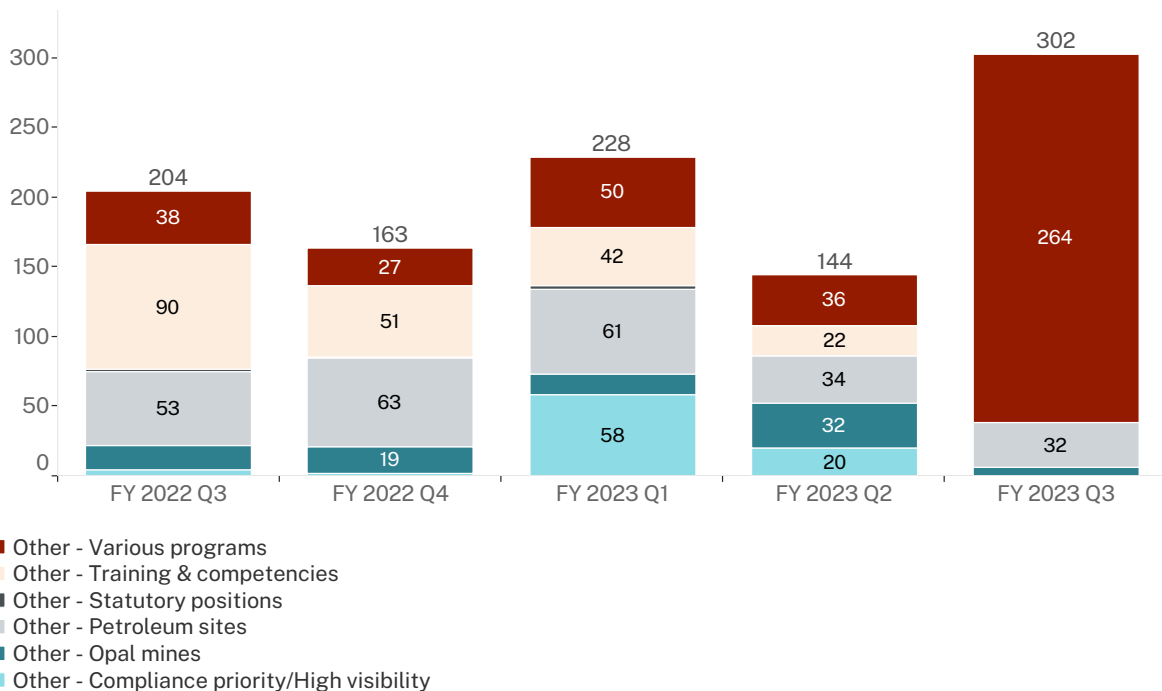


- Hazard/Control plan - Working at height
- Hazard/Control plan - Mechanical engineering control plan
- Hazard/Control plan - Heat stress
- Hazard/Control plan - Health Control Plan
- Hazard/Control plan - Falling objects
- Hazard/Control plan - Explosives
- Hazard/Control plan - Emergency Management 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. The category of 'various programs' includes legislation gap analysis, psychosocial risks, high risk activity field assessments, pressure vessels, hazard reporting and non-operational sites.

Figure 30. Planned inspections by 'other' hazard – January 2022 to March 2023

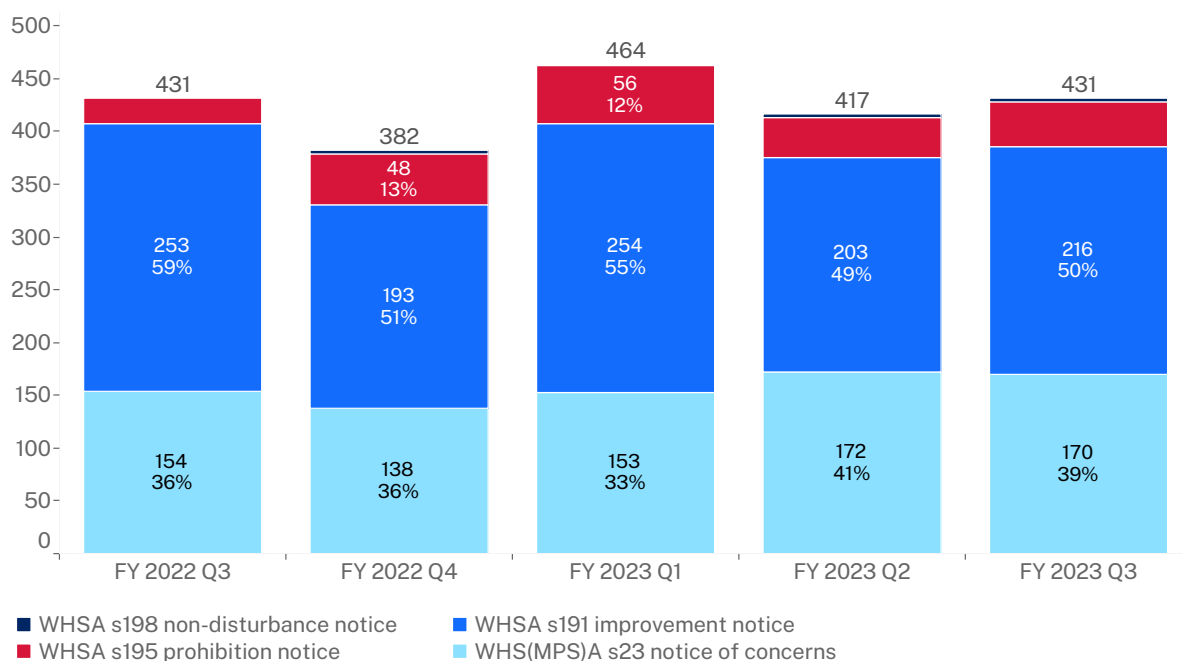


Safety notices issued

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

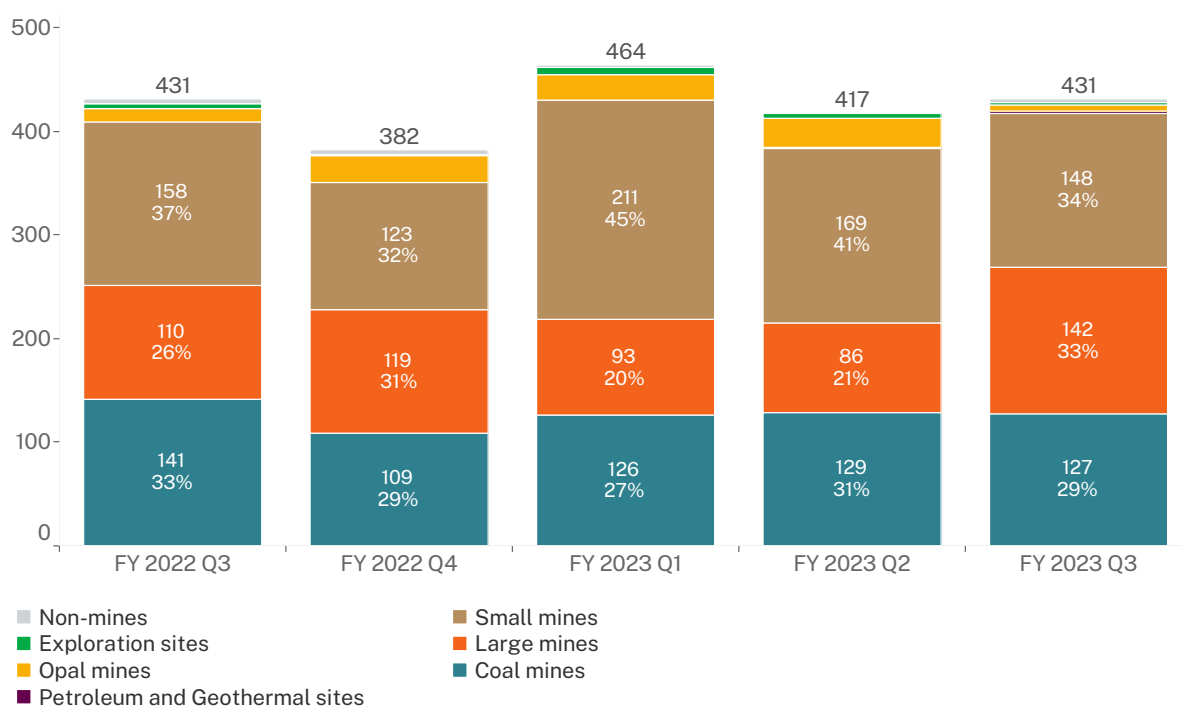
The graph below shows the number and types of safety notices issued during each of the 5 quarters since January 2022.

Figure 31. Safety notices issued by notice type – January 2022 to March 2023



The proportion of safety notices issued to large mines has increased this quarter, with small decreases observed in the coal and small mines sectors.

Figure 32. Safety notices issued by sector – January 2022 to March 2023



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