QUARTERLY REPORT

Extractives industry

2021/22 Q2

October to December

Te Kāwanatanga o Aotearoa
New Zealand Government

WORKSAFE
Mahi Haumaru Aotearoa

Foreword

Our mission is to transform New Zealand's health and safety performance towards world-class. To achieve this requires the commitment not just of WorkSafe New Zealand, but of businesses, workers and a wide range of other players in the health and safety system.

I am always conscious that the quarterly report comes out three months after we have completed gathering the data for the previous quarter – so the data is always some months behind. This shouldn't be a problem, as the numbers are very much about consolidation and aggregation of numbers from all of Industry into overall trends, and the information is generally not about any specific or recent event.

We have a steady flow of information into WorkSafe from industry, and then this same information is collated and analysed and then distributed back to industry in various graph and table formats. These statistical representations are for your dissemination, to heighten your awareness of areas where significant events are most likely to occur, and possibly to trigger you to make positive changes.

They are based on factual inputs, and they give us a direction of travel for our performance.

But what they are not, is emotional. They don't convey the physical or mental effects of significant incidents on victims, supervisors, managers, workmates or shareholders and owners.

These effects are often significant – full physical function sometimes never regained, jobs are lost, mental well-being deteriorates, and these effects are not limited to just those directly involved, but often extend back into the home lives and relationships of those persons.

We introduced the summary of HPIs reported to assist us in educating industry about the types of incidents that are occurring. By taking one or two incidents and expanding on them, we are trying to make operators think about their own circumstances and considering if the details in the HPI summary might apply to themselves.

What we cannot do justice to is to explain the actual harm that has occurred to workers in our industry.

When you consider the statistics in this report, I would ask you that you also consider what the harm may have been and how that would have affected you.

After being in this role several years, I am now very aware of the long-term effects for some who have been injured in just my tenure. They are just a statistic to most of you, as of course you do not know them, but I can assure you they are much more than that to their families and friends.

'A high potential incident at a mine, quarry or tunnel is an event, or a series of events, that causes or has the potential to cause a significant adverse effect on the safety or health of a person'.

Paul Hunt
Chief Inspector Extractives

About this report

This quarterly health and safety performance report has been prepared by WorkSafe to provide extractives-specific information to mining, tunnelling and quarrying operations in New Zealand.

The information is derived from a variety of sources but the predominant source is industry itself, through notifiable incident reporting and mining and tunnelling sector quarterly reporting.

The report also contains information on the activities of the regulator, as well as commentary on industry performance and focus areas for regulation.

Operators should use the information presented in this report to assist them in improving safety management systems and undertaking risk assessments at their sites.

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1.0 Industry profile

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1.1 Operations

1.2 People

1.3 Developing competence

1.1 Operations

3

Metalliferous opencast mines
Includes one mine under care and maintenance and one mine under rehabilitation

22

Coal opencast mines
Includes four mines under care and maintenance, and one undertaking rehabilitation

6

Metalliferous underground mines
Includes two mines under care and maintenance and two operating tourist mines

2

Coal underground mines
Includes one tourist mine under care and maintenance

5

Tunnels
Does not include tunnels that notified commencement but did not begin operating in the quarter

1

Coal exploration
One notification of drilling commencement in the quarter

71

Alluvial mines
Number of mines that have been verified (65) or have notified of an Appointed Manager to WorkSafe (6) (includes 2 iron sands mines)

971

Quarries
Number of quarries that have been verified (859) or have notified of an Appointed Manager to WorkSafe but not yet verified (112)

An important aspect of understanding the health and safety performance of the extractives industry is to understand its makeup in terms of the number and scale of operations and the number and competency of workers involved.

There were 1,801 active operations in New Zealand as at the end of December 2021.

Active mining operations include those that are operating, intermittently operating, under care and maintenance, or undertaking rehabilitation, as well as tourist mines. Active quarries and alluvial mine numbers include operations that have been verified as actively or intermittently operating (that is, visited by WorkSafe), or have notified WorkSafe of an Appointed Manager.

The numbers of operations will vary from quarter to quarter. In these first quarterly reports, many of the changes are due to verification of sites by our inspectors, rather than actual changes to operations.

1.2 People

781

Metalliferous opencast mines
540 FTEs employed by mine operators and 241 FTEs employed by contractors

624

Coal opencast mines
543 FTEs employed by mine operators and 81 FTEs employed by contractors

465

Metalliferous underground mines
376 FTEs employed by mine operators and 89 FTEs employed by contractors

15

Coal underground mines
6 FTEs employed by mine operators and 9 FTEs employed by contractors

720

Tunnels
397 FTEs employed by mine operators and 323 FTEs employed by contractors

<1

Coal exploration
1 worker employed by mine operators worked 20 hours

278

Alluvial mines
Number of workers is known for 30 of the 71 alluvial mines that are verified and/or have notified of an Appointed Manager. The total number of workers has been extrapolated for the remaining 41 operations

2,991

Quarries
Number of workers is known for 731 of the 971 quarries that are verified and/or have notified of an Appointed Manager. The total number of workers has been extrapolated for the remaining 240 operations

There were 5,874 Extractives FTEs in New Zealand as at the end of December 2021. The numbers of workers will also vary from quarter to quarter. Changes in the number of quarry and alluvial mine workers largely reflect the changes in the number of active operations verified by inspectors. Part of those verifications includes determining the number of workers at each operation.

A notable change has been the number of tunnel workers with two large tunnel operations in Auckland going operational in 2020. Thousands of different types of workers will be exposed to these operations over the duration of the projects. The number of tunnel workers reported this quarter has returned to pre-August 2021 lockdown levels.

Figure 1 shows the total hours worked by the mining and tunnelling sectors in Q2 2021/22. The hours are separated into Employees and Contractors.

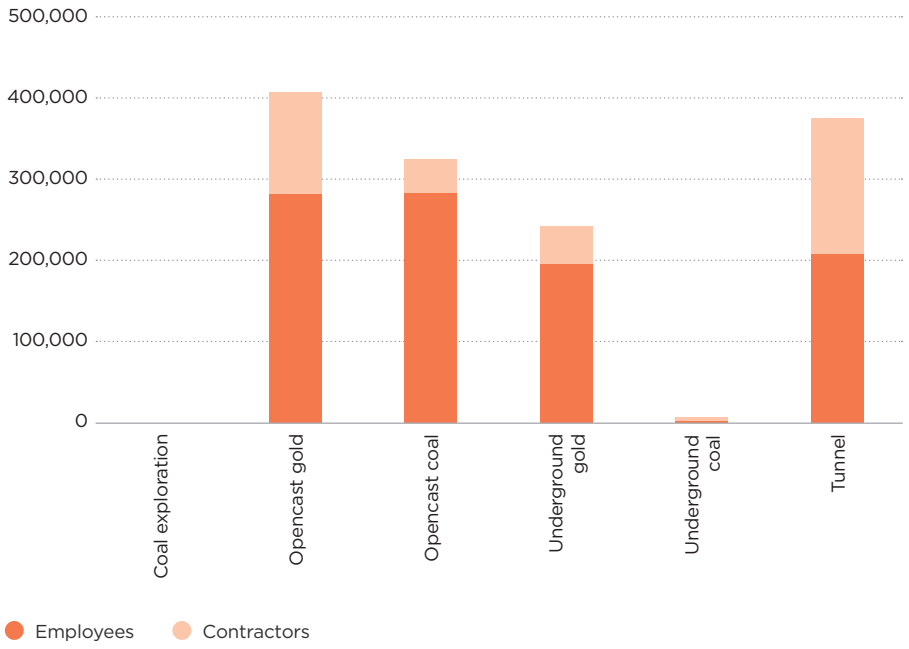

FIGURE 1:
Total hours worked by sector 2021/22 Q2

Figure 2 shows the number of Full Time Equivalents (FTEs) calculated from total hours worked for the mining and tunnelling sectors in Q2 2021/22. The hours are separated into Employees and Contractors.

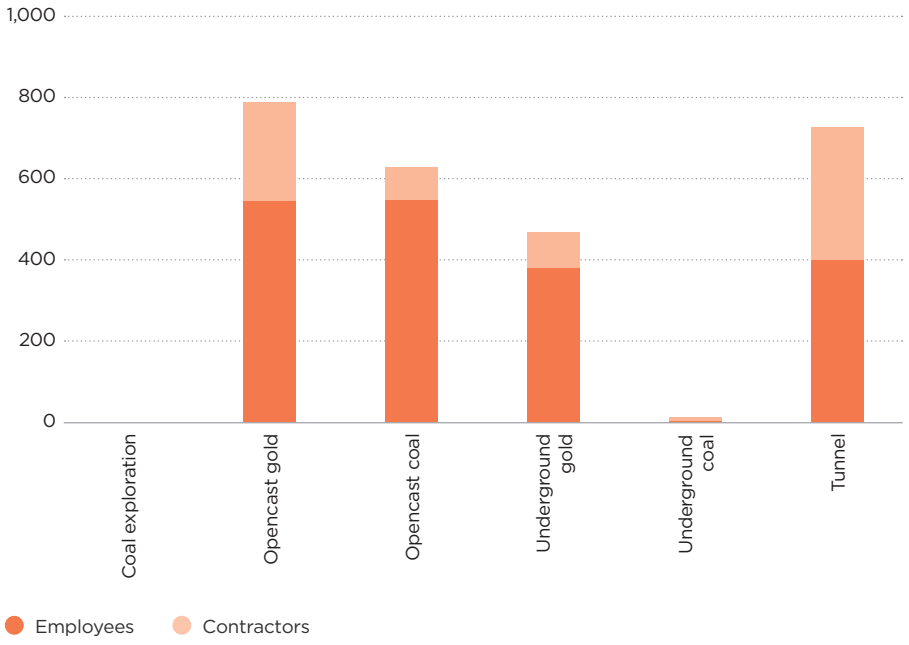

FIGURE 2:
Number of FTEs by sector 2021/22 Q2

1.3 Developing competence

WorkSafe has responsibility for setting the competency standards in the Extractives Industry. Improving the competence of the people in the industry is one of the most important aspects of improving health and safety performance. WorkSafe appoints the New Zealand Mining Board of Examiners (BoE) to recommend competency requirements, conduct oral examinations and to issue, renew, cancel or suspend Certificates of Competence (CoCs).

In July 2020 the first CoCs issued under the new regulations began to expire and those wishing retain a CoC were required to submit a renewal application with CPD log books.

The table below uses the 31 June 2020 date as a benchmark. This is the date when we stopped just issuing new CoCs, but also started to have expired or renewed CoCs.

This quarter's numbers were very encouraging. The total number of CoCs in circulation has increased for both last quarter and this quarter. Significantly, this quarter the number of CoCs in circulation on 30 December 2021 was the highest number of CoCs in circulation since the regime commenced in June 2015.

The biggest increase by type of CoC was for the B Grade Quarry Manager, while the biggest decreases in numbers of CoCs in circulation are those CoCs related to the underground and opencast coal sector.

The numbers will continue to fluctuate, but the general the trends seem to be consistent with the changing industry demographic, and overall the number of renewals and issue of new CoCs is equal to the number of CoC holders choosing to not renew a CoC.

Table 1 provides a summary of all CoCs issued up to 30 June 2020 and current number of CoCs in circulation at the end of Q2 2021/22.

COC TYPE	TOTAL NUMBER OF COCs ISSUED (2015 to 30 Jun 2020)	TOTAL NUMBER OF CURRENT COCs (as at 30 Dec 2021)	CHANGE IN NUMBER OF CURRENT COCs 1 Jul 2020 to 30 Dec 2021
A Grade Quarry Manager	315	312	-3
B Grade Quarry Manager	482	575	93
A Grade Opencast Coal Mine Manager	71	58	-13
B Grade Opencast Coal Mine Manager	64	50	-14
A Grade Tunnel Manager	32	38	6
B Grade Tunnel Manager	74	72	-2
Site Senior Executive	62	57	-5
First Class Coal Mine Manager	21	15	-6
First Class Mine Manager	31	21	-10
Coal Mine Deputy	44	28	-16
Coal Mine Underviewer	35	19	-16
Mechanical Superintendent	25	23	-2
Electrical Superintendent	17	20	3
Ventilation Officer	3	4	1
Mine Surveyor	13	12	-1
Site Specific	1	2	-1
Winding Engine Driver	3	0	-3
Total	**1,293**	**1,306**	**11**

TABLE 1: Certificates of Competence in circulation

2.0 Health and safety performance

IN THIS SECTION:

2.1 Notifiable events

2.2 Injuries

2.3 Types of events

2.4 Mine and tunnel focus areas

2.5 Regulator comments

2.6 High potential incidents

2.7 High potential incidents – investigation outcomes

2.1 Notifiable events

Notifiable events are required to be reported to WorkSafe under S23(1), S24(1) and S25(1) of the Act, and for mining and tunnelling operations, under Schedule 5 of the Regulations. Notifiable events include any notifiable incidents, notifiable injuries or illnesses, or fatalities.

The tables below show the number of notifiable events and the number of operations that notified events for the previous three years and for Q1 and Q2 of 2021/22 for mines and tunnels (Table 2) and quarries and alluvial mines (Table 3).

MINES AND TUNNELS	2018/19 QUARTERLY AVERAGE	2019/20 QUARTERLY AVERAGE	2020/21 QUARTERLY AVERAGE	2021/22 Q1	2021/22 Q2
Number of notifiable events	18	20	18	20	24
Number of operations that notified events	9	11	9	11	12

TABLE 2: Mines and tunnels – notifiable events and operations that notified events

Sixteen individual mines and tunnels from a total of 39 reported notifiable events in the past 12 months.

QUARRIES AND ALLUVIAL MINES	2018/19 QUARTERLY AVERAGE	2019/20 QUARTERLY AVERAGE	2020/21 QUARTERLY AVERAGE	2021/22 Q1	2021/22 Q2
Number of notifiable events	14	18	16	10	13
Number of operations that notified events	13	15	12	9	13

TABLE 3: Quarries and alluvial mines – notifiable events and operations that notified events

Forty-three individual quarries and alluvial mines from a total of 1,042 reported notifiable events in the past 12 months.

Figure 3 shows the number of notifiable events reported to WorkSafe by sector from January 2020 to December 2021.

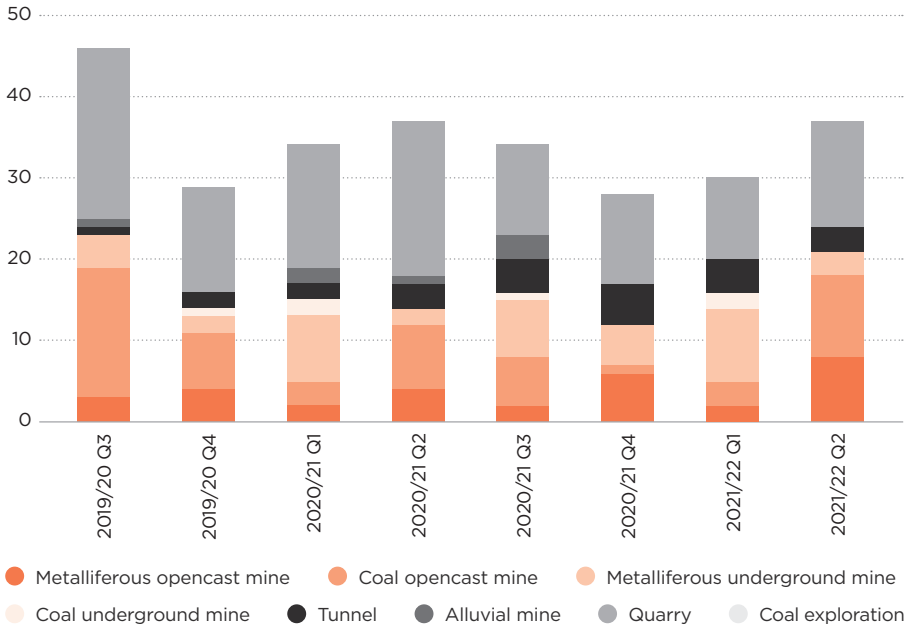

FIGURE 3: Notifiable events by sector

2.2 Injuries

Additional information about injuries is reported to WorkSafe for mining and tunnelling operations in the form of Quarterly Reports and Records of Notifiable Events under Schedules 6 and 8 of the Regulations. Figure 4 shows the number of injuries by injury type reported to WorkSafe by the mining and tunnelling sectors from January 2019 to December 2021. The graph also shows the rolling 12-month average for the Total Recordable Injury Frequency Rate (TRIFR), the rate of recordable injuries that occurred per million hours worked. The current TRIFR is 1.5. Rates have fluctuated over past two years without any clear trend – this is a lower rate than average.

While TRIFR is not the only measure indicating the health of the industry, it is a useful indicator of how workers are being injured and should be interpreted in conjunction with other data such as notifiable event information.

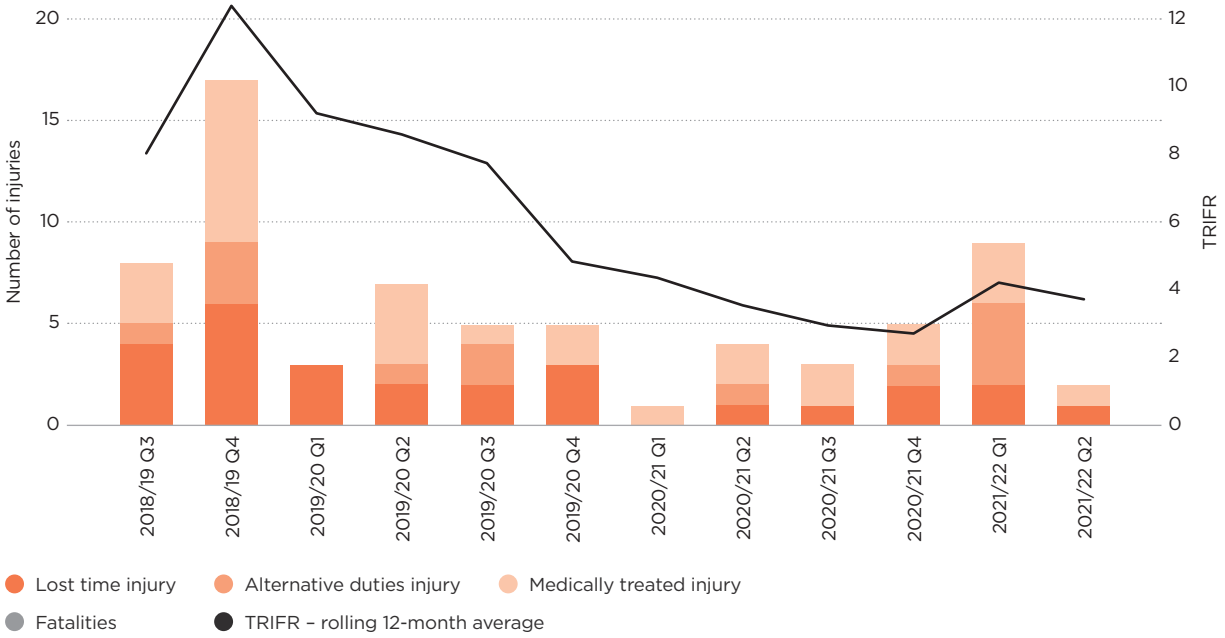

FIGURE 4: TRIFR – mines and tunnels

The following injury definitions are taken from Schedule 8 of the Regulations:

- **Lost-time injuries** are events that involved injury or illness of a mine worker that resulted in the inability of the worker to work for 1 day or more (not including the day of the event) during the reporting period (whether the worker is rostered on that day or not).
- **Alternative duties injuries** are events that involved injury or illness of a mine worker that resulted in the worker being on alternative duties during the reporting period.
- **Medical treatment injuries** are work-related injuries to mine workers that required medical treatment during the reporting period but did not require a day lost from work or alternative duties (other than the day of the event).

Figures 5 and 6 show the number of injuries resulting in more than a week away from work (WAFW), and the sum of the claims costs for those WAFW injuries for the mining and quarrying sectors from January 2019 to June 2021. It is important to note that the number of WAFW injuries for previous quarters may increase over time as ACC can grant claims up to 12 months after an injury has occurred. The claims costs for WAFW injuries for previous quarters will also continue to increase over time as the true costs of those injuries are realised. It may take two years or more for the true costs to be realised. The average cost of extractives sector WAFW injuries between January 2019 and June 2021 was over $20,500 per injury.

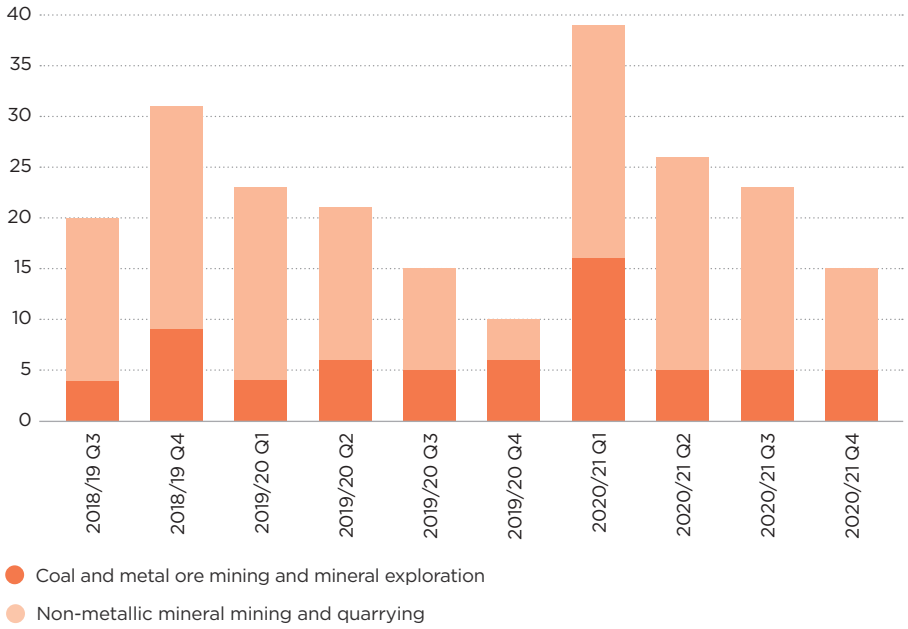

FIGURE 5:
Number of injuries resulting in more than a week away from work

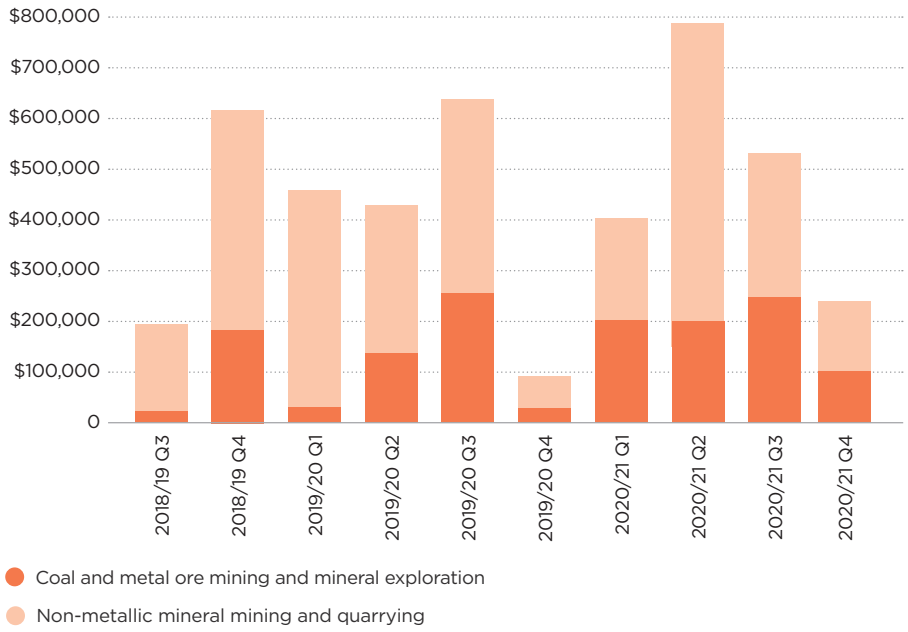

FIGURE 6:
Sum of claims cost (excluding GST) for injuries resulting in more than a week away from work

The data for these graphs comes from our System for Work-related Injury Forecasting and Targeting (SWIFT) database. It includes ACC data on approved work-related injury claims that resulted in more than a week away from work (WAFW). There is a seven month lag applied to the data to allow time for the claim information to stabilise, so data for the past two quarters is not yet available. While SWIFT data draws on ACC data, differences in counting criteria mean it may not match ACC counts, and should not be considered official ACC data.

2.3 Types of events

Figures 7 and 8 show the notifiable event categories for events notified to WorkSafe in the previous 12 months, by the mining and tunnelling sectors and the quarrying and alluvial mining sectors, respectively. The data shows that 55 percent of notifiable events in the mining and tunnelling sectors in the past 12 months have occurred in relation to vehicles and plant (27%), and fire, ignition, explosion or smoke (29%). These two categories are broken down in more detail in the following section. Forty-eight percent of notifiable events in the quarrying and alluvial mining sectors in the past 12 months involved the collapse, overturning, failure or malfunction of, or damage to plant (29%) and an implosion, explosion or fire (19%).

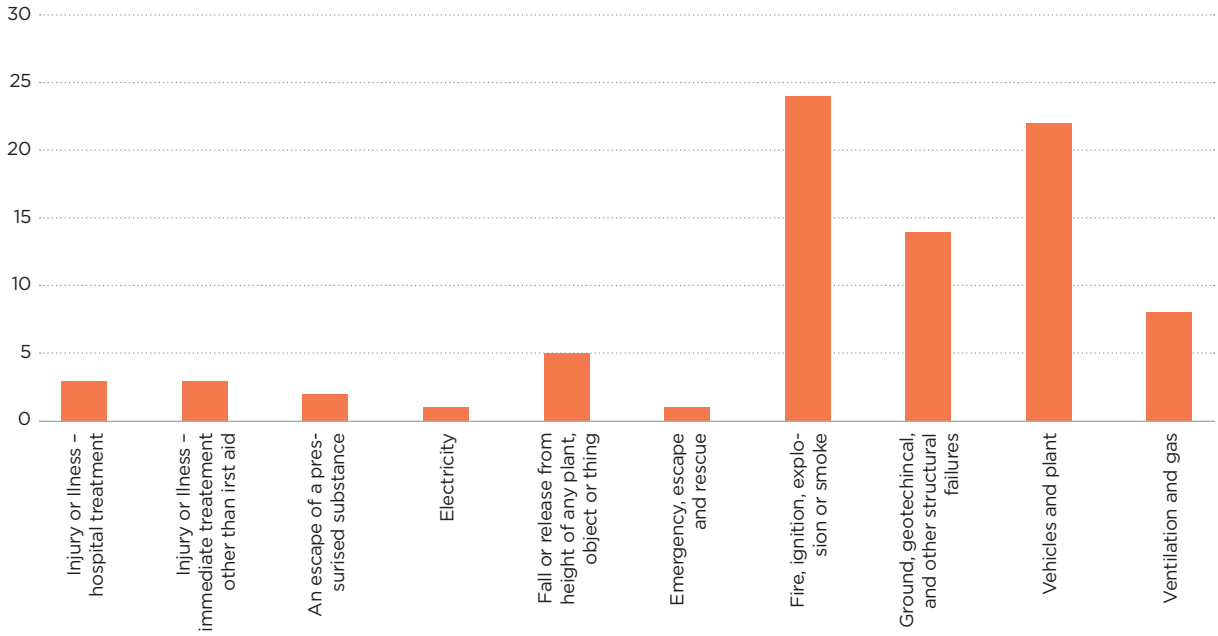

FIGURE 7: Mines and tunnels notifiable event categories for the previous 12 months

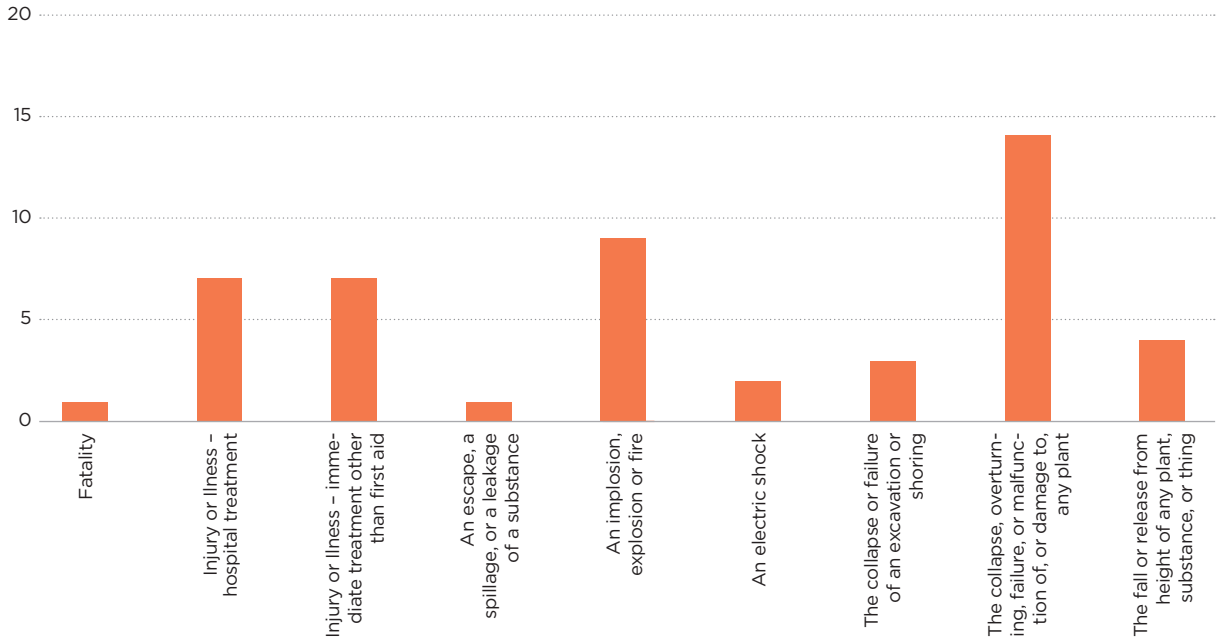

FIGURE 8: Quarries and alluvial mines notifiable event categories for the previous 12 months

2.4 Mine and tunnel focus areas

Where there is a high frequency of notifiable events in any Schedule 5 category, we have broken these events down in more detail to identify key focus areas. We will target our inspections to ensure that operators have adequate controls in place to address these risks.

Figures 9 and 10 break down the two largest notifiable event categories for mines and tunnels in the past 12 months into the corresponding Schedule 5 sub-categories. The data shows that for notifiable events related to fire, ignition, explosion or smoke, 75% involve fires on plant, mobile plant or in buildings associated with mining or tunnelling activities, 12% involves spontaneous combustion, and 13% involves the outbreak of a fire on the surface or underground. The vehicle and plant-related notifiable events involve collision of mobile plant with other plant (41%), overturning of mobile plant (41%), and unintended movement or brake failure (18%).

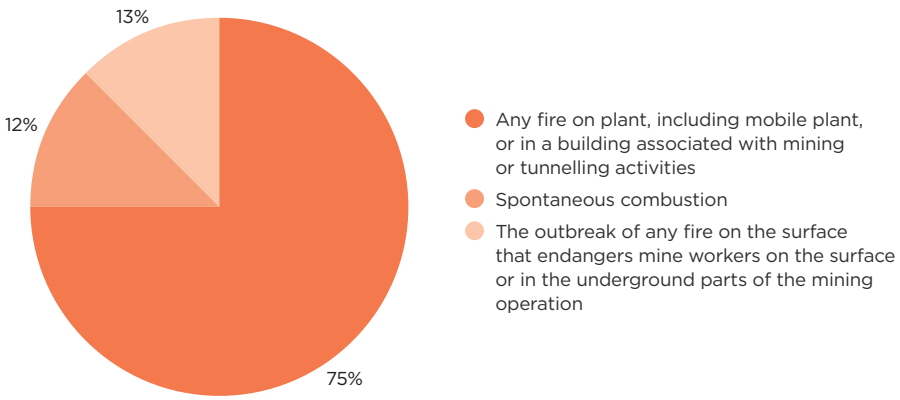

FIGURE 9: Fire, ignition, explosion or smoke-related notifiable event sub-categories

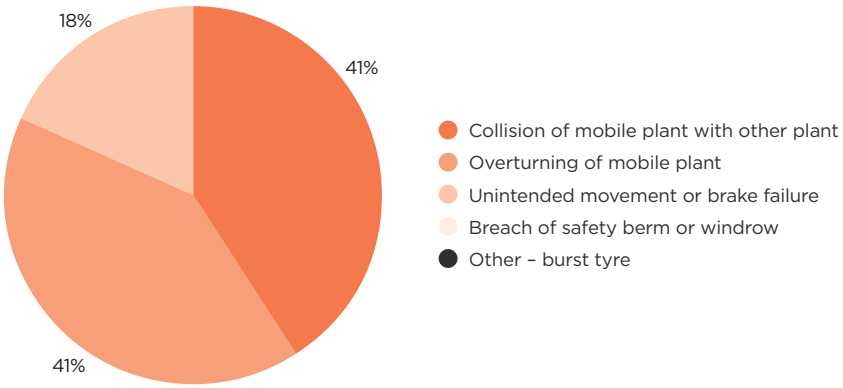

FIGURE 10:
Vehicles and plant-related notifiable event sub-categories

Consistency of reporting

Mining and tunneling data are received from a high proportion of those operations and are considered to be accurate. Notifiable events were reported by 41% of operations in the past 12 months, and quarterly reports were submitted by 92% of operations this quarter.

Quarrying and alluvial mining data are received from a much lower proportion of those operations and are likely to be less accurate. Notifiable events were reported by just 4.1% of operations in the past 12 months. The SWIFT data on WAFW injuries consistently shows higher numbers of injuries in the quarry sector, suggesting under-reporting of events. More accurate reporting from the quarry sector is expected when the requirements for reporting under Schedules 5 and 8 are implemented for quarries.

2.5 Regulator comments

Last quarter the role of a supervisor was discussed. Another requirement operators should consider when setting up supervision roles is the concept of a 'Controlled Work Environment'. The simple model of the 'Nertney Wheel' wraps this controlled environment requirement around the more often quoted requirements for Competent People, Fit for Purpose Equipment and Safe Work Practices. All of these conditions are required and only when they are all in place do we get the desired 'Safe Production' outcome.

The Controlled Work Environment is often the least understood requirement of this model. In simple terms the expression refers to both the physical factors and supervisory control in the work process. The role of a supervisor was explained last quarter. In simple terms it is making sure everybody is doing what they should be doing through good instructions, systematic observations and inspections – with a delegated authority to stop any work that might cause harm. What they often do not have control of, is the larger general environment where any work is conducted – the physical factors which can include the layout of work areas, provision of warmth and shelter against expected weather conditions, safe and healthy facilities for eating and rest, buildings designed to be stable and which are appropriate for the work processes. It is useful to consider the work environment and what arrangements should be in place in the same way that Fit For Purpose Equipment is considered. That is, to consider the physical environment from a life cycle perspective – through project concept, design construction or acquisition, commissioning, operation, maintenance, modification, through to decommissioning and closure of an operation.

Considerations include: What should the site be set up be like, where are best access and egress points, where should workshops and primary life of mine roads be established etc.

Material changes of a physical nature on a site can make existing SOPs ineffective and can be the cause of incompatibility between existing work processes and the new environment that potentially results in unwanted negative outcomes.

Often engineering considerations will be required to establish and maintain a Controlled Work Environment. And from time to time, as the site configurations change with the extractive processes being advanced, further assessment will then be needed to maintain, or on occasion modify some physical assets or the work processes being used. A good example of ensuring there is a Controlled Work Environment is the benefit of having up to date geotechnical advice on the physical properties of the material being excavated and having a design of the site extraction processes to avoid unexpected failures. The physical properties of the material may change as the site advances to new locations or deeper workings.

The supervisor may maintain good disciplines and equipment may be well maintained and operated by competent persons, but the physical environment may have changed so significantly that the existing work process is no longer suitable.

Operators should, so far as is reasonably practicable, take whatever actions that are required to ensure that there is a Controlled Work Environment at all times.

2.6 High potential incidents

A high potential incident at a mine, quarry or tunnel is an event, or a series of events, that causes or has the potential to cause a significant adverse effect on the safety or health of a person.

High potential incidents – 2021/22 Q2

Table 4 provides a summary of high potential incidents notified to WorkSafe in Q2 2021/22. The summaries are an abridged version from the operator's notification report.

INCIDENT DATE	SUMMARY	CONSIDERATIONS
Oct 21	A dump truck has driven into a conveyor leg at the main plant.	– Roads and vehicle operating areas – Job planning – Risk assessment – Supervision – Training
Oct 21	A haul truck was carting a load of waste material to dump. The operator noticed smoke on offside, hit AFFF and evacuated machine. It was suspected it might be a turbo that failed, blowing oil onto the top of the position two tyre and igniting a small flame. Although not suspected to be a tyre fire, elected to establish a 400m exclusion zone around the truck for 24 hours as a precaution.	– Fire or explosion – Equipment maintenance – Emergency management
Oct 21	A truck was tipping off and failed to put their truck bin hoist down and drove through the overhead powerlines back to the quarry. Didn't realise they had hit them. No injury.	– Roads and vehicle operating areas – Electrical – Job planning – Risk assessment – Supervision – Training

INCIDENT DATE	SUMMARY	CONSIDERATIONS
Oct 21	Digger operator found a column of package product in a blast hole that had not fired. The blast was initiated about two months prior.	– Explosives – Workplace inspection – Risk assessment – Supervision – Training
Oct 21	While a road truck and trailer were tipping a trailer of lime off, the trailer has rolled over to the left-hand side. After survey has been completed the ground was hard and level. No injury.	– Roads and vehicle operating areas – Job planning – Risk assessment – Supervision – Training
Oct 21	Dump truck was returning from the overburden dump towards the pit, the water truck had previously sprayed the road with water to control dust, the road was still slippery. When the dump truck came onto the recently watered road the back slid out.	– Roads and operating surfaces – Equipment selection and design – Equipment maintenance
Oct 21	Articulated dump truck (ADT) was reversing into an underground parking bay and the rear wheels were driven up the wall and the tray of the truck tipped on to its side. The cab remained level and unaffected. Nil injury.	– Roads and vehicle operating areas – Job planning – Risk assessment – Supervision – Training
Oct 21	Digger was loading a fleet of ADTs with overburden waste. Excavator operator tried to load a +30 tonne rock as a third pass on an ADT. Was able to lift the rock onto the tray but unable to move rock from under boom point. In maneuvering to pull the rock off the rear of the tray the weight transfer lifted the hitch on the ADT allowing the cab to roll to the left. The movement was slow enough for the truck driver to anticipate the rollover and they were wearing a seatbelt. The ADT driver was uninjured and truck suffered only minor panel damage.	– Job planning – Risk assessment – Supervision – Training
Nov 21	A worker was injured while completing routine maintenance on mobile plant. The worker had used a ladder to access the screen and was climbing along the outside. While attempting to move across the equipment the worker lost their footing, resulting in them falling approximately 2.1m. The worker suffered a rib fracture and required stitches to their leg.	– Fall from heights – Job planning – Risk assessment – Supervision – Training
Nov 21	We were changing the tyre on a loader, three wheels on the ground, when there was a cribbing block in the way unrelated to the jacking platform and the support platform was kicked out of the way, instead of using a tool to remove. As it was kicked out of the way the tyre sprung toward the other cribbing blocks that were supporting the jacking platform and trapping worker's leg between the two.	– Job planning – Risk assessment – Supervision – Training
Nov 21	Burst hose has sprayed oil onto a hot area (turbo) of a truck.	– Fire or explosion – Emergency management – Mechanical – Maintenance
Nov 21	Wheel loader reversed into the back of bulk tip trucks tail door. Driver of bulk tip truck was standing between tail door and bin of truck while truck bin was up in the tipping position. The tail door of tip truck swung up and hit truck driver in the back of upper legs briefly between the tail door and bin of truck.	– Roads and vehicle operating areas – Job planning – Risk assessment – Supervision – Training
Nov 21	While grading the road the gearbox failed to select gear then the brakes failed to engage. The operator dropped blade and steered machine into tunnel wall. Total distance travelled was approximately 18m. Decline 1:7. No injury occurred.	– Roads and vehicle operating areas – Mechanical – Maintenance – Supervision – Training

INCIDENT DATE	SUMMARY	CONSIDERATIONS
Nov 21	A worker was using a loader to scrape the floor around the top of the primary bin feed area clear. Whilst doing so, they approached the blocks on the side of the area at a 90 degree angle, and concentrating on the bin area to their right, they did not notice that they clipped the block at the front of the bucket. When they lifted the bucket, the block was lifted and slid down the side to the area below. The plant was operating at the time, and the access to that area is restricted by an interlock. Therefore it would not be likely for someone to be below at that specific time.	– Fall from heights – Roads and vehicle operating areas – Job planning – Risk assessment – Supervision – Training
Nov 21	The electrician was completing some work on a cabinet of a jumbo. They were using a heat gun (electric) to loosen some bolts. They then proceeded to use some contact cleaner (aerosol can) to clean some electrical components when the cleaner ignited and a small explosion occurred. All was captured on CCTV. The injured person only received very minor burns and required first aid treatment only.	– Fire or explosion – Job planning – Risk assessment – Supervision – Training – Emergency management
Nov 21	A dump truck drove over the back of light vehicle. Dump truck 1 (DT1) and dump truck 2 (DT2) were parallel parked up at a Go-Line in the pit. A field maintenance vehicle was working on DT2 and was parked across the front of DT2 but with the rear of the LV parked within the gap of the two DTs. DT1 driver who had just completed a break started up the DT, tooted the horn twice to indicate they were about to move forward, and drove forward, turning right and crossing in front of DT2, clipping the rear right of the LV with front right tyre of the DT. DT2 driver was standing beside the driver's door of the LV at the time of impact and escaped by running past the open LV driver's door and down the side of DT2. The maintenance worker was on the catwalk, adjacent to the cab of DT2. No injuries were sustained by any of the team. Driver of the departing DT1 was unaware that incident occurred and drove approximately 500m before hearing an incident had occurred via the RT.	– Roads and vehicle operating areas – Job planning – Risk assessment – Supervision – Training
Nov 21	Two scaffolders had been tasked with building the edge protection handrails prior to the pouring of a concrete slab. This handrail structure was being built on top of an existing 1.2m high plywood formwork wall. As part of this process they were required to work on the completed excavation side of the existing formwork. As they were working towards the left-hand side of the formwork a block of clay (Approximately 2–300kg) dislodged from the top of the completed excavation and rolled down a rill of broken material coming to rest against the backside of the formwork.	– Ground and strata – Workplace inspection – Design – Risk assessment – Supervision – Training
Nov 21	An ADT was leaving the pit loaded and heading up the ramp. The truck came to a section of slippery haul road and was unable to get traction. The operator reversed the ADT back down the ramp at a slow speed to take a better line on a second attempt. While reversing, the right-hand side wheels of the truck mounted a slope, tipping the tray onto the side.	– Roads and vehicle operating areas – Job planning – Risk assessment – Supervision – Training
Dec 21	Operator was tipping off using an ADT and tray tipped on its side.	– Roads and vehicle operating areas – Job planning – Risk assessment – Supervision – Training

INCIDENT DATE	SUMMARY	CONSIDERATIONS
Dec 21	A maintenance fitter was moving a D10 dozer at the top of a rehabilitated slope of a waste rock stack. A likely mechanical failure has caused the dozer to track backwards down the slope, approximately 130m along the slope, 60m vertically. The fitter evacuated the machine in the first 10–20m, with the dozer continuing to travel down the slope and coming to rest on a road below.	– Roads and vehicle operating areas – Mechanical – Maintenance – Supervision – Training
Dec 21	Excavator was cutting a track down and track slumped causing excavator to tip over. No injuries.	– Roads and vehicle operating areas – Job planning – Risk assessment – Supervision – Training
Dec 21	A fitter was gas testing the Agi truck at the batch plant when they noticed the Auxiliary Alternator Rev up and squeal. They went to check the reason, while doing so noticed an orange glow on the ground underneath. They saw a small flame and molten plastic around the retarder area. They set off the AFFF and isolated the machine and also shot an extinguisher off as well around the retarder area. The fitter called the supervisor and stood sentry at the machine. The area was isolated for further investigation. No injuries were sustained.	– Fire or explosion – Job planning – Risk assessment – Supervision – Training – Emergency management
Dec 21	The tower crane was not operational due to a fault and service people had been working on it, but were not on the crane at the time. The crane had been left in weathervaning mode. A 170T mobile crane was working within the radius of the tower crane and lifting a skip of metal offcuts up from the hole to place it on the surface. The mobile crane crew noticed the tower crane slowly move towards them and tried to contact people (who they thought were in the tower crane) but nobody was in it. The 170T crew started to take action but had limited room to move the boom resulting in a light contact between the two cranes.	– Job planning – Risk assessment – Supervision – Training – Change management

TABLE 4: High potential incidents – 2021/22 Q2

Table 5 and figure 11 shows the number of high potential incidents per quarter during the last year for all extractives operations.

QUARTER	Q3 JAN-MAR 2020	Q4 APR-JUN 2020	Q1 JUL-SEP 2020	Q2 OCT-DEC 2020	Q3 JAN-MAR 2021	Q4 APR-JUN 2021	Q1 JUL-SEP 2021	Q2 OCT-DEC 2021	TOTAL PREVIOUS 12 MONTHS
Number of high potential incidents per quarter	34	15	20	24	23	16	21	23	**83**

TABLE 5: High potential incidents per quarter

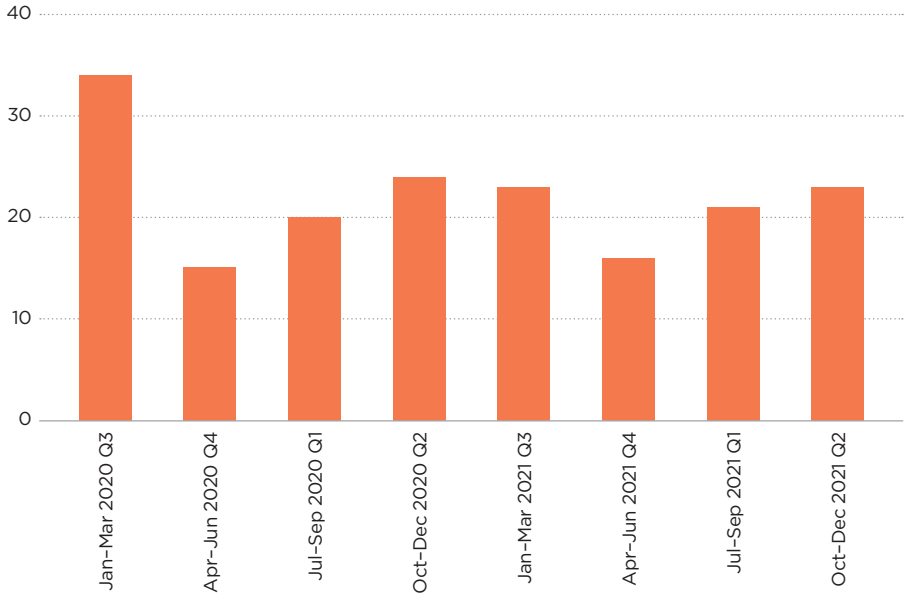

FIGURE 11: Number of high potential incidents per quarter

2.7 High potential incidents – investigation outcomes

High potential incident case study

INCIDENT DATE	SUMMARY	CONSIDERATIONS
Nov 21	A worker was injured while completing routine maintenance on mobile plant. The worker had used a ladder to access the screen and was climbing along the outside. While attempting to move across the equipment the worker lost their footing, resulting in them falling approximately 2.1m. The worker suffered a rib fracture and required stitches to their leg.	– Fall from heights – Job planning – Risk assessment – Supervision – Training

TABLE 6: High potential incident – investigation outcomes case study

FIGURE 12: Incident scene photograph

THE INCIDENT

A worker was injured while completing routine maintenance on mobile plant. The worker had used a ladder to access the screen and was climbing along the outside along the mobile plant. While attempting to move across the equipment the worker lost their footing, resulting in them falling approximately 2.1m. The worker suffered a rib fracture and required stitches to their leg.

The task being undertaken at this site was carried out frequently. No risk assessment was completed for the task that related in the injury. A work platform was available for the worker to use but it was fixed height and unsuitable for the job.

REGULATOR COMMENTS AND RECOMMENDATIONS

Over the past year there have been a number of fall from heights incidents at Extractive sites. This case study highlights the serious health and safety risks involved when working at height and the need to carry out risks assessments before undertaking routine work carried out at a height.

Where the potential of a fall exists, duty holders should consider the following hierarchy of controls:

- Can the job be done without exposing persons to the hazard (eliminate)? This can often be achieved at the design, construction planning and tendering stages.
- If elimination is not practicable then steps should be taken to isolate people from the hazard. This can be achieved using safe working platforms, guardrail systems, edge protection, scaffolding, elevated work platforms, mobile scaffolds and barriers to restrict access.
- If neither elimination nor isolation are practicable then steps should be taken to minimise the likelihood of any harm resulting. This means considering the use of work positioning systems or travel restraint systems, safety harnesses, industrial rope access systems and soft landing systems.

Extractive operators should:

- change the way a task is carried out when a safer alternative is identified, and encourage their workers accordingly
- ensure suitable equipment, including PPE, is available and workers have adequate training for its use
- ensure workers are trained to identify fall-from-height hazards they might encounter and have appropriate supervision
- review elevated screen plants and conveyor systems to identify all reasonably foreseeable hazards, including specific tasks that expose workers to the risk of falling from height
- conduct a risk assessment to identify hazards and reduce worker exposure, so far as is practicable
- review and, where necessary, update site procedures to ensure controls are adequately documented in the safety management system, including the need for specific risk assessments when working at height.

Mobile screening plant designers, manufacturers, importers and suppliers should conduct a risk assessment of the tasks workers are likely to undertake on the plant to identify where they may be exposed to the identified hazards, including the risk of falling from height.

Regulator recommendations – other high potential incidents

In addition to the full case study, we have selected a few HPIs to highlight. These HPIs involve hazards that most Extractives operators should consider and address. We will share recommendations for controls and actions that PCBUs should consider in relation to the hazards associated with each incident.

OVERHEAD POWER LINES

INCIDENT DATE	SUMMARY
Oct 21	A truck was tipping off and failed to put their truck bin hoist down and drove through the overhead powerlines back to the quarry. Didn't realise they had hit them. No injury.

Regulator recommendations:

- avoid working in the vicinity of overhead lines
- try to eliminate overhead hazard – buried cables, divert power lines away from any mining or road areas.
- If this is not practical:
  - lift height of lines to well above largest truck height (consider raised trays)
  - install signage with clear information about the nature and height of the overhead hazard
  - use goal post warning structures to give early warning to over height vehicles
  - proximity – height triggered, flashing light alarms.

IN-PIT MAINTENANCE

INCIDENT DATE	SUMMARY
Dec 21	A dump truck drove over the back of light vehicle. Dump truck 1 (DT1) and dump truck 2 (DT2) were parallel parked up at a Go-Line in the pit. A field maintenance vehicle was working on DT2 and was parked across the front of DT2 but with the rear of the LV parked within the gap of the two DTs. DT1 driver who had just completed a break started up the DT, tooted the horn twice to indicate they were about to move forward, and drove forward, turning right and crossing in front of DT2, clipping the rear right of the LV with front right tyre of the DT. DT2 driver was standing beside the driver's door of the LV at the time of impact and escaped by running past the open LV driver's door and down the side of DT2. The maintenance worker was on the catwalk, adjacent to the cab of DT2. No injuries were sustained by any of the team. Driver of the departing DT1 was unaware that incident occurred and drove approx. 500 metres before hearing an incident had occurred via the RT.

Regulator recommendations:

- consider full segregation of all light and heavy vehicle roadways and parking areas. If not, designate LV only parking areas – separated by bunds from HV parking areas
- implement no go zones – which do not allow close interaction of vehicles when operating, or define when they may operate. To enter into the area positive confirmation is required by all of the vehicle operators
- all vehicles that may be a hazard to persons undertaking any work should be isolated. In this case the maintenance worker and the LV were in close proximity to multiple large trucks
- define dedicated safe areas (bunded off) for any routine maintenance work.

MOVING MOBILE PLANT FOR MAINTENANCE

INCIDENT DATE	SUMMARY
Dec 21	A maintenance fitter was moving a D10 dozer at the top of a rehabilitated slope of a waste rock stack. A likely mechanical failure has caused the dozer to track backwards down the slope, approximately 130m along the slope, 60m vertically. The fitter evacuated the machine in the first 10–20m, with the dozer continuing to travel down the slope and coming to rest on a road below.

Regulator recommendations:

- maintain equipment
- conduct prestart checks – always include safety critical components such as brakes
- ensure risk assessment of planned work is done. Consider mechanical failure and likely outcomes
- consider options to minimize consequences – safe run off areas, bunds etc
- ensure ROPS and FOPS are adequate
- ensure seat belts are always worn.

3.0
The regulator

IN THIS SECTION:

3.1 Our activities

3.2 Assessments

3.3 Enforcements

3.1 Our activities

The Extractives Specialist Health and Safety Inspectors at WorkSafe use a range of interventions to undertake their duties. Inspectors strive to achieve the right mix of education, engagement and where required enforcement. This section of the report includes a summary of the interventions used by the Extractives Inspectors during the quarter.

3.2 Assessments

Proactive assessments aim to prevent incidents, injuries and illness through planned, risk-based interventions. Reactive activities are undertaken in response to reported safety concerns or notifiable events. Assessments can be either site- or desk-based in nature.

For proactive site-based assessments, the objectives of each visit are agreed and the appropriate inspection tool is selected. Targeted assessments and regulatory compliance assessments can take several days on site with a team of inspectors attending. These multi-day inspections may be 'targeted' to assess the controls in place for a particular principal hazard (for example, WorkSafe has been targeting 'roads and other vehicle operating areas' as a result of the high number of notifiable events in this area), or they may involve a more general assessment of 'regulatory compliance'. Site inspections and targeted inspections are generally completed in a one day site visit but can also focus on specific topics.

As well as site-based assessments, the Inspectors spend considerable time undertaking desk-based assessments. Proactive desk-based assessments include the review of Principal Hazard Management Plans (PHMPs), Principal Control Plans (PCPs), mine plans, and high risk activity notifications. Responding to notifiable events and safety concerns may involve a site-based or desk-based assessment, or both.

Table 7 shows the range of assessments undertaken in Q2 2021/22 by sector.

		ASSESSMENTS	MINE	TUNNEL	ALLUVIAL MINE	QUARRY
Preventative	Site-based	Targeted assessments				
		Regulatory compliance assessments	2			
		Site inspections	8	4	4	50
		Targeted inspections	8	1		
	Desk-based	PHMP/PCP review		5		
		Mine plan review	6	2		
		High risk activity				
		COVID-19 assessment				
Reactive	Site-based	Concerns – inspection				1
		Notifiable events – inspection	8			5
	Desk-based	Concerns – desk-based				
		Notifiable event – desk-based	9	2		8

TABLE 7: Proactive and reactive site and desk based assessments conducted in Q2 2021/22

Figure 13 shows the number of proactive and reactive site- and desk-based assessments undertaken by the regulator in Q2 2021/22. This quarter 72% of our activities were site-based, and 73% of activities were proactive.

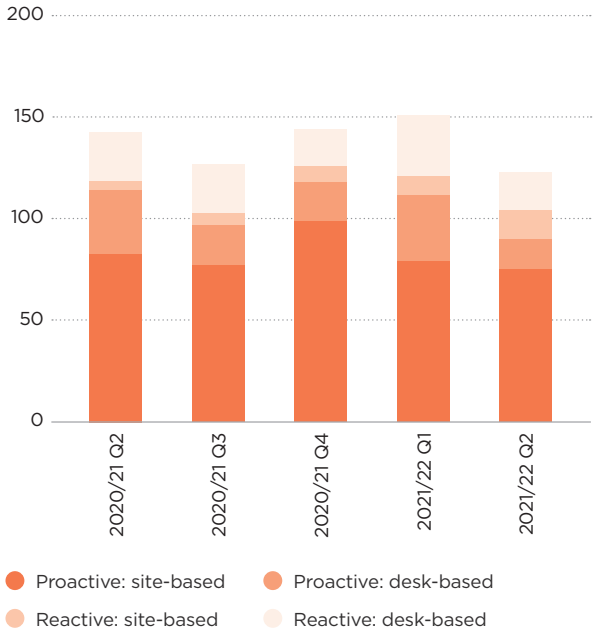

FIGURE 13:
Proactive and reactive site and desk-based assessments

Figure 14 shows the number of assessments undertaken by the regulator in Q2 2021/22 by sector. This quarter, 52% of our assessments were for quarries, 33% for mines, 11% for tunnels and 3% for alluvial mines.

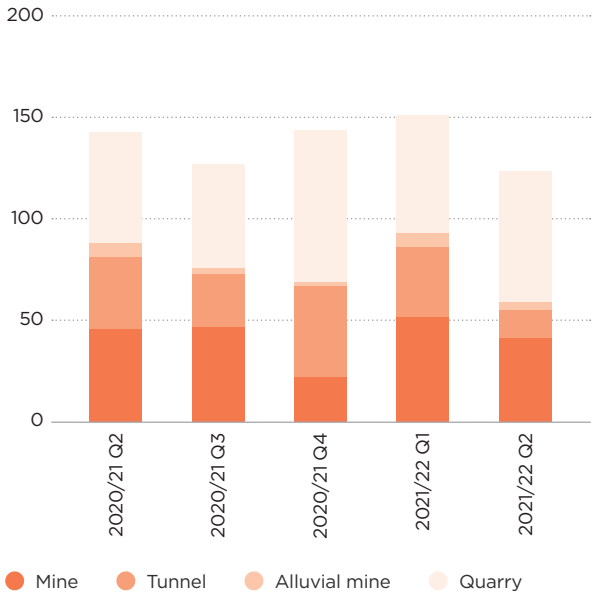

FIGURE 14:
Assessements by sector

3.3 Enforcements

Enforcement actions issued by WorkSafe include prohibition and improvement notices and directive letters. Enforcement actions are issued according to our Enforcement Decision Making (EDM) Model when health and safety issues are identified through assessments.

Figures 15 and 16 show the number of enforcement actions issued in Q2 2021/22 by notice type and by sector. This quarter, a total of 168 enforcement actions were issued. Of those, 4% of were prohibition notices, 15% were improvement notices, 80% were directives and 1% were sustained compliance letters. The majority of the enforcement actions were issued to the mining (22%) and quarrying (66%) sectors.

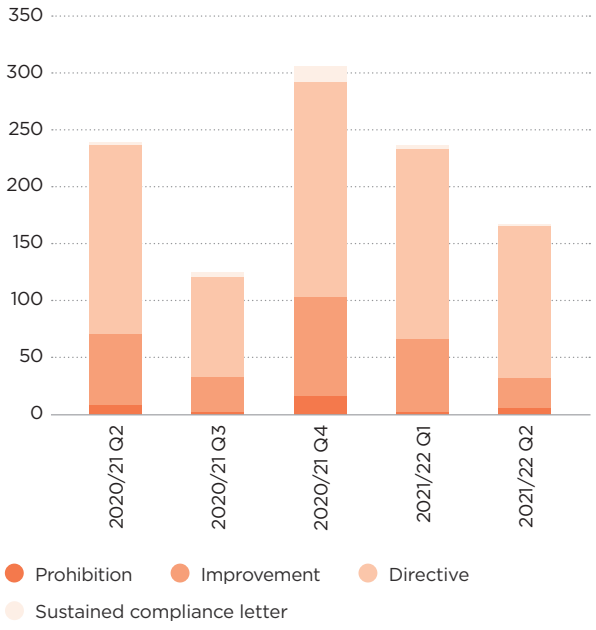

FIGURE 15: Enforcement actions issued by type

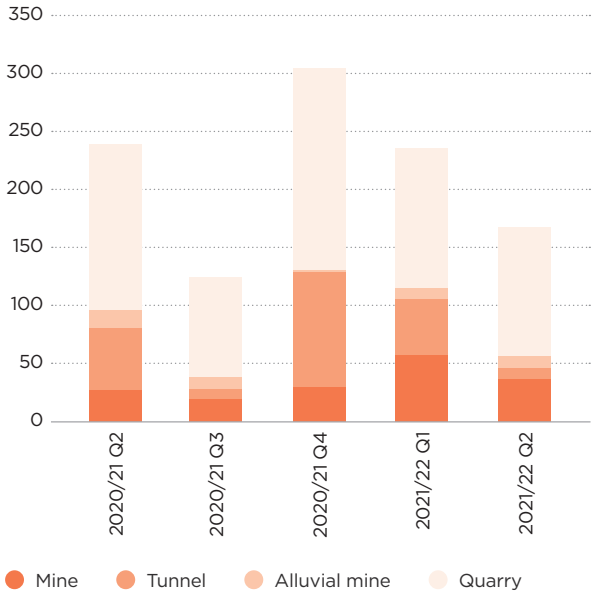

FIGURE 16: Enforcement actions issued by sector

Figure 17 shows the number of enforcement actions issued in Q2 2021/22 by category, and provides an indication of the key areas of concern to our inspectors. This quarter, the majority of enforcement actions were issued for health and safety issues relating to roads and other vehicle operating areas (26%).

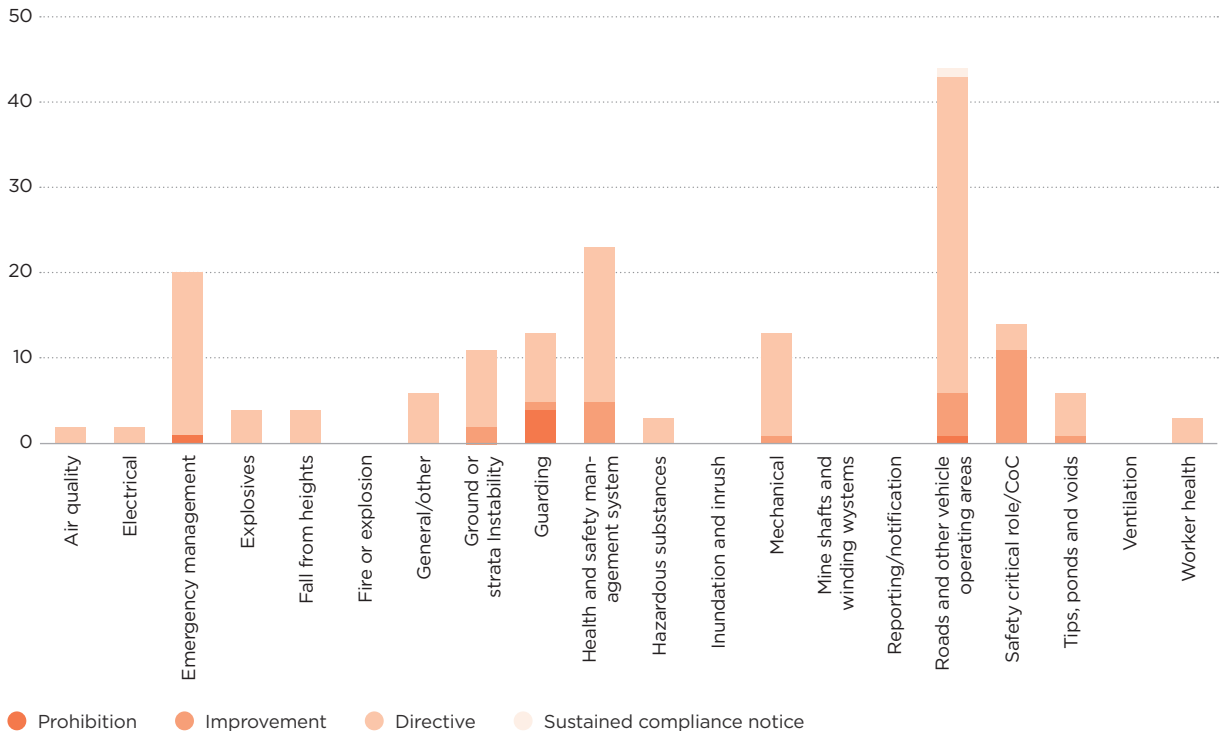

FIGURE 17: Enforcement actions issued by category 2021/22 Q2

Regulator activity comment

The regulator activities continued to be impacted by COVID restrictions, with restrictions on inspectors travelling between red zones. Despite this, the total number of assessments completed was maintained close to the annual plan. The allocation of assessments to different inspectors was influenced by geographical location of the inspectors to minimize travel and exposure to persons. Most sites had active COVID management plans in place, and this often restricted the methods of inspection. For instance, inspectors could not share vehicles with operators. In general, the assessments were conducted to a good standard. The enforcement numbers continue to reflect the focus areas where most notifiable incidents are occurring.

Disclaimer

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WORKSAFE
Mahi Haumaru Aotearoa

Level 6, 86 Customhouse Quay
PO Box 165, Wellington 6140
0800 030 040 worksafe.govt.nz