QUARTERLY REPORT

Extractives industry

2023/24 Q4

April to June

Te Kāwanatanga o Aotearoa
New Zealand Government

WORKSAFE
Mahi Haumaru Aotearoa

About this report

This quarterly health and safety performance report has been prepared by WorkSafe New Zealand 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 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.

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.

Recently I participated in a panel discussion about safety culture in the Extractive Industry, and I thought I might reflect on an issue that influences culture in our industry.

Culture is a topic which we have touched on before, and one which large and small organisations often think about as they try to improve safety.

Any focus on 'safety' culture should acknowledge that there are often some very influential overarching industry specific cultural issues in play that need to be understood. And that any organisational culture might have elements, that at first glance, seem to be contradictory to creating a good safety culture.

I think our industry has that contradiction in its DNA.

As an industry we have a long history of being production driven, and often have relied on risk-based judgements to get work done.

As a primary industry, with our workplaces being the earth we walk on, dig into, or go under, we are exposed to different conditions every day. We often encounter unpredicted geology and weather which makes the operations more difficult.

Every day, managers need to make decisions based on the day's 'new environment'. This has bred a sophisticated culture of risk assessment and risk taking. Based on the production pressures, or the well ingrained belief that 'this is mining' and we just have to get on with it, we often see decisions that have too much risk associated with them.

This culture of 'production comes first' has been changing over the years, but it is certain that there remains a residual risk-taking attitude.

Plus, there is another influence in our industry – there is significant risk taking in many of the other non-safety decisions made at mining and quarrying operations.

An example might be an organisation's appetite for commercial risk – by nature mining companies (and other related sectors like petroleum etc) invest large amounts of money on exploration without any certainty of a return. These are calculated risks.

Different organisations will have different risk appetites (or risk acceptance criteria). Of course, this type of risk taking can be extremely profitable and is totally acceptable. The risks are known, losses expected and anticipated, and if the correct analysis has been completed, most organisations win more times than they lose.

But this relative high-risk acceptance we use for exploration would be unacceptable in a safety context.

We accept we need different risk appetites for different activities and for different decisions.

Addressing this difference in risk tolerance may be difficult. At many sites the same people are involved in meetings to make decisions about safety, development plans, exploration financial decisions and environmental and personal issues (and many other issues). Therefore, everyone must be clear on what risks are acceptable at each meeting and what risks are not.

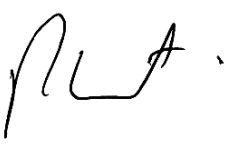
We have risk matrixes which cater for the broad categories of risk – safety, reputation, environmental etc.

But this suggests they are equal, which I do not believe.

The primary cultural value or belief that needs to be established for any organisation is that 'safety comes first, over every other consideration'.

'Safety first'.

If managers and workers all believe this to be true, then that organisation has established a good safety culture.



Paul Hunt
Chief Inspector Extractives

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Industry profile

IN THIS SECTION:

1.1 Operations

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Metalliferous opencast mines
Includes 1 mine under rehabilitation

18

Coal opencast mines
Includes 1 mine in care and maintenance

8

Metalliferous underground mines
Includes 1 mine under care and maintenance and 2 operating tourist mines

1

Coal underground mines
Includes 1 tourist mine under care and maintenance

5

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

7

Coal exploration
6 operational coal exploration projects and 1 suspended coal exploration project

74

Alluvial mines
Number of mines that have been verified (62) or have notified of an Appointed Manager to WorkSafe (12)

Includes 2 iron sands mines

1,006

Quarries
Number of quarries that have been verified (864) or have notified of an Appointed Manager to WorkSafe but not yet verified (142)

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 1,122 active operations in New Zealand as at the end of June 2024.

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.

1.2 People

760

Metalliferous opencast mines
549 FTEs employed by mine operators and 211 FTEs employed by contractors

792

Coal opencast mines
630 FTEs employed by mine operators and 162 FTEs employed by contractors

596

Metalliferous underground mines
469 FTEs employed by mine operators and 127 FTEs employed by contractors

0

Coal underground mines
0 FTEs employed by mine operators and 0 FTEs employed by contractors

406

Tunnels
239 FTEs employed by mine operators and 167 FTEs employed by contractors

0

Coal exploration
8 workers employed by mine operators and 3 workers employed by contractors

658

Alluvial mines
Number of workers is known for 50 of the 74 alluvial mines that are verified and/or have notified of an Appointed Manager. The total number of workers has been extrapolated for the remaining 24 operations

3,193

Quarries
Number of workers is known for 783 of the 1,006 quarries that are verified and/or have notified of an Appointed Manager. The total number of workers has been extrapolated for the remaining 223 operations

There were 6,405 Extractives FTEs in New Zealand as at the end of June 2024. 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.

Note: Typically >95% of mining operations and tunnelling operations submit quarterly reports to WorkSafe, and the numbers of workers are reported directly from these figures.

Quarterly reports were provided by 16 alluvial mining operations (22%) and 220 active quarries (22%). That is the reason for the significant difference between the extrapolated numbers of workers and the actual number of workers reported for these sectors in Figure 2. WorkSafe will continue to extrapolate numbers of workers for quarries and alluvial mines until the reporting percentage has improved.

Figure 1 shows the total hours worked in Q4 2023/24, reported to WorkSafe in the quarterly reporting. The hours are separated into Employees and Contractors.

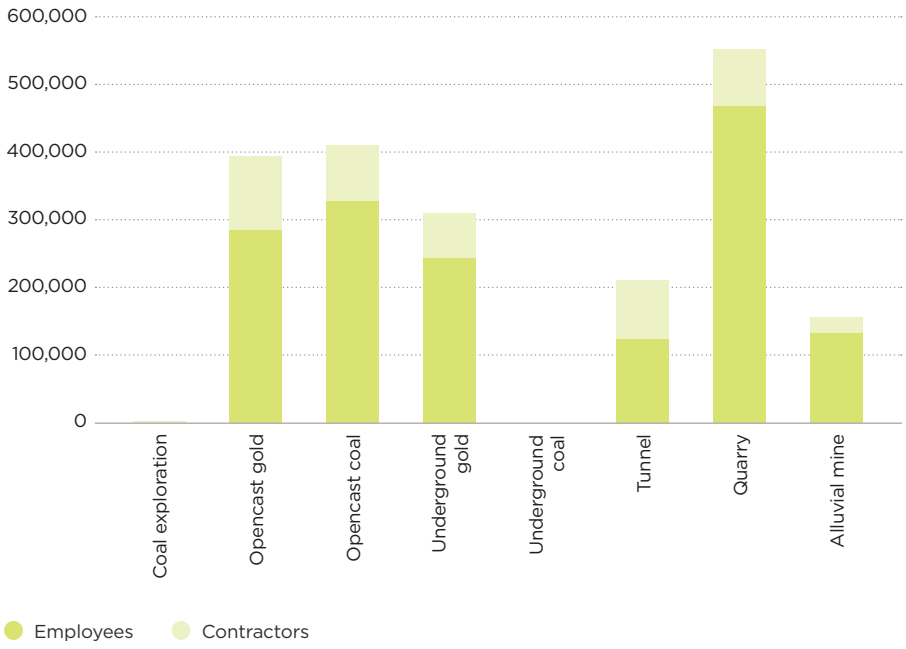

FIGURE 1:
Total hours worked by sector 2023/24 Q4

Figure 2 shows the number of Full Time Equivalents (FTEs) calculated from total hours worked that were reported to WorkSafe in quarterly reports for Q4 2023/24. The hours are separated into Employees and Contractors.

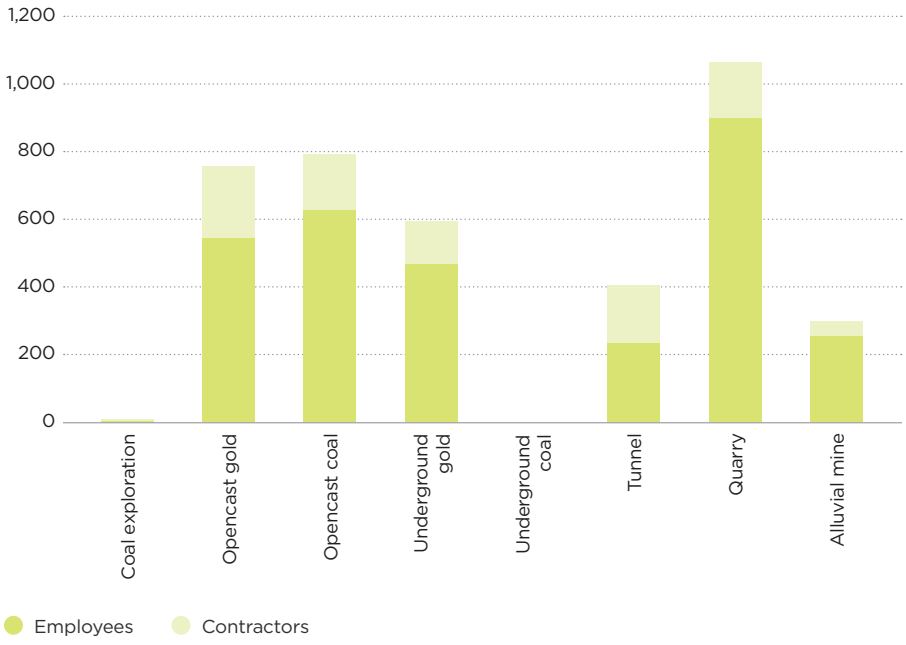

FIGURE 2:
Number of FTEs by sector 2023/24 Q4

1.3 Developing competence

WorkSafe has responsibility for setting 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).

Currently, many of the unit standards prescribed for CoCs are being reviewed by groups of 'subject matter experts' gathered from Industry. The BoE is being kept up to date on the progress of this review. In general, many unit standards will remain unchanged, but some are likely to be updated based on the recommendations of the subject matter expert groups.

The BoE is providing feedback into this process. It is envisaged that if any unit standard content is changed significantly, that the unit standard 'number' may change. This would result in the Safe Work Instrument unit standard number longer being correct.

In this type of situation, the BoE will be aware of any revised unit standard numbers, or replacement of unit standards with new ones, and will be requesting formal recognition of replacement standards from those updating them.

The recognition would be a simple update to state that the review has resulted in a 'equivalent' unit standard (or more than one) now replacing the original unit standard – thereby ensuring that applicants are not disadvantaged by not being able to complete the prescribed unit standard in the Safe Work Instrument.

Previous and new versions would be able to be recognised. If you have completed a unit standard currently and it was to change, the BoE would still recognise the previous version.

The Safe Work Instrument will be updated from time to time to keep up with the changes.

Table 1 provides a summary of oral exams conducted during the quarter.

TOTAL NUMBER OF ORAL EXAMS HELD Q4 APR–JUN 24	TOTAL PASSES	SUCCESS %
12	7	58.3

TABLE 1:
Oral exams conducted

Table 2 provides a summary of all CoCs issued during the quarter and the current number of CoCs in circulation at the end of Q4 2023/24.
Note: We no longer report Life Time CoCs.

COC TYPE	TOTAL COCs RENEWED Q4 Apr–Jun 2024	TOTAL NEW COCs ISSUED Q4 Apr–Jun 2024	TOTAL NUMBER OF CURRENT COCs
A Grade Quarry Manager	0	2	293
B Grade Quarry Manager	0	3	428
A Grade Opencast Coal Mine Manager	0	0	60
B Grade Opencast Coal Mine Manager	0	0	52
A Grade Tunnel Manager	0	0	38
B Grade Tunnel Manager	0	0	82
Site Senior Executive	0	0	54
First Class Coal Mine Manager	0	0	15
First Class Mine Manager	0	0	20
Coal Mine Deputy	0	0	30
Coal Mine Underviewer	0	0	20
Mechanical Superintendent	0	0	20
Electrical Superintendent	0	0	22
Ventilation Officer	0	0	4
Mine Surveyor	0	0	12
Site Specific	0	0	5
Winding Engine Driver	0	0	0
Total	**0**	**5**	**1,155**

TABLE 2: Certificates of Competence issued and in circulation

2.0 Health and safety performance

IN THIS SECTION:

2.1 Notifiable events

For all extractive operations, notifiable events are required to be reported to WorkSafe under S23(1), S24(1) and S25(1) of the Act, and 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 four years and for Q1 to Q4 of 2023/24 for mines and tunnels (Table 3) and quarries and alluvial mines (Table 4).

MINES AND TUNNELS	2019/20 QUARTERLY AVERAGE	2020/21 QUARTERLY AVERAGE	2021/22 QUARTERLY AVERAGE	2022/23 QUARTERLY AVERAGE	2023/24 Q1	2023/24 Q2	2023/24 Q3	2023/24 Q4
Number of notifiable events	20	18	20	21	23	17	20	26
Number of operations that notified events	11	9	11	10	9	8	12	13

TABLE 3: Mines and tunnels – notifiable events and operations that notified events

QUARRIES AND ALLUVIAL MINES	2019/20 QUARTERLY AVERAGE	2020/21 QUARTERLY AVERAGE	2021/22 QUARTERLY AVERAGE	2022/23 QUARTERLY AVERAGE	2023/24 Q1	2023/24 Q2	2023/24 Q3	2023/24 Q4
Number of notifiable events	18	16	14	17	14	20	20	17
Number of operations that notified events	15	12	13	15	14	19	18	16

TABLE 4: Quarries and alluvial mines – notifiable events and operations that notified events

Figure 4 shows the number of notifiable events reported to WorkSafe by sector from July 2022 to June 2024.

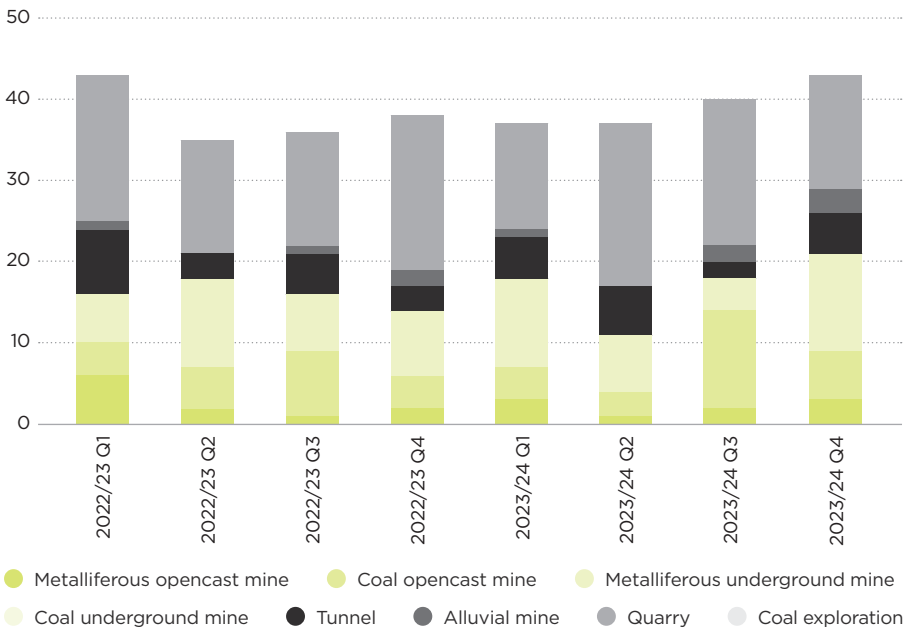

FIGURE 3: Notifiable events by sector

2.2 Injuries

Additional information about injuries is reported to WorkSafe 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 from July 2021 to June 2024. 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 rolling 12-month average TRIFR is 3.9. Rates have fluctuated over past two years without any clear trend.

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.

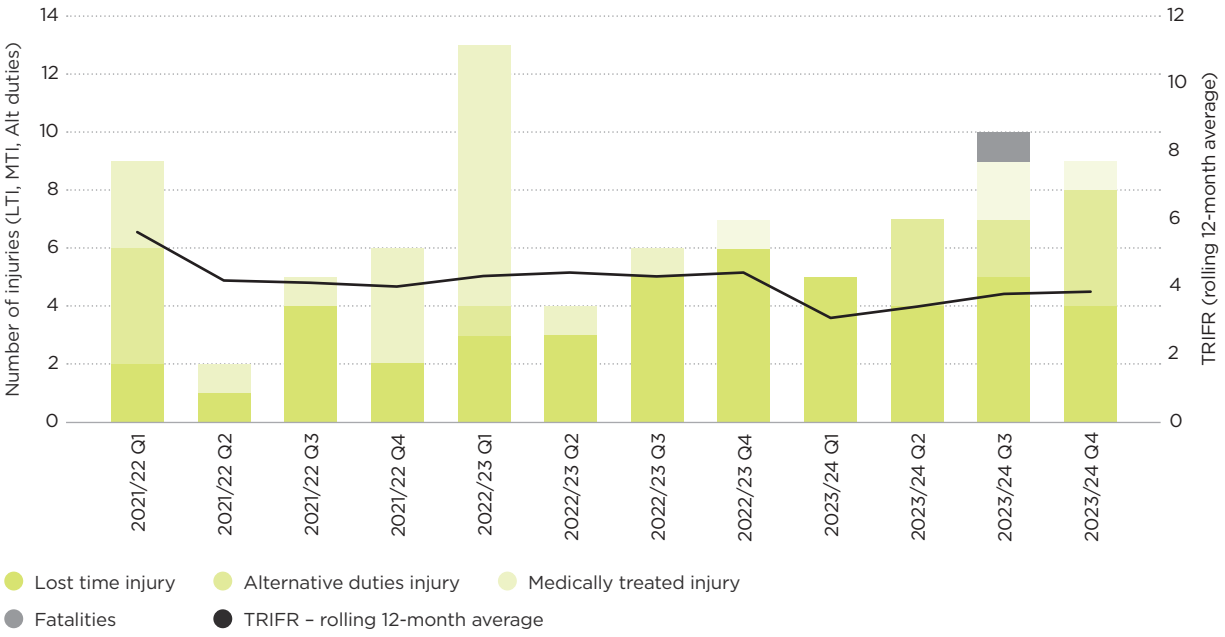

FIGURE 4: TRIFR

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 one 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).

2.3 Types of events

Figure 5 shows the notifiable event categories for events notified to WorkSafe in the previous 12 months. The data shows that 40% of notifiable events in the past 12 months have occurred in relation to vehicles and plant (28%), and fire, ignition, explosion or smoke (12%). These two categories are broken down in more detail in the following section. A further 9% of notifiable events in the past 12 months occurred in relation to ground, geotechnical and other structural failures.

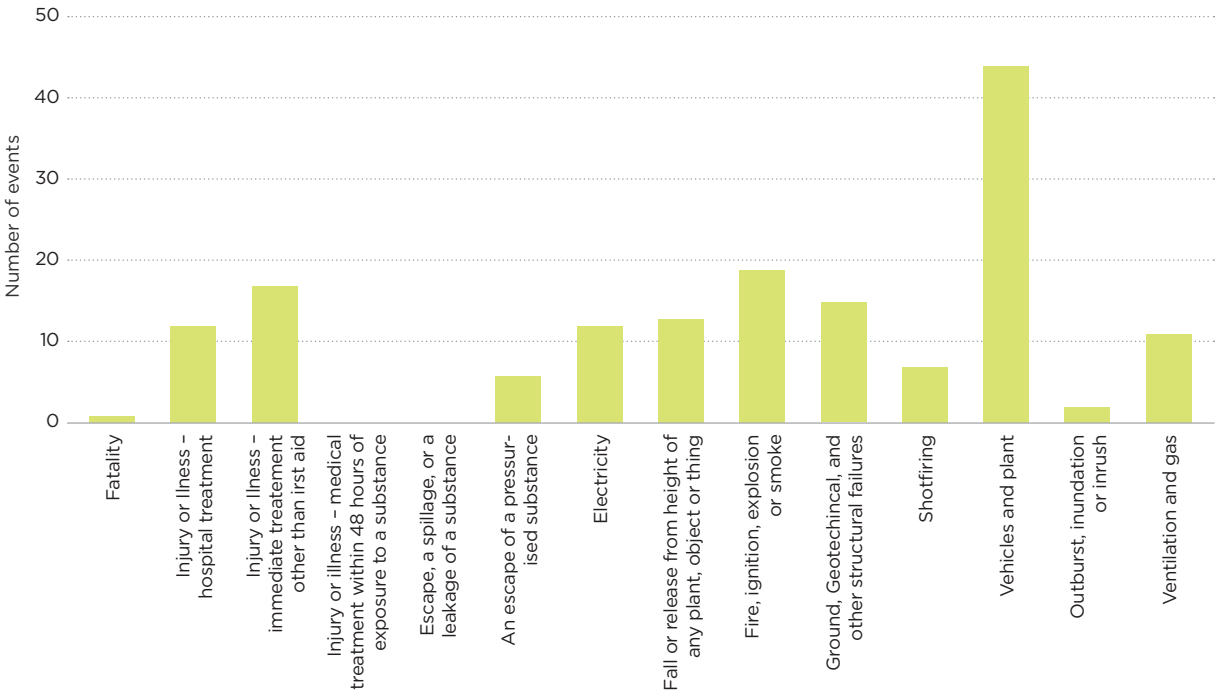

FIGURE 5: Notifiable event categories for the previous 12 months

2.4 Extractives sector 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 6 and 7 break down the two largest notifiable event categories 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, 82% involve fires on plant, mobile plant or in buildings associated with mining or tunnelling activities, 5% involves spontaneous combustion, and 11% 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 (20%), overturning of mobile plant (49%), breach of a safety berm or windrow (5%), and unintended movement or brake failure (20%).

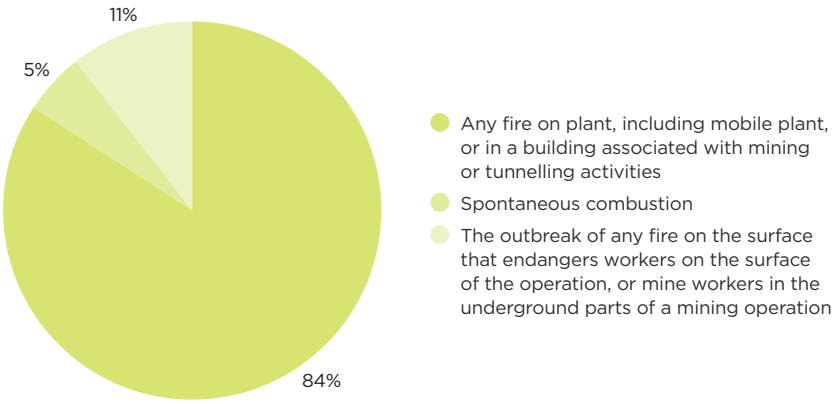

FIGURE 6:
Fire, ignition, explosion or smoke-related notifiable event sub-categories

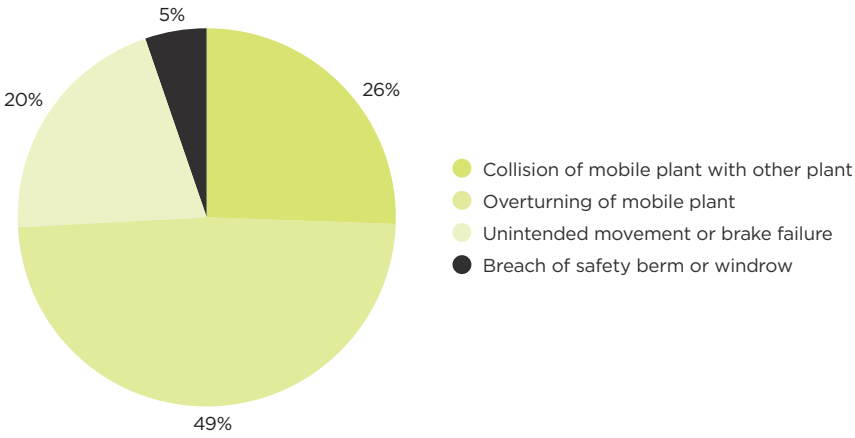

FIGURE 7:
Vehicles and plant-related notifiable event sub-categories

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 31% of operations in the past quarter, and quarterly reports were submitted by 100% 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 1.5% of operations in the past quarter. Quarterly reports were provided by 16 active alluvial mining operations (22%) and 220 active quarries (22%).

2.5 Regulator comments

Part 3 of the Health and Safety at Work (Mining Operations and Quarrying Operations) Amendment Regulations 2022 took effect on 18 July 2024.

There were only two changes in the Part 3 amendments, both of which relate to quarrying operations.

1. The definition of an A-grade quarrying operation changed in Regulation 3(1) to:

> **Regulation 3 Interpretation**
>
> A-grade quarrying operation means a quarrying operation at which the quarry manager is required by regulation 21 to hold a certificate of competence as an A-grade quarry manager.

This change was made to simplify the previous definition – It now references regulation 21, and simply means that if regulation 21 says a quarrying operation must have a manager who holds an A-grade quarry manager CoC, then it is an A-grade quarrying operation. This change was required because regulation 21 was updated.

2. Regulation 21 was replaced with:

> **Regulation 21 Certificate of competence of manager of quarrying operation**
>
> 1. A manager appointed to a quarrying operation must hold a certificate of competence as an A-grade quarry manager.
> 2. Despite subclause (1), a manager appointed to a quarrying operation in which no more than 4 quarry workers ordinarily work at any one time may hold:
>   a. a certificate of competence as a B-grade quarry manager; or
>   b. if no explosives are used in the quarrying operation, a certificate of competence as a manager to manage that quarry (with the certificate specifying the quarry).
> 3. If additional or alternative requirements are prescribed in accordance with regulation 34(5) for a certificate of competence under this regulation, the manager must hold a current certificate of competence for which those additional or alternative requirements have been met.
> 4. In subclause (2), quarry worker:
>   a. means a worker at a quarrying operation who is involved with:
>   i. extracting any material, other than coal or any mineral, from the earth; or
>   ii. processing any material, other than coal or any mineral, at the place where the material is extracted; but
>   b. excludes:
>   i. the quarry manager appointed under regulation 14; and
>   ii. any worker at the quarrying operation who is not involved in extracting or processing any material from the earth (for example, an office worker).

This change brings into effect the new CoC requirements for managers at quarries. This change was made after an Industry submission to change when an A-grade or B-grade quarry manager CoC holder was required.

There are several elements to this change:

2.1 **Subclause 1 and Subclause 4**: A person with an A-grade CoC can manage a quarry of any size.

2.2 **Subclause 2(a) and Subclause 4**: If the Quarry has no more than 4 quarry workers, the person appointed as manager can hold a B-grade quarry manager CoC. Note that the definition of '4 quarry workers' excludes the manager and does not count office staff or those that do not go into the extraction or processing areas. It does include any contractors or staff that do work in the 'pit' or processing areas. Discuss this requirement with Inspectors if you are unsure.

2.3 **Subclause 2(b)**: This part refers to 'site-specific' CoCs. It says you may appoint a person with a Site Specific CoC to manage a single specified site that does not use explosives. Note the full criteria to be a specified quarrying operation is in the Health and Safety at Work (Mining Operations and Quarrying Operations – Prescribed Competency Requirements for Certificates of Competence) Safe Work Instrument 2023. Not only must a site not use explosives, but the site must also meet other conditions considered to be lower risk than normal.

For a quarrying operation be considered a "site-specific site' it must meet the following parameters:

a. no more than 4 quarry workers ordinarily work at the site at any one time; and
b. explosives are not used; and
c. the base of any excavation carried out at the quarrying operation is no more than 5 metres from the surface; and
d. there are no voids or underground workings within the planned extraction zone; and
e. no worker is required to work below the surface level of any body of fluid; and
f. the actual processing rate does not exceed an average of 1,000 tonnes per week; and
g. the quarry will be operating for a period or periods that total at least 24 months; and
h. any tip head or stockpiles at the operation are less than 5 metres high.

2.4 **Subpart 3**: If explosives are used at a quarry any quarry manager, **either A- or B-grade**, is required to have the additional competencies for explosives ('endorsement').

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 – 2023/24 Q4

Table 5 provides a summary of high potential incidents notified to WorkSafe in Q3 2023/24. The summaries are an abridged version from the operator's notification report.

INCIDENT DATE	SUMMARY	CONSIDERATIONS
Apr 24	Mechanic was working around conveyor belt while going sleeve of overalls got caught up in drum pulling his hand in.	– Job planning – Guarding – Lock out tag out – Risk assessment – Maintenance – Supervision – Training
Apr 24	During an entry into a drop shaft, radio communication was lost between the workers in the man cage and the crane crew on the surface. The cage was lowered to the bottom of the shaft where the cage entered an estimated 1.2m of accumulated water. Drain holes previously drilled to prevent water build up appear to have been blocked allowing the water accumulation.	– Job planning – Risk assessment – Supervision – Training

INCIDENT DATE	SUMMARY	CONSIDERATIONS
Apr 24	While descending the ramp, the operator of a haul truck applied the retarder while in third gear. On applying the retarder the truck lost traction and spun around 180°.	– Roads and vehicle operating areas – Risk assessment – Supervision – Training
Apr 24	A customer truck has arrived to tip off cleanfill – mainly soil. They reversed and lifted truck deck on the Articulated truck and noticed the material was not coming out, they have then driven forward a few metres with the deck up and stopped, they noticed the material was starting to release and at the same time the trailer has also gone over. No Injuries.	– Roads and vehicle operating areas – Risk assessment – Supervision – Training
Apr 24	Customers truck departing site did not put the hoist to their trailer down and drove through the powerline and took out the powerpole.	– Roads and vehicle operating areas – Electricity – Risk assessment – Supervision – Training
Apr 24	Truck driver was reversing back a stockpile to get out of the way of another truck which had entered the area to be loaded, whilst reversing back the right hand rear wheels have ridden up the windrow/rill of the stockpile material and the tub has rolled onto its side. The supervisor was notified, and the scene was preserved. No injuries were sustained by the operator.	– Roads and vehicle operating areas – Risk assessment – Supervision – Training
Apr 24	Contract conveyor maintenance fitters were engaged on a planned task to remove the drive drum and gearbox mechanism on a conveyor system. The job included the removal of the equipment by crane. During the task a shift fitter has assisted the contract fitters in the removal of the drive drum and gearbox. During the removal of the mounting bolts on the gearbox the drive system has swung on the drive shaft where a torsion bar is supported. This in turn has trapped the fitters right forearm between the motor and mounting plate.	– Job planning – Lifting – Release of energy – Risk assessment – Supervision – Training
Apr 24	Contractor was reversing up to a tip off area and high sided the left hand rear wheel causing the ADT bin to tip over.	– Roads and vehicle operating areas – Tips, ponds and voids – Risk assessment – Supervision – Training
Apr 24	A mechanic was working on a 40t ATD, they stepped back to the right hand side, slipping or misplaced their foot causing him them slip off the side falling on a short stepladder, landing on lower rib cage.	– Job planning – Risk assessment – Supervision – Training – Slips, trips and falls
Apr 24	Operators noticed a block from the block wall at the rejects bunker at the primary crusher was dislodged, and reported to Supervisor.	– Falls from height – Workplace inspections
Apr 24	A transportable underground refuge chamber was uplifted by a Mine Worker with an integrated tool carrier whilst the chamber was connected to the electrical supply. The electrical cable has been pulled from the connection point to the refuge chamber causing an electrical arc.	– Electricity – Job planning – Risk assessment – Supervision – Training
Apr 24	ADT was reversing into the dump area with a full load, the truck got offline, and the wheel contacted the windrow and the windrow slumped, causing the lefthand wheels to slump.	– Tips, ponds and voids – Ground or strata instability – Risk assessment – Supervision – Training

INCIDENT DATE	SUMMARY	CONSIDERATIONS
Apr 24	Dump truck backed up to the digger to get loaded. Once the dump truck was loaded the driver disengaged the handbrake thinking they had put the vehicle in gear. The truck rolled back approximately 1.5m to stop bund and the momentum allowed the truck to roll over the stop bund into the side of the excavator.	– Roads and vehicle operating areas – Risk assessment – Supervision – Training
Apr 24	After being moved, a 1000 volt submersible pump was connected to the supply and when started an arcing occurrence has been witnessed on the pumps supply cable before protection devices have operated.	– Electricity – Job planning – Risk assessment – Supervision – Training
Apr 24	Trailer deck being tipped off, as the ram gets close to the end of its travel, top of the deck strikes the power line.	– Electricity – Job planning – Risk assessment – Supervision – Training
May 24	While trying to remove end cap off cable tensioner operator has felt sharp pain in left hand where holding hose joins. Pin hole in hydraulic hose has been created by repeated bending of the hose causing high pressure release of hydraulic fluid. Has cut through gloves causing small cut (approx 2cm long) to palm of hand.	– Stored energy – Mechanical – Risk assessment – Supervision – Training
May 24	After tracking to an upper bench, an excavator operator called out that they were going to start throwing rock over the edge to the lower bench. They did not allow enough time for the excavator below to move, and a rock that was thrown down, went through the trench over the bund and landed against the excavator track. No one was injured, and only superficial damage to the excavator at the time.	– Exclusion zones – Falls from height – Job planning – Risk assessment – Supervision – Training
May 24	The operator was operating a bulldozer and was busy filling in a previously excavated mining pit. This was done by way of pushing waste material over the highwall into the previously excavated pit. Upon completion of a push the Operator reversed during which the blade of the bulldozer dropped uncontrollably (‘loss-of-function’) from a height of approximately 0.5m. As the weight of the bulldozer blade came onto the highwall edge a piece of material broke free and fell into the excavated pit.	– Mechanical – Risk assessment – Supervision – Training
May 24	A dump truck was approaching a tip head to discharge a load of silt, the edge has given way prior to tipping, wedging the belly plate of the dump truck on the edge of the tip head.	– Tips, ponds and voids – Ground or strata instability – Risk assessment – Supervision – Training
May 24	While tipping off a load the haul truck contacted the ripper of the D11 dozer.	– Tips, ponds and voids – Risk assessment – Supervision – Training
May 24	During mine development the face over broke in the right-hand shoulder due to a slow unravelling of material. This was arrested through the use of shotcrete and ground support standards.	– Ground or strata instability – Risk assessment – Supervision – Training

INCIDENT DATE	SUMMARY	CONSIDERATIONS
May 24	Whilst performing high greasing on the production plant, employee was driving merlo telehandler with man cage attachment with a person in the cage. During manoeuvring to new position employee suffered sunstrike in cab causing them to collide cage with dustbin frame resulting in damage to top rail of man cage. No one was injured in collision, only damage to the cage. Incident was not reported by staff, only noticed when equipment inspection was done before next job started. Man cage is locked out at present.	– Job planning – Risk assessment – Supervision – Training
Jun 24	An electric motor detached from its housing driving a conveyor, and fell around 3m to the ground. There was a walkway underneath that was used occasionally. No workers were nearby at the time of the failure.	– Mechanical – Workplace inspection – Risk assessment – Supervision – Training
Jun 24	A fully loaded dump truck was descending a haul road. It was raining earlier in the day and the road just started getting a dry layer on top when the dump truck lost traction. To try and counteract the loss of traction, the operator fully engaged the retarder, which resulted in the dump truck losing more traction and ending in a position 180° opposite from where it was travelling to.	– Roads and vehicle operating areas – Risk assessment – Supervision – Training
Jun 24	Operator refuelling mobile crushing plant. Fuel trailer parked at base of raised crusher pad. Fuel was not flowing through nozzle so operator climbed back down to check why, lost footing on bottom rungs of ladder, tumbled down bank (knocked off hard hat in fall) and landed head first into wheel arch of fuel trailer.	– Job planning – Risk assessment – Supervision – Training – Slips, trips and falls
Jun 24	While completing dig out, excavator operator observed debris falling from tunnel roof, exited the tunnel and then there was a collapse of material into the tunnel.	– Ground or strata instability – Risk assessment – Supervision – Training
Jun 24	A mine worker has noticed a slight electrical arc on a drilling machine's electrical supply cable. The mine worker has immediately isolated the faulty cable and contacted the underground shift supervisor.	– Electricity – Job planning – Risk assessment – Supervision – Training
Jun 24	A fall of approx 40kg of fibrecrete from the backs of the drive was noticed on the floor of the drive, closer inspection identified this had fallen from the backs behind an inflated ventilation duct. Cracking of the fibrecrete and arches had been noticed by geotechnical engineers and rehabilitation of the area was planned for the coming week, consisting of meshing and bolting over the area to restrain any cracking fibrecrete.	– Ground or strata instability – Workplace inspection – Risk assessment – Supervision – Training

TABLE 5: High potential incidents – 2023/24 Q4

Table 6 and Figure 8 shows the number of high potential incidents per quarter during the last two years for all extractives operations.

QUARTER	Q1 JUL-SEP 2022	Q2 OCT-DEC 2022	Q3 JAN-MAR 2023	Q4 APR-JUN 2023	Q1 JUL-SEP 2023	Q2 OCT-DEC 2023	Q3 JAN-MAR 2024	Q4 APR-JUN 2024	TOTAL PREVIOUS 12 MONTHS
Number of high potential incidents	27	22	22	21	24	22	25	29	**100**

TABLE 6: High potential incidents per quarter

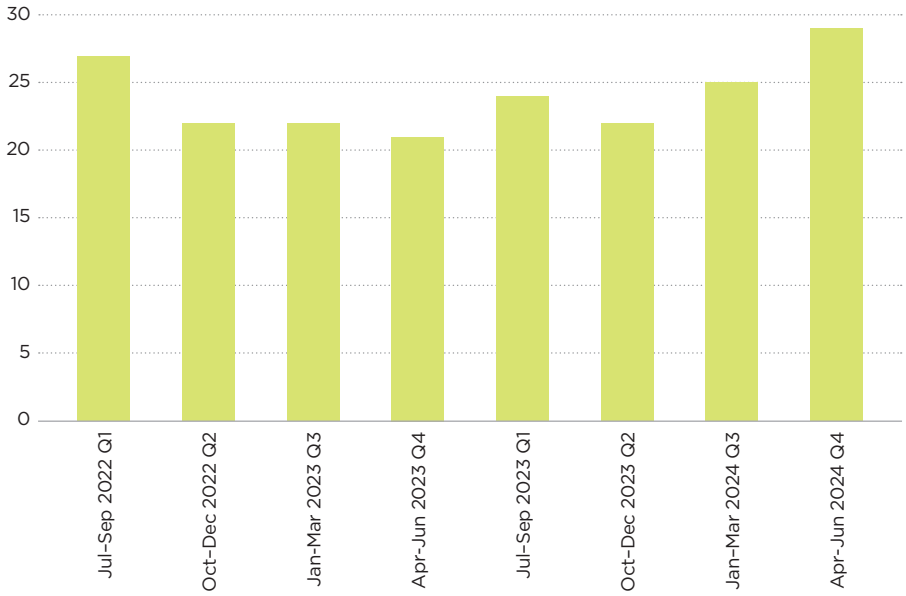

FIGURE 8:
High potential incidents per quarter

2.7 High potential incidents – investigation outcomes

High potential incident case study – hydraulic fluid injection

May 24	While trying to remove end cap off cable tensioner operator has felt sharp pain in left hand where holding hose joins. Pin hole in hydraulic hose has been created by repeated bending of the hose causing high pressure release of hydraulic fluid. Has cut through gloves causing small cut (approx 2cm long) to palm of hand.

TABLE 7:
High potential incident – investigation outcomes case study

THE INCIDENT

While the operator was holding the hydraulic hose with their left hand to unscrew the end cap off a cable tensioner, high-pressure hydraulic oil was released through a pinhole leak. It penetrated through the glove, resulting in an injection wound to the person's left palm.

FINDINGS AND LEARNINGS FROM THE INVESTIGATION

Direct cause of incident

The hydraulic cable tensioner was used in an unsafe condition. The hose was kinked, and the protective sheathing was not in place. This repetitive task was completed with the hydraulic hose in this position; fatigued the hose resulting in the release of stored energy.

Contributing Factors identified during the investigation

- Protective sheathing out of place; hose fitting on an angle; no suitable tool on hand to remove the endcap.
- End cap removal using the IT man basket as a spanner.
- The initial method shown to the injured person for loosening the end cap when trained was not conducted as per OEM requirements.
- Lack of awareness for the high-pressure fluid injection risks associated with the task. The injured person stated they were uncertain on the potential pressure release. The injured person and other operators observed the hose angle wasn't right but did not understand the potential impact.

- Prestart on the day of the incident was not documented. Prior records indicate limited pre-starts completed for cable tensioner.
- No risk assessment included with procedure, no documented 'Stop and think' on task.
- Procedure due for review (exp Mar 2024). Current Procedure does not include the following: The risk of fluid injection, the requirement for penetration resistant gloves. no guideline on the cable tensioner pre-start, minimal detail on maintenance and servicing requirements with regards to the cable tensioner.
- Cable tensioner inconsistently maintained. Although the cable tensioner was frequently repaired, there was a lack of detail recorded and the last monthly recorded preventative service on the cable tensioner was on 19 April 2020.
- Prior modifications completed on the cable tensioner unrecorded: Replaced the original tee-piece to an elbow piece at the hose connector, upgraded the original hydraulic hoses – improved ratings, handle repositioned, resulting in a handle to be welded to the equipment.
- The dirty cable bolts (such as grout, dust and mud) has contributed to the jaws being cleaned more frequently than in normal circumstances.
- Gloves were worn but did not provide protection.

A combination of factors including the lack of preventative maintenance and comprehensive pre-starts, sufficient operational procedures, unrecorded modifications to the equipment, an ineffective protection device and failure to identify the potential hazard created the risk of the injured person using the cable tensioner in an unsafe condition.

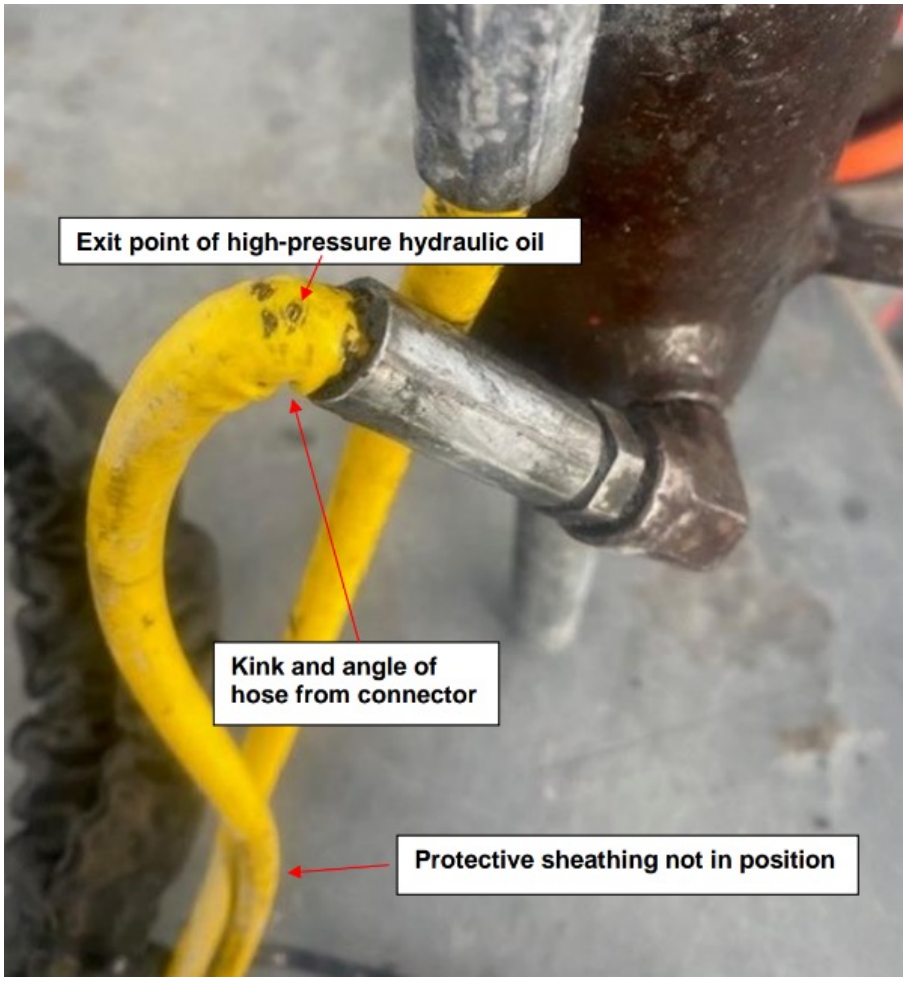

FIGURE 9:
Condition of cable tensioner and hydraulic hose post incident

REGULATOR COMMENTS AND RECOMMENDATIONS

The high-pressure injection of a fluid such as hydraulic oil constitutes a medical and surgical emergency, requiring access to appropriate specialist surgical expertise as soon as possible. High pressure fluid injection injuries may result in amputation of the affected limb or body part, or death, if not appropriately treated. The severity of these injuries has been known to be underestimated.

Ensure that workers who work around high-pressure fluids appropriate training and information on the seriousness of these injuries.

Emergency response

- Treat all possible fluid injection injuries as extremely serious or life threatening.
- Train site First Responders/First Aiders in the appropriate response and treatment strategies.
- Identify the closest medical facility with expertise in diagnosis and treatment of these injuries. The injured person should be referred to the appropriate hospital as a matter of urgency.
- Have systems in place to provide emergency transport to hospitals equipped and capable of adequately treating the injury type.
- Provide the attending medical professionals or institutions with Safety Data Sheets (SDS) relating to the product suspected of being injected.
- Provide the medical facility that will be treating the patient with documentation that describes the time, date, circumstances and symptoms that have been observed while at site.

Risk control considerations

- When selecting new or replacement machinery, or when machinery undergoes overhaul or refurbishment, through risk assessment consider engineering or design controls which reduce the hazards to persons from an uncontrolled release of hydraulic energy.
- Install anti-whip socks/sleeves, segregation plates or barriers, and anti-abrasion/diffusion covers where required.
- Ensure equipment is isolated and that hydraulic pressure systems and accumulators are effectively depressurised to ensure all potential energy sources are neutralised before commencing maintenance – do not tighten or loosen hydraulic fittings whilst under pressure.
- Adopt a whole-of-life cycle maintenance strategy for the fluid power system and components.
- Conduct regular and effective inspections of all components of the fluid pressure system, particularly those areas subject to wear and tear or abrasions.
- Never use your hands to feel for hydraulic leaks.
- Ensure hydraulic hose assemblies and components are not used at pressures exceeding the hose assembly's maximum working pressure.

3.0 Regulatory insights

IN THIS SECTION:

3.1 Worker engagement and participation

Workers:

- are directly affected by any risks created by a PCBU's work
- are in the best position to know how a job is done and how it affects them
- can provide practical solutions to improving work health and safety.

All businesses should have planned, well known ways to engage with workers and support their participation in health and safety matters. Things are likely to work better when you have a mix of formal and informal ways for workers to contribute.

A PCBU must engage when:

- identifying hazards and assessing risks to health and safety
- proposing changes that may affect workers' health or safety
- developing worker participation practices
- making decisions about:
- ways to eliminate or minimise health and safety risks
- procedures for resolving health or safety issues
- whether facilities for workers' welfare (for example, tearooms) are adequate
- procedures for engaging with workers
- procedures for monitoring workers' health
- procedures for monitoring workplace conditions
- procedures for providing information and training for workers.

What do the Regulations require regarding worker engagement and participation?

Regulation 60 specifies requirements for worker engagement and participation for all Extractive operations.

You must:

- engage with workers and their representatives about the content of the health and safety management system (HSMS)
- provide workers and their representatives with reasonable opportunities to participate in developing and reviewing the HSMS.

Providing health and safety management system documentation to workers

Regulation 62 specifies requirements for providing HSMS documentation to workers.

New workers must be given a written summary of the HSMS and be informed of the right to access the current version of the HSMS. The current version of the HSMS must be readily accessible by a worker at the operation. Workers must be given access to current versions of PHMPs, PCPs and other documented processes relevant to their work. If the HSMS is revised, workers must be made aware of any revision that is relevant to their work.

Workers should have a real say about their own health and safety.

Providing health and safety management system documentation to contractors

Regulation 63 specifies that the current version of the HSMS, and records of all audits and reviews of the HSMS, or any part of it, and other audits of the site itself that have been conducted, are made available on request to any contractor who requests it.

Duty to provide instruction

Regulation 64 requires that workers at the operation must be provided with suitable instruction in relation to the HSMS before commencing work and that a record of this is kept.

Investigation of notifiable events

Regulation 228(3) requires that there must be a process in place to make the findings from investigations into notifiable events available to workers.

Health and Safety at Work (Worker Engagement, Participation and Representation) Regulations 2016

These regulations prescribe matters relating to work groups, health and safety representatives, and health and safety committees to support more effective worker participation. This includes information on who can be a health and safety representative or on a health and safety committee, and training for health and safety representatives.

Priscilla Harris
Acting Deputy Chief Inspector Extractives

The best results are achieved when a PCBU and its workers work together to manage risk, improve health and safety at work, and find solutions.

4.0
The regulator

IN THIS SECTION:

4.1 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.

4.2 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 8 shows the range of assessments undertaken in Q4 2023/24 by sector.

		ASSESSMENTS	MINE	TUNNEL	ALLUVIAL MINE	QUARRY
Proactive	Site-based	Targeted assessments				
		Regulatory compliance assessments				
		Site inspections	5	2	1	21
		Targeted inspections				
	Desk-based	PHMP/PCP review	4	46		
		Mine plan review	13	4		
		High risk activity	2			
Reactive	Site-based	Concerns – inspection			1	2
		Notifiable events – inspection	13	2	1	11
	Desk-based	Concerns – desk-based				
		Notifiable event – desk-based	19	3	1	10

TABLE 8: Proactive and reactive site and desk based assessments conducted in Q4 2023/24

Figure 10 shows the number of proactive and reactive site- and desk-based assessments undertaken by the regulator in Q4 2023/24. This quarter 37% of our activities were site-based, and 61% of activities were proactive.

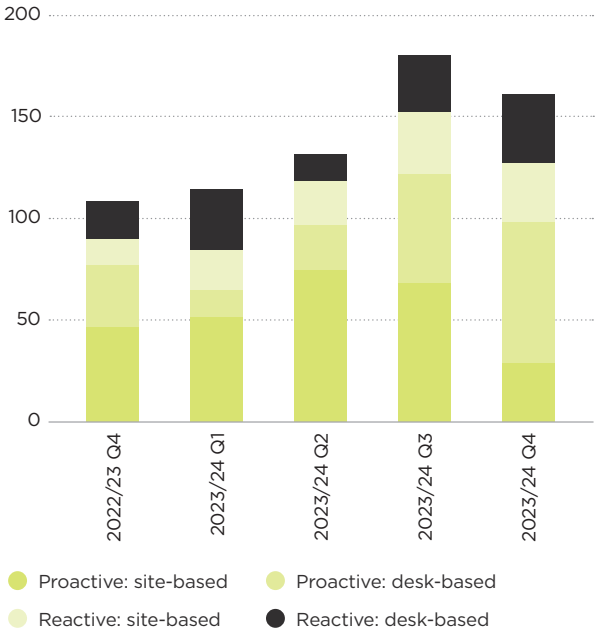

FIGURE 10:
Proactive and reactive site and desk-based assessments

Figure 11 shows the number of assessments undertaken by the regulator in Q4 2023/24 by sector. This quarter, 27% of our assessments were for quarries, 35% for mines, 35% for tunnels and 2% for alluvial mines.

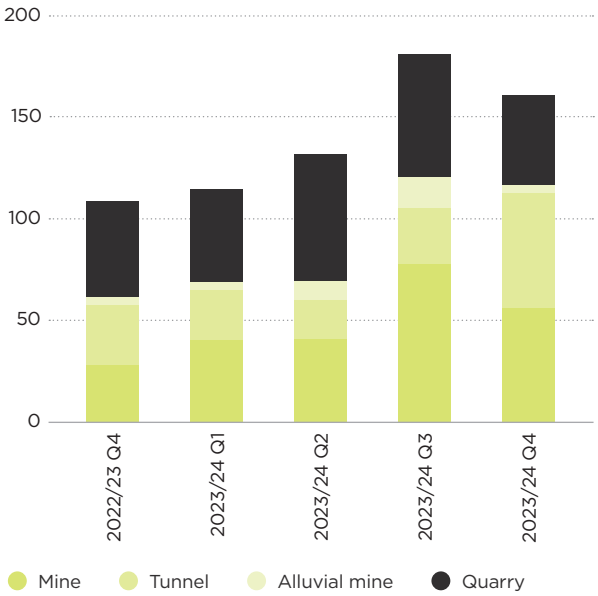

FIGURE 11:
Assessements by sector

4.3 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 12 and 13 show the number of enforcement actions issued in Q4 2023/24 by notice type and by sector. This quarter, a total of 82 enforcement actions were issued. Of those, 2% of were prohibition notices, 34% were improvement notices, 62% were directives and 1% were sustained compliance letters. The majority of the enforcement actions were issued to the alluvial mining (9%), mining (26%) and quarrying (62%) sectors.

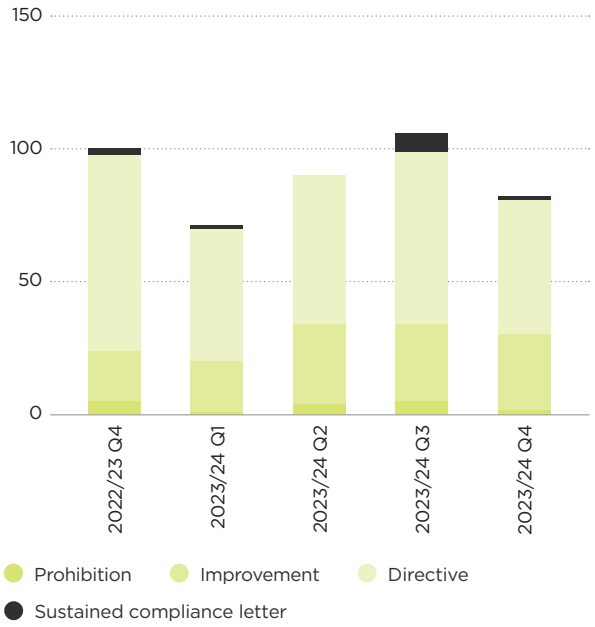

FIGURE 12: Enforcement actions issued by type

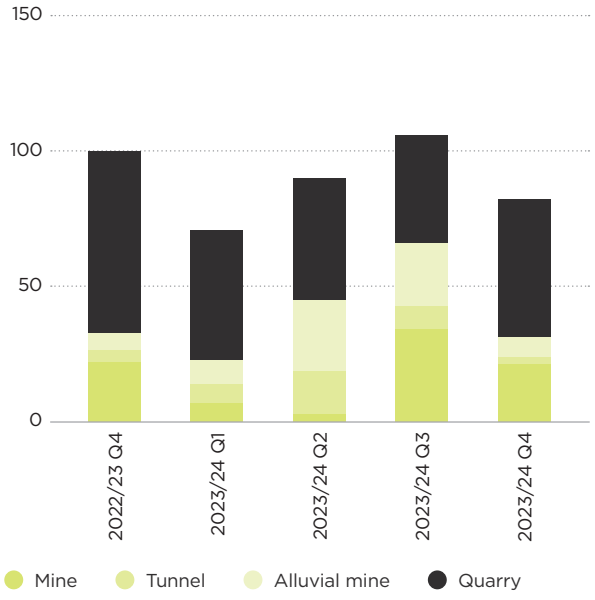

FIGURE 13: Enforcement actions issued by sector

Figure 14 shows the number of enforcement actions issued in Q4 2023/24 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%), guarding (17%), emergency management (9%) and safety critical role/CoC (9%).

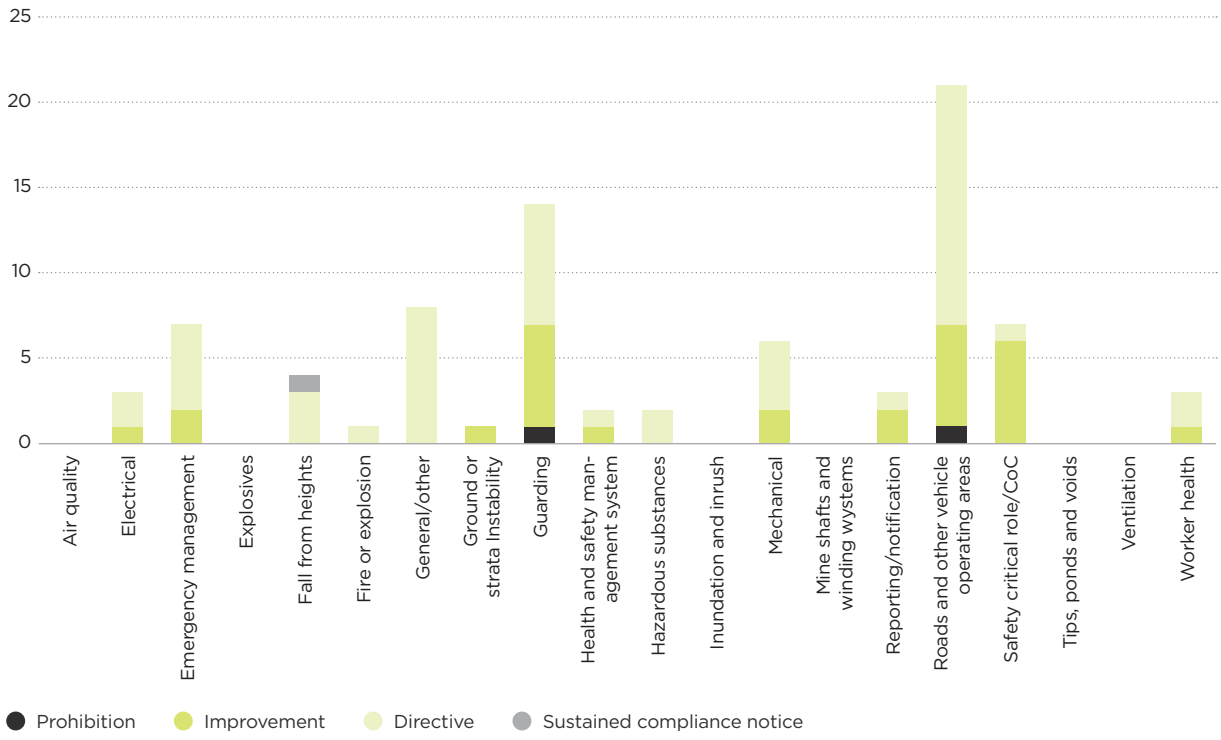

FIGURE 14: Enforcement actions issued by category 2023/24 Q4

Regulator activity comment

The most significant change in the assessment numbers has been the increase over the last two quarters of the number of proactive desktop assessments. This number measures activities like Principal Hazard Management Plan assessments, and this increase is predominantly due to several Tunnelling Operations notifying of commencement and submitting their plans as required by the regulations prior to the start of the operation.

Inspectors review these plans and provide feedback to the submitting operator. The review is conducted remotely (desktop) but is then followed up after the operation has commenced as a planned inspection, to check on the effectiveness of the implementation of the PHMPs and PCPs.

WorkSafe Inspector site visits exceeded the annual plan. For 2023/24, 325 inspections were completed vs a plan of 298. Of these, 82 were follow up inspections for notified high potential incidents.

Disclaimer

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WORKSAFE
Mahi Haumaru Aotearoa

PO Box 165, Wellington 6140
0800 030 040 **worksafe.govt.nz**