

# MinEx workshop



**Presented by**  
HHU Extractives Team

April - October 2022

**WORKSAFE**

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# Topics

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The role of the quarry manager & quarry operator

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Basics of Safety Leadership

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Key changes of revised MOQO Regulations

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Getting Brake testing right

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Learning from Safety incidents





# Role of quarry operator & quarry manager

An aerial photograph of a quarry. The ground is covered in greyish-brown material, likely crushed stone or gravel. A yellow front-end loader is positioned in the lower right quadrant, facing towards the upper left. The loader has a large bucket and is surrounded by tracks and ruts in the material. The overall scene is industrial and shows the scale of quarrying operations.

## Quarry Operator

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- quarry operator means a person who **controls** a quarrying operation and, in relation to a particular quarrying operation, means the person who controls that operation.

# Quarrying Operation

- means an **activity carried out** above ground for the purpose of
  - **extracting** any material, other than coal or any mineral, from the earth; or
  - **processing** any material, other than coal or any mineral, at the place where the material is extracted; and
- includes any place in which any material extracted or processed in a quarry is crushed or screened.
- applies whether or not the material is to be extracted or processed for commercial gain and whether or not the material is extracted or processed by the use of explosives.



An aerial photograph of a quarry site. The ground is covered in greyish-brown material, likely crushed stone or gravel. A yellow front loader is positioned in the lower right quadrant, facing towards the upper left. The loader has a large front bucket and is surrounded by tracks and tire marks in the material. The overall scene is a high-angle view of an active quarry operation.

# Quarry Manager

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- Manager of quarrying operation
- The quarry operator of a quarrying operation must appoint a person to—
  - manage the quarrying operation; and
  - supervise the health and safety aspects of the quarrying operation on every day on which any quarry worker is at work.
- Manager must hold current COC.

An aerial photograph of a quarry. The ground is covered in greyish-brown material, likely crushed stone or gravel. A yellow wheel loader is positioned in the lower right quadrant, facing towards the upper left. The loader has a large front bucket and is surrounded by tracks and ruts in the ground. The overall scene is a high-angle view of an industrial site.

## Notification of manager

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- The quarry operator must give **written notice** of an appointment as manager or acting manager to the person appointed, to WorkSafe and all quarry workers
  - Quarry workers must be informed.





# Safety Leadership

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# Safety Leadership

Respect

Respect over  
popularity

Know

Know your team.  
What they value,  
what's important to  
them

Empower

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# Safety Leadership

*Building blocks for leading safety*



The background image shows a vast, terraced mining or quarrying site. The terrain is composed of dark, layered rock formations. In the lower right foreground, three workers wearing orange high-visibility safety vests and hard hats are standing on a rocky ledge, looking towards the site. The overall scene is dimly lit, with a blue and grey color palette, suggesting an overcast day or a shaded area of the mine.

# Health and Safety at Work (Mining Operations and Quarrying Operations) Regulations



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# MOQO Regulations Amendments

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- Reg 21 Certificate of competence
- Definition of principle hazard
- Documented HSMS
- Reporting incidents Schedule 5
- Quarterly reporting
- Reg 105 Emergency Management plans
- Reg 222 examination of mining operation
- Authorization to operate plant



# Certificate of competence of manager of quarrying operation

- a manager appointed to a quarrying operation must hold a certificate of competence as an A-grade quarry manager.
- B-grade quarry manager when **explosives are used** and **not more than 4** quarry workers
- B grade which no explosives and no limit to number of workers.
- Site specific



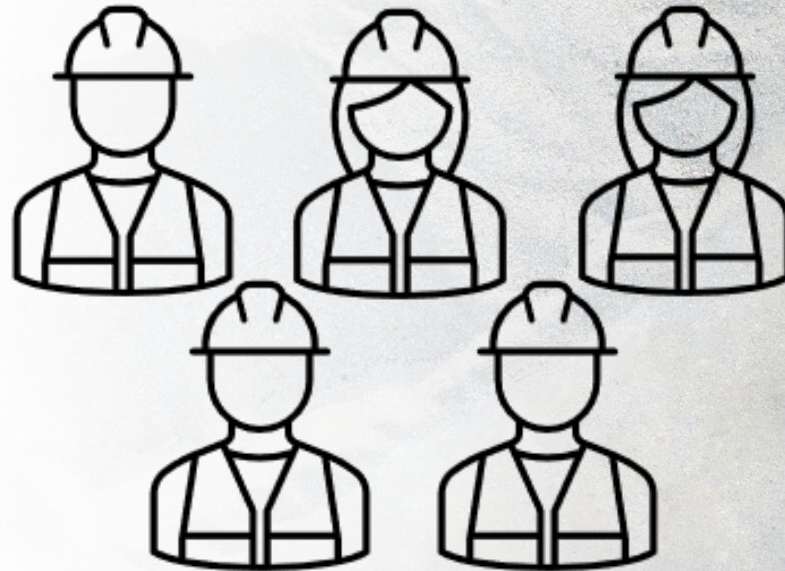
**Current MOQO Regs  
Changes from 18 July 2024**

From 18 July 2023

# A Grade Quarrying Operation



Manager



More than four workers





# Principal Hazard definition

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Any hazard arising at the operation that could create a risk of **multiple fatalities in a single accident**, or that could create a risk of **multiple people being exposed to potentially fatal health risks** in relation to any of the following:

- Ground or strata instability
- Roads and other vehicle operating areas
- Explosives
- Any other hazard arising at the operation meeting the above criteria.



# Health & Safety Management System

- Must be documented
- Good practice guidelines, Section 2
- Proportionate to quarry site



# Reporting

- Reporting incidents – HSWA and MOQQO Schedule 5
- Investigation report within 30 days.
- Quarterly reporting – Schedule 8



# Emergency Management & Inspection

- Reg 105 - Emergency Management Plan– risk assess and proportionate to operation
- Reg 222 Examination of operation – before work starts, at least weekly, mobile plant





# Authorization of Plant

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- Competent person
- Documented
- Authorized by quarry manager

A high-angle photograph of a yellow tracked excavator at a quarry. The excavator is positioned on a pile of grey gravel and rubble. Its long hydraulic arm extends from the left side of the frame towards the center. The operator's cab is visible, featuring a protective metal cage. The background shows a steep, rocky quarry face under bright daylight. The text 'Mobile plant' is overlaid in white on the right side of the image.

**Mobile  
plant**

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# Mobile plant

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SEAT BELTS

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OPEN EDGE PROTECTION

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TRAINING AND SUPERVISION

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OEM

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BRAKE TESTING

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TYRES

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PRE-START CHECKS

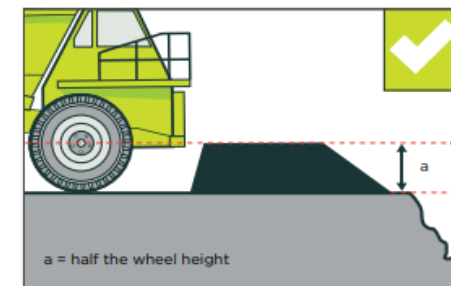


# Open Edge Protection

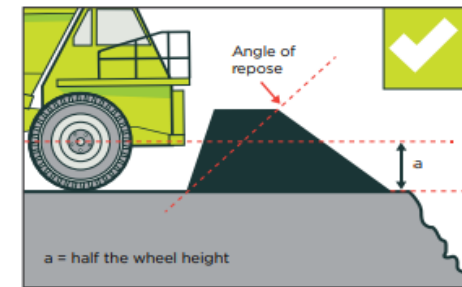
- The amount of restraint required depends on laden weight of vehicle, road gradient and design, and speed of vehicle.
- Site inspections
- Everyone checking and maintaining

Because of the large size and weight of some vehicles, the typical axle-height berms cannot be relied on, by themselves, to completely stop a vehicle except at low speeds. Windrows much larger than axle-height are required to completely stop a vehicle for all possible conditions of speed and impact. Tests have shown a windrow needs to be constructed to a height 3 times the axle height for vehicles under 85 tonnes and 4 times the axle height for vehicles over 85 tonnes to stop a runaway vehicle. This is based on a vehicle contacting the windrow at 48 kilometres at a 30 degree angle of contact<sup>93</sup>.

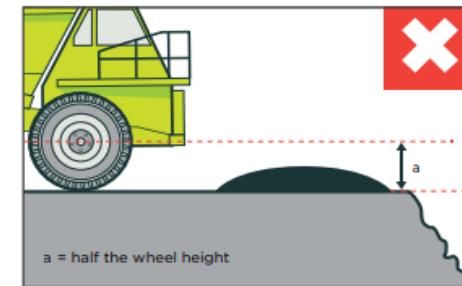
The amount of restraint offered by a windrow depends on the conditions under which the vehicle impacts it. The greater the vehicle speed, or the more head-on the vehicle contacts the windrow; the larger the windrow has to be. For this reason, use larger than typical windrows in areas where it is reasonable to expect more adverse conditions, such as where vehicles would have more speed or would contact the windrow head-on. An example would be where there is a curve at the bottom of a grade. In such cases, increase windrow size or consider other provisions, such as runaway lanes or double windrows (refer 5.3.10).



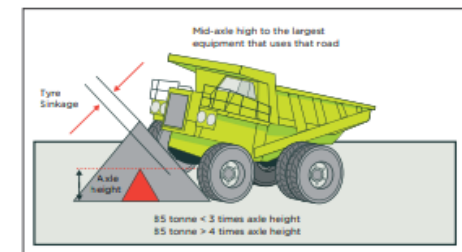
**Figure 104:** Suitable windrow - firm material big enough to absorb the vehicle's momentum with a steepened inside slope



**Figure 105:** Suitable windrow - the width of the windrow is as wide as the normal angle of repose



**Figure 106:** Unsuitable windrow - curved slopes



**Figure 107:** Study on windrow size to offer definite restraint

Make roads wide enough so windrows are constructed on a firm foundation that is level with the roadway. If the road width is inadequate and a portion of the windrow extends over the hillside, the windrow will be more likely to give way when hit and offer little restraint (refer Figure 108).



# Brake Testing

- Refer to OEM (Original Equipment Manual)
- Complete pre-start checks
- Easy for operator to complete
- Document pre-start checks



A yellow tracked excavator is shown in a high-angle view, positioned on a rocky and uneven construction site. The excavator's arm and bucket are visible in the foreground, and its tracks are spread across the ground. The background features a steep, rocky embankment. The text "Health and Safety Incidents" is overlaid in white, bold font in the center of the image.

# Health and Safety Incidents

# Incident Investigation

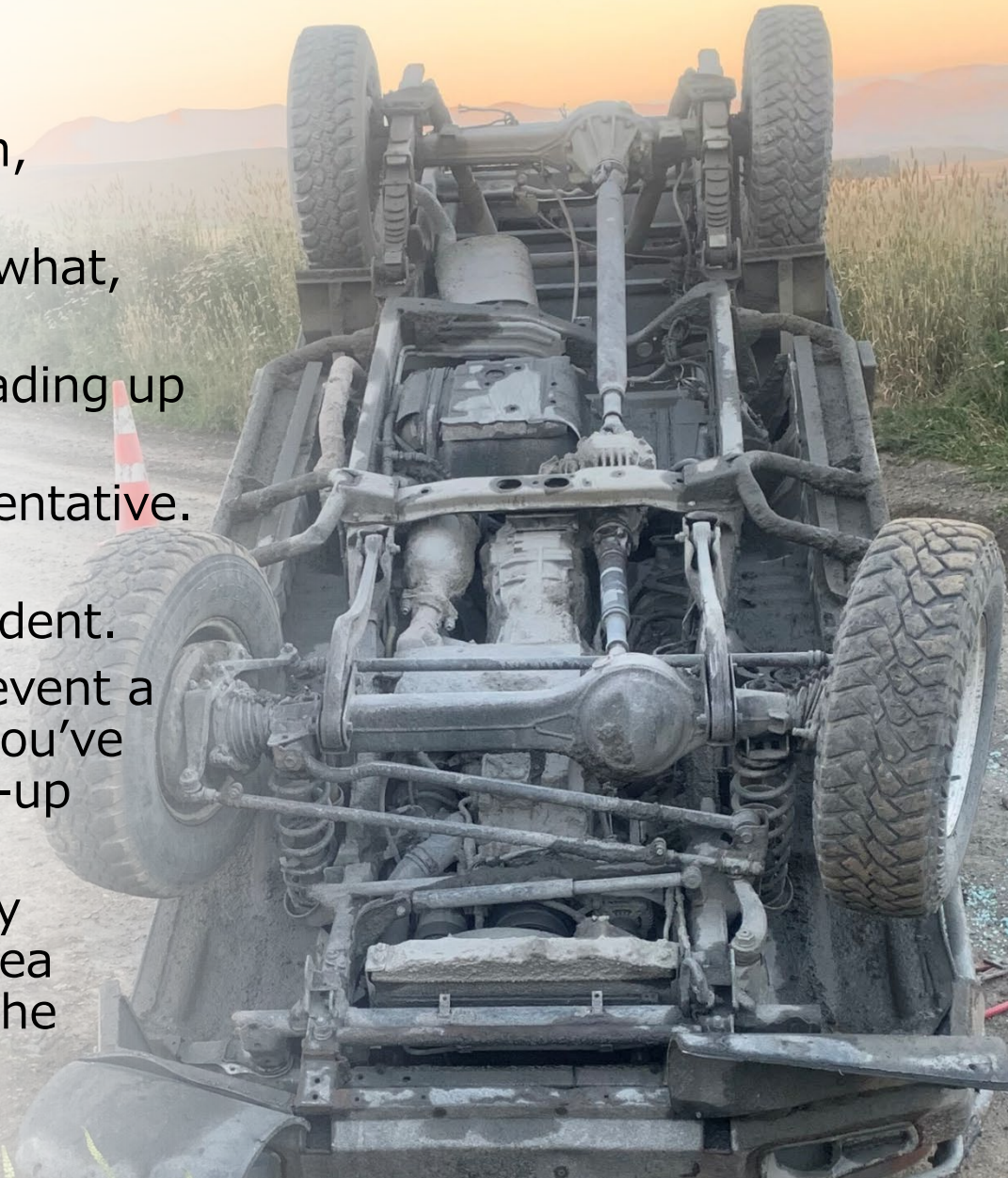
An aerial photograph of a large-scale industrial or quarrying operation. A prominent feature is a large, curved green structure, possibly a conveyor or bridge, spanning across a deep excavation. The site is filled with various pieces of heavy machinery, including conveyor belts, excavators, and trucks. The background shows a steep, forested hillside with some buildings and infrastructure.

By investigating your incidents you'll be able to learn from them, make improvements and have better workplace health and safety systems

An aerial view of a large, deep excavation site. The ground is uneven and shows signs of heavy machinery work. A yellow excavator is visible in the center, and a blue crane or similar structure is positioned on the right side. The site appears to be a major construction or mining project.

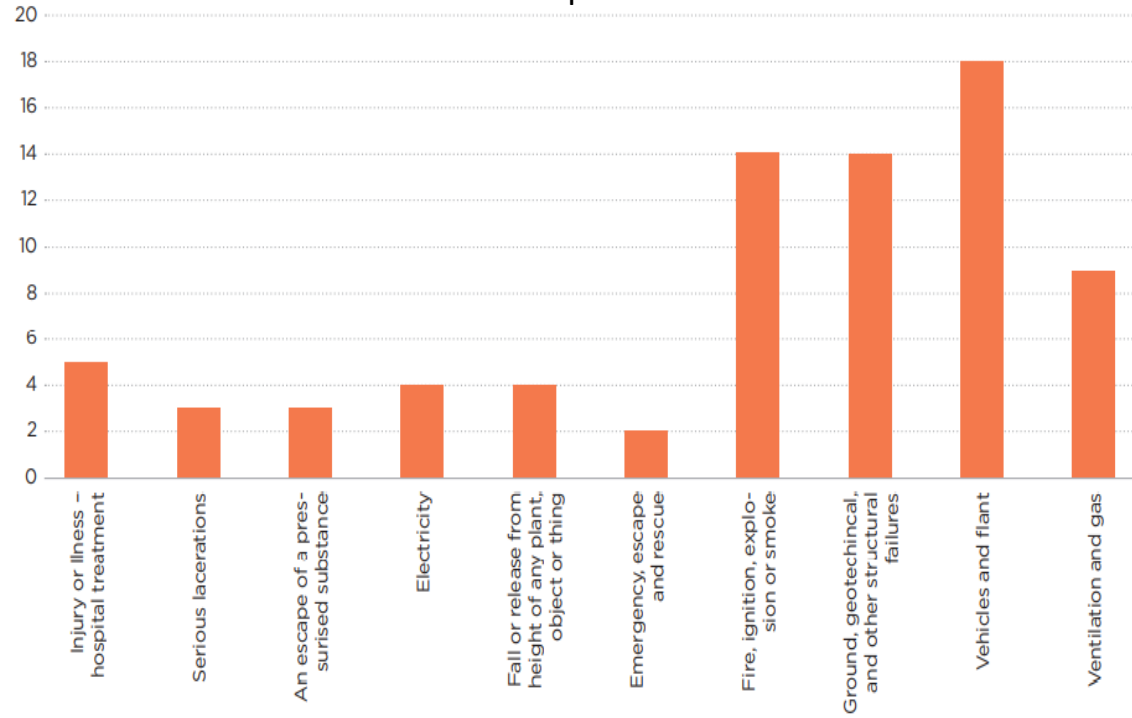
# Incident Investigation

- Identify all the people involved (victim, witnesses, etc).
- Get all the facts (who, where, when, what, how, why).
- Describe the sequence of activities leading up to the incident.
- Include the Health and Safety Representative.
- Identify and analyse the immediate, underlying and root causes of the incident.
- Develop and implement actions to prevent a similar incident. Include any actions you've already taken and any planned follow-up actions.
- Review your existing health and safety system, particularly the part of the area related most to the work involved in the incident.

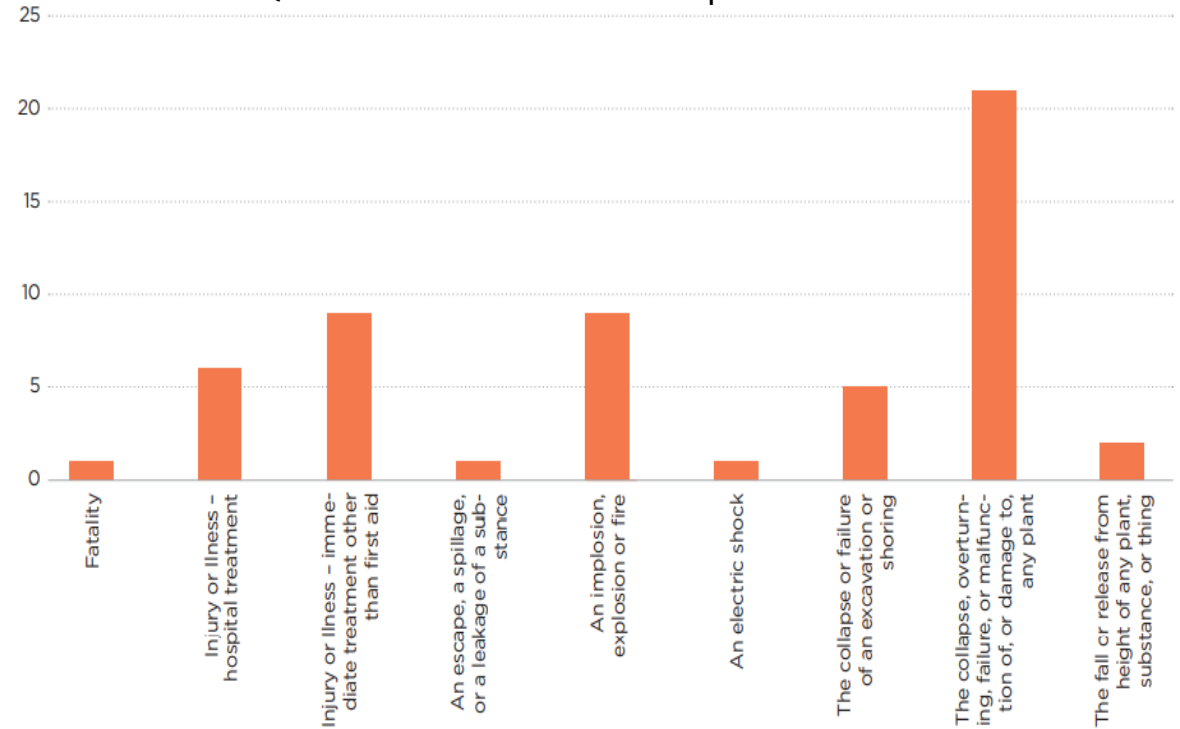


# Notifiable Events reported to WorkSafe

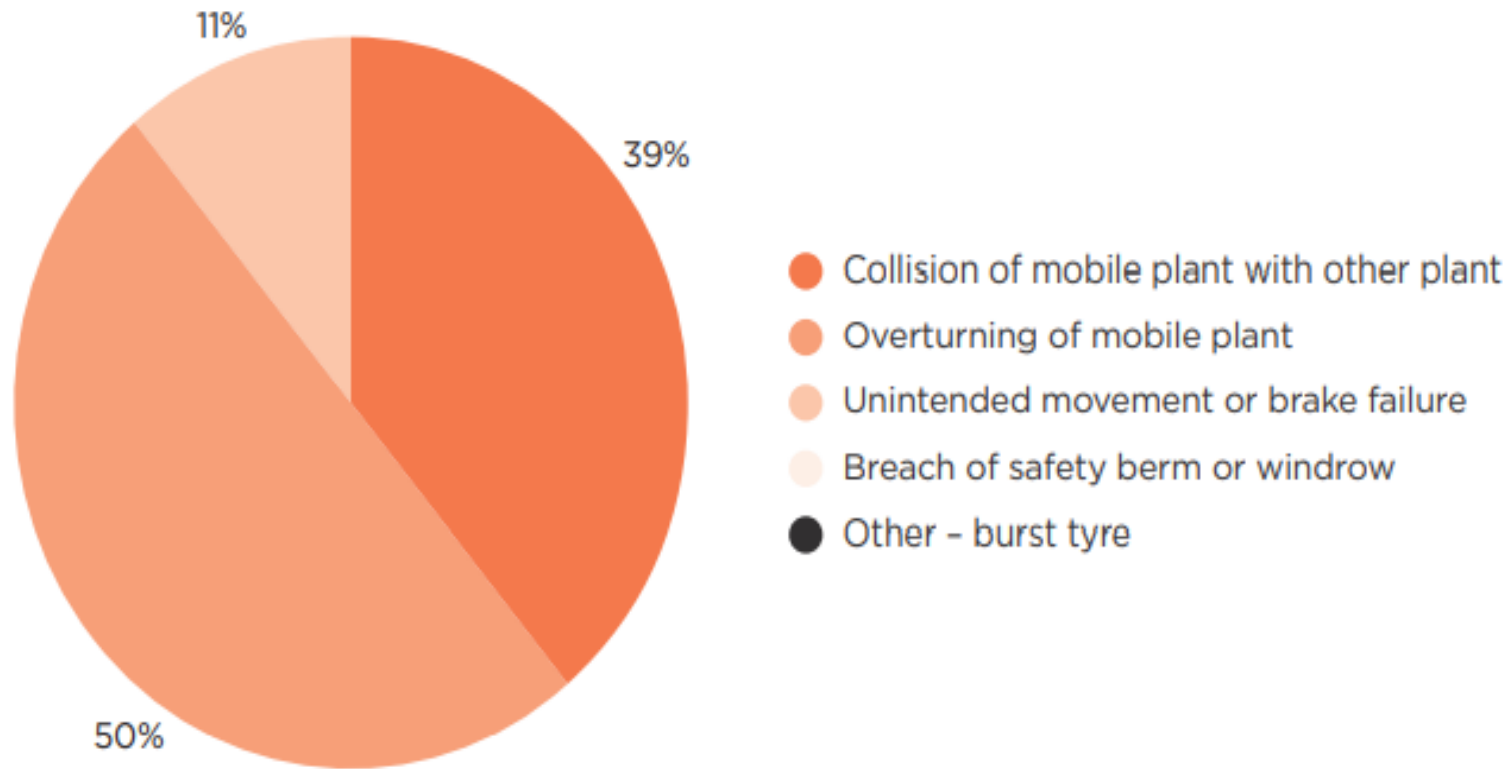
## Mines and Tunnels – previous 12 months



## Quarries and Alluvial Mines – previous 12 months



# Notifiable Events reported to WorkSafe



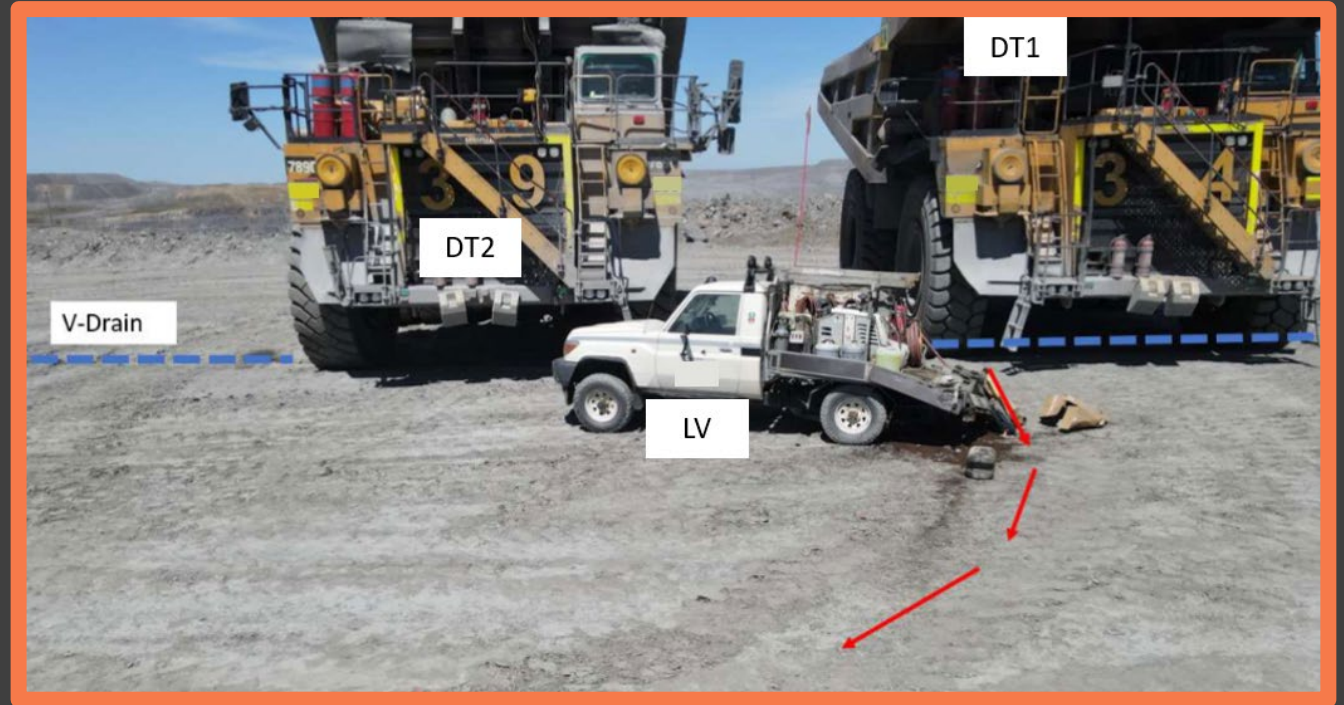
**FIGURE 10:**  
Vehicles and plant-  
related notifiable  
event sub-categories

# Recent vehicle incidents reported



# In Pit Maintenance and Vehicle Segregation

A dump truck drove over the back of a field maintenance light vehicle



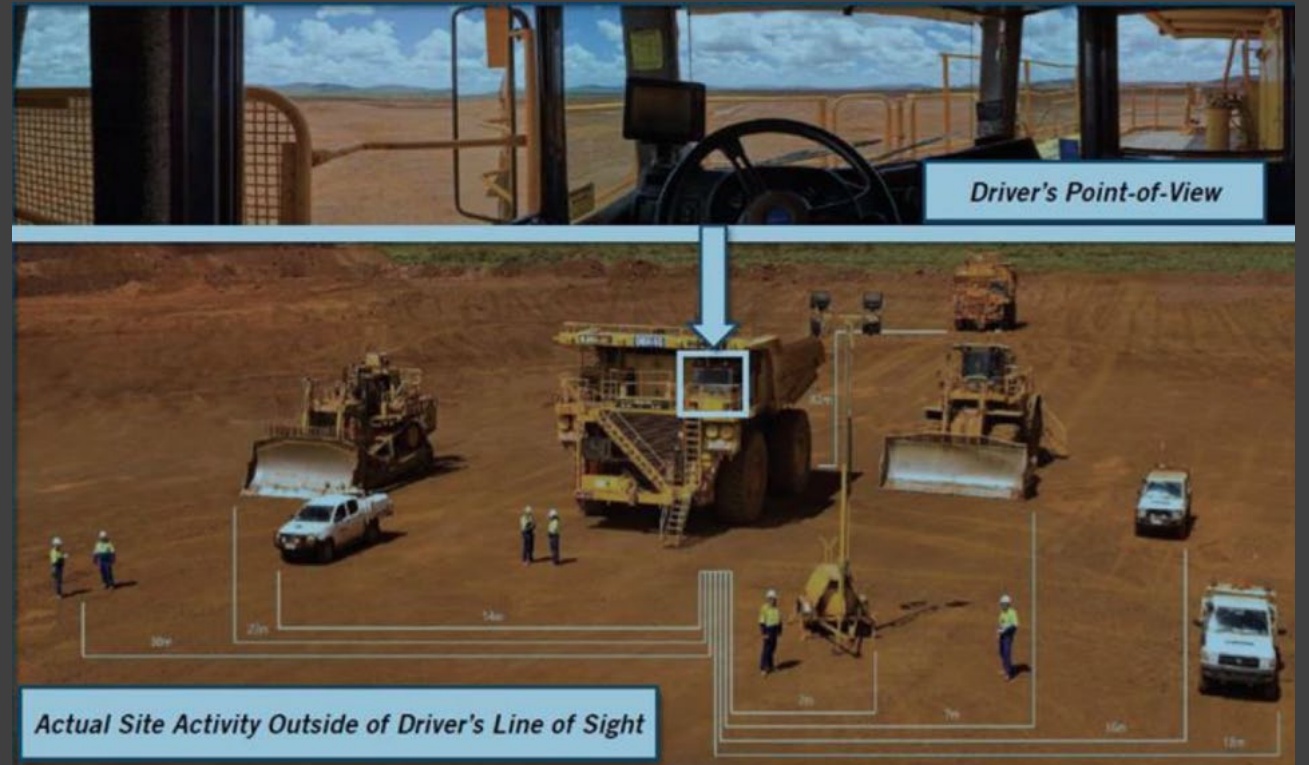
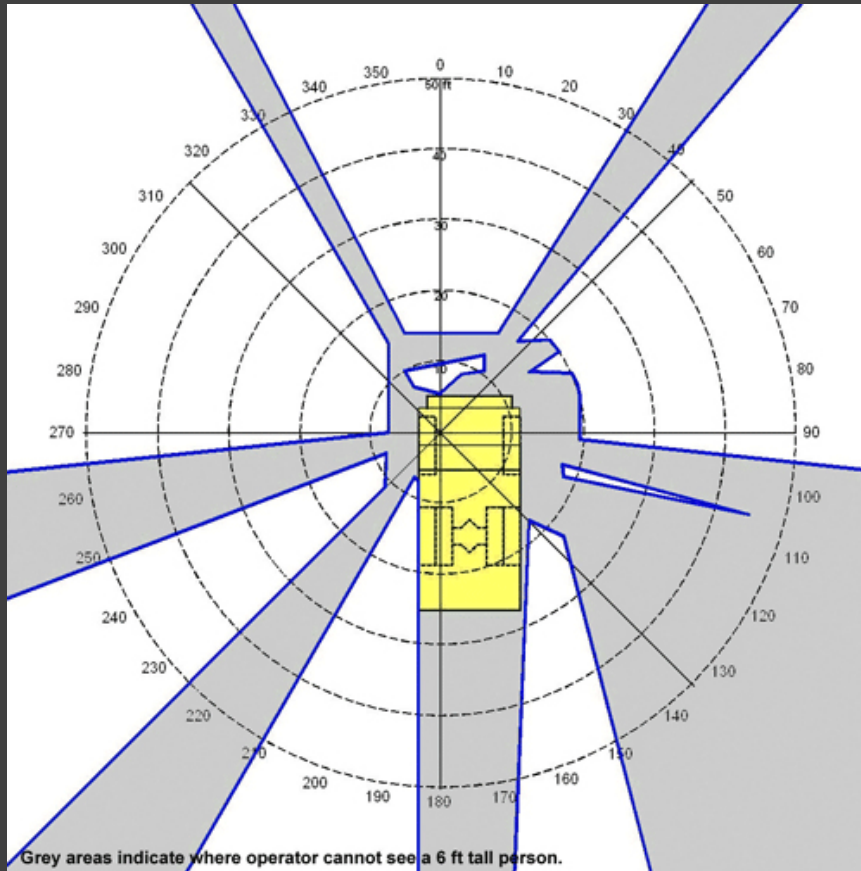


# Blind spots and visibility



*Driver's Point-of-View*

# Blind spots and visibility



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# In Pit Maintenance and Vehicle Segregation

- Consider 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 – positive confirmation to enter.
- All vehicles that may be a hazard to persons undertaking any work should be isolated.
- Define dedicated safe areas (bunded off) for any routine maintenance work.



# Fall From Height

- Routine maintenance on a screen – the worker used a ladder to access the screen and was climbing along the outside of the screen.
- They lost their footing and fell 2.1m
- The worker suffered a rib fracture and needed stitches on their leg.
- The task was carried out frequently on the site.
- No risk assessment was completed for the task.
- A work platform was available, but it was fixed height and unsuitable for the job.







# Ground Instability and Adverse Weather

- After a night of heavy rain an uncontrolled slope movement occurred.
- No personnel were working under or in the slip area, however a light vehicle which was parked on the bench was pushed up and over an edge protection bund with the force of the moving material onto the next bench.



## Ground Instability and Adverse Weather

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- **Avoid** working near, or parking vehicles and equipment under, or on the edge of highwalls
- Install and maintain **water drainage** to prevent the pooling of water
- Install **pumps** and ensure they are operational where required, prior to wet weather events occurring
- Complete thorough **inspections** of highwalls and dumps
- Workers should **monitor conditions** in their work areas and report any changes to their supervisor

# Summary

- Role of quarry operator and quarry manager
- Key basics of safety leadership
- MOQO Regs – implementation July 2022, phased approach
- WorkSafe will deliver workshops via IOQ branch meetings
- Brake testing – use OEM & document pre-start checks
- Safety incidents - While root causes may be harder to identify, they are more important as they reveal key areas for improvement in your health and safety and/or management systems.
  
- Questions ?



Getting you home healthy and safe.  
That's what we're working for.

**WORKSAFE**  
Mahi Haumarū Aotearoa