NSW Resources
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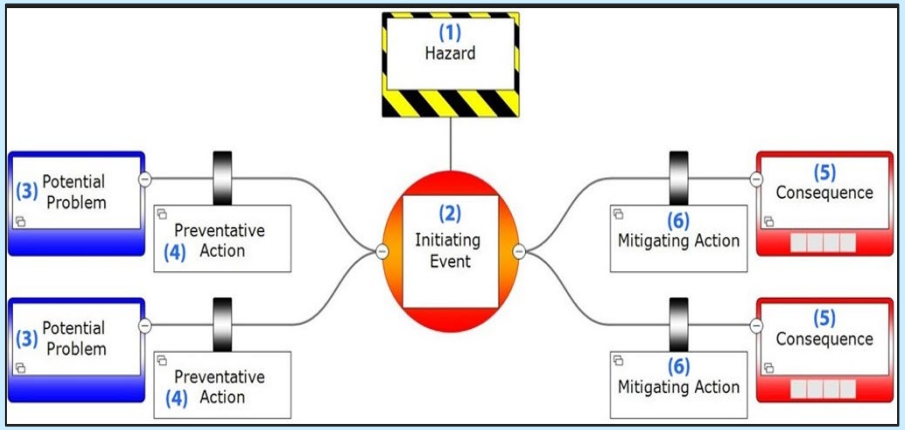
Lessons learned – Requires comprehensive investigations

Small Mines Roadshow 2025

February / March / April 2025

Contents

Bow-Tie analysis



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Safety Bulletin

Date: September 2024

Mobile plant used for pulling create line-of-fire hazard

This safety bulletin provides safety advice for the NSW mining industry.

Issue

In the past month, there have been 2 significant incidents involving the use of mobile plant in a pulling activity. Both incidents involved workers who were in the line of fire of metal objects travelling at high speed when the rope or sling they were attached to suddenly recoiled.

Figure 1 – Forklift with shattered rear and front windscreens after the M36 nut projectile narrowly missed the operator

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Compliance priority report

Hazard reporting of safety-related issues – small mines

January 2023 to 30 April 2023

Resources Regulator
Department of Regional NSW

Mine safety performance report

2022–23

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Resources Regulator annual report

2021–22

Incorporating the Mine and Petroleum Site Safety Levy

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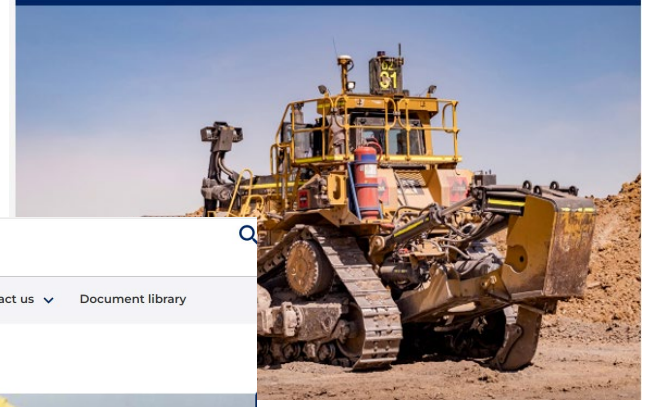

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Investigation information release

Date: September 2023

Serious injury of a worker performing maintenance work on a power screen

Incident date: 28 August 2023

Event: Serious injury of a worker while assisting with belt tracking of a power screen

Location: Mt Magometon Quarry

Overview

A worker assisting with tracking the belt on a power screen was seriously injured when his arm became entangled in the screen's rotating tail drum.

The mine

Mt Magometon Quarry is a hard rock quarry about 25 kilometres east of Coonamble in the central west of NSW. The quarry is operated by Coonamble Shire Council. Several workers, including the injured worker, are employed by a contracting company, which provides mobile crushing services to the quarry.

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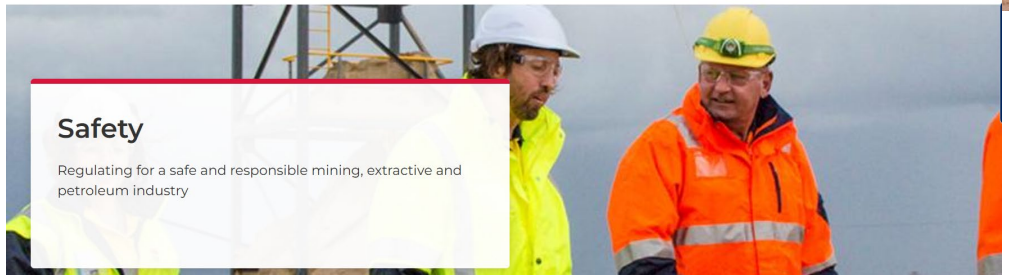


Small Mines Quarry sector – Health and safety report card

12 months from Oct 2023 to Sept 2024

94 incident notifications received (5 Inspector attended site)

0 work-related deaths

13 serious injuries notified

26 dangerous incidents notified

20 potentially dangerous incidents notified

25 high potential incidents notified

8 medical treatment injuries notified

2 lost time / restricted duty notified

17 workplace complaints received

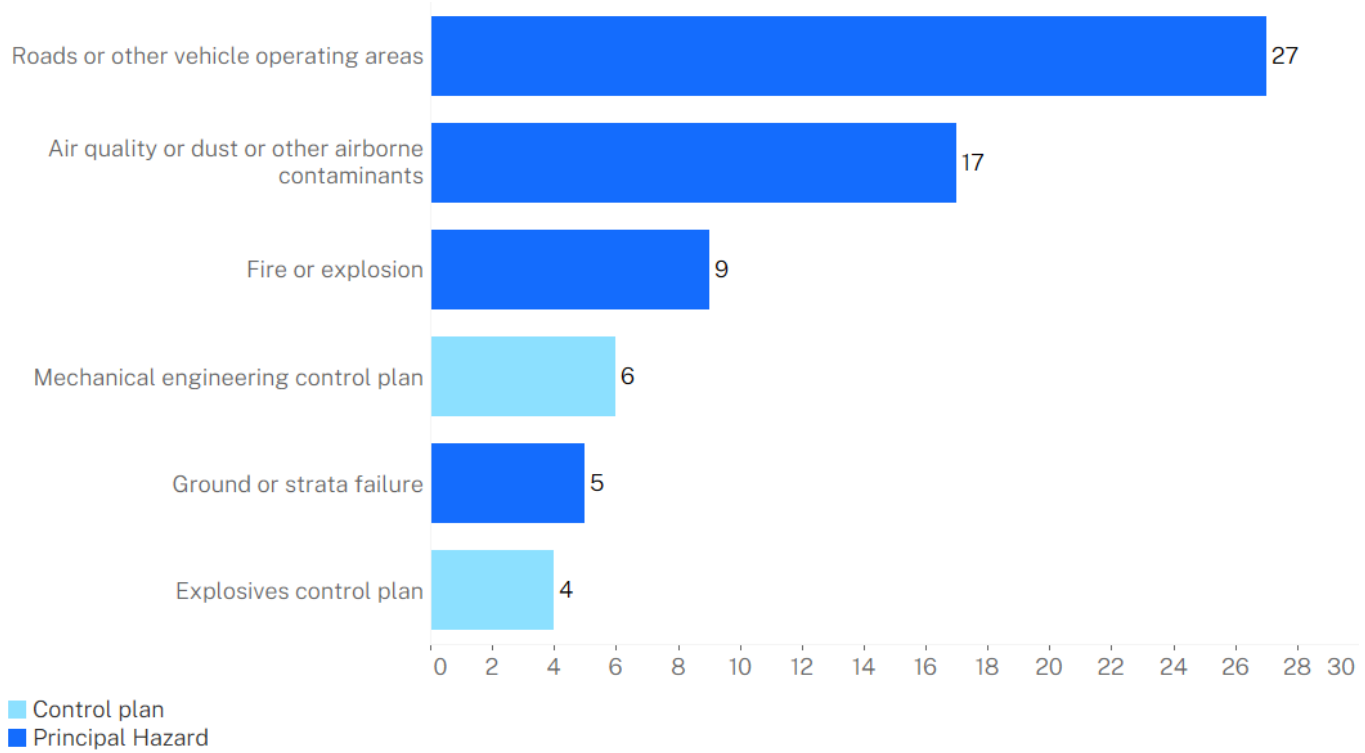
754 notices issued

(109 concern, 582 improvement, 61 prohibition, 2 non-disturbance)

- *Data is at 03/10/2024*
- *Sector is Small mines, Mine type = construction materials*

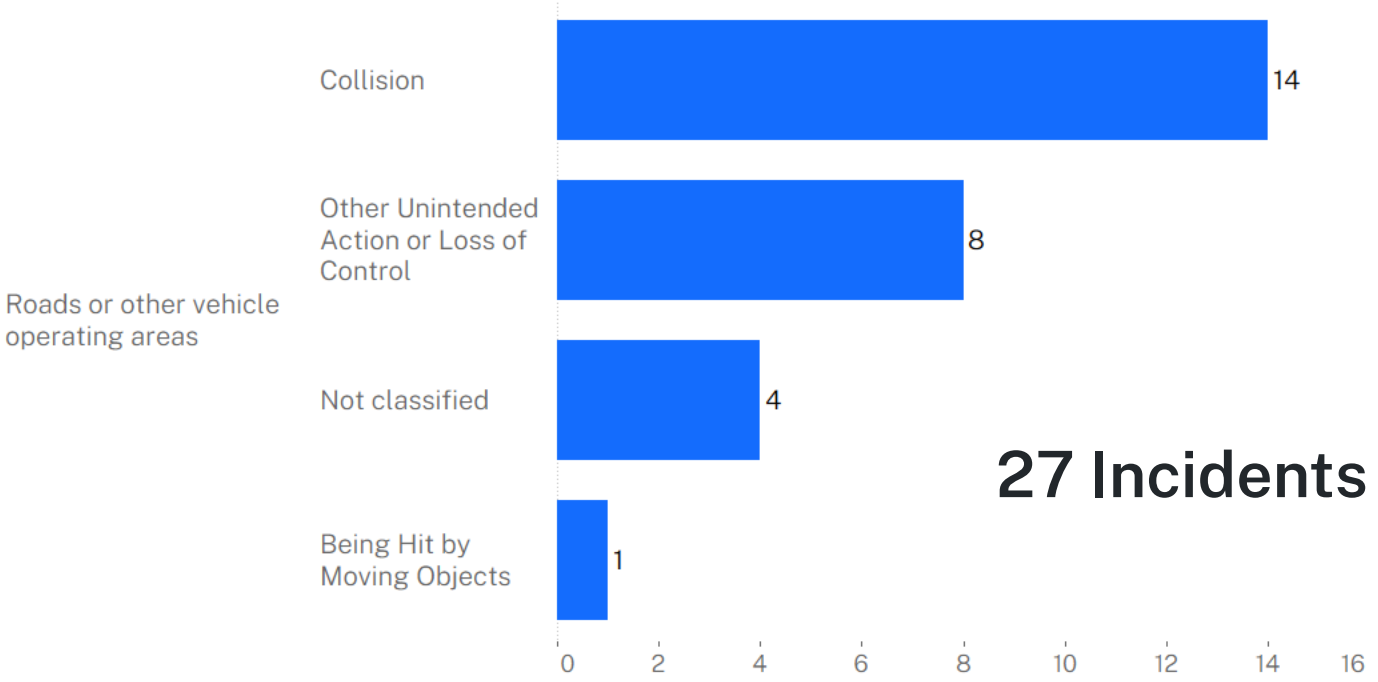
Incident notifications received, classified by principal hazard or control plan

12 months from Oct 2023 to Sept 2024



Incident notifications received for principal hazard ROVOA, by incident subtype

12 months from Oct 2023 to Sept 2024



Portal incident report fields to be completed from an investigation

Preventative actions	**Current controls**
Mitigating factors	**Controls to reduce severity**
Apparent causes	**Controls failed or missing**
Actions taken	**Controls to prevent recurrence**

Note: The Regulator is reviewing these investigation fields in 2025 and may change them to identify what "critical" control measures failed or were missing to cause the incident.

Dangerous incident

S 190 (2) (d) the unintended overturning of a vehicle or of plant weighing more than 1,000kg.

Dangerous incident

S 190 (2) (d) the unintended overturning of a vehicle or of plant weighing more than 1,000kg

Preventative actions (Current controls)

Safe work practices

- Safe Work Method Statement (SWMS) available.
- SWMS required inspection of work area for the task prior to commencing activities.
- Bunding standards were established.

Competent people

- Operators trained under a VoC process.
- Fit for purpose equipment
- Excavator had a reversing camera and reverse lighting.

Dangerous incident

S 190 (2) (d) the unintended overturning of a vehicle or of plant weighing more than 1,000kg,

Mitigating factors (Controls to reduce severity)

Safe work practices

- Emergency plan initiated and emergency services contacted.

Fit for purpose equipment

- Seat belts available and mandatory to be worn.
- Fire extinguishers on board and water truck cannon available in case of fire.
- Emergency stop device and isolation key on excavator.
- Cabin structural integrity (TOPS & ROPs)

Competent people

- Fitness for work policy implemented.
- First aiders and first aid equipment available.

Dangerous incident

S 190 (2) (d) the unintended overturning of a vehicle or of plant weighing more than 1,000kg,

Apparent causes (Controls failed or missing – Lessons learned)

Safe work practices

- Operator did not follow the SWMS when conducting a risk assessment of the work area. (SWMS requirement)
- SWMS did not address the risk of roll-over and poor lighting when moving to and travelling around a work area.
- Bund on the trench was not at the correct height and missing.

Fit for purpose equipment

- Poor lighting on the excavator and reversing lights were poorly maintained.

Competent people

- Poor situational awareness of the operator when reversing.

Environment

- Dark and foggy in the early morning.
- No artificial lighting in the area.

Dangerous incident

S 190 (2) (d) the unintended overturning of a vehicle or of plant weighing more than 1,000kg,

Actions taken (Prevent recurrence)

Safe work practices

- SWMS, ROVOA and MECP reviewed to implement additional controls.
- SLAM booklet implemented. (Stop, Look, Assess, Manage).
- Conduct JSA prior to standing excavator back-up in consultation with workers.
- Review and evaluate emergency plan with respect to the incident in consultation with workers. (debrief)

Fit for purpose equipment

- Extra LED lights added to the side and rear of the excavator in consultation with operators and existing lighting replaced with LED lighting.

Environment

- Use lighting tower when operating in darkness. (also, a SWPractice)

Competent people

- Reinforce to workers and supervisors that bunds are to be built to correct standards along exposed edges.

Dangerous incident

S 190 (1) (e) the fall or release from a height of plant, a substance or a thing, or

(1) (g) the collapse or partial collapse of a structure.

Dangerous incident

S 190 (1) (e) the fall or release from a height of plant, a substance or a thing, or

(1) (g) the collapse or partial collapse of a structure.

Preventative actions (Current controls)

Safe work practices

- Risk assessment (Workplace inspection report) completed prior to starting the plant.
- Safe Work Method Statement (SWMS) available.

Competent people

- Operators trained under a VoC process.

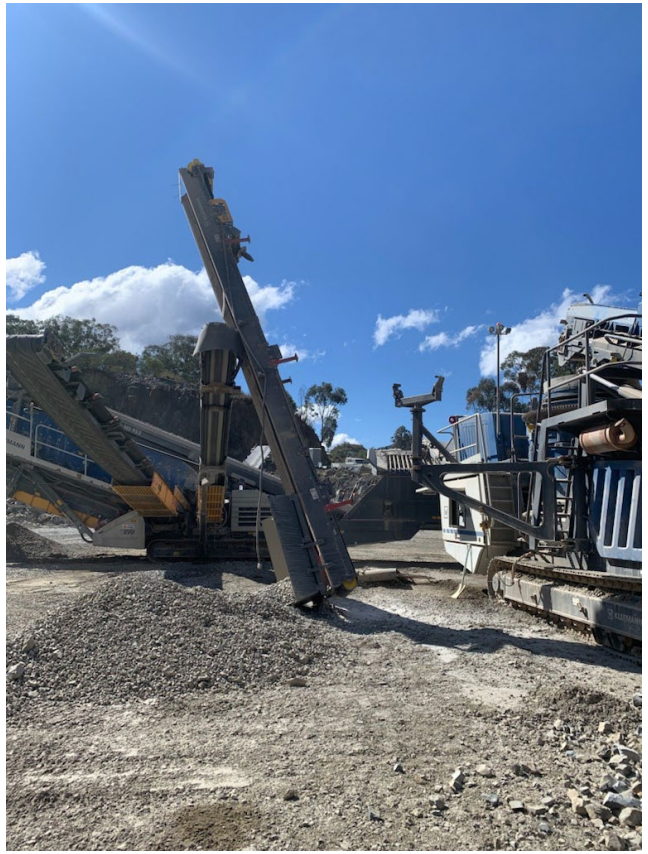
Fit for purpose equipment

- Plant prestart documentation completed.
- Preventative maintenance program implemented.

Environment

- Location setup prepared / flat ground.

Dangerous incident



S 190 (1) (e) the fall or release from a height of plant, a substance or a thing, or

(1) (g) the collapse or partial collapse of a structure.

Mitigating factors (Controls to reduce severity)

Safe work practices

- Emergency plan available.

Fit for purpose equipment

- Unknown?

Competent people

- First aiders and first aid equipment available.

Environment

- Exclusion zone established when operating plant.

Dangerous incident

S 190 (1) (e) the fall or release from a height of plant, a substance or a thing, or

(1) (g) the collapse or partial collapse of a structure.

Apparent causes (Controls failed or missing – Lessons learned)

Safe work practices

- SWMS did not document the procedure to verify the equipment was set-up as required by the OEM.
- No change management or risk assessment process on the impact of the design changes (new hopper) to the operation of the mobile plant.

Fit for purpose equipment

- Missing bolts not identified when commissioning plant.
- No structural design considerations for the hopper.
- Abnormal setup required the conveyor to be extended, leading to over-balancing the conveyor when the new feed hopper was full.
- A bigger feed hopper caused increased material weight on cantilevered section of the conveyor.

Dangerous incident

S 190 (1) (e) the fall or release from a height of plant, a substance or a thing, or

(1) (g) the collapse or partial collapse of a structure.

Apparent causes (continued)

Competent people

- Training did not specifically address the correct process for installation and setup of equipment prior to operation as described by the OEM.
- Workers did not identify missing bolts were required for the mounting flange during assembly, to prevent the conveyor belt lifting out, as specified in the OEM manual.
- Reliance on worker experience rather than set procedures for commissioning the plant once set-up.

Environment

- A different setup compared to the previous location meant the conveyor was extended further out leading to the over-balancing of the hopper end of the conveyor.

Dangerous incident

S 190 (1) (e) the fall or release from a height of plant, a substance or a thing, or

(1) (g) the collapse or partial collapse of a structure.

Actions taken (Prevent recurrence)

Safe systems of work

- Reviewed SWMS for Crushing & Screening.
- Implement change management procedure for all plant modifications.
- Implement risk assessment and design report as part of change management process.
- Prepare and implement procedure for mobile plant commissioning with reference to OEM requirements.
- Reinforce exclusion zone whilst plant is operating.

Fit for purpose equipment

- Conduct structural audit of all plant at the site.
- Review MECP and associated risk assessment regarding incident outcomes, including design principles, engineering and technical standards for plant modifications.

Dangerous incident

S 190 (1) (e) the fall or release from a height of plant, a substance or a thing, or

(1) (g) the collapse or partial collapse of a structure.

Actions taken (continued)

Competent people

- Plant OEM training for workers to ensuring equipment is installed correctly.
- Toolbox workers on incident findings and actions.
- Environment
- Unknown?

Dangerous Incident S 190 (1) (m) a collision involving a vehicle or mobile plant

Dangerous incident

S 190 (1) (m) a collision involving a vehicle or mobile plant

Preventative actions (Current controls)

Safe work practices

- Positive communications protocol required for all interactions between personnel and heavy equipment.
- Supervisors regularly remind workers to ensure UHF communications are used.

Competent people

- Operators trained under a VoC process.

Fit for purpose equipment

- Plant prestart documentation completed.
- Handheld UHF radios available on site.

Environment

- Dedicated light vehicle parking areas.

Dangerous Incident

S 190 (1) (m) a collision involving a vehicle or mobile plant

Mitigating factors (Controls to reduce severity)

Safe work practices

- Emergency plan
- Exclusion zone established when operating plant (10 / 20 / 30 rule).

Fit for purpose equipment

- Preventative maintenance program.

Competent people

- First aiders and first aid equipment available.

Environment

- Wide roadways to minimised plant collisions.

Dangerous incident

S 190 (1) (m) a collision involving a vehicle or mobile plant

Apparent causes (Controls failed or missing – Lessons learned)

Safe work practices

- Positive communications protocol was not undertaken by the light vehicle operators.
- Dedicated light vehicle parking area near the processing plant not used.

Fit for purpose equipment

- No UHF radio in vehicle. Handheld UHF radio battery was not sufficiently charged.
- Flashing light for one LV was not turned on.

Competent people

- Fitter failed to let the coworker/supervisor know that his radio was not working.
- Loader operator did not take sufficient care when reversing in the dark.

Environment

- It was still dark due to early morning winter.

Dangerous incident

S 190 (1) (m) a collision involving a vehicle or mobile plant

Actions taken (Prevent recurrence)

Safe systems of work

- Loader SWP reviewed to include outcomes of the investigation.
- Road & Traffic PMHMP reviewed to include outcomes of the investigation.
- LV SWP and parking standards reviewed.
- Internal safety alert issued on investigation outcomes for site discussion.

Fit for purpose equipment

- Loader OEM contacted regarding retrofitting detection/rear proximity sensors.

Dangerous incident

S 190 (1) (m) a collision involving a vehicle or mobile plant

Actions taken (Continued)

Competent people

- Refresher training for workers regarding site communication protocols.
- Refresher training for loader operators to look for potential hazards before moving/reversing.
- Refresher training (toolbox) regarding contacting supervisor and coworker by mobile phone if UHF radio is not working.

Environment

- Increase the number of dedicated LV parking areas around the site.

Summary of legislative obligations if you have an incident or notifiable

Notify the Regulator	Provide photos of incident scene
Preserve the scene	Isolate the scene with signs and flagging tape and do not remove items
Commence investigation	Obtain witness statements and review relevant documentation. Identify likely cause of incident due to failed or missing controls.
Review control measures in documentation with workers as part of the investigation	Maintain a record of documentation review. Ensure the review addresses failed or missing controls
Make recommendations	Consider hierarchy of controls when considering new controls
Prepare an action plan	Prioritise high risk hazards identified and be reasonably practicable with timeline / responsibilities
Consult workers and implement training if identified	Outcomes implemented and consultation completed
Updated SMS documentation	Record changes and update document control processes
Monitor changes and consult workers	Monitor and review remedial actions for effectiveness

Questions?

Thank you