Resources Regulator
Department of Regional NSW

Fit-for-purpose equipment

2024 Small Mines Roadshow Presentation

February to April 2024

Fit-for-purpose equipment

Ensuring your machine is safe and fit for purpose by having site-specific standards and compliance systems in place

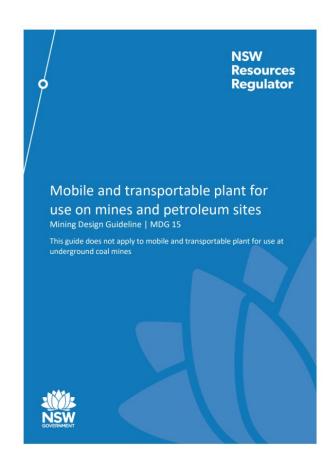# Resources Regulator - mine design guideline (MDG)

MDG15 Mobile and transportable plant for use on mines and petroleum sites.

This document is not mandatory, but it is a best practice document and OEMs and mine operators should consider its contents.

Definition

1.5.1. Fit for purpose

Plant that is sufficient and able to reliably perform the function it was designed to do for the intended use, over the lifetime of the plant.

NSW Resources Regulator

Mobile and transportable plant for use on mines and petroleum sites
Mining Design Guideline | MDG 15
This guide does not apply to mobile and transportable plant for use at underground coal mines

MDG15 highlights minimum areas that need to be addressed including:

- Fire prevention and fire control
- Unplanned movement
- Safe means of egress/access
- Vibration/ergonomics
- Isolation
- Guarding

- Safety-critical systems – steering, braking including handbrakes, seatbelts, warning systems, etc
- Wheels, rims, tyres, tracks.
- Human factors
- Proximity detection

So when do we need to check compliance?

When we purchase new or used machinery

When we hire machinery

When contractors bring machinery to our site

When we are maintaining our existing machinery

Assessment of hire or contractors for ongoing/longer terms

So how do we do that?

We need compliance systems in place for each of those 5 points and these need to be documented (eg in the Mechanical Engineering Control Plan for Tier 2 quarries or in the Safety Management System such as procedures for Tier 3 quarries

Best to have simple systems that workers follow

Best to have systems that cover as many of those points as possible

Ensure that equipment meets the site standard

Mine Operator must ensure that workers are competent to complete pre-starts and other inspections and must know the minimum standards expected

So how do we do that?

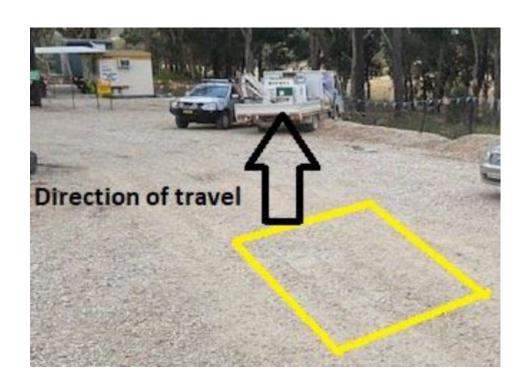Purchasing specifications or list of minimum requirements

Checklists such as pre-start inspections (Note: best practice is to have a traffic light system on pre-starts to categorise faults especially safety critical systems)

Regular inspections and maintenance to maintain standards

Ensure workers including Supervisors are trained and competent to identify non-compliances and know the site system in place to fix them
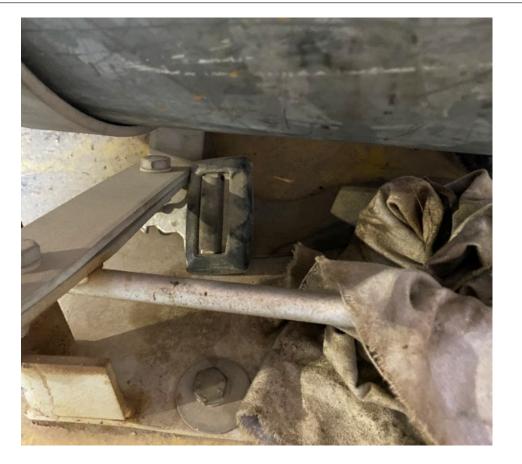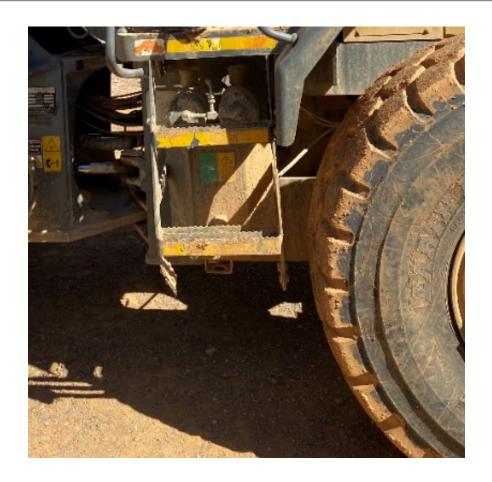
What can go wrong if your compliance system fails?

Direction of travel

Compliance system failure -
Seatbelt not accessible, not used, not reported

Compliance system failure -
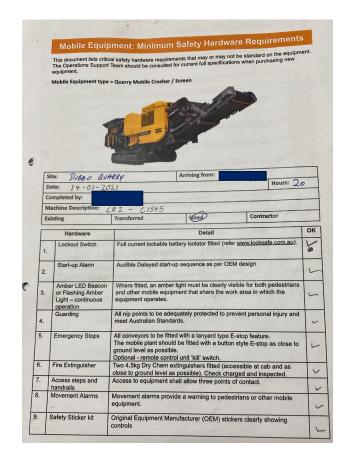# Lower step broken off and guard not secured

Compliance system failure -
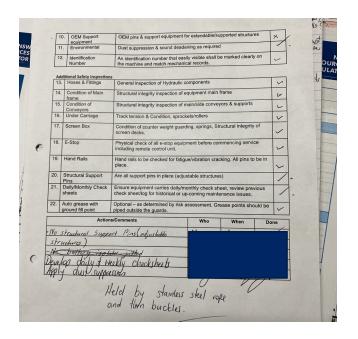# E-stop inadequate and hydraulic hose failure

Example of minimum safety requirements
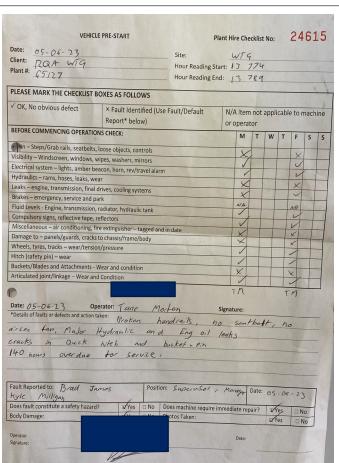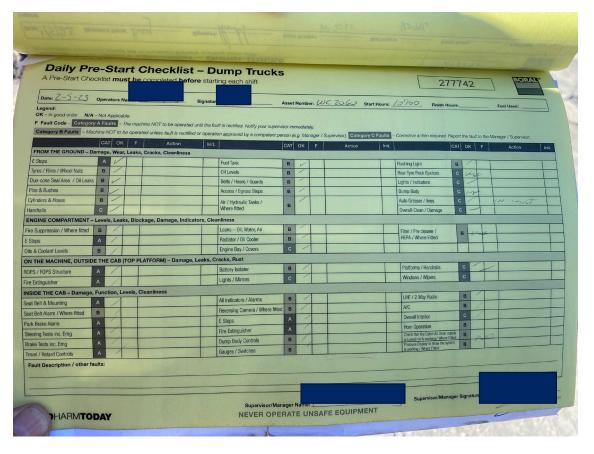# Note: ensure a minimum level of competency to complete assessments

Examples of pre-start checklists

✓   ✓ Clearly shows traffic light system showing categories of faults and the action required
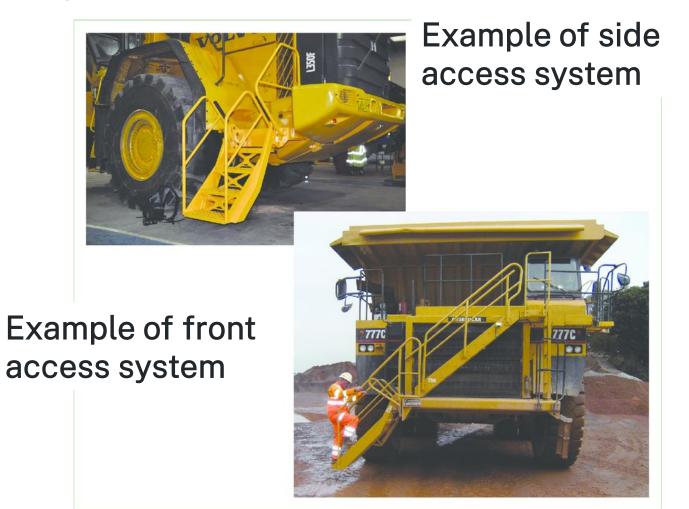

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Examples of fit-for-purpose: spring-loaded self-closing gate

Examples of fit-for-purpose: access walkways (rather than vertical ladders)

Example of side access system

Example of front access system

Examples of fit for purpose – Handrails and kickplates around engine bay

Examples of fit-for-purpose: hydraulic hoses (refer also to MDG41)

Spiral wrapping prevents rubbing wear and good clamping segregates hoses

Sheathing prevents fluid injection

Examples of fit-for-purpose: hydraulic hoses (refer also to MDG41)

Whip check prevents failed hoses from flailing near operators

Good clamping keeps hoses segregated. NO cable ties

Examples of fit-for-purpose: automatic fire suppression

Examples of fit-for-purpose: manual fire extinguishers

Extinguishers easily accessible from the ground but covered for protection is best practice

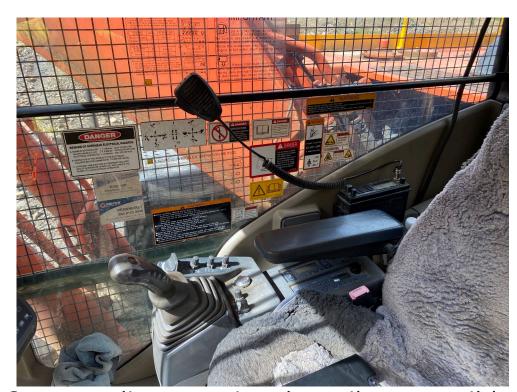# Examples of fit-for-purpose: door seals and air conditioner (for dust)

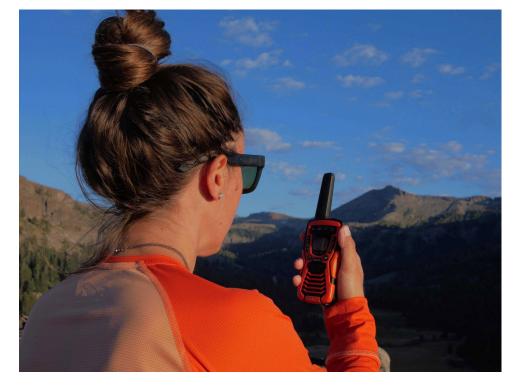Door seals in good condition and on the pre-start checklist

Air conditioner operational and on the pre-start checklist and checks and maintenance of (eg HEPA) air filters

Examples of fit-for-purpose: operational and easily accessible 2-way

2-way radio operational, easily accessible and on the pre-start checklist

2-way radio operational for workers on the ground providing positive communication

Examples of compliance – improved vision and proximity detection

Rear camera and load camera

Are OEM options available for your machines?

In-cabin monitor

Examples of fit-for-purpose – improved vision

Flashing beacon and
reversing alarm

Photo from Holcim Teven:
Flashing blue LED reversing lights fitted
to FEL.

To summarise

- Know how you are going to manage equipment that is fit for purpose for the different situations

- Know how you are going to ensure ongoing compliance

- Have simple and easy to use systems that are documented

- Ensure ALL workers understand the systems and are trained and competent

Thank you

Any questions?