

**DEPARTMENT OF MINERAL RESOURCES
DEPARTEMENT VAN MINERALE BRONNE**

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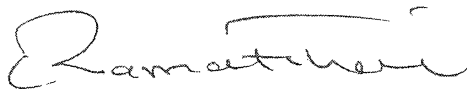
27 February 2015

MINE HEALTH AND SAFETY ACT, 1996 (ACT NO 29 OF 1996)

REGULATIONS RELATING TO MACHINERY AND EQUIPMENT

I, **ADV.N.A.RAMATLHODI**, Minister of Mineral Resources, under section 98(1) of the Mine Health and Safety Act, 1996 (Act No. 29 of 1996) and after consultation with the Council, hereby amend Chapter 8 of the regulations made in terms of the Mine Health and Safety Act, as set out in the Schedule.

The Regulations shall come into operation 3 months after the date of publication in the government gazette, with the exception of sub-regulations 8.10.1.2(b) and 8.10.2.1(b).



**ADV N.A RAMATLHODI, MP
MINISTER OF MINERAL RESOURCES**

SCHEDULE

REGULATION AMENDMENTS

CHAPTER 8

TRACKLESS MOBILE MACHINERY

Amendment of Chapter 8 of the regulations

Chapter 8 of the regulations is amended by the addition of the following regulations:

Definitions

For purposes of regulation 8.10, unless the context otherwise indicates-

“**Braking System**” means a device or combination of devices capable of reducing the speed of a **trackless mobile machine** to a standstill;

“**Combined Braking Systems**” means a **braking system** consisting of a **service brake** and at least one of the following: either a **park brake** or an **emergency brake**;

“**Emergency Brake**” means an easily accessible device, which when applied, will bring the **trackless mobile machine** to a standstill under all operating and emergency conditions;

“**Fail to Safe**” means so designed as to activate and effectively perform its intended function without harm to persons and without human intervention;

“**Park Brake**” means a brake capable of holding fully loaded, parked **trackless mobile machine** stationary, at the maximum safe operating **gradient**, without the support of any other **braking system**;

“**Remote Controlled**” means the control and operation of a trackless mobile machine by an operator, by means of a wireless remote control device or a remote control device by means of a cable system, where the operator has direct physical sight of the **trackless mobile machine**;

“**Service Brake**” means the primary operating brake capable of retarding and stopping the fully loaded **trackless mobile machine**;

“**Static Test**” means a test carried out to determine the compliance of the brake holding power of a **trackless mobile machine** measured against the design specification or an appropriate safety standard;

“**Trackless Mobile Machine**” means any self propelled mobile machine that is used for the purpose of performing mining, transport or associated operations underground or on surface at a mine and is mobile by virtue of its movement on wheels, skids, tracks, mechanical shoes or any other device fitted to the machine, but excludes rail bound equipment, scraper winches, mono rail installations, static winches, draglines, winding machinery installations, track mounted conveyors and any equipment attached thereto;

“**Trailer**” means any vehicle that is not self propelled and needs to be towed by a **trackless mobile machine** by design.

Regulations

Collisions between trackless mobile machines and pedestrians

- 8.10.1 The **employer** must take **reasonably practicable measures** to ensure that pedestrian are prevented from being injured as a result of collisions between **trackless mobile machines** and pedestrian. At any mine where there is a significant risk of such collisions, such measures must include at least the following:
- 8.10.1.1 All electrically or battery powered **trackless mobile machines**, excluding shovels, bucket wheel excavators and overburden drills, must be provided with means to automatically detect the presence of any pedestrian within its vicinity. Upon detecting the presence of a pedestrian, the operator of the **trackless mobile machine** and the pedestrian must be warned of each other's presence by means of an effective warning. In the event where no action is taken to prevent potential collision, further means must be provided to retard the **trackless mobile machine** to a safe speed where after the brakes of the **trackless mobile machine** are automatically applied without human intervention.
- 8.10.1.2 All underground diesel powered **trackless mobile machines** must be provided with means:
- 8.10.1.2(a) to automatically detect the presence of any pedestrian within its vicinity. Upon detecting the presence of a pedestrian, the operator of the diesel powered **trackless mobile machine** and the pedestrian shall be warned of each other's presence by means of an effective warning; and
- 8.10.1.2(b) in the event where no action is taken to prevent potential collision, further means shall be provided to retard the diesel powered **trackless mobile machine** to a safe speed where after the brakes of the diesel powered **trackless mobile machine** are automatically applied. The prevent potential collision system on the diesel powered **trackless mobile machine** must **fail to safe** without human intervention.

Collisions between diesel powered trackless mobile machines

- 8.10.2 The **employer** must take **reasonably practicable measures** to ensure that persons are prevented from being injured as a result of collisions between diesel powered **trackless mobile machines**. At any opencast or open pit mine where there is a significant risk of such collisions, such measures must include:
- 8.10.2.1 Every diesel powered **trackless mobile machine** must be provided with means to automatically detect the presence of any other diesel powered **trackless mobile machine** within its vicinity; and

- 8.10.2.1(a) upon detecting the presence of another diesel powered **trackless mobile machine**, the operators of both diesel powered **trackless mobile machines** shall be warned of each other's presence by means of an effective warning; and
- 8.10.2.1(b) in the event where no action is taken to prevent potential collision, further means shall be provided to retard the diesel powered **trackless mobile machine** to a safe speed where after the brakes of the diesel powered **trackless mobile machine** are automatically applied. The prevent potential collision system on the diesel powered **trackless mobile machine** must "**fail to safe**" without human intervention.

Collisions between trackless mobile machines and rail bound equipment

- 8.10.2.2 The **employer** must take **reasonably practicable measures** to ensure that persons are prevented from being injured as a result of collisions between **trackless mobile machines** and **rail bound equipment**. At underground operations where there is a significant risk of such collisions, such measures must include warning the operators of the **trackless mobile machine** and the locomotive of each other's presence by means of an effective warning.

Trackless mobile machines running uncontrolled

- 8.10.3 The **employer** must take **reasonably practicable measures** to prevent **trackless mobile machines** running uncontrolled.

Overturning of any trackless mobile machine

- 8.10.4 The **employer** must take **reasonably practicable measures** to ensure that persons are prevented from being injured as a result of overturning of any **trackless mobile machine**. Roll overprotection structures must be fitted on **trackless mobile machines** if required in terms of the mine's risk assessment.

Objects falling onto operators and/or passengers of trackless mobile machines

- 8.10.5 The **employer** must take **reasonably practicable measures** to ensure that persons are prevented from being injured as a result of objects falling onto operators and/or passengers of **trackless mobile machines**. **Trackless mobile machines** must be fitted with falling object protection structures to protect operators and passengers from falling objects if required in terms of the mine's risk assessment.

Persons inadvertently falling out of or being ejected from trackless mobile machines.

- 8.10.6 The **employer** must take **reasonably practicable measures** to ensure that persons are prevented from being injured as a result of operators and/or passengers inadvertently falling out of or being ejected from any **trackless mobile machine** in motion.

Braking systems

- 8.10.7 The **employer** must take **reasonably practicable measures** to ensure that persons are prevented from being injured as a result of brake failure. Such measures must include ensuring:
- 8.10.7.1 that **trackless mobile machines** are operated with adequate and effective braking systems;
 - 8.10.7.2 all braking systems are adequately and routinely tested for intended functionality;
 - 8.10.7.3 all braking systems are regularly maintained; and
 - 8.10.7.4 that where a combined braking system is used, the design of the braking system is such that it complies with the requirements for the separate systems and that it **fails to safe**.

Restricted operator visibility.

- 8.10.8 The **employer** must take **reasonably practicable measures** to ensure that persons are prevented from being injured as a result of restricted operator visibility.

Fatigue while operating a trackless mobile machine.

- 8.10.9 The **employer** must take **reasonably practicable measures** to ensure that persons are prevented from being injured as a result of fatigue of operators. Such measures must include a fatigue management procedure for operators.

Battery charging facilities

- 8.10.10 The **employer** must take **reasonably practicable measures** to ensure that battery charging facilities are ergonomically designed, constructed and equipped with the following:
- i) Adequate through ventilation;

- ii) Adequate fire suppression equipment;
- iii) Effective provisions to treat persons in the event of acid spillage; and
- iv) Appropriate and adequate lighting.

Diesel refuelling facilities

8.10.11 The **employer** must take **reasonably practicable measures** to ensure that diesel refueling facilities are ergonomically designed, constructed and equipped with the following:

- i) Adequate through ventilation;
- ii) Adequate fire suppression equipment;
- iii) Effective provisions to cater for oil and diesel spillages; and
- iv) Appropriate and adequate lighting.
- v) Surface diesel refueling facilities are in accordance with:
 - a. SANS 10089-1 (2008): The petroleum industry Part 1: Storage and distribution of petroleum products in above-ground bulk installations.
 - b. SANS 10089-2 (2007): The petroleum industry Part 2: Electrical and other installations in the distribution and marketing sector.
 - c. SANS 10089-3 (2010): The petroleum industry Part 3: The installation, modification, and decommissioning of underground storage tanks, pumps/dispensers and pipe work at service stations and consumer installations.

Wheels, tyres and rims

8.10.12 The **employer** must take **reasonably practicable measures** to ensure that procedures are prepared and implemented to prevent persons from being injured as a result of the use, storage and handling of wheels, tyres and rims.

Access of persons to and from the trackless mobile machines

8.10.13 The **employer** must take **reasonably practicable measures** to ensure that **trackless mobile machines** are designed, constructed and maintained such that persons getting on and off, or working on them can do so safely.

Visibility of trackless mobile machines, skid mounted machinery and *trailers* to persons.

- 8.10.14 The **employer** must take **reasonably practicable measures** to ensure that **trackless mobile machines**, skid mounted machinery and *trailers* are visible to persons in their vicinity.

Unauthorised access to or operation of trackless mobile machines.

- 8.10.15 The **employer** must take **reasonably practicable measures** to ensure that unauthorised persons do not ride on or operate **trackless mobile machines**.

Isolation and lock-out of *trackless mobile machines*

- 8.10.16 The **employer** must take **reasonably practicable measures** to ensure that procedures are prepared and implemented for the safe isolation and lockout of **trackless mobile machines**.

Operating procedures

- 8.10.17 The **employer** must take **reasonably practicable measures** to ensure that procedures are prepared and implemented for the safe operation of **trackless mobile machines**.

Maintenance standards and procedures

- 8.10.18 The **employer** must take **reasonably practicable measures** to ensure that procedures and standards are prepared and implemented for maintaining **trackless mobile machines** in a safe operating condition.

Remote and remotely controlled trackless mobile machines

- 8.10.19 The **employer** must take **reasonably practicable measures** to ensure that remote control devices for **trackless mobile machines** using a wireless remote control device comply with:
- a) SANS 61000-4-2 (IEC 61000-4-2) Electrostatic immunity discharge test;
 - b) SANS 61000-4-3 (IEC 61000-4-3) Radiated, radio frequency, electromagnetic field immunity test;
 - c) SANS 61000-4-4 (IEC 61000-4-4) Electrical fast transient/burst immunity test;
 - d) SANS 61000-4-5 (IEC 61000-4-5) Surge immunity test.

- e) SANS 61000-4-6 (IEC 61000-4-6) Immunity to conducted disturbances, induced by radio-frequency fields;
- f) SANS 61000-4-8 (IEC 61000-4-8) Power frequency magnetic field immunity test; and.
- g) SANS 61000-4-11 (IEC 61000-4-11) Voltage dips, short interruptions and voltage variations immunity test..

Trailers

8.10.20 The **employer** must take **reasonably practicable measures** to ensure that:

- a) the design and construction of any **trailer** is in accordance with specifications approved by a competent person, which specifications must take into account the intended use of the **trailer**;
- b) the design and construction of **trailer** coupling and uncoupling mechanisms is such that coupling and uncoupling can be done safely and that no inadvertent uncoupling of the **trailer** can take place; and
- c) procedures are prepared and implemented for the safe operation of **trailers**.

Towing and recovery of trackless mobile machines

8.10.21 The **employer** must take **reasonably practicable measures** to ensure that procedures are prepared and implemented for the safe recovery and towing of **trackless mobile machines**.

Roadway conditions

8.10.22 The **employer** must take **reasonably practicable measures** to ensure that the design, construction and maintenance of roadways are appropriate for the type and category of **trackless mobile machine**

Selection, training, appointment and licensing of trackless mobile machine operators

8.10.23.1 The **employer** must take **reasonably practicable measures** to ensure that procedures are prepared and implemented for the selection, training, appointment and licensing of **trackless mobile machine** operators, which procedures must include:

8.10.23.1 physical and psychological pre-selection criteria;

8.10.23.2 a training programme for **trackless mobile machine** operators, covering:

- i) theoretical training in a training Centre;
- ii) practical training; and
- iii) on the job training.

8.10.23.3 assessment of the trainee, on successful completion of the training programme, by a competent person;

8.10.23.4 that only operators, assessed to be competent are authorised in writing by the responsible engineer to operate **trackless mobile machines**;

8.10.23.5 that operators of **trackless mobile machines** are authorized in writing by their supervisor to operate **trackless mobile machines**. Such authorization must detail their duties, responsibilities, limitations and areas of operation.

8.10.23.6 when an operator has not operated a **trackless mobile machine** for a period of two years, such operator is re-assessed to be competent by a competent person prior to being issued with a new license.

8.10.23.7 that every operator of **trackless mobile machines** is issued with a license containing at least the following:

- i) a photograph to positively identify the operator;
- ii) the **trackless mobile machine** types which the operator may operate;
- iii) date of issue and expiry date; and
- iv) the operator's company identification number.

Pre-use inspection procedures

8.10.24 The **employer** must take **reasonably practicable measures** to ensure that procedures are prepared and implemented for inspecting **trackless mobile machines** immediately prior to use, which procedures must include:

8.10.24.1 that the operator of the **trackless mobile machines** physically inspects and ensures that the brakes, lights and any other defined safety features and devices are functioning as intended prior to setting such **trackless mobile machines** in motion;

8.10.24.2 pre-use check lists that have to be completed by all operators of **trackless mobile machines** at the beginning of their shift. Such check lists must clearly identify all the components, features and functionalities to be inspected by the operator. For each component, feature or functionality, the check list must clearly indicate the pre-established criteria under which the **trackless mobile machines** may or may not be put in motion.

Reversing over the edge of a stockpile

8.10.25 The **employer** must take **reasonably practicable measures** to prevent any **trackless mobile machine** reversing over the edge of a stockpile or dump.

Inadvertent movement of the trackless mobile machine

8.10.26 The **employer** must take **reasonably practicable measures** to prevent inadvertent movement of any **trackless mobile machine** whilst parked.

Mandatory carrying of license

8.10.27 All operators of **trackless mobile machines** must have their originally issued license on their person whilst operating any **trackless mobile machine**.

Certain regulations not applicable

8.10.28 Regulations 8.10.23 and 8.10.27 do not apply to **trackless mobile machines** licensed under the National Road Transportation Act 2000 and not used for primary mining activities.