

(26 June 2025 – to date)

MINE HEALTH AND SAFETY ACT 29 OF 1996

(Gazette No. 17242, Notice No. 967 dated 14 June 1996. Commencement date: 15 January 1997 for all sections with the exception of sections 86(2) and (3), which came into operation on 15 January 1998, [Proc. No. 4, Gazette No. 17725])

MINE HEALTH AND SAFETY REGULATIONS

Government Notice R93 in Government Gazette 17725 dated 15 January 1997. Commencement date: 15 January 1997.

as amended by:

Government Notice R846, Gazette No. 18078 dated 21 June 1997. Commencement date: 21 June 1997.

Government Notice R1315 in Government Gazette 19354 dated 16 October 1998. Commencement date: 16 October 1998.

Government Notice R721 in Government Gazette 20155 dated 11 June 1999. Commencement date: 11 June 1999.

Government Notice R1486 in Government Gazette 20714 dated 17 December 1999 as corrected by GN R303 in Government Gazette 21029 dated 24 March 2000. Commencement date: 17 December 1999.

Government Notice R134 in Government Gazette 22055 dated 9 February 2001. Commencement date: 9 February 2001.

Government Notice R786 in Government Gazette 23498 dated 14 June 2002. Commencement date: 14 June 2002.

*Government Notice R787 in Government Gazette 23498 dated 14 June 2013 (Correction Notice).
Commencement date: 14 June 2002.*

Government Notice R904 in Government Gazette 23583 dated 2 July 2002. Commencement date: 2 July 2002 except regulation 9.1(3) and 9.2(7), which take effect on 1 September 2002.

Government Notice R907 in Government Gazette 23586 dated 2 July 2002. Commencement date: 2 July 2002.

Government Notice R569 in Government Gazette 23410 dated 17 May 2002. Commencement date: 1 September 2002.

Government Notice R1573 in Government Gazette 24168 dated 13 December 2002. Commencement date: 13 December 2002.

Government Notice R1579 in Government Gazette 24168 dated 13 December 2002. Commencement date: 13 December 2002.

Government Notice R959 in Government Gazette 23615 dated 12 July 2002. Commencement date: 1 January 2003.

Government Notice R886 in Government Gazette 25097 dated 20 June 2003. Commencement date: 20 June 2003.

Government Notice R1237 in Government Gazette 25404 dated 29 August 2003. Commencement date: 29 August 2003.

Government Notice R1792 in Government Gazette 25812 dated 12 December 2003. Commencement date: 12 December 2003.

Government Notice R583 in Government Gazette 26333 dated 14 May 2004. Commencement date: 14 May 2004.

Government Notice 783 in Government Gazette 26496 dated 2 July 2004. Commencement date: 2 July 2004.

Government Notice R1304 in Government Gazette 26963 dated 12 November 2004 as corrected by GN R89 in Government Gazette 30698 dated 1 February 2008. Commencement date: 12 November 2004.

Government Notice R1323 in Government Gazette 26963 dated 12 November. Commencement date: 12 November 2004.

Government Notice R1224 in Government Gazette 28333 dated 15 December 2005 as corrected by Government Notice R 90 in Government Gazette 30698 dated 1 February 2008. Commencement date: 15 December 2005.

Government Notice R1225 in Government Gazette 28333 dated 15 December 2005 as corrected by Government Notice R 90 in Government Gazette 30698 dated 1 February 2008. Commencement date: 15 December 2005.

Government Notice R1226 in Government Gazette 28333 dated 15 December 2005. Commencement date: 15 December 2005.

Government Notice 911 in Government Gazette 29214 dated 8 September 2006. Commencement date: 8 September 2006.

Government Notice R989 in Government Gazette 29276 dated 5 October 2006. Commencement date: 5 October 2006.

Government Notice 34 in Government Gazette 29544 dated 19 January 2007. Commencement date: 19 January 2007.

Government Notice R1279 in Government Gazette 29458 dated 15 December 2006. Commencement date: 1 July 2007.

Government Notice 86 in Government Gazette 30697 dated 1 February 2008. Commencement date: 1 February 2008.

Government Notice R90 in Government Gazette 30698 dated 1 February 2008. Commencement date: 1 February 2008.

Government Notice R92 in Government Gazette 30698 dated 1 February 2008. Commencement date: 1 February 2008.

Government Notice R93 in Government Gazette 30698 dated 1 February 2008. Commencement date: 1 February 2008.

Government Notice R94 in Government Gazette 30698 dated 1 February 2008. Commencement date: 1 February 2008.

Government Notice R1053 in Government Gazette 33752 dated 12 November 2010. Commencement date: 12 November 2010.

Government Notice R1068 in Government Gazette 33763 dated 19 November 2010. Commencement date: 19 November 2010.

Government Notice R447 in Government Gazette 34308 dated 27 May 2011. Commencement date: 27 May 2011.

Government Notice R621 in Government Gazette 36761 dated 23 August 2013. Commencement date: 23 August 2013.

Government Notice R622 in Government Gazette 36761 dated 23 August 2013. Commencement date: 23 August 2013.

Government Notice R701 and Government Notice R702 in Government Gazette 37980 dated 12 September 2014. Commencement date: 12 September 2014.

Government Notice R906 in Government Gazette 38216 dated 21 November 2014. Commencement date: 21 November 2014.

Government Notice R330 and Government Notice R332 in Government Gazette 38708 dated 24 April 2015. Commencement date: 24 April 2015.

Government Notice R125 in Government Gazette 38493 dated 27 February 2015. Commencement date: 27 May 2015 (with the exception of sub-regulations 8.10.1.2(b) and 8.10.2.1(b))

Government Notice R584 in Government Gazette 38970 dated 10 July 2015. Commencement date: 10 October 2015.

Government Notice R893 and Government Notice R894 (read with Government Notice R896) in Government Gazette 41065 dated 25 August 2017. Commencement date: 25 August 2017.

Government Notice R952 and Government Notice R953 in Government Gazette 41904 dated 14 September 2018. Commencement date: 14 December 2018.

Government Notice 2908 in Government Gazette 47790 dated 21 December 2022. Commencement date of sub-regulations 8.10.1.2(b) and 8.10.2.1(b): 21 December 2022.

Government Notice 2909 in Government Gazette 47791 dated 21 December 2022. Commencement date: 21 December 2022.

Government Notice 6052 in Government Gazette 52388 dated 28 March 2025. Commencement date: 28 March 2025.

Government Notice 6054 in Government Gazette 52388 dated 28 March 2025. Commencement date: 28 March 2025.

Government Notice 6267 in Government Gazette 52781 dated 30 May 2025. Commencement date: 30 May 2025.

Government Notice 6053 in Government Gazette 52388 dated 28 March 2025. Commencement date: 26 June 2025.

Under section 98 of the Mine Health and Safety Act, 1996 (Act No. 29 of 1996), I, Penuell Mpapa Maduna, Minister of Minerals and Energy, hereby make the regulations in the Schedule.

P. M. MADUNA

Minister of Minerals and Energy

SCHEDULE

ARRANGEMENT OF REGULATIONS

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(Table of Contents substituted by the Schedule in Government Notice R907 in Government Gazette 23586 dated 2 July 2002)

(Arrangement of Regulations substituted by the Schedule in Government Notice R1573 in Government Gazette 24168 dated 13 December 2002)

CHAPTER 1

APPOINTMENTS AND ADMINISTRATION

[An italicised word or phrase is defined in section 102 of the Act and such word or phrase in bold is defined in Chapter 20 of these regulations.]

Prepared by:

Prescribed period for representations

1.1(1) Representations invited by the *Principal Inspector of Mines* as contemplated in section 55D(1)(b) must be submitted to the Principal Inspector of Mines within 30 days of the date of the invitation or within such further period or periods as the Principal Inspector of Mines may determine.

Prescribed period for payment of fine

1.2(1) A fine imposed on an employer in terms of section 55D, must be paid to the Principal Inspector of Mines within 60 days of the date on which the fine was imposed or within such further period or periods as the person or court imposing the fine, may determine.

1.2(2) The date on which the fine is imposed is regarded as the date on which notification of the administrative fine was served on the employer by-

- (a) hand;
- (b) registered post; or
- (c) any other form of communication agreed to between the *employer* and the Principal Inspector of Mines.

(Chapter 1 inserted by the Schedule of Government Notice R1315 in Government Gazette 19354 dated 16 October 1998)

Publisher's Note:

Please note that regulations 2.12.1 to 2.12.12 of the regulations published under GNR 992 of 1970 are to be repealed with effect from the publication in the Gazette of Chapter 2 of these regulations – See GNR 446 in Government Gazette 34308 of 27 May 2011.

CHAPTER 2 DUTIES AND RESPONSIBILITIES

(Not published)

CHAPTER 3 ELECTRICITY

DEFINITIONS

In these regulations, unless the context indicates otherwise:

“Accredited Test Laboratory” (ATL) means an organisation that is accredited by the South African National Accreditation System (SANAS).

“Arc Flash” means an uncontrolled electrical discharge through the air between conductors or between a conductor and earth. The resulting discharge of energy can result in fire, serious damage to electrical apparatus and injury or death to a person.

“Armouring” means a metallic covering of an electric cable, in the form of tape, wire or tube enclosing one or more conductors to provide adequate mechanical protection against damage.

“Bus-coupler” means a device, or set of devices, needed to facilitate the connection of two parallel circuits.

“Bus-section” means a device, or set of devices, that will extend a bus-bar to another.

“Circuit” means an interconnection of electrical elements such as resistors, inductors, capacitors, transmission lines, voltage sources, current sources and switches which have a closed loop giving a return path for the current.

“Clearance” means a minimum distance any part of a person's body or any work tool may encroach to any unearthed, bare conductor or to any unearthed and unscreened conductor.

“Collectively Screened” means having a conductive covering enclosing all power conductors as well as all control conductors within the protective outer sheath of a cable.

“Conductor” means any substance or material which can transfer an electrical charge along or through it and is connected to an electrical circuit.

“Dead” means at or about zero potential with respect to the general mass of earth and disconnected from any live reticulation system.

“Domestic Voltage” means a voltage not exceeding $230V \pm 10\%$ alternating current phase to neutral.

“Earthed” means connected to the general mass of earth in such a manner as will ensure at all times an immediate discharge of electrical energy without risk.

“Electrical Apparatus” means any apparatus, machine and fitting in which conductors are used, or of which they form a part.

“Electrical Single-Line Diagram” means a diagram that shows, by means of single lines and graphic symbols, the general layout of an electric circuit or system of circuits.

“Flexible cable” means a cable of which the conductors consist of strands of diameter not exceeding 0,51 mm and of which the insulation and covering are such that they afford flexibility and in which the nominal cross sectional area of each conductor exceeds 4 mm², but shall not include signalling cable, telephone cable, blasting cable, or flexible cord used with electric apparatus at a voltage not exceeding domestic voltage alternating current on a single phase system.

“Flexible cord” means a cable of which the nominal cross sectional area of each conductor does not exceed 4 mm² and of which each conductor consists of strands of diameter not exceeding 0,31 mm.

“Hazard Classification” - A system developed for categorizing electrical hazards based on the voltage and fault level ratings for electrical components.

“High Voltage (HV)” a set of nominal voltage levels in the range 44 kV and above to 220 kV.

“Individually Screened” means having a conductive covering enclosing power conductors individually within the protective outer sheath of a cable.

“Isolation” means disconnecting the apparatus from all possible sources of electrical potential and locking the apparatus in such a manner so that no energisation can take place.

“Insulated” means covered with any material that has the characteristic of low electrical conductivity such as to prevent an electrical discharge.

“Live” means electrically charged.

“Lockout-tagout” (LOTO) or lock and tag is a safety procedure which is used to ensure that machines / switchgear and Electrical equipment are properly isolated, de-energized and tagged.

“Low Voltage (LV)” means a set of nominal voltage levels that are used for the distribution of electricity, the upper limit of which is an a.c. voltage of 1000V or a d.c. voltage of 1 500 V.

“Medium Voltage (MV)” means a set of nominal voltage levels above the range of 1 000 V to below 44 kV.

“Metallic Covering” means iron or steel armouring or metal conduit surrounding two or more conductors with or without a lead or other metallic sheath as required in terms of operational conditions.

“Moveable Electrical Apparatus” means electrical apparatus, excluding self-propelled mobile machines or portable electrical apparatus, which is not installed on permanent foundations and is intended to be moved from place to place.

“Overhead Power Line” means an overhead line erected to convey electrical energy for any purpose other than communication but excluding the overhead contact or catenary wires of an electrical traction system.

“Permit to Work” is a formal, written, safe system of work to control potentially hazardous activities. The permit details the work undertaken and the necessary precautions to be taken.

“Portable Electric Apparatus” means electric apparatus, which is designed to be carried by hand, and may require electric power while being used.

“Reticulation System” means a circuit or combination of circuits.

“Substation” means a location containing medium or high voltage switchgear and associated equipment for the purpose of isolation, feeding, protecting and energising electrical equipment and reticulation systems.

“Switchgear” general term covering switching devices and their combination with associated control, measuring, protective and regulating equipment, also assemblies of such devices and equipment with associated interconnections, accessories, enclosures and supporting structures.

“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:

- a) rail bound equipment:
- b) scraper winches, mono rail installations, static winches, winding machinery installations and any equipment attached thereto.

“Trailing Cable” means cable used to supply power to any mobile machine and movable electrical apparatus which is designed to be dragged across the ground.

REGULATIONS

3.1 The employer must take reasonable practicable measures to ensure that:

- (1) the design of all electrical apparatus and electrical reticulation systems are approved by a competent person;
- (2) all electrical apparatus are under the control of a competent person; and
- (3) all electrical apparatus are installed, repaired and maintained by a competent person.

3.2 The employer must take reasonable practicable measures to ensure that no person suffers any electrical shock, arc flash or electrocution as a result of:

- (a) exposure to electrical current flow;
- (b) a person coming into contact with live exposed parts of any electrical apparatus;
- (c) exposure to electricity, arc flash, all fault currents, overvoltage and surges;
- (d) any electrical apparatus failing due to electromagnetic interference from other equipment;
- (e) any electrical apparatus being incorrectly designed, installed, operated or maintained; and
- (f) any exposure to blasts, fires or arc flashes resulting from electrical faults.

3.3 The measures contemplated in regulation 3.2 must include measures to ensure:

3.3.1 proper fencing off or enclosures or clearances of such electrical apparatus.

3.3.2 that an extension of any electrical reticulation system is approved by a competent person before being energised, taking into account the reticulation network and the effect thereon;

3.3.3 that only competent persons are permitted to energise, de-energise or isolate electrical apparatus where the operation of such apparatus poses a significant risk and that such apparatus are protected against unauthorised access and operation;

3.3.4 that only competent persons authorised in writing by the employer to do so; carry out switching procedures on MV or HV equipment; and

3.3.5 that where the interruption of electrical supply to any equipment could result in a significant risk, such electrical supply can be provided from another source or network, which can include an emergency supply alternator or generator, for power supply in the event of an interruption to the normal power supply.

3.4 The employer must take reasonably practicable measures to ensure that at any place at a mine, where electrical apparatus is installed and which may constitute a danger to persons shall be:

- (a) of adequate size so as to provide safe and unobstructed clear working space for operating and maintenance staff;
- (b) constructed and ventilated in such a manner that the apparatus is kept at a safe temperature to safeguard persons;

- (c) constructed in such a manner as to provide protection where necessary against the ingress of vermin and water;
- (d) illuminated in such a manner as to prevent any danger to persons and to enable all equipment to be distinguished clearly and all instruments, labels and notices to be read clearly while it is live;
- (e) equipped with effective means to safely disconnect the energy source; and
- (f) equipped with an effective fire extinguishing system.

3.5 The employer must take reasonably practicable measures to ensure that at every substation there must be a legible, up to date single line drawing of the reticulation system, highlighting ring feeds, of which that substation is a part, displayed in a conspicuous place. Every substation must be clearly identified, and its position clearly marked on such drawing.

3.6 The employer must take reasonably practicable measures to ensure that the area in which a substation is located is clearly demarcated and that notices are displayed at every point of entry to such an area. These notices shall:

- (a) prohibit access of any unauthorised person from accessing that area;
- (b) set out the procedures to be followed in the event of a fire;
- (c) set out the first aid treatment measures to be given to persons suffering from the effects of electric shock and burns;
- (d) indicate the presence of electricity;
- (e) describe measures to safely remove any person incapacitated as a result of contact with electricity; and
- (f) have available an effective means of communication.

3.7 The employer must take reasonably practicable measures to ensure that all suspended electrical cables that could cause a fire due to faults or mechanical damage, in stopes, haulages or shafts either through damage by moving machinery or by fall of ground are properly protected by:

- (a) switchgear which is electrically supplied and commissioned with discrimination settings for overload and earth fault protection to prevent a fire;
- (b) switchgear installed which is correctly rated to prevent a fire or explosion;

(c) all cables in areas where a fire can occur must be fire retardant cables or be coated with fire retardant material at areas in close proximity with timber; and

(d) the employer must have a procedure to be followed in the event of such a fire.

3.8 The employer of every coal mine must take reasonably practicable measures to ensure that all new main reticulation underground substations are designed and located such that they vent into the return air-way.

3.9 The employer must take reasonably practicable measures to ensure that where mineral oil is used as the medium for insulation or cooling of electrical apparatus, adequate precautions are in place to address any significant risk in the event of an explosion, spillage or burning of the oil.

3.10 The employer must take reasonably practicable measures to ensure that where electrical apparatus is accessible from the front and the back, each such apparatus are identifiable by clearly labelled and legible markings on the front and back fixed portions of such apparatus and on switchgear shutters.

3.11 The employer must take reasonably practicable measures to ensure that where ring feeds including bus-sections and bus-couplers are accessible from the front and the back, each such apparatus are identifiable by clearly labelled and legible markings on the front and back fixed portions of such apparatuses and on switchgear shutters.

3.12 The employer must take reasonably practicable measures to ensure that all electrical apparatus used for the distribution of electrical power, except electrical apparatus which contains domestic voltages, are clearly marked with the maximum voltage that may be present therein.

3.13 The employer must take reasonably practicable measures to ensure that no examination, adjustment, testing, repair or other work necessitating the dangerous approach to or the handling of electrical apparatus shall be carried out unless such apparatus is dead: Provided that where such equipment must be live for the purpose of examination, adjustment, repair or other work it may be done by or under the direct supervision of a competent person.

3.14 The employer must take reasonably practicable measures to ensure that no person other than a competent person authorised in writing by the employer to do so, enters a place where electric apparatus is installed unless all live conductors therein are insulated adequately or otherwise protected effectively against inadvertent contact: Provided that such authorised competent person may in case of an emergency be assisted by a person acting under the immediate personal supervision of such authorised competent person.

3.15 The employer must take reasonably practicable measures to ensure that when work is to be carried out on electrical apparatus which have been isolated from all sources of electrical supply, effective precautions shall be taken:

- i) by discharging all stored electrical energy, and
- ii) testing for dead including any ring feeds by earthing such apparatus and, in the case of ring-feeds or dual supplies of power, by earthing on both sides of the associated electrical apparatus worked on, so as to prevent any conductor or apparatus from being made live while any person is working thereon.

- 3.16 The employer must take reasonably practicable measures to ensure that any accessible metallic portion of electric apparatus which, though not normally forming part of an electric circuit, may inadvertently become live, is insulated or earthed by a conductor of adequate cross-sectional area capable of withstanding the maximum possible earth fault current condition, so as to prevent any significant risk to persons for the duration that the fault current may be flowing in the circuit.
- 3.17 The employer must take reasonably practicable measures to ensure that whenever work is to be carried out on electrical apparatus which has been isolated from all sources of supply, effective precautions shall be taken by earthing or other means to discharge electrically such electrical apparatus or any adjacent electrical apparatus to prevent any conductor or apparatus from being made live accidentally or inadvertently while any person is working thereon.
- 3.18 The employer must take reasonably practicable measures to ensure that no metal ladder or ladder with metal reinforced stiles is used for examination, repair, or other work necessitating the dangerous approach to or work on electrical apparatus.
- 3.19 The employer must take reasonably practicable measures to ensure that any accessible metallic portion of electrical plant or apparatus which, though not forming part of an electrical circuit, may accidentally become live shall either be protected by an insulating material or shall be connected to earth by a conductor of adequate cross-section so as to prevent danger to persons.
- 3.20 The employer must take reasonably practicable measures to ensure that the cross-sectional area of any earthing conductor is calculated to be capable of withstanding the maximum possible earth fault current condition.
- 3.21 The employer must take reasonably practicable measures to draw up and implement a procedure for all energising, de-energising and isolation of medium or high voltage electrical apparatus.
- 3.22 The employer must take reasonably practicable measures to ensure that where any electrical cable is buried in the ground or installed in such a position that mechanical damage to it may occur, it is protected by armouring.
- 3.23 The employer must take reasonably practicable measures to ensure that all flexible cables or trailing cables may only be used in connection with the operation of-

- (a) any self-propelled mobile machine which requires electric power to operate such machine;
- (b) movable electric apparatus; or
- (c) portable electric apparatus.

- 3.24 The employer must take reasonably practicable measures to ensure that any flexible cable or trailing cable used in or on a mine or works shall be screened either individually or collectively and such screens shall be earthed: Provided that a cable used in a hazardous area shall be screened individually.
- 3.25 The employer must take reasonably practicable measures to ensure that no flexible cable or trailing cable shall have more than fifteen joint repairs, including sheath patches over a length of 200 metres and no joint repair or patch shall be closer than 5 metres to an adjacent joint, repair or patch and no joint, repair or patch shall be closer than 3 metres to the cable plug or its terminal connection at the machine or apparatus.
- 3.26 The employer must take reasonably practicable measures to ensure that any cable reel used in connection with self-propelled mobile machine shall be provided with a device which shall interrupt the power supply to the cable before the complete cable is unreeled so that at least one complete turn of the cable shall remain on the reel when the interruption of the power supply has been effected, unless the machine's maximum range of travel is limited to less than that permitted by the cable on the reel for reasons other than the length of the cable.
- 3.27 The employer must take reasonably practicable measures to ensure that no electrical cable trench or duct is left open, uncovered or unprotected, except when persons are working in such trench or duct or where precautions have been taken to prevent persons from inadvertently falling into such trench or duct.
- 3.28 The employer must take reasonably practicable measures to ensure that persons are prevented from significant risks arising from inadvertent contact with overhead power lines by trackless mobile machines/ rail bound equipment or while erecting or moving structures or other objects.
- 3.29 The employer must take reasonably practicable measures to ensure that persons carrying out examinations, repairs or other work at elevated positions in close proximity to exposed electrical apparatus are protected from live electrical contact.
- 3.30 The employer must take reasonably practicable measures to ensure that surface residential and commercial buildings are to be wired and protected in accordance with South African Bureau of Standards Code of Practice SANS 10142-1, 2006, "Wiring of premises and installations not exceeding 1 kV". The normative references in SANS 10142-1, 2006 are not applicable to the employer.

- 3.31 The employer must take reasonably practicable measures to ensure that the design and construction of overhead power lines are in accordance with South African Bureau of Standards Code of Practice SANS 10280, 1995. "Overhead power lines for conditions prevailing in South Africa". The normative references in SANS 10280, 1995 are not applicable to the employer.
- 3.32 The employer must take reasonably practicable measures to ensure that electrical security fencing is erected and maintained in accordance with the South African Bureau of Standards Code of Practice SANS 10222: 2002, Part 3, "Electrical Security Fences (non lethal)". The normative references of SANS 10222, 2002 are not applicable to the employer.
- 3.33 The employer must take reasonably practicable measures to ensure that any helmet light assemblies used underground at a mine complies with SANS 1438, 2013 "Helmet light assemblies for miners". The normative references of SANS 1438, 2013 are not applicable to the employer.
- 3.34 The employer must take reasonably practicable measures to ensure that any helmet light assemblies used underground are tested in accordance with the requirements of ARP 0108:2013.
- 3.35 The employer must take reasonably practicable measures to ensure that the operating voltage of any portable lamp used at a mine does not exceed 32 volts.
- 3.36 The employer must take reasonably practicable measures to ensure that all electric apparatus are selected, installed, worked and maintained in such a manner as not to constitute a hazard and shall be placed and protected in such a manner that no person can be injured by inadvertent contact with any live portion.
- 3.37 The employer must take reasonably practicable measures to ensure that all electric apparatus used in a hazardous area shall be explosion protected and certified as such by an inspection authority (la) certificate issued by an accredited test laboratory.
- 3.38 The employer must take reasonably practicable measures to ensure that any type and design of explosion protected apparatus shall at all times be identified in an inspection authority (la) certificate and an identification number shall be allocated to such apparatus by the accredited test laboratory.
- 3.39 The employer must take reasonably practicable measures to ensure that explosion protected apparatus is not used at a mine unless the manager is in possession of a copy of the inspection authority certificate. The identification number referred to in regulation 3.36 must be clearly and indelibly marked on the apparatus or on a metal plate (other than a light metal) permanently fixed to the apparatus.

(Chapter 3 inserted by Government Notice R332 in Government Gazette 38708 dated 24 April 2015)

CHAPTER 4 EXPLOSIVES

Definitions

In this chapter, unless the context otherwise indicates -

“blasting” means the initiation of explosives for the purposes of fragmenting of rock or ore body;

“explosive” means -

- (a) a substance, or a mixture of substances, in a solid or liquid state, which is capable of producing an explosion;
- (b) a pyrotechnic substance in a solid or liquid state, or a mixture of such substances, designed to produce an effect by heat, light, sound, gas or smoke, or a combination of these, as the result of non-detonative self-sustaining exothermic chemical reaction, including pyrotechnic substances which do not evolve gases;
- (c) any article or device containing one or more substances contemplated in paragraph (a); or
- (d) any other substance or article which the relevant Minister may from time to time by notice in the Gazette declare to be an explosive in terms of the Explosives Act, Act No 15 of 2003;

“hot holes” means shot holes in a coal mine which after being drilled has an in hole ambient temperature of 40 degrees celsius or above or an increase of 3 degrees celsius;

“initiate” means the action or intended action of setting off explosives;

“manufacture” means the making or processing of any explosive;

“misfire” means any explosives which have failed to explode after initiation;

“misfired hole” means a shot hole or part of a shot hole in which any explosives or any portion thereof has failed to explode after initiation;

“old explosives” means any explosives that have been used or damaged in any way, or have deteriorated due to exposure to water or the surrounding atmosphere or which have expired; and includes explosives recovered from misfired holes;

“permitted explosives” means explosives classified as such by the Chief Inspector of Explosives (as defined in the Explosives Act, Act No 15 of 2003);

“ore-body” means any natural in-situ rock that contains any form of mineral;

“primary blasting” means all blasting other than secondary blasting;

“primer” means an explosive cartridge or booster into which a detonator or detonating fuse has been inserted or connected;

“pumpable explosive” means:

- (1) a mixture of ammonium nitrate, with or without other inorganic nitrates, with combustible substances which are not, classified as UN Number 0082, Class 1.1D;

or
- (2) a mixture of ammonium nitrate, with or without other organic nitrates, partially or wholly dissolved in water and with the addition of any of the following:
 - (i) ammonium nitrate emulsions, gels and suspensions, intermediate for blasting, classified as UN Number 3375;
 - (ii) combustible substances which are not explosive; or
 - (iii) substances which control the density of the final mix, either by chemical reaction or mechanically, and the final mix is classified as UN Number 0241, Class 1.1D; or any form of explosive which is inserted in a hole by means of pumping;

“secondary blasting” means blasting for the purposes of removing obstructions, reducing rocks in size or making the workings safe;

“shot hole” means any drill hole charged with or intended to be charged with explosives;

“sleep-over blast” means any shot hole charged with explosives but not initiated in the same shift during which it was charged with explosives;

“socket” means any shot hole, or part of any shot hole, known not to be a misfired hole, which remains after having been charged with explosives and blasted or which, for any other reason, may be suspected of having contained explosives at any time and includes any shot hole, or part of any shot hole, from which all explosives have been extracted;

“stemming” means filling in shot holes with inert material; and

“tamping” means the consolidation of stemming and blasting materials in a shot hole.

Security in respect of explosives

Prepared by:

4.1(1) The employer at any mine must take reasonably practicable measures to prevent persons not authorised by the employer from -

- (a) gaining access to explosives;
- (b) being in possession of explosives, or
- (c) removing or attempting to remove explosives from a mine

4.1(2) Only persons authorised by the employer at any mine may-

- (a) gain access to or attempt to gain access to explosives;
- (b) be in possession of explosives, or
- (c) remove or attempt to remove explosives from a mine.

4.1(3) Subject to regulation 4.2(2), no person may, or cause or permit any other person to bury, hide, submerge or abandon any explosives.

Receipt, storage, issuing and transportation of explosives

4.2(1) The employer at any mine must ensure that:

- (a) explosives that are not being transported or prepared for use are stored in explosive stores, silos or containers which are securely locked or, as far as reasonably practicable, designed and located so as to facilitate the safe and secure receipt, storage and issuing of explosives by a person referred to in regulation 4.1(2)
- (b) a written procedure is prepared and implemented, after consultation with the explosive manufacturer or supplier, to prevent persons from being exposed to the significant risks associated with the receipt, storage, issuing and transportation, inadvertent initiation and the deterioration of explosives. This written procedure referred to in this sub-regulation must include the following:

Storage of explosives

- (i) measures to ensure that every container used for the storage of explosives, including old explosives, is-
 - (a) of robust construction;

- (b) provided with an effective lock and the key kept only by an authorised person referred to in regulation 4.1(2);
 - (c) clearly marked to indicate the type of explosives to be placed therein;
 - (d) of a capacity determined by the employer in consultation with the explosive manufacturer or supplier;
 - (e) spaced apart from any other container used for storage of explosives, at a distance determined by the employer after consultation with the explosive manufacturer or supplier;
 - (f) approved in writing for that purpose by the employer;
- (ii) measures to ensure, at every mine where there is a significant risk of old explosives being present, that adequate storage facilities are provided for such old explosives;
 - (iii) no person must place, or cause or permit any other person to place any other materials or any implements or tools, in the explosives containers other than those necessary for the preparation of initiation systems or primers; and
 - (iv) measures to ensure that primers are kept separate from other explosives and stored in a container complying with regulation 4.2(1)(b)(i);

Issuing of explosives

- (v) measures to ensure, as far as reasonable practicable, that the explosives that have been ordered or issued do not exceed the explosive storage capacity of the storage facility in which it is intended to store those explosives, either underground or on surface; and

Transportation of explosives

- (vi) measures to ensure, as far as reasonably practicable, that explosives are only transported in vehicles, conveyances, unopened cases or locked containers approved in writing for that purpose by the employer.

4.2(2) The employer at any mine must take reasonable measures to ensure, when mine closure is intended, or when a mine is not being worked as contemplated in section 2(2), that the Principal Inspector of Mines and the Chief Inspector of Explosives (as defined in the Explosives Act, (Act No. 15 of 2003) are notified in writing as soon as reasonably practicable, if any explosives have been left behind at the mine, of-

- (i) the type, quantities and location of such explosives; and
- (ii) the measures taken to safeguard persons from any significant risks associated with such explosives.

Destruction of explosives

4.2(3) The employer at any mine must ensure that a written procedure is prepared and implemented, after consultation with the explosive manufacturer or supplier, to ensure that explosives are destroyed safely and not re-used for any purpose. Such procedure must include measures to ensure that:

- (i) only the competent person contemplated in regulation 4.4(1) destroys explosives;
- (ii) in the case of underground coal mines, explosives must be destroyed only on surface;
- (iii) the Chief Inspector of Explosives and Principal Inspector of Mines are informed in advance if more than 50kg of explosives are to be destroyed at any one time; and
- (iv) no person destroys explosives on surface within a horizontal distance of 150 metres of any public building, public thoroughfare, railway line, power line or any place where people congregate or any other structure, which it may be necessary to protect in order to prevent any significant risk, unless:
 - (a) a risk assessment has identified a lesser safe distance and any restrictions and conditions to be complied with;
 - (b) a written application accompanied by the following documents is submitted to the Principal Inspector of Mines for approval-
 - (i) a sketch plan indicating the distance from the explosives destruction area to the affected structures;
 - (ii) a risk assessment;
 - (iii) proof of consultation with the owners of the affected structures; and
 - (iv) restrictions and conditions.
 - (c) a written approval has been granted by the Principal Inspector of Mines; and
 - (d) any restrictions and conditions determined by the Principal Inspector of Mines are complied with.

Approved explosives and the usage of explosives at mines

4.3(1) The employer at any mine must take reasonable measures to ensure that only explosives approved in writing by the employer are used at the mine.

4.3(2) The employer at any mine must take reasonable measures to ensure that explosives are used in accordance with a written procedure prepared and implemented for that purpose by the employer, after consultation with the explosive manufacturer or supplier. The written procedure must include the following:

- (a) All explosives must be used in the same sequence as they are issued;
- (b) Under no circumstances must any blasting cartridge be broken or cut or a wrapper around any blasting cartridge be interfered with, except when preparing the blasting cartridge for the insertion of a detonator or detonating fuse;
- (c) The only primers that are permitted to be prepared are primers that are required for immediate use;
- (d) Where igniter cord is used, such an igniter cord must be laid as close as practicable to the face and not on, or in contact with timber or other combustible material or flammable substance not forming part of the explosives charges; and
- (e) Where pumpable explosives are used, the pumpable explosives are only sensitised at a working place where explosive charges are being prepared prior to the pumpable explosives being pumped into a shot hole.

4.3(3) The employer at any mine must take reasonable measures to ensure, if explosives are manufactured at the mine, that:

- (a) it is done in accordance with a written procedure prepared and implemented for that purpose after consultation with the explosive manufacturer or supplier; and
- (b) all mobile and portable explosives manufacturing units at a mine are used, inspected, serviced and maintained in accordance with a written procedure prepared and implemented for that purpose after consultation with the explosives manufacturer or supplier.

4.3(4) The employer at any mine must take reasonable measures to ensure that explosive powered tools are issued, stored, used and maintained in accordance with a written procedure prepared and implemented for that purpose by the employer after consultation with the manufacturer or supplier of such explosive powered tools.

4.3(5) The employer must take reasonable measures to ensure, subject to regulation 4.3(3), that only permitted explosives are used in fiery mines.

4.3(6) The employer at any mine must take reasonable measures to ensure that a written procedure is prepared and implemented after consultation with the explosives manufacturer or supplier to prevent persons from being exposed to significant risks associated with the spillage of explosives.

Primary and Secondary blasting to be performed by a competent person

4.4(1) The employer at any mine must take reasonable measures to ensure, where primary or secondary blasting takes place, that a competent person is appointed in writing to-

- (a) exercise control over all explosives to be used for blasting at those working places for which the competent person is responsible;
- (b) prepare primers;
- (c) examine any shot hole to be deepened to ensure it is safe to deepen;
- (d) examine for and deal with misfires and sockets, in accordance with the written procedure prepared in terms of regulation 4.11;
- (e) mark or indicate shot holes for drilling or to authorise the drilling of shot holes marked or indicated by another person authorised to do so by the employer, except where the shot holes were marked or indicated by means of electronic software system, including but not limited to Global Positioning System or Laser, the competent person must be required to over inspect and authorise the commencement of drilling of shot holes;
- (f) exercise control over any manufacturing at the working places for which such competent person is responsible for, of pourable or pumpable explosives to be used;
- (g) connect blasting rounds or circuits;
- (h) charge shot holes with explosives or place explosive charges; and
- (i) make safe all hot holes in terms of the written procedure contemplated in regulation 4.16(5).

Management and control over explosives

4.4(2) The employer at any mine must take reasonably practicable measures to ensure that the competent person referred to in regulation 4.4(1) reports to the employer, whenever explosives are delivered to the

working place for which that competent person is in charge, whether or not the correct quantity of explosives was delivered.

Persons performing primary or secondary blasting may be assisted

4.4(3) The employer at any mine may appoint a competent person in writing to assist the competent person referred to in regulation 4.4(1) with the following activities:

- (a) exercising control over those explosives to be used during the performance of the duties of the competent person referred to in regulation 4.4(1) as stipulated in paragraphs (b), (c), (d) and (e) below;
- (b) the preparation of primers;
- (c) the charging of shot holes with or the placing of explosive charges;
- (d) the connecting of blasting rounds or circuits; and
- (e) the handling and transport of explosives, initiation systems and accessories.

Certification of initiation apparatus and blasting systems

4.5(1) The employer at any mine must take reasonable practicable measures to ensure that where initiation of explosives charges takes place by means of electricity -

- (a) apparatus used for the initiation of electronic detonators complies with SANS 1717-1 (2006) 'The design and approval of Electronic Explosive Devices (EED) initiation systems for use in mining and civil blasting' and SANS 551 (2010) 'Detonators, relays and initiating devices for commercial applications';
- (b) apparatus used for the initiation of electric detonators complies with SANS 1717-2 (2006) 'The design and approval of EED initiation systems for use in mining and civil blasting' Part 2 "Electric Initiation System – Shot Exploder Based of SANS 1717";
- (c) apparatus used for the initiation of detonators by means of a controlled blasting system complies with the relevant SANS 1717-3 (2014) "The design and approval of detonator initiation systems for use in mining and civil blasting Part 3 Controlled Blasting System";
- (d) every shot exploder, initiator or electronic delay detonator system is tested and certified by a test laboratory accredited for this purpose by the government endorsed national accreditation body as contemplated in Approved Recommended Practice (ARP) 1717 (2010) "Guide to the

regulatory requirements for the approval of detonators, initiators and initiation systems used in mining and civil blasting applications”;

- (e) every inherently safe apparatus used for the testing of a circuit containing an electric detonator, electric or electronic initiator electronic delay detonator or a similar device is tested and certified for that purpose by a test laboratory accredited for this purpose by the government endorsed national accreditation body approved by the approving authority as contemplated in ARP 1717; and
- (f) the shot-firing apparatus is maintained in an efficient and safe working order. Each shot-exploder must be provided with a removable operating handle or key or with a locking arrangement to secure it against unauthorised use and must be marked with a serial number, and a record must be kept of all examinations and tests carried out on it.

4.5(2) The normative reference in the SANS standards in regulation 4.5(1) above are not applicable to the employer.

Precautionary measures before initiating explosive charges

4.6(1) The employer at any underground coal mine must take reasonable measures to ensure that the competent person referred to in regulation 4.4(1) does not initiate explosive charges in any underground coal mine unless the-

- (a) coal to be blasted has two free faces;
- (b) end of the shot hole is at least 150 millimetres short of the back of the cut providing the second of the two free faces; and

4.6(2) The employer at any underground coal mine must take reasonable measures to ensure that the competent person referred to in regulation 4.4(1) does not fire an explosive charge in an underground coal mine where the place where the explosive charge is to be fired is dry and dusty, unless -

- (a) a permitted explosive is used; and
- (b) the place of firing and all contiguous accessible place(s) within a radius of 20 metres from it at the time of firing have been wetted through watering or have been given effective treatment with incombustible dust, in all parts where dust is lodged, whether roof, floor or side.

4.6(3) The employer at any underground mine must take reasonable measures to ensure that:

- (a) explosives are not brought to the working face where blasting is to be carried out unless-

- (i) the drilling of shot holes has been completed;
 - (ii) the shot holes are ready to be charged with explosives;
 - (iii) the quantity of explosives does not exceed the estimated required quantity to be used for the blast; and
 - (iv) a safe distance, to which explosives may be brought to the working face where drilling of shot holes is not completed, is determined by means of a risk assessment conducted by the employer in consultation with the explosives manufacturer or supplier.
- (b) the competent person referred to in regulation 4.4(1) does not initiate any explosive charge unless:
- (i) the portion of the shot hole between the explosive charge and the collar of the shot hole is stemmed and tamped in accordance with the requirements of regulation 4.14;
 - (ii) all persons have been removed from the working place where explosive charges are to be initiated;
 - (iii) all entrances to the working place(s) where explosive charges are to be initiated, or to the places where the safety of person(s) may be endangered by such initiation, are effectively guarded so as to prevent inadvertent access to such place(s) while such explosive charges are being initiated; and
 - (iv) such competent person, gives or causes to be given due warning in every direction and is satisfied that no person remains where they might be exposed to danger from the initiating of such explosive charges;

4.6(4) The employer at any underground mine must take reasonable measures to ensure that the competent person referred to in regulation 4.4(1) or any person authorised to do so by the employer does not initiate an explosive charge in any underground mine where a centralised blasting system is being used, unless all persons who may be endangered by such initiation of explosive charges have been moved to a safe area.

4.6(5) The employer at any surface mine must take reasonable measures to ensure that:

- (a) no person remains or approaches, or is caused or permitted to remain or approach, within 15 metres of any shot hole being charged with explosives, unless such person is assisting in the charging up of shot holes with explosives or authorised by the employer in the interest of health and safety;

- (b) explosives are not brought to the working bench where blasting is to be carried out unless:
 - (i) the drilling of shot holes have been completed;
 - (ii) the shot holes are ready to be charged with explosives;
 - (iii) the quantity of explosives do not exceed the estimated required quantity to be used for the blast; and
 - (iv) a safe distance, to which explosives may be brought to the working bench where drilling of shot holes is not completed, is determined by a risk assessment conducted by the employer in consultation with the explosive manufacturer or supplier
- (c) the competent person referred to in regulation 4.4(1) does not initiate any explosive charge unless the portion of the shot hole between the explosive charge and the collar of the shot hole is stemmed and tamped in accordance with the requirements of regulation 4.14;
- (d) before the initiation of explosive charges, an adequate number of guards are stationed at a safe distance determined by a risk assessment to prevent persons accessing the blasting area and that the guards remain at the safe distance until the initiation of explosive charges is completed and the guards are recalled by the competent person referred to in regulation 4.4(1); and
- (e) at least three minutes before an explosive charge is initiated, the competent person referred to in regulation 4.4(1) gives due warning of the initiation of explosive charges.

4.7 The employer at any mine must take reasonable measures to ensure that when blasting takes place, air and ground vibrations, shock waves and fly material are limited to such an extent and at such a distance from any building, public thoroughfare, railway, power line or any place where persons congregate to ensure that there is no significant risk to the health or safety of persons.

4.8 The employer at any mine must take reasonable measures to ensure that the stemming or tamping is not withdrawn from a shot hole that has been charged with explosives except when dealing with misfired holes in accordance with the provisions of regulation 4.11.

Precautions after charges have been initiated

4.9 The employer at any mine must take reasonable measures to ensure that after explosive charges have been initiated or misfired holes have been re-initiated, the competent person referred to in regulation 4.4(1) does not approach, or causes or permits any other person to approach, within the range of the exploding charges until such competent person is satisfied that all the explosive charges have exploded or until a period of 30 minutes has expired, after the initiation of the charges.

Precautions when initiating by means of electricity

4.10(1) The employer at any mine must take reasonable measures to ensure that, where initiating takes place by means of electricity, the competent person referred to in regulation 4.4(1), after such competent person has connected the blasting cable to the detonator wires of any explosive charge or charges and before such explosive charge or charges have been initiated, does not-

- (a) remain or approach, or cause or permit any other person to remain or approach, within a distance where such person may be endangered by the initiating of such explosive charges, except for the purpose of examining the blasting circuit; and
- (b) examine the blasting circuit, or cause or permit the blasting circuit to be examined, unless both leads are disconnected from any source of electricity, whether for initiating explosive charges or testing the blasting circuit.

4.10(2) The employer at any mine must, where initiation takes place by means of electricity, take reasonable measures to ensure that the competent person referred to in regulation 4.4(1)-

- (a) only uses a blasting cable provided for that purpose and which is in good order and of sufficient length to ensure that the blasting cable cannot come into contact with any other cable or electrical apparatus;
- (b) secures the initiating device of the blast in an adequate and reasonable manner so as to prevent unauthorised access or use of the blasting system;
- (c) connects the blasting cable to the detonator wires of any explosive charge or charges or to the wires of the initiator or similar device only after completing all blasting precautions, other than those referred to in paragraphs (d), (e) and (g) of this regulation;
- (d) does not apply any electrical test to the blasting circuit except through the blasting cable and from a place of safety;
- (e) does not connect the blasting cable to the terminals of the initiating device until immediately before initiation of explosive charges or attempting to initiate the explosive charges;
- (f) except in the case of a remotely operated centralised electric blasting system, immediately after initiating or attempting to initiate the explosive charges, disconnects both leads of the blasting cable from the initiating device and then -
 - (i) removes the operating handle or key of the initiating device; or
 - (ii) secures the locking arrangement of the initiating device and removes the key;

- (g) in the case of a remotely operated centralised electric blasting system, does not connect the blasting cable to the terminals of the blasting box until immediately before leaving such competent person's working place at the end of the shift; and
- (h) in the case of a remotely operated centralised electric blasting system, disconnects immediately at the commencement of the shift any blasting cable from the terminals of the blasting box;

4.10(3) The employer at any mine must take reasonable measures to ensure that, after the explosive charges have been initiated by means of electricity, the competent person referred to in regulation 4.4(1):

- (a) carefully examines for misfired holes where the charges have been initiated, before permitting any person to work there;
- (b) instructs any person engaged in clearing the broken rock, mineral or ground to report immediately to such competent person the finding of any wires that may lead to a misfired hole; and
- (c) carefully traces any such wires to determine whether or not a misfired hole has occurred.

4.10(4) The employer at any mine must take reasonably practicable measures to ensure that where the initiation of explosives takes place by means of electricity and where there is a risk of an explosive charge being initiated by lightning, operations in connection with the preparation or initiation of explosive charges are not started or continued on the approach of or during a thunderstorm and that no person remains, or is caused or permitted by any other person to remain, within an area where any person may be injured by the accidental initiation of explosives.

Precautions for misfires, sockets and old explosives

4.11 The employer at any mine must take reasonable measures to ensure that a written procedure is prepared and implemented, after consultation with the explosive manufacturer or supplier, to prevent persons from being exposed to the significant risk associated with misfires, sockets and old explosives. Such procedure must include measures to ensure that:

4.11(1) no person gains inadvertent access to any misfired hole which is not immediately dealt with, and which measures should include clearly marking the misfired hole or barricading it off and requiring reporting of the misfired hole to all subsequent shifts, at the start of each such shift, until the misfired hole has been dealt with;

4.11(2) in any shaft in the course of being sunk, in addition to the requirements of regulation 4.9:

- (a) the competent person referred to in regulation 4.4(1) makes a sketch showing the position of every misfired hole and sockets;

- (b) every sketch referred to in regulation 4.11(2) is kept at the mine for a period of at least seven days unless directed otherwise in writing by the Principal Inspector of Mines; and
- (c) the washing or blowing over and the preparation of the sketch required in terms of regulation 4.11(2) is done at least once a day under the immediate supervision of the competent person referred to in regulation 4.4(1) to do so, and this competent person ensures that the washing or blowing over has been effectively done and the sketch properly prepared by means of personal inspection;

4.11(3) explosives are only extracted from any misfired hole by a means determined for this purpose after consultation with the explosives manufacturer or supplier;

4.11(4) the person extracting explosives from a misfired hole:

- (a) ensures as far as reasonably practicable that all the explosives in the misfired hole are extracted; and
- (b) recovers all explosives that have been extracted from the misfired hole;

4.11(5) no person removes or causes any other person to remove the plugs that are used to plug sockets or misfired holes unless such plugs are removed by the competent person referred to in regulation 4.4(1) for the purpose of inspection or are removed at the end of the shift prior the initiating of explosive charges;

4.11(6) At any surface mine the competent person referred to in regulation 4.4(1):

- (a) re-initiates the misfired hole; or
- (b) drills or causes to be drilled in the presence of such competent person, a relieving hole not less than 150 millimetres deeper than the misfired hole and which relieving hole is parallel to and not nearer than a distance determined by risk assessment to the misfired hole and that such competent person charges and initiates this relieving shot hole and recovers the explosives liberated from the misfired hole. The risk assessment must consider the following:
 - (i) hole diameter;
 - (ii) hole depth;
 - (iii) burden and spacing; and
 - (iv) geology.

or

- (c) extracts the explosives from the misfired hole in accordance with the provisions of regulation 4.11(3).

4.11(7) At any underground mine, except underground coal mines, the competent person referred to in regulation 4.4(1):

- (a) examines every socket and misfired hole to ascertain its depth, direction and whether it contains any explosives, by a means determined by the employer after consultation with the explosives manufacturer or supplier; and
- (b) extracts explosives from the misfired hole in accordance with the provisions of regulation 4.11(3) and plugs the socket with a plug supplied for that purpose by the employer; or
- (c) re-primes and blasts; or
- (d) charges up the misfired holes with explosives and initiates the explosive charges; or
- (e) blasts the misfires at the end of the shift;

4.11(8) At any underground coal mine the competent person referred to in regulation 4.4(1):

- (a) where a misfired hole is in stone, extracts the explosives from the misfired hole in accordance with the provisions of regulation 4.11(3) and charges up the misfired holes with explosives and blasts the misfires before or at the end of the shift;
- (b) where a misfired hole is in a coal, drills or causes to be drilled in the presence of such competent person, a relieving shot hole parallel to and not nearer than 300 millimetres to the misfired hole and that such competent person charges and initiates the explosives charge contained in the relieving shot hole before or at the end of the shift.

Precautionary measures for marking, drilling and blasting

4.12 The employer at any mine must take reasonable measures ensure that a written procedure is prepared and implemented, after consultation with the explosive manufacturer or supplier, to prevent persons from being exposed to the significant risk associated with marking, drilling and blasting of shot holes. Such procedure must include measures to ensure that:

4.12(1) At any underground mine before the competent person referred to in regulation 4.4(1) points out or marks any shot hole for drilling, such competent person:

- (i) removes or causes to be removed all loose or loosened rock, mineral or ground to a safe distance from the shot hole determined by a risk assessment;
- (ii) searches for any misfired hole or socket within a distance of at least the length of the drill steel used in all directions from the proposed position or mark; and
- (iii) ensure that no person drills or causes or permits to be drilled any shot hole unless the position and direction of the shot hole has clearly been marked by such competent person with a paint or other suitably visible material, or, if such marking is impracticable, has pointed out the exact position and direction of the shot hole;

4.12(2) At any underground mine other than coal mine:

- (a) no person drills or causes or permits to be drilled any shot hole unless it-
 - (i) is placed more than 150 millimeters from any socket and is drilled in such a direction that it will nowhere come nearer than 150 millimeters from any socket;
 - (ii) is placed more than two metres from any misfire and is drilled in such a direction that it will nowhere come nearer than two metres from any misfired hole; and
 - (iii) deviates from the position and direction indicated as contemplated in paragraph (i) above;
- (b) no person drills or causes or permits to be drilled any shot hole in any shaft, drive, crosscut, winze, raise, bord, stall or other similar confined space underground where there is known to be a misfired hole until the misfired hole has been dealt with in accordance with the provisions of regulation 4.11(3);
- (c) no person deepens or causes or permits any other person to deepen any hole which has been left standing or which is not completed at the end of a shift, unless:
 - (i) it has not been charged with explosives and it has been clearly described by the competent person referred to in regulation 4.4(1) in charge of the shift leaving work to the competent person referred to in regulation 4.4(1) in charge of the shift about to commence; or
 - (ii) the competent person referred to in regulation 4.4(1) examines such hole and finds it not to contain any explosives.

4.12(3) At any surface mine:

- (a) before any competent person referred to in regulation 4.4(1) points out or marks any shot hole for drilling or authorises any other person to point out or mark the position and direction of any shot hole for drilling, such competent person searches for any misfired hole or socket within a distance referred to in regulation 4.11(6)(b).
- (b) no person drills or causes or permits to be drilled any shot hole, unless:
 - (i) it is placed at a distance as referred to in regulation 4.11(6)(b) from any socket and is drilled in such a direction that it will nowhere come nearer than such determined distance from the socket;
 - (ii) it is a shot hole that deviated from the position and direction indicated in paragraph (a) above; and
 - (iii) no person deepens or causes or permits any other person to deepen any shot hole that has been left standing or which has not been completed at the end of a shift, unless it has not been charged with explosives and has been clearly described by the competent person referred to in regulation 4.4(1) in charge of the shift leaving work to the competent person referred to in regulation 4.4(1) in charge of the shift about to commence.

Prevention of flammable gas and/or coal dust explosions

4.13 The employer at any underground mine must take reasonable measures to ensure that:

- 4.13(1) a blow out, ignition of flammable gas or initiation of a coal dust explosion does not occur due to the design and positioning of the shot holes or due to the type of explosives that are used;
- 4.13(2) initiating devices or systems used in blasting operations are designed not to cause a methane or coal dust explosion;
- 4.13(3) testing for flammable gas is done in accordance with a written procedure prepared and implemented for this purpose; and
- 4.13(4) no explosives are initiated where flammable gas or coal dust may be present in sufficient quantities to cause a flammable gas or coal dust explosion or to cause flammable gas to burn.

Shot holes to be stemmed and tamped

4.14 The employer at any mine must take reasonable measures to ensure that:

- 4.14(1) no explosives contained in a shot hole are initiated unless a portion of the shot hole between the explosive charge and the collar of the shot hole is stemmed and tamped by means of a material

determined for that purpose by the employer in consultation with the explosives manufacturer or supplier and stemming manufacturer or supplier, to prevent persons from being exposed from the significant risks associated with explosives detonating outside the shot hole, blow outs, fly rocks and harmful explosives gases escaping from the shot hole.

4.14(2) the length of stemming and tamping of a portion of a shot hole between the explosive charge and the collar of a shot hole is determined by means of a risk assessment conducted by the employer in consultation with the explosives manufacturer or supplier, stemming manufacturer or supplier and the competent person contemplated in regulation 14.1(8). The risk assessment must consider at least the following:

- (a) coupling ratio of explosives;
- (b) energy released to protect in situ rock;
- (c) containment of fly rock and air blast;
- (d) blast design and type of explosives;
- (e) geology and type of rock; and
- (f) safety in dealing with misfired holes.

4.14(3) the material used for stemming and tamping complies with SANS 120:2009, Edition 2 "Stemming for use in blasting";

Amount or mass of explosives in a shot hole

4.15 The employer at any mine must take reasonably practicable measures to ensure that the maximum amount or mass of explosives used per shot hole is according to the manufacturer's or supplier's recommendations.

General precautions

4.16 The employer must take reasonable measures to ensure that:

4.16(1) at any mine other than a coal mine, no explosive charges are initiated during the shift unless -

- (a) such explosive charges are necessary for the purpose of secondary blasting or reinitiating the misfired holes in development faces;

- (b) written approval for such initiation has been granted by a person authorised to do so by the employer; and
- (c) reasonable precautions have been taken to prevent, as far as possible, any person from being exposed to smoke, fumes or fly rocks from such initiation of explosive charges;

4.16(2) no blasting operations are carried out within a horizontal distance of 500 meters of any public building, public thoroughfare, railway line, power line, any place where people congregate or any other structure, which it may be necessary to protect in order to prevent any significant risk, unless:

- (a) a risk assessment has identified a lesser safe distance and any restrictions and conditions to be complied with;
- (b) a written application is submitted to the Principal Inspector of Mines accompanied by the following documents for approval-
 - (i) a sketch plan indicating the distance from the blasting area to the affected structures;
 - (ii) the risk assessment;
 - (iii) a proof of consultation with the owners of the affected structures; and
 - (iv) restrictions and conditions.
- (c) a written approval has been granted by the Principal Inspector of Mines; and
- (d) any restrictions and conditions determined by the Principal Inspector of Mines are complied with.

4.16(3) at any mine, no person smokes, lights a fire or brings a naked light or flame, within a distance of 10 meters of where explosives are being loaded, transported, off loaded, handled or explosive charges are being prepared;

4.16(4) at any mine, blasting takes place only at a time determined in writing by the employer;

4.16(5) at any surface mine, a written procedure is prepared and implemented, after consultation with the explosive manufacturer or supplier, to prevent persons from being exposed to the significant risks associated with hot holes. Such procedure must include:

- (a) where there is a significant risk of hot holes occurring, that the competent person referred to in regulation 4.4(1) measures the temperature of the shot hole; and

- (b) that the temperatures of the shot holes are measured at any point throughout the length of the shot hole and recorded prior and during charging up operations.

4.16(6) at any mine, a written procedure is prepared and implemented after consultation with explosives manufacturer or supplier to ensure that sleep-over blasts are carried out safely;

4.16(7) at any mine, a written procedure is prepared and implemented, after consultation with the explosive manufacturer or supplier, to prevent persons from being exposed to significant risks associated with secondary blasting. The written procedure must include measures to ensure that:

- (a) all persons are moved to a safe area prior to secondary blasting taking place;
- (b) guards are placed at all entrances at a safe distance determined by a risk assessment, to the area where secondary blasting is to take place; and
- (c) written approval from a person authorised by the employer to do so, is granted before secondary blasting is carried out.

4.16(8) the competent person referred to in regulation 4.4(1):

- (a) takes all reasonable precautions to safeguard every person assisting such competent person in the preparation of explosive charges against injury;
- (b) only charges shot holes with explosives within a reasonable time of initiation and after all persons not required to assist in the charging have been removed to a safe distance determined by risk assessment;
- (c) charges only the shot holes or prepare only the explosive charges that are intended to be initiated at the next blast and, while explosives charges are awaiting initiation, ensures that they are not interfered with;
- (d) except as may be necessary to re-initiate a misfired hole or specialised blast design for holes more than 4 meters in length; does not insert more than one detonator into an explosive charge, provided that in wet workings two detonators may be used only if they are both inserted into the same cartridge and securely fastened to it;
- (e) only uses a means, appliance or material supplied by the employer for the purpose of initiating of explosive charges or testing of a blasting circuit; and
- (f) before any charge is initiated, takes adequate measures to prevent injury to persons or damage to property caused by blasting operations.

4.17 No person:

4.17(1) may drill or cause to be drilled or blast any shot hole in a subterranean tunnel intended to be used for purposes other than extracting minerals, unless-

- (a) a risk assessment has identified a safe distance to blast such a shot hole and any restrictions and conditions to be complied with;
- (b) a written application accompanied by the following documents is submitted to the Principal Inspector of Mines for approval-
 - (i) a sketch plan,
 - (ii) the risk assessment,
 - (iii) restrictions and conditions;
- (c) a written approval has been granted by the Principal Inspector of Mines; and
- (d) any restrictions and conditions determined by the Principal Inspector of Mines are complied with;

4.17(2) who is engaged in handling explosives or who is travelling in a vehicle in which explosives are being transported may carry matches or any other means of producing a flame or a spark;

4.17(3) warned of the initiation of explosive charges as contemplated in regulation 4.6(5)(d) may remain in or enter the unsafe area surrounding the place where the initiation of explosives is to take place.

4.18 Every person at any mine must report, in a manner prescribed by the employer, without delay any case of gassing, however slight, to ensure that such case receives prompt medical attention.

(Chapter 4 inserted by Government Notice R1279 in Government Gazette 29458 dated 15 December 2006)

(Chapter 4 substituted by Government Notice R584 of 2015 with effect from 10 October 2015)

(Chapter 4 substituted by Government Notice R953 in Government Gazette 41904 dated 14 September 2018)

CHAPTER 5

FIRES AND EXPLOSIONS

Report to Employer

5.1(1) The *employer* must ensure that a competent person reports to the employer, at appropriate intervals determined in accordance with the mine's risk assessment, on -

- (a) the effectiveness of the precautionary measures taken to prevent or suppress explosions of coal dust or flammable gas; and
- (b) the adequacy of measures in place to prevent, detect and combat the start and spread of mine fires.

[Reference is made to the following Guidelines issued by the Chief Inspector of Mines in terms of section 9(2) of this Act

- (i) Guideline for the Compilation of a Mandatory Code of Practice for the Prevention of Coal Dust and Flammable Gas Explosions: Ref.: DME 16/3/2/1-A1
- (ii) Guideline for the Compilation of a Mandatory Code of Practice for the Prevention of Flammable Gas Explosions in Mines Other than Coal DME 16/3/2/1-A2]

(Regulation 5.1(1) inserted by the Schedule of Government Notice R904 in Government Gazette 23583 dated 2 July 2002)

5.1(2) Where at any area at a mine, a fire could pose a significant risk to the health and safety of persons, the employer must take reasonable measures to ensure that flammable liquids, gases and materials in use, are transported, stored, deposited, used and disposed of in such a way as to prevent the starting or spreading of a fire.

5.1(3) The employer at any mine at which a fire occurs must, as soon as practicable, notify the employer of any other mine at which the spread of such fire could constitute a hazard should such fire not be immediately extinguishable, of the existence of that fire

5.1(4) The employer must take reasonably practicable measures to ensure that any coal, coal debris or bituminous rock is deposited so that it does not pose a significant risk to the health or safety of any person.

(Regulation 5.1(2), (3) and (4) inserted by the Schedule in Government Notice R1237 in Government Gazette 25404 dated 29 August 2003)

5.1(5) The employer, at any mine where the risk assessment indicates a risk of the presence of flammable gas, must ensure- that all flammable gas measuring instruments and flammable gas warning devices used at the mine for the detection of methane or hydrogen or a mixture of both, comply with the South African National Standard Specification SANS 1515-1: 2006, Edition 2.1 "Gas measuring equipment primarily for use in mines: Part 1: Battery operated portable, flammable gas measuring instruments and warning devices".

(Regulation 5.1(5) inserted by Government Notice R92 in Government Gazette 30698 dated 1 February 2008)

5.1(6) Annex A: "Assessment of Compliance with this part of the Specification" contained in South African National Standard Specification SANS 1515-1:2006, Edition 2.1 shall, for the purpose of regulation 5.1(5), be deemed to be normative.

(Regulation 5.1(6) inserted by Government Notice R92 in Government Gazette 30698 dated 1 February 2008)

CHAPTER 6

HEALTH AND SAFETY REPRESENTATIVES AND COMMITTEES

[An italicised word or phrase is defined in section 102 of *this* Act and such word or phrase in bold is defined in Chapter 20 of these regulations.]

[Unless otherwise indicated all references to sections are references to sections of *this* Act.]

Prescribed period for negotiations and consultations

6.1(1) The *owner* of a *mine* required to enter into negotiations in terms of sections 26(1) and 33(1), must commence negotiations within one month of the obligation to do so arising.

[6.1(1)-The obligation to negotiate arises when there is a representative trade union at a mine and when there are 20 or more, or 100 or more, employees at the mine in the case of sections 26(1) and 33(1), as the case may be.]

[6.1(1) In terms of section 33(8) the negotiations and consultations contemplated in section 26(1) and 33(1) may be held at the same time.]

6.1(2) The *manager* of a mine required to enter into consultations in terms of section 26(6) or (7) and 33(6) or (7), must commence consultations within one month of the obligations to do so arising.

6.1(3) If no collective agreement is concluded on the number of full-time health and safety representatives within three months of negotiations commencing in terms of regulation 6.1 (1), any party to a dispute in terms of section 26(8)(a) may refer the dispute to the Commission.

6.1(4) If no agreement is concluded on the number of full-time health and safety representatives within three months of consultations commencing in terms of regulation 6.1(2), any party to a dispute in terms of section 26(8)(b) may refer the dispute to the Commission.

Application of regulations

6.2 If a collective agreement dealing with the election of health and safety representatives, full-time health and safety representatives or employee representatives on health and safety committees is concluded in terms of Chapter 3 of this Act, the regulations in this Chapter dealing with such election do not apply.

[6.2-Section 33(4) authorises this regulation.]

Establishment of election committee

6.3(1) The manager must establish an election committee.

6.3(2) The election committee-

- (a) must include an appropriate number of employee representatives; and
- (b) may include a number of management representatives.

6.3(3) If the election committee includes management representatives, their number must be equal to or less than the number of employee representatives.

6.3(4) The employee representatives on the election committee must be appointed-

- (a) by the representative trade union at the mine;
- (b) if there is no representative trade union at the mine, by the registered trade unions with members at the mine; or
- (c) if there is no registered trade union with members at the mine, by the employees at the mine.

Duties of election committee

6.4 The election committee must-

- (a) determine fair and reasonable procedures for the nomination and election of health and safety representatives,
- (b) ensure that elections are conducted in terms of such procedures;
- (c) appoint an election officer and one or more counting officers for each election; and
- (d) after consulting the manager, determine the date, time and place of each election.

Duties of manager

6.5(1) The manager must-

- (a) as far as practicable, ensure that every employee is made familiar with the nomination and election procedures;
- (b) give reasonable and understandable notice to the employees of the date, time and place of each election;
- (c) provide the facilities and assistance reasonably necessary for the election committee to perform its functions;
- (d) provide the facilities reasonably necessary for-
 - (i) the election of health and safety representatives, and

- (ii) the appointment of employee representatives on any health and safety committee, and
- (e) provide reasonable time off from work, without loss of remuneration, for employees to participate in the elections of health and safety representatives.

6.5(2) The Chief Inspector may issue guidelines regarding the facilities and assistance to be provided in terms of regulation 6.5(1).

Nomination of health and safety representatives

6.6(1) Every candidate for election as a health and safety representative for a shift and designated working place must be nominated for election by an employee who works on the same shift at the designated working place.

[6.6(1)-Section 28(1) prescribes the qualifications of health and safety representatives.]

6.6(2) Every candidate for election as full-time health and safety representative for a mine must be nominated for election by an employee.

[6.6(2)-Section 28(2) prescribes the qualifications of full-time health and safety representatives.]

Procedures for the election of health and safety representatives

6.7(1)

- (a) If only one candidate is nominated for election as a health and safety representative for a shift at a designated working place, the election officer must declare the candidate elected.
- (b) If two or more candidates are nominated for election as a health and safety representative for a shift at a designated working place, the election officer must hold an election.

6.7(2) Every election for a health and safety representative-

- (a) must be under the control of the election officer; and
- (b) is only valid if 50% or more of the employees who work on the same shift at the designated working place concerned vote in the election.

6.7(3)

- (a) If less than 50% of the employees who work on the same shift at the designated working place concerned vote in an election, the election officer must, after consulting the manager, determine a date, time and place for a subsequent election.
- (b) Regulation 6.7(2)(b) does not apply to such subsequent election.

6.7(4) Every employee on a shift at a designated working place has one vote in the election of every health and safety representative for that shift and designated working place.

6.7(5) The counting officers must, under the supervision of the election officer, count all valid votes.

6.7(6) The election officer must announce the results of the count to the employees concerned.

6.7(7) If an election for an alternate health and safety representative is held, it must be conducted in the same manner as an election for a health and safety representative.

Procedures for the election of full-time health and safety representatives

6.8(1) If the number of candidates nominated for election as full-time health and safety representatives at a mine is-

- (a) not more than the number that must be elected, the election officer must declare the candidates elected; or
- (b) more than the number that must be elected, the election officer must hold and *[sic]* election.

6.8(2) Every election for a full-time health and safety representative-

- (a) must be under the control of the election officer; and
- (b) is only valid if 50% or more of the employees vote in the election.

6.8(3)

- (a) If less than 50% of the employees vote in an election, the election officer must after consulting the manager, determine a date, time and place for a subsequent election.
- (b) Regulation 6.8(2)(b) does not apply to the subsequent election.

6.8(4) Every employee has one vote in the election of every full-time health and safety representative.

6.8(5) The counting officers must, under the supervision of the election officer, count all valid votes.

6.8(6) The election officer must announce the results of the count to the employees.

Appointment of health and safety representatives

6.9 The manager must-

- (a) within 7 days of election, appoint in writing every employee elected as a health and safety representative;
- (b) provide every health and safety representative with suitable means of identification as a health and safety representative; and
- (c) prominently and conspicuously display the photograph and name of the health and safety representative at an appropriate place at the mine.

Appointment of employee representatives on health and safety committee

6.10 Every employee representative on a health and safety committee at a mine must be appointed by a majority of the health and safety representatives at the mine.

[6.10-Section 34(4) requires the employee representatives on health and safety committees to be appointed by the health and safety representatives.]

Period of office

6.11(1) The period of office of any health and safety representative or employee representative on a health and safety committee is three years.

6.11(2) Despite regulation 6.11(1) the health and safety committee may determine shorter periods of office for-

- (a) health and safety representatives;
- (b) full-time health and safety representatives; and
- (c) employee representatives on a health and safety committee.

6.11(3) Every health and safety representative and employee representative on a health and safety committee may be reappointed in accordance with the provisions of these regulations after the expiry of their periods of office.

Vacation of office and filling of vacancies

6.12(1) A *health and safety representative* must vacate office on expiry of that representative's period of office or if-

- (a) the representative-
 - (i) no longer satisfies the qualifications contemplated in section 28(1); or

- (ii) resigns as a health and safety representative; or

- (b) so required in writing on the grounds that the representative has not properly performed the functions of a health and safety representative by-

- (i) at least 50% of the employee representatives on the health and safety committee; or

- (ii) at least 50% of the employees who work on the same shift at the designated working place as the health and safety representative.

6.12(2) A full-time health and safety representative must vacate office on expiry of that representative's period of office or if-

- (a) the representative-

- (i) no longer satisfies the qualifications contemplated in section 28(2); or

- (ii) resigns as full-time health and safety representative; or

- (b) so required in writing on the grounds that the representative has not properly performed the functions of a full-time health and safety representative by-

- (i) at least 50% of the employee representatives on the health and safety committee; or

- (ii) at least 50% of the employees.

6.12(3) The manager must within 7 days from the time when a health and safety representative must vacate office in terms of regulation 6.12(1) or (2), terminate the health and safety representative's appointment and in writing notify the health and safety representative of it.

6.12(4) A vacancy contemplated in regulation 6.12(1) or (2) must be filled by a health and safety representative elected in a by-election held in terms of regulation 6.7 or 6.8, as the case may be.

6.12(5) An employee representative on a health and safety committee must vacate office on the committee on expiry of such representative's period of office of it *[sic]* that representative-

- (a) is removed from office by a majority vote of employee representatives on the health and safety committee on grounds that the representative has not properly performed the functions of an employee representative on the health and safety committee; or

- (b) resigns as employee representative on the health and safety committee.

6.12(6) A vacancy contemplated in regulation 6.12(5) must be filled by an employee appointed in terms of regulation 6.10.

(Chapter 6 substituted by regulation 2 of Government Notice R846 in Government Gazette 18078 dated 21 June 1997)

CHAPTER 7

INSPECTORATE OF MINE HEALTH AND SAFETY

Qualifications of inspectors

7.1 An officer must comply with the appointment requirements of the Personnel Administration Standard for the Occupational Class: Inspector: Mines or the Occupational Class: Inspector: Mining Machinery approved by the Public Service Commission read in conjunction with Public Service Staff Code K.II/I to be appointed as an inspector on the establishment of the Mine Health and Safety Inspectorate.

Authorisation certificate

7.2(1)

- (a) The Chief Inspector must issue each inspector appointed in terms of section 49(1) with a certificate DME 34 signed by the Chief Inspector.
- (b) The certificate which must include the names, identification number and a photograph of the inspector, must indicate-
 - (i) the position in which the inspector is employed; and
 - (ii) that the inspector may, in terms of section 50(1), enter any mine for the purposes of monitoring or enforcing compliance with this Act.

[7.2(1)-Section 49(2) requires the Chief Inspector to issue a prescribed certificate to each inspector.]

7.2(2)

- (a) The Chief Inspector must issue each person authorised under section 49(4)(b) with a letter of authorisation and a certificate DME 35 signed by the Chief Inspector.
- (b) The letter of authorisation must include-
 - (i) the names of the person;
 - (ii) the functions to be performed by the person;
 - (iii) the area in which the functions will be performed; and

- (iv) the period for which the person is authorised.
- (c) The certificate, which must include the names, identification number and a photograph of the authorised person, must indicate that the person-
 - (i) is appointed to perform the functions of an inspector as indicated in the letter of authorisation; and
 - (ii) may, in terms of section 50, enter any mine to perform such functions.

[7.2(2)-Section 49(5) requires the *Chief Inspector* to issue a prescribed certificate to each person authorised to perform the functions of an inspector.]

7.2(3) Every *inspector* appointed or person authorised under section 49(1) or 49(4) as the case may be, must at all times when entering, or performing any function at any mine-

- (a) carry on their person, certificates DME 34 or 35 and the letter of authorisation issued in terms of regulation 7.2(2), as the case may be; and
- (b) must show such certificate and letter to the manager of the mine or the person in charge of any working place at the mine, if requested to do so.

7.2(4)

- (a) Despite regulations 7.2(1) to (3) the *Principal Inspector of Mines* may issue a letter, signed by the Principal Inspector of Mines to any inspector appointed or person authorised under section 49(1) or 49(4), as the case may be, who for any reason is not in possession of a certificate DME 34 or 35.
- (b) The letter issued under regulation 7.2(4)(a) must include the names of the inspector or person and the official stamp of the office of the Principal Inspector of Mines and must state that the inspector or person is duly appointed or authorised under section 49(1) or 49(4), as the case may be.
- (c) Regulation 7.2(3) is applicable to a letter issued under regulation 7.2(4).

7.2(5) A certificate DME 34 of [sic] 35 or a letter contemplated in regulation 7.2(4) is deemed to be adequate proof of an appointment or authorisation under section 49(1) or 49(4), as the case may be.

(Chapter 7 substituted by regulation 3 of Government Notice R846 in Government Gazette 18078 dated 21 June 1997)

CHAPTER 8

MACHINERY AND EQUIPMENT

Air Compressors

8.1(1) The employer must ensure, in the case of air compressors with a free delivery in excess of 0,15 cubic metres per second and where compression takes place in the presence of lubricating oil, that the compressor is fitted with automatic means of limiting the operating temperature and pressure of the compressor to a safe level.

(Regulation 8.1 inserted by Government Notice R1579 in Government Gazette 24168 dated 13 December 2002)

Underground Railbound Transport

8.2 The employer must take reasonable measures to ensure that:

8.2(1) the **braking system** of every **locomotive** or **train** is capable of stopping the **locomotive** or **train** within a safe distance under all operating conditions;

8.2(2) the **braking system** of every **locomotive** has passed a **dynamic type test** under full load conditions, before being used for the first time and after any brake design modifications;

8.2(3) the **braking system** of every **locomotive** has passed a **static test** before the **locomotive** is put into use at the commencement of each shift, after repairs and after adjustments;

8.2(4) a system is in place to alert persons to the presence and direction of travel of any **locomotive** or **train**,

8.2(5) a system is in place to assist the driver or operator of a **locomotive** or **train** to travel at a safe speed;

8.2(6) any **rolling stock** used for the transportation of persons is approved, by a competent person and is operated and maintained safely;

8.2(7) a system is in place that is capable of preventing any **locomotive** or **train** from inadvertently being set in motion.

8.3 No person may board or alight from a **locomotive** or **train** while it is in motion.

REPEALS

The following regulations made under the Minerals Act, in force in terms of item 4 of Schedule 4 of the Act, are hereby repealed

18.1.1	18.1.2(b)	18.1.2(d)(i)	18.1.3
18.1.2	18.1.2(c)	18.1.2(d)(ii)	18.1.4
18.1.2(a)	18.1.2(d)	18.1.2(d)(iii)	18.1.5

18.1.6

18.1.6(a)

18.1.6(b)

18.2.2.1

18.2.2.1(a)

18.2.2.1(b)

18.2.2.2

18.3.3

18.3.4

18.4.1.1

18.4.1.2

18.4.1.3

18.4.2.1

18.4.2.2

18.6.1

18.6.2

18.7.1

18.7.2

18.7.2(a)

18.7.2(b)

18.7.2(c)

18.7.2(d)

18.7.2(e)

18.7.2(f)

18.8.3

18.8.4.1

18.8.5

18.8.6

18.8.7.1

18.8.7.1(a)

18.8.7.1(b)

18.8.7.2

18.8.7.3

*(Regulations 8.2 and 8.3 inserted by the Schedule in Government Notice R583 in Government Gazette 26333 dated 14 May 2004. **Publishers note:** The notice states the following: "The regulations in the Schedule shall not be applicable to underground endless rope haulage installations, monorail installations, chairlift installations, overhead cranes and crawls, railbound equipment used in shafts, winders and raises, lifting machines, stackers and reclaimers.")*

Scraper Winch and Mono-Rope installation

8.4(1) The employer, at every mine where scraper-winches or mono-rope winches are operated, must take reasonable measures to prevent persons from being injured as a result of-

- (a) any person coming into contact with any moving part of a scraper winch or mono-rope winch installation or any equipment attached thereto; and
- (b) the scraper winch or mono-rope winch installation being unsafe.

8.4(2) The measures to be taken by the employer in terms of regulation 8.4(1) must include measures to ensure that-

- (a) scraper-winches and mono-rope winches are only operated by competent persons authorized by the employer to do so;
- (b) the scraper winch or mono-rope winch is not operated until it is examined and declared safe to operate by a person authorised to do so by the employer;
- (c) means are provided to forewarn persons of the intention to commence operating any scraper-winch or mono-rope winch;
- (d) means are provided for persons to signal to the operator, from any access point to the installation, to shut down the operation of the scraper-winch or mono-rope winch installation;
- (e) scraper winch and mono-rope winch ropes, scraper attachments and rope splicing are regularly inspected;
- (f) the scraper winch ropes are always underlay;
- (g) a written procedure is prepared and implemented for the installation of the winch system, covering at least-
 - (i) the requirements of scraper and mono-winch foundations and installations;
 - (ii) the crossover and anti-fouling arrangements of ropes from two or more winches;

- (iii) illumination of the moving parts of any winch so that they can be identified by persons;
- (iv) appropriate sheave and return pulley anchor and rigging arrangements, including the use of safety slings;
- (v) measures to ensure that winch ropes are used within the design capacity;
- (vi) winch starter box location to ensure ease of operation by the operator; and
- (vii) the moving and transport of winches from one location to another.

(Regulation 8.4 inserted by Government Notice R1225 in Government Gazette 28333 dated 15 December 2005)

Lifting Equipment Regulations

Definitions

For purposes of regulation 8.5, unless the context otherwise indicates -

“Lifting equipment,” means any equipment or machine or arrangement of equipment or machines intended or used for the lifting, lowering, suspension, or moving in suspension of any person or load.

“Lifting tackle,” means any attachment, including anchoring points, used to secure lifting equipment or a load to lifting equipment.

8.5(1) The employer must take reasonable measures to ensure that no person is injured due to the failure of any lifting equipment or lifting tackle as a result of-

- (a) incorrect design for the intended application;
- (b) incorrect installation; or
- (c) insufficient maintenance.

8.5(2) The employer must take reasonable measures to ensure that the installation, use (including the transport of persons), maintenance, inspection, testing and keeping of records of lifting equipment and lifting tackle are done in accordance with a written operating procedure prepared and implemented for that purpose.

8.5(3) The employer must take reasonably practicable measures to ensure that -

- (a) only lifting equipment and lifting tackle with a minimum factor of safety of four (4) is used;
- (b) lifting equipment and lifting tackle are not used beyond their design capacity; and
- (c) the safe working load of any lifting equipment and lifting tackle is conspicuously and clearly marked or indicated thereon.

8.5(4) Notwithstanding regulation 8.5(2), the employer must take reasonably practicable measures to ensure that the following lifting tackle has a minimum factor of safety of-

- (a) ten (10) for natural fiber ropes;
- (b) six (6) for steel wire ropes, man-made fiber ropes and textile webbing; and
- (c) four (4) for high tensile steel chains.

8.5(5) The employer must take reasonable measures to ensure that only persons authorised in writing by the employer to do so, operate lifting equipment and lifting tackle.

8.5(6) The employer must take reasonably practicable measures to ensure that the lifting equipment used at the mine is designed and manufactured in accordance with an appropriate standard.

(Regulation 8.5(6) amended by GNR 90 in Government Gazette 30698 dated 1 February 2008)

8.5(7) The following regulations promulgated under Minerals Act, 1991 (Act No. 50 of 1991) in force in terms of item 4 of Schedule 4 of the Act, are hereby repealed-

Chapter 6	Chapter 16	Chapter 19
6.1.1	16.98	19.1
6.1.2	16.98.1	19.2.1
6.1.3	16.98.2	19.2.2
6.2.1	16.98.3	19.3.1
6.2.2	16.98.4	19.3.2
6.2.3	16.98.5	19.3.3
6.2.4	16.99	19.3.4
6.2.5	16.100	19.4
6.3.1	16.101	19.5
6.3.2	16.102	19.6

6.3.2.1	16.103	
6.3.2.6	16.103.1	
6.3.2.7	16.103.2	
6.3.2.8	16.104	
6.3.2.12		
6.3.3.1		
6.3.3.2		
6.3.3.3		
6.3.3.4		
6.3.3.5		
6.3.3.6		
6.9		
6.11		

(Regulation 8.5(7) deleted and substituted by GNR 90 in Government Gazette 30698 dated 1 February 2008)

(Regulation 8.5 inserted by Government Notice R1225 in Government Gazette 28333 dated 15 December 2005)

Fans

Definitions

For purposes of regulation 8.6, unless the context otherwise indicates -

“booster fan” means a fan installed underground in the main air stream or in a split of the main air stream to assist the main fan to increase airflow and/or overcome resistance through a section of a mine.

“main fan” means a fan that controls the entire air flow of a mine, or the airflow of one or more of the major air circuits.

8.6(1) The employer must take reasonable measures to ensure that combustible materials, explosives or natural vegetation are not located so near to fan installations and its switch-gear used for underground ventilation, that if such combustible materials, explosives or natural vegetation catch fire, there is a significant risk to the supply of clean air to any underground working place as a result of-

- (a) the fan installation or its switch-gear being damaged; or

- (b) smoke or fumes being drawn into any working place.

8.6(2) The employer must ensure, where a significant risk of an explosion of flammable gas or coal dust exists, that measures are in place to ensure that there is always a supply of clean air to all underground working places. Such measures must include:

- (a) installing the main fan on surface;
- (b) providing an effective means of protecting the main fan against damage caused by explosion;
- (c) ensuring the main fan is readily accessible to effect emergency repairs; and
- (d) having a back up system in place to provide clean air should the main fan become inoperative.

8.6(3) The employer must ensure, as far as reasonably practicable, that every main fan is provided with:

- (a) an automatic means of alerting a responsible person should it stop or cease to operate;
- (b) an effective means of giving early warning of defective operation;
- (c) a power supply from two different sources or networks, which can include an emergency supply alternator / generator, for power supply in the event of an interruption to the normal power supply; and
- (d) an effective means for safe entrance to and exit (escape) from the main fan housing.

8.6(4) The employer must take reasonable measures to ensure that a competent person examines every main and booster fan for effective operation, internally and externally, together with all appurtenant components that are necessary for the operation of the fan, at intervals not exceeding three months, or any other lesser interval determined by the mine's hazard identification and risk assessment in terms of section 11.

8.6(5) The employer must keep records of all examinations conducted in terms of regulation 8.6(4), including remedial measures taken, for a period of at least the most recent ten years of the fan installation.

8.6(6) The employer must take reasonable measures to ensure that all main and booster fans are installed, operated and maintained in accordance with a written procedure prepared and implemented for that purpose.

(Regulation 8.6 inserted by the Schedule in Government Notice 911 in Government Gazette 29214 dated 8 September 2006)

Refrigeration and Air-conditioning Installations

8.7(1) The employer must take reasonable measures to ensure that all refrigeration or air-conditioning installations at the mine comply with the requirements of the South African Bureau of Standards Code of Practice - SANS 10147, "Refrigerating systems including plants associated with air-condition systems" (2002: 4th ed) with respect to its safety, construction, erection, operation, inspection and testing.

8.7(2) The employer must take reasonable measures to ensure that a competent person examines and operationally tests the entire refrigeration system as contemplated in SANS 10147, excluding pressure relief devices, at least once every 3 (three) months.

8.7(3) Regulation 8.7(1) and 8.7(2) do not apply to any;

- (a) household refrigerator;
- (b) water cooler or similar equipment that contains less than 1 kg of refrigerant;
- (c) unit type display counter or any commercial refrigerator that contains less than 15 kg of a group 1 refrigerant; and
- (d) refrigeration plant that requires a prime mover of less than 10 kW or less.

8.7(4) Despite Regulation 8.7(3) the clauses in SANS 10147 that refer to the Montreal Protocol apply to all air-conditioning and refrigeration equipment.

8.7(5) The normative references in the above standard of SANS 10147 are not applicable to the employer.

Repeal

8.7(6) The following regulations made under the Minerals Act, 1991 (Act No. 50 of 1991) in force in terms of Schedule 4 of the Act are hereby repealed-

Chapter 10	Chapter 23
10.13	23.15.1
10.13.1	23.15.2
10.13.2	23.15.3
10.13.3	23.15.4
10.13.4	23.15.5
10.14	23.15.6
10.14.1	23.15.7
10.14.2	23.15.8

10.14.3	23.15.9 23.15.11 23.15.12 23.15.13 23.15.14 23.15.15 23.15.16
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(Regulation 8.7 inserted by the Schedule in Government Notice 911 in Government Gazette 29214 dated 8 September 2006)

General Machinery Regulations

8.8(1) The employer must take reasonably practicable measures to prevent persons from being injured as a result of them, the clothes being worn by them or any equipment being held by them coming into contact with or being drawn into any moving part of any machine.

8.8(2) The employer must take reasonably practicable measures to prevent persons from being injured because of any machinery failing as a result of-

- (a) incorrect design;
- (b) incorrect installation;
- (c) poor maintenance; or
- (d) incorrect use or non-compliance with proper operating or safety procedures.

8.8(3) The measures to be taken by the employer in terms of regulation 1 must include measures to ensure that-

- (a) only persons authorized by the employer to do so, start operate and maintain any machine where such starting, operation or maintenance may pose a significant risk to any person;
- (b) where the moving of machinery may pose a significant risk to any person, such machinery is only moved under the constant supervision of a competent person who is fully aware of the risks attached to such moving of the machinery;
- (c) only persons authorised by the employer to do so enter any area where machinery is operated, where such operation may pose a significant risk to any person;
- (d) machinery is only operated if all installed safety devices are operational and functional;

- (e) persons in close proximity to moving parts of machinery do not wear or are not permitted to wear clothing or anything else that can be caught in such moving parts;
- (f) where the unexpected moving of any machinery or any part of any machinery could pose a significant risk to any person, appropriate pre-start warning devices, such as audible warning devices, the delay time must be determined by risk assessment with a minimum of a ten second time delay, are fitted to such machinery and used to warn persons that such machinery is about to be set in motion;
- (g) here there could be a significant risk to any person working on any machinery due to the release from such machine of any mechanical, electrical, hydraulic, chemical or other source of energy, a written lockout procedure is prepared and implemented to ensure that such source of energy is effectively locked out and de-energised before any person works on such machinery;
- (h) access scaffolding is erected, used, maintained and dismantled safely and in accordance with SANS Standard 10085-1:2004 "The design, erection, use and inspection of access scaffolding".
- (i) means are provided, on or in close proximity to any machine, to immediately remove the source of power to that machine in case of an emergency;
- (j) where the starting of machines are interlocked, no unintended starting of any of those machines can take place;
- (k) starting devices are so arranged that no accidental starting of machinery can take place; and
- (l) all electrical, pneumatic and hydraulic portable equipment are operated and maintained in a safe working order;

8.8(4) The measures to be taken by the employer to prevent any person from coming into contact with any moving part of machinery or any equipment attached thereto, must include-

- (a) effective physical barriers at the machinery such as screening, guarding or fencing; or
- (b) failsafe electric or electronic barriers interlocked with the machinery in such a way that the machinery would be stopped before persons come into contact with moving machinery or parts thereof; or
- (c) effective barriers at a safe distance away from any machinery.

8.8(5) The employer must take reasonably practicable measures to ensure that:

- (a) when a compression ignition engine system is found to have any defect which may cause a significant risk to the safety or health of persons, the use of such engine system is discontinued immediately;
- (b) all services, maintenance and repairs to diesel-powered equipment are performed by a competent person;
- (c) all areas where diesel fuel is stored and where fuelling is carried out are clearly marked and that measures are in place to prevent spillage, contamination and fire, including that –
 - (i) diesel engine fuel is delivered underground in such a way that no spillage takes place during delivery;
 - (ii) when fuel is piped underground fuel delivery pipes are drained each time after use;
 - (iii) fuel is stored underground only in non-flammable robust containers which do not leak; and
 - (iv) the quantity of fuel stored underground is limited to 3 (three) day's estimated consumption.

8.8(6) The employer must take reasonably practicable measures to ensure that every mobile diesel engine powered unit, when not in use, is kept at a location that is sufficiently ventilated to prevent a build up of diesel fumes in the air at that location sufficient to cause a significant risk when starting up that engine.

8.8(7) The employer must take reasonably practicable measures to ensure that all areas where diesel fuel is stored are clearly indicated on the mine's rescue plan contemplated in regulation 17(19).

(Regulation 8.8 inserted by Government Notice R93 in Government Gazette 30698 dated 1 February 2008)

CONVEYOR BELT

Definitions

For purposes of regulation 8.9, unless the context otherwise indicates -

“conveyor belt installation” means a mechanical system used for the transportation of minerals, material, or persons on a belt.

“designated sections” means the drive section, take up tension section, snub pulley sections, transfer point sections and tail pulley sections.

(Definition of “designated sections” inserted by Regulation 1(a) of Government Notice R622 in Government Gazette 36761 dated 23 August 2013)

“power supply” means any energy source feeding the drive motor of a conveyor belt installation

8.9(1) In compliance with regulation 8.8(1) the employer must ensure that -

- (a) the designated sections of a conveyor belt installation are to be guarded, as per regulation 8.8(4) and not cleaned when any of its parts are in motion; provided that washing with pressurized water from a safe distance outside the guarded area may be carried out, subject to regulation 8.9(1)(i);

(Regulation 8.9(1)(a) substituted by Regulation 1(b) of Government Notice R622 in Government Gazette 36761 dated 23 August 2013)

- (b) the power supply and all sources of stored energy of a stationary conveyor belt installation are isolated, made safe and locked-out during either repairs, maintenance or cleaning of spillage in the designated sections; provided that the alignment and training of a conveyor belt installation may be carried out whilst the belt is in motion subject to it being carried out in accordance with a procedure prepared and implemented for this purpose;

(Regulation 8.9(1)(b) substituted by Regulation 1(c) of Government Notice R622 in Government Gazette 36761 dated 23 August 2013)

- (c) the driving machinery of the conveyor belt installation can be stopped by any person from any point, along its length where access to the belt is possible;

- (d) the driving machinery of the conveyor belt installation is stopped should the belt break, jam or slip excessively;

- (e) persons are prevented from entering any side of a conveyor belt installation, unless means have been provided to do so safely;

(Regulation 8.9(1)(e) substituted by Regulation 1(d) of Government Notice R622 in Government Gazette 36761 dated 23 August 2013)

- (f) one or more devices are fitted and used to give all persons at any point where access to the conveyor belt installation is possible sufficient prior warning for a period to be determined by the mines risk assessment with a minimum period of 10 seconds that any part of such a conveyor belt installation is about to be put into motion;

- (g) the take up or belt tensioning device will not move when repairs, routine cleaning, cleaning of spillage, maintenance at the belt tensioning device or belt splicing is carried out;

(Regulation 8.9(1)(g) substituted by Regulation 1(e) of Government Notice R622 in Government Gazette 36761 dated 23 August 2013)

- (h) where two or more conveyor belt installations are used in series, sequence interlocking is provided which automatically will, except when approved maintenance specific procedures are carried out that require an independent conveyor test run-

(aa) stop all conveyor belt installations feeding a conveyor belt installation that has stopped; and

(bb) prevent a conveyor belt installation from starting until the conveyor belt installation onto which it feeds is running;

(Regulation 8.9(1)(h) substituted by Regulation 1(f) of Government Notice R622 in Government Gazette 36761 dated 23 August 2013)

(i) only persons authorized to do so by the employer operate, maintain, clean and repair a conveyor belt installation; and provided that any routine cleaning outside the designated sections of the conveyor section of the belt is carried out in accordance with a procedure prepared and implemented for this purpose;

(Regulation 8.9(1)(i) substituted by Regulation 1(g) of Government Notice R622 in Government Gazette 36761 dated 23 August 2013)

(j) the belt of any conveyor belt installation is installed in such a way that no uncontrolled run away can occur; and

(Regulation 8.9(1)(j) substituted by Regulation 1(h) of Government Notice R622 in Government Gazette 36761 dated 23 August 2013)

(k) the overall structural design of every conveyor belt installation is approved by a competent person.

8.9(2) The employer must take reasonably practicable measures to prevent persons from being injured by material or mineral falling from a conveyor belt installation, which measures must include the fitting and use of one or more devices to prevent run-back or run-on when such conveyor belt installation is stopped.

(Regulation 8.9(3) substituted as 8.9(2) by Regulation 1(i) of Government Notice R622 in Government Gazette 36761 dated 23 August 2013)

8.9(3) The employer must take reasonably practicable measures to prevent persons from being exposed to flames, fumes or smoke arising from a conveyor belt installation catching fire, including instituting measures to prevent, detect and combat such fires.

(Regulation 8.9(4) substituted as 8.9(3) by Regulation 1(j) of Government Notice R622 in Government Gazette 36761 dated 23 August 2013)

8.9(4) The employer must take reasonably practicable measures to prevent persons from being injured as a result of the breaking, misalignment or damage of conveyor belting due to any mineral, material or coal dust accumulating on or around the moving parts of any conveyor belt installation.

(Regulation 8.9(5) substituted as 8.9(4) by Regulation 1(k) of Government Notice R622 in Government Gazette 36761 dated 23 August 2013)

8.9(5) The employer must take reasonably practicable measures to prevent persons at or near conveyor belt installations from being injured due to lightning directly or indirectly striking the installation.

(Regulation 8.9(6) substituted as 8.9(5) by Regulation 1(l) of Government Notice R622 in Government Gazette 36761 dated 23 August 2013)

8.9(6) The employer must take reasonably practicable measures to ensure that the use, operation and inspection of man-riding conveyors comply with SANS 10266: 2006- Edition 1 "The safe use, operation and inspection of man-riding belt conveyors in mines".

(Regulation 8.9(7) substituted as 8.9(6) by Regulation 1(m) of Government Notice R622 in Government Gazette 36761 dated 23 August 2013)

8.9(7) The normative references in SANS 10266: 2006 are not applicable to the employer.

(Regulation 8.9(8) substituted as 8.9(7) by Regulation 1(n) of Government Notice R622 in Government Gazette 36761 dated 23 August 2013)

8.9(8) The employer must take reasonable measures to ensure that the functionality of the devices contemplated in regulation 8.9(1) (c) and (f) and of any other safety devices relating to the conveyor belt installation are tested-

- (a) once a week not exceeding ten days, where such devices are in the designated sections;
- (b) every three months where such devices are outside of the designated sections; and
- (c) immediately after any belt extension or shortening thereof has taken place.

(Regulation 8.9(9) substituted as 8.9(8) by Regulation 1(o) of Government Notice R622 in Government Gazette 36761 dated 23 August 2013)

8.9(9) The employer must ensure that a written procedure is prepared and implemented for conveyor belt splicing, joining and repairing and for the safe use of chemicals during such splicing, joining and repairing.

(Regulation 8.9(10) substituted as 8.9(9) by Regulation 1(p) of Government Notice R622 in Government Gazette 36761 dated 23 August 2013)

(Regulation 8.9 inserted by Government Notice R93 in Government Gazette 30698 dated 1 February 2008)

8.10 TRACKLESS MOBILE MACHINERY

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.

(Commencement date of regulation 8.10.1.2(b): 21 December 2022)

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.

(Commencement date of regulation 8.10.2.1(b): 21 December 2022)

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.

(Regulation 8.10 added by Government Notice R125 in Government Gazette 38493 dated 27 February 2015. Commencement date: 27 May 2015 (with the exception of sub-regulations 8.10.1.2(b) and 8.10.2.1(b))

8.11 Lifts

Definitions

For purposes of regulation 8.11, unless the context otherwise indicates—

Lift means any installation used or intended to be used for the conveyance of persons, material, explosives or minerals by means of a car fitted with safety catches running on fixed solid guides and serving defined levels, where the control system of the driving machine is not normally operated manually from the motor or engine room;

material means whatever may be conveyed by means of a winding plant, lift or self-propelled mobile machine, excluding persons, minerals and explosives;

explosive means—

- a) a substance, or mixture of substances, in a solid or liquid state, which is capable of producing an explosion;
- b) a pyrotechnic substance in a solid or liquid state, or a mixture of such substances, designed to produce an effect by heat, light, sound, gas or smoke, or a combination of these, as the result of non-detonative self-sustaining exothermic chemical reaction, including pyrotechnic substances which do not evolve gases;
- c) any article or device containing one or more substances contemplated in paragraph (a); or

d) any other substance or article which the relevant Minister may from time to time by notice in the Gazette declare to be an explosive in terms of the Explosive Act, Act No 15 of 2003;

recoverable recordable system means any recordable system that will retain the data captured therein indefinitely and which—

- a) captures the time and date of every entry, name and signature of every person making an entry;
- b) allows for the retrieving of all data captured;
- c) incorporates measures to prevent unauthorised changes to any captured data;
- d) is auditable; and
- e) in the case of an electronic system, is backed up at least weekly.

Supervision by a competent person

8.11.1 The employer must take reasonable measures to ensure that lifts are installed, modified, operated and maintained under the supervision of a competent person.

Lift particulars to be sent to the Principal Inspector

8.11.2 The employer must take reasonable measures to ensure that the Principal Inspector of Mines is notified:

- (a) on form DMR 298 lift particulars prescribed in Chapter 21, of the required particulars of the lift prior to the commencement of:
 - (i) its installation;
 - (ii) major modifications to the lift as defined in the relevant standard referred to in regulation 8.11.5; or
 - (iii) its decommissioning, either after having been extended, relocated or not being used for a continuous period of six (6) months.
- (b) In writing within 30 days if any lift has been decommissioned or has not been used for more than six (6) consecutive months.

Lift particulars to be available

8.11.3 The employer must take reasonable measures to ensure that a copy of any notification contemplated in regulation 8.11.2 is kept readily available at the mine.

Permit issued prior to the enactment of these regulations to be kept

8.11.4 Any employer, using a lift for which a permit was issued by the Principal Inspector of Mines prior to enactment of these regulations, must take reasonable measures to ensure that such permit is kept readily available at the mine.

Construction, installation and commissioning of lifts

8.11.5 The employer must take reasonable measures to ensure that every lift is constructed, installed and commissioned in accordance with the following South African Bureau of Standards Specifications, where applicable:

- (a) SANS 1545 - 1:2014 Safety rules for the construction and installation of lifts.
Part 1 - Electric Lifts;
- (b) SANS 1545 - 2:2009 Safety rules for the construction and installation of lifts.
Part 2 - Hydraulic lifts;
- (c) SANS 1545 - 5:2007 Safety rules for the construction and installation of lifts.
Part 5 - Access goods only lifts;
- (d) SANS 1545 - 6:2014 Safety rules for the construction and installation of lifts.
Part 6 - Rack and Pinion lifts;
- (e) SANS 4344:2004 Steel wire ropes for lifts-Minimum requirements;
- (f) SANS 10360:2006 The maintenance and repair of electric and hydraulic powered lifts, escalators and passenger conveyors;
- (g) SANS 50081-1:2004/EN 91-1:2004
Safety rules for the construction and installation of lifts Part 1: Electric lifts;
- (h) SANS 50081-2:1998/EN 81-2:2000
Safety rules for the construction and installation of lifts Part 2: Hydraulic lifts;
- (i) SANS 50081-3:2005/EN 81-3:2000
Safety rules for the construction and installation of lifts Part 3: Electric and hydraulic service lifts;
and

- (j) SANS/ISO/TS 14798 2009
Lift (elevators), escalators and passenger conveyors- Risk analysis methodology.

8.11.6 The normative references in the SANS standards listed in 8.11.5 are not applicable to the employer.

Examination and testing of lifts

8.11.7 The employer must take reasonable measures to ensure that a written procedure is prepared by a competent person and implemented for the examination, testing, repair and maintenance of every lift. Such procedure must take into account:

- (a) any original equipment manufacture's recommendations;
- (b) the relevant SANS standard; and
- (c) the site specific risks identified in terms of the mine's risk assessment.

8.11.8 The procedure contemplated in regulation 8.11.7 must provide for at least the following:

- (a) that a competent person examines and tests the entire lift installation at least once a month;
- (b) that a competent person examines at least once a calendar week the lift installation, well, guides, ropes and rope attachments, the driving machinery, the drums, sheaves, all safety devices and appliances to identify any deterioration of the components;
- (c) that records are kept readily available at the mine of the examinations carried out and of the competent persons who did the examinations; and
- (d) that a recoverable recordable system is established and maintained at the mine in which is captured details of all maintenance, repairs, testing, inspections and examinations of the lift installation and of the findings, which must be captured by the competent person who undertook the maintenance, repairs, inspections or examinations within 24 hours from completion of such maintenance, repairs, inspections or examinations.

8.11.9 The employer must take reasonable measures to ensure:

- (a) if as a result of examination, any weakness or defect is found which may pose a risk to the health or safety of any person, that the lift is not used until the defect has been rectified; and
- (b) when a landing door or other gate is required to be open while a lift is being examined, serviced, or repaired or while any other work is being done in the hatchway, that an effective barrier is provided and used to prevent inadvertent access to the hatchway.

Operating procedure

8.11.10 The employer must take reasonably practical measures to ensure that the simultaneous transportation of persons, equipment or material in a conveyance is carried out in accordance with an operating procedure prepared and implemented for that purpose.

Emergency preparedness

8.11.11 The employer must take reasonable measures to ensure that an emergency preparedness procedure is drawn up, after consultation with the lift manufacturer, for the rescue of persons trapped in a car in a lift well.

Flooding of lift well

8.11.12 The employer must take reasonable measures to ensure, where there is a risk of a lift well or shaft being flooded to a level that may pose a significant risk to persons travelling in the car, that measures are in place to prevent the car from entering any flooded area of the lift well or shaft.

8.11.13 The employer must take reasonable measures to ensure that any examination contemplated in regulation 8.11.8 is conducted in the presence of an Inspector if so requested in advance by the Principal Inspector of Mines.

(Regulation 8.11 added by Government Notice R894 (read with Government Notice R896) in Government Gazette 41065 dated 25 August 2017)

8.12 Chairlifts

Definitions

For purposes of regulation 8.12, unless the context otherwise indicates—

chairlift means any appliance or combination of appliances, excluding endless rope haulages and monoropes, used or intended to be used for the conveyance of any load, including persons, by means of:

- (i) chairs or other means of conveyances suspended from an endless hauling rope; or
- (ii) chairs or conveyances moved with a hauling rope or chain and running on a rope or in or on a rail circuit.

Supervision by a competent person

8.12.1 The employer must take reasonable measures to ensure that the installation, modification, operation and maintenance of every chairlift is under the supervision of a competent person.

Chairlift Particulars to be sent to the Principal Inspector

8.12.2 The employer must take reasonable measures to ensure that the Principal Inspector of Mines is notified:

8.12.2.1 on Form DMR 299 Chairlift particulars prescribed in Chapter 21, of the required particulars of every chairlift prior to commencement of:

- a) its installation;
- b) major modifications (as defined in SANS 273:2007 Edition 1 “The design, construction, maintenance and safe operation of chairlifts in mines”) to it; or
- c) its recommissioning, either after having been extended, relocated or not being used for a continuous period of six (6) months.

8.12.2.2 in writing within 30 days if any chairlift has been decommissioned or has not been used for more than six (6) consecutive months.

Chairlift Particulars available

8.12.3 The employer must take reasonable measures to ensure that a copy of the notification as contemplated in regulation 8.12.2.1 is kept readily available at the mine and is also displayed where it can be seen by users of the chairlift.

Permit issued prior to enactment of these regulations to be kept and displayed

8.12.4 Any employer, using a chairlift for which a permit was issued by the Principal Inspector of Mines prior to enactment of these regulations, must take reasonable measures to ensure that such permit is kept readily available at the mine and that a copy of it is displayed where it can be seen by users of the chairlift.

Construction, installation and testing of chairlifts

8.12.5 The employer must take reasonable measures to ensure that every chairlift is constructed, installed, maintained and tested in accordance with SANS 273:2007 Edition 1 “The design, construction, maintenance and safe operation of chairlifts in mines”.

8.12.6 Any employer intending to install a chairlift of a design not covered by the scope of SANS 273:2007 Edition 1 may only do so with permission of the Chief Inspector of Mines and subject to such conditions as may be specified.

8.12.7 The normative references in the SANS standards in 8.12.6 are not applicable to the employer.

Examination and testing of chairlifts

8.12.8 The employer must take reasonable measures to ensure that a written procedure is prepared by a competent person and implemented for the examination, testing and maintenance of every chairlift. Such procedure must take into account:

- a) any original equipment manufacture's recommendations;
- b) SANS 273:2007 Edition 1 "Standard for the design, construction, maintenance and safe operation of chairlifts in mines"; and
- c) the site specific risks identified in terms of the mine's risk assessment.

8.12.9 The procedure contemplated in regulation 8.12.8 must provide for at least the following:

- a) that a competent person examines and tests the entire chairlift installation at least once a month;
- b) that the chairlift installation is functionally tested and examined at least once a week by a competent person(s);
- c) that if as a result of examination or test any weakness or defect is found which presents a significant risk to any person, the chairlift is not used until the defect has been rectified; and
- d) that a lock-out procedure is in place to remove the tension on the hauling rope before any repair or replacement on the drive system is undertaken.

Chairlift operation

8.12.10 The employer must take reasonable measures to ensure that only a competent person(s) operates any chairlift and does so in accordance with a written procedure prepared and implemented for this purpose. Such procedure must cover at least the following:

- a) loading and unloading of persons and other loads;
- b) stopping and starting;

- c) investigation and reporting of malfunctioning and corrective measures to be taken;
- d) initial examination before commissioning; and
- e) emergency procedures for persons to disembark in case of a trip out.

Chairlift installation where other traffic exists

8.12.11 The employer must take reasonable measures to ensure that, where a chairlift operates in the same excavation or close proximity to other traffic or moving equipment, a procedure is prepared and implemented to prevent persons from being injured by such traffic or moving equipment.

(Regulation 8.12 added by GNR 894 (read with Government Notice R896) in Government Gazette 41065 dated 25 August 2017)

8.13 Shafts and winders

Definitions

For purposes of regulation 8.13, unless the context otherwise indicates:

'Abnormally tight winding rope' means any load exceeding the total payload which includes the mass of the **suspended load** as prescribed on the winding plant permit;

'Approved winding rope testing station' means a testing station approved by the Chief Inspector of Mines for the destructive testing of ropes used in a winding plant;

'Attached load' means everything suspended from or attached to the winding rope and includes the portion of any balance rope and one half of any tail carriage and one half of any sheave which contributes to load at the termination of the winding rope;

'Attachments' include everything suspended from or attached to the conveyance other than the winding rope and includes any balance rope;

'Automatic winding plant' means a winding plant that is automatically operated;

'Balance winding rope' includes tail rope, balance rope or balance chain;

'Banksman' means a person stationed at the shaft top, who shall be the holder of an onsetter's certificate, appointed by the manager to supervise the loading and unloading of persons, material and explosives in the cage, skip, or other means of conveyance and to give the necessary signals;

'Drive' means, for the purpose of regulation 8.13.105, any action requiring skill whereby the control levers of the winding plant are manipulated in such a way that the winding engine moves in direct relation to the movement of the lever;

'Explosives' shall have the same meaning as is assigned to that term in the Explosives Act, 2003 (Act No. 15 of 2003);

'Effective length of rope' means the length of the winding rope from the clove hitch knot or on the drum over the sheave or drum in the headgear and the humble hook or attachment mechanism to the conveyance;

'Initial breaking strength' means the maximum load capacity of a sample of a new rope as determined by the destructive testing in accordance with the applicable testing standards, at an approved winding rope testing station;

'Material' means whatever may be conveyed by means of a winding plant elevator or self-propelled mobile machine excluding persons, minerals and explosives;

'Nominal rope diameter' means the rope diameter specified by the manufacturer;

'Onsetter' means a person who shall be the holder of an onsetter's certificate issued by the Principal Inspector of Mines and appointed by the manager to have charge of a cage, skip or other means of conveyance underground in which persons, material, equipment and explosives are being raised or lowered and to give the necessary signals;

'Prescribed permit' means a winding plant permit prescribed by these regulations;

'Recoverable recordable system' means any recordable system that will retain the data captured therein indefinitely and which:

- (a) captures the time and date of every entry, name and signature of every person making an entry;
- (b) allows for the retrieving of all data captured;
- (c) Incorporates measures to prevent unauthorised changes to any captured data;
- (d) is auditable; and
- (e) in the case of an electronic system, is backed up at least weekly;

'Semi-automatic winding plant' means a winding plant that can be operated partly manually and automatically;

'Shaft' means any tunnel having a cross-sectional dimension of 3,7 metres or over and -

- (a) being inclined to the horizontal of 15 degrees or over; or
- (b) being inclined to the horizontal of less than 15 degrees but more than 10 degrees where the speed of traction may exceed two metres per second;

'Slack winding rope' means any loss of tension of the rope due to risk factors such as the obstruction of the free movement of the conveyance between highest and the lowest point of winding;

"Station level" means the bank and any level in a shaft, at which conveyances stop for the loading or unloading of persons, equipment, material, minerals or explosives;

'Shaft station' means the area surrounding the shaft at every station level and identified and demarcated as the shaft station by the employer;

'Suspended load' means the sum of the attached load and the mass of the effective length of rope;

'The Act' means the Mine Health and Safety Act, Act No. 29 of 1996, as amended;

'Winding cycle' means a full or partial return trip starting with a conveyance at the bank level and ending with the same conveyance returning to the bank level;

'Winding Engine Driver' means a person who is the holder of a Winding Engine Driver Certificate issued by the Chief Inspector of Mines and appointed by the manager for the purpose of safely transporting persons, material, equipment, mineral and explosives up and down the shaft;

'Winding plant' means any hoist or other appliance used or intended to be used for the conveyance of persons, material, explosives or mineral by means of a cage, skip or other means of conveyance in any shaft or winze where the control system of the driving machinery can normally be operated manually or automatically from the motor or engine room, but excluding any lift or elevator, lifting machine, endless rope haulage and scraper winch installation;

'Winze' means any tunnel having an inclination below the horizontal in the direction of working of more than 5 degrees and not included in the definition of "shaft".

Requirements for the Conveyance of persons in shafts and winzes

8.13.1 The manager of a mine shall not use a winding plant nor permit any other person(s) to use such winding plant unless that person is in possession of a prescribed permit or permission issued by a Principal Inspector of Mines.

- 8.13.2** No person shall ride, cause or permit any other person to ride in or on a conveyance operated by a winding plant, unless it is permitted by a prescribed permit or permission.
- 8.13.3** Every application for the use of a winding plant shall be made to the Principal Inspector of Mines according to the prescribed permit or permission.
- 8.13.4** The Principal Inspector of Mines may grant a permit or permission to use such winding plant, subject to conditions as he may specify.
- 8.13.5** The permit or permission shall be kept at the mine manager or engineer office and a legible and suitably protected copy thereof shall be displayed in the winding engine room.
- 8.13.6** The Principal Inspector of Mines may direct that any regulation to the Mine Health and Safety Act dealing with lifts or elevators shall apply to an automatic or semi-automatic winding plant by giving written notice to that effect to the manager, with specific reference to the regulation concerned, whereupon such regulation shall apply to such winding plant.
- 8.13.7** The manager of a mine must carry out specific or periodic tests or inspections of any winding plant as determined by the risk assessment, or when directed to do so by the Principal Inspector of Mines.
- 8.13.8** In calculating the total mass of persons to be conveyed in a winding plant, a minimum of 75 kilograms shall be allowed for each person.

Design of winding engine

- 8.13.9.** The winding engine shall be such that:

8.13.9.1 when running at various speeds with light or heavy loads it can be readily slowed and stopped and after being stopped it can be restarted immediately in either direction; and

8.13.9.2 it can lift the maximum unbalanced load on the drum from the bottom to the top of the shaft or winze.

Brakes and Holding power.

- 8.13.10** Each winding drum or winding sheave that is fitted with a braking system shall be provided with an adequate brake or brakes which shall be kept in proper working order.

8.13.10.1 For drum type of winding engines where the rope is securely attached to the winding drum the brake or brakes, without the assistance of any counterbalancing effect of any load supported

by the other drum, shall be capable of holding without slipping a load on the rope equivalent to the combined mass of:

- a) the conveyance and its attachments;
- b) the maximum permitted mass of mineral, or double the maximum permitted mass of persons, or the maximum permitted mass of material together with double the maximum permitted mass of persons when both material and persons are conveyed simultaneously, whichever is the greatest; and
- c) the mass of the rope between the sheave and the conveyance, when the conveyance is at a point in the shaft which produces the maximum static Torque or Amps on the brakes.

8.13.10.2 For a friction drive or sheave type winding engine where the rope or ropes are not securely attached to the winding drum or winding sheave, the brake or brakes shall be capable of holding without slipping the maximum static out-of-balance load which occurs when one of the conveyances, or where a counterpoise is used, the conveyance:

- a) is loaded with the permitted mass of mineral; or
- b) is loaded with double the mass of the permitted number of persons; or
- c) is loaded with double the permitted mass of material together with double the mass of the permitted number of persons when both material and persons are conveyed simultaneously; or
- d) is removed from its bridle.

8.13.11 All conveyances in the winding plant used for the regular transport of persons, including persons engaged in repairs or shaft work, shall be equipped with a means of removing persons from the shaft in case of an emergency.

8.13.12 Every winding drum shall have flanges or horns, and if conical or spiral, such other appliances to prevent the rope from slipping *off* or coiling unevenly.

8.13.13 For friction drive or sheave type winding engines, where no part of the rope is securely attached to the winding drum or sheave, there shall be no dangerous slipping of the rope on such drum or sheave under any possible working conditions.

8.13.14 Every winding drum at the driver's right-hand side, or where only one drum is used it shall have an overlay rope.

8.13.15 The reversing lever of every steam or air operated winding engine and the control lever of every electrically operated winding engine shall follow the overlay rope in the direction of travel.

8.13.16 Where a hand-operated brake lever is provided on any winding engine it shall be pulled towards the driver to apply the brakes.

8.13.17 The relief and throttle valve levers of every steam or air operated winding engine shall be in a central position.

8.13.18 The operating mechanism and locking device of the clutch of every winding drum shall be:

- a) provided with a locking arrangement which shall be used to prevent the inadvertent withdrawal of the clutch. If the clutch is not clearly visible from the driver's operating position, means shall be provided to indicate to the driver at all times the extent to which the clutch is engaged or disengaged; and
- b) of such a design that inadvertent creeping in of the clutch is prevented when the clutch is disengaged.

8.13.19 For every double drum winder of which one drum can be unclutched it shall be impossible to:

- a) unclutch any winding drum unless the brake or brakes of such drum are fully applied;
- b) release the brake or brakes of such drum until the clutch is fully engaged and securely locked;
- c) unclutch both drums at the same time; and
- d) exceed 2.5m per second when any one of the clutches are withdrawn.

8.13.20 All bolts and fittings of winding drums, brakes and clutches shall be rendered secure by means of suitable locking devices.

8.13.21 In addition to any marks on the drum or rope, every winding engine shall be provided with reliable depth indicators.

8.13.22 Where the length of wind below the uppermost landing place for persons exceeds 100 metres, adequate provision shall be made whereby the winding-engine driver is warned of the arrival of the ascending or descending cage, skip or other means of conveyance at a point in the shaft, the distance of which from the uppermost or lowest, landing place for persons is not less than the equivalent of three revolutions of the drum or sheave of the winding engine.

8.13.23 Every winding engine shall be fitted with at least one effective automatic overwind prevention device, as well as an effective automatic overspeed prevention device.

8.13.24 When the designed allowable speed of a winder is reduced due to site specific conditions, the over speed prevention device is set to suit the site-specific conditions.

8.13.25 The employer must install a device or combination of devices:

- a) that detect slack winding rope and abnormally tight winding rope conditions on every winding plant in which the rope is attached to the drum operating in a vertical shaft, excluding a shaft in the course of being sunk; and
- b) that must on detection of the slack winding rope and abnormally tight winding rope conditions either automatically halt all winding operations in the vertical shaft safely or warn all winding engine drivers operating in such shaft of such conditions.

8.13.26 The employer must establish an effective and safe procedure for rectifying any slack winding rope or abnormally tight winding rope conditions.

8.13.27 All winding operations in the vertical shaft:

- a) shall cease when any slack winding rope or abnormally tight rope condition occurs, except if such operations are necessary for rectifying such a slack winding rope or abnormally tight rope condition. In such an event, such operations shall be authorised by the appointed engineer except where the appointed engineer has been given a detailed and recorded report of the slack winding rope or abnormally tight winding rope condition by a responsible person appointed by the manager;
- b) may not resume unless the slack winding rope or abnormally tight rope conditions above have been rectified and the responsible appointed engineer is satisfied that winding operations may continue safely; and
- c) shall have a recoverable recordable system for the recording of all incidents relating to slack winding ropes and abnormally tight winding ropes.

8.13.28 The employer must take reasonably practicable measures to ensure that:

- a) a winder with a permitted speed exceeding 5 metres per second is equipped with a speed indicator and a recoverable recording device that records at least time and speed;
- b) the information recorded is kept readily available at the mine for a period of at least 30 days; and

- c) the speed indicator shall be so situated that the winding speed can be easily read at all times by the winding-engine driver from his operating position, and which speed indicator shall be used and maintained in efficient working order.

Statutory test for brakes

8.13.29 If the means of removing persons from the shaft is by means of emergency brake release, the braking system must be tested at intervals not exceeding 200 days.

8.13.30 At any speed above 2,5 m/s the maximum deceleration measured at the drum for a person ("men") and/or material winding plant must not exceed 4 m/s² and for a mineral winding plant ("rock") must not exceed 4,5 m/s².

Winder and shaft safety measures

8.13.31 No winding engine plant shall be operated in automatic mode when transporting persons, materials and explosives to underground workings if the winding engine driver is not in control of such winding engine plant and be seated on the foot plate at all times.

8.13.32 Regulation 8.13.31 shall not be applicable to a winding engine plant in automatic mode used solely for the purpose of transporting minerals.

8.13.33 No winding engine driver or any other person shall be allowed to be in charge of the winding engine if under the influence of intoxicants or is reasonably suspected of being under the influence of intoxicants.

8.13.34 No person shall tamper with or modify any safety devices of a winding engine plant without the prior written consent of the appointed engineer responsible for such affected winding engine plant. Provided that, if any repairs are conducted on such safety devices, they are recorded and reported to the appointed engineer by the quickest possible means.

8.13.35 No person shall repair, modify or maintain any winding engine plant including its safety devices at any time while there are persons inside the conveyance or who may be affected in the shaft barrel, shaft bottom or headgear except if such measures are necessary for the offloading of persons before fault finding is done.

Statutory requirements for winding ropes

8.13.36 Any newly installed winding rope, balance rope or guide rope and the rope connections of any such rope:

- a) must be carefully examined by the engineer and may not be used for the raising or lowering of persons until the conveyance loaded with the maximum permitted mass has been run for two complete test trips between the highest and lowest stopping places ordinarily in use; and
- b) must be magnetically tested or rope condition tested its entire length prior to the winding plant put into operation.

8.13.37 The engineer, in addition to recording the results, must record and sign the results of the examination immediately in the Winding Engine Driver's Logbook provided.

8.13.38 When any winding rope, balance rope or guide rope is installed or in use is replaced the particulars specified in the MD208 form (Notice of removal of ropes) must be submitted to the Principal Inspector of Mines.

8.13.39 In determining, the minimum allowable breaking strength of any rope used in a winding plant, the weight in Newtons of any mass carried by the rope must be obtained by multiplying this mass in kilograms by a factor of 9,8.

8.13.40 Where a conveyance is suspended by two or more winding ropes:

- a) such ropes must be of equal nominal rope diameter and approximate strength;
- b) arrangements must be made to equalize the tension in the ropes; and
- c) each winding rope must be assumed to carry an equal share of the attached load for purposes of calculating rope selection factors.

8.13.41 The condition of a winding rope or balance rope must be assessed in accordance with the *SANS10293: Condition Assessment of Steel Wire Ropes on Mine Winders*, as amended and the rope may not be used if the condition thus assessed at that point in the rope has reached the discard criteria.

8.13.42 Where a winding system operating in a vertical shaft and not using a balance rope is such that it allows for the periodic tensile testing of the winding rope, the winding rope must have an initial breaking strength of not less than:

- a) eight times the attached load; and
- b) four and a half times the suspended load.

8.13.43 Provided, where a winding system operating in a vertical shaft and not using a balance rope -

- a) allows for the periodic tensile testing of the winding rope; and

- b) complies with the *SANS10294: Performance, Operation, Testing and Maintenance of Drum Winders relating to Rope Safety*, as amended, the winding rope must have an initial breaking strength as specified in that standard.

8.13.44 Where a winding plant operating in an incline shaft allows for the testing of the winding rope, the winding rope must have a breaking strength not less than-

- a) ten times the incline component of the attached load; and
- b) five times the incline component of the suspended load.

8.13.45 Where a winding plant using a balance rope or ropes does not allow for the periodic tensile testing of the winding rope or ropes, the initial breaking strength of the rope must not be less than 8.1 times the suspended load, provided that this factor may be reduced by 0.00135 for every metre of the effective length of rope, but the factor must not be less than:

- a) 6,75 where the conveyance is suspended by a single winding rope; or
- b) 6,19 where the conveyance is suspended by 2 or 3 winding ropes; or
- c) 5,62 where the conveyance is suspended by 4 or more winding ropes,

Provided that where a winding system operating in a vertical shaft not using a balance rope allows the periodic testing of winding ropes as required and each conveyance is suspended by two or more ropes in conjunction to rope tension compensating system constructed in a way the failure of one rope will not result in momentary lowering of the force acting in any rope, breaking strength of ropes at installation must be specified or 0.95 times or whichever is the greatest.

8.13.46 The breaking strength of a guide rope used in a winding system must not be less than five times the combined weight of the rope and its tensioning weight.

8.13.47 Any rope which is used to raise or lower a stage in a shaft must have a breaking strength at installation of not less than 4,5 times the combined weight of the effective length of rope and its share of the attached load.

8.13.48 A sample of every winding rope in use must be cut from the end attached to the conveyance or counterweight at intervals not exceeding six months unless the winding system does not allow shortening of the winding rope. The length of the sample must be as specified by an approved winding rope testing station.

- 8.13.49** Where winding ropes are connected to a compensating sheave on the conveyance or counterweight, that part of the ropes that is in contact with the sheave must be cut off and the ropes re-terminated at intervals not exceeding three (3) months.
- 8.13.50** The manager must send the sample of a rope cut for tensile testing within two weeks to an approved winding rope testing station where the breaking strength and general condition must be determined.
- 8.13.51** For every tensile test carried out by the approved winding rope testing station, the manager must be provided with a certificate showing the results of the test performed.
- 8.13.52** If the sample of the winding rope received at the approved winding rope testing station is in a condition not permitting a satisfactory test, the manager must upon request of the approved winding rope testing station provide a new sample.
- 8.13.53** Except for friction drive or sheave type of winding engines, there shall not be less than three turns of rope upon the drum when the cage, skip or other means of conveyance is at the lowest point in the shaft or winze from which hoisting is carried out and the end of the rope where applicable shall be fastened securely round the arm or the shaft of the drum.
- 8.13.54** A spare rope which complies to these regulations shall be kept in reserve and readily available.

Requirements at shafts being sunk

- 8.13.55** For the purpose of work in a shaft, it shall not include work at the bottom of a shaft or winze in the course of being sunk.
- 8.13.56** The winding engine driver shall control the speed of the winding engine in such a manner as to ensure that when any bucket or other means of conveyance is approaching or passing through the stage, or the covering provided in accordance with the requirements of this regulation, it does so slowly and safely and that the crosshead is picked up or released, as the case may be, without shock.
- 8.13.57** The bucket or other means of conveyance shall not be lowered directly to the bottom of the shaft if men are present but shall be stopped by the winding-engine driver at least five metres above the bottom and shall not be lowered further until the signal has been given by one of the sinkers thereat.
- 8.13.58.1** In a vertical shaft where sets are used to support the guides, guides shall extend down to the lowest set which shall not be more than 15 metres from the bottom, and when winding is being done to the bottom the crosshead shall travel to the lowest set but one. In a vertical shaft where the guides are not supported by sets, the guides for conveyances shall extend down to 30 metres or less from the bottom, and when winding is being done to the bottom the crosshead shall travel to as near the end of the guides as is practicable.

8.13.58.2 Every vertical shaft or winze where a crosshead is used to guide the bucket or other means of conveyance, shall be equipped with:

- (a) an effective device so arranged as to prevent the bucket or other means of conveyance from being lowered below the shaft bank if it is unaccompanied by the crosshead; and
- (b) an effective device which will prevent the bucket or other means of conveyance and the crosshead from separating unintentionally anywhere in the shaft or winze, or which will automatically warn the winding engine driver should such separation take place.

8.13.58.3 No person shall work or be caused or permitted to work at the bottom of the shaft unless protected by an adequate covering extending over the whole area of such shaft, sufficient space only being left therein for the passage of any bucket, skip or other means of conveyance. In a vertical shaft such covering shall be situated not more than 25 metres from the bottom. In an inclined shaft such covering shall be situated not more than 30 metres from the bottom.

8.13.58.4 In a shaft or winze being sunk or equipped, clutching may be performed with a sinking platform winder with such persons on the sinking platform necessary to ensure that the operations are carried out safely.

Construction requirements of winding plant conveyances

8.13.59 Every cage used for the regular conveyance of persons shall be of substantial construction and shall be provided with a proper roof or cover and doors. The cage shall be enclosed in such a manner as to prevent any portion of the body of a person therein from accidentally coming into contact with the timbering or other equipment in the shaft or winze or the sides of the shaft or winze. The doors shall be securely attached to the cage and so arranged that they cannot be opened outwards or accidentally. Provision shall be made for adequate ventilation through the cage.

8.13.60 Every skip or kibble, used for the regular conveyance of persons in a vertical or steeply inclined shaft or winze shall be provided with a substantial roof or cover that will safeguard the occupants.

8.13.61 Every conveyance used for examining, repairing or doing other work in a vertical or steeply inclined shaft or winze shall be provided with a substantial roof or cover and shall be sufficiently enclosed to protect any person from accidentally falling out.

8.13.62 Where the roof or cover of a cage, skip or other means of conveyance is used as a platform for persons engaged in examining, repairing or doing other work in a vertical or steeply inclined shaft or winze, the persons so engaged shall be protected by a hood or cover immediately above them. Such hood or cover shall be removed as soon as this work is completed.

8.13.63 No trailer:

- (a) shall be used in a shaft or winze where persons are regularly conveyed;
- (b) shall be attached to a conveyance when such conveyance is used for transportation of persons; and
- (c) shall be used for the regular conveyance of persons, unless it is allowed by the permit issued in terms of these regulations: Provided that for the purpose of this regulation, 'trailer' shall mean any conveyance operated by a winding engine and which is attached to but not forming an integral part of the permanent conveyance, and of which the lateral movement is restrained by means of guide shoes or wheels running on or in guides or tracks.

Connection to winding plant conveyances

8.13.64 No rope, bar, link, chain or other connection shall be used for winding purposes unless it is of good quality and manufacture, free from any visible defect and of adequate calculated strength.

8.13.65 The connection between:

- (a) any winding rope and the cage, skip, bucket, kibble, or other means of conveyance or counterpoise;
- (b) any balance rope or tail rope and the conveyance or counterpoise; and
- (c) any connecting rope and the conveyance, any trailer or other attached conveyance;

shall be such that no accidental disconnection can take place.

8.13.66 At intervals of not more than six months the connections between:

- (a) any winding rope and the conveyance or counterpoise;
- (b) the conveyance and any trailer or other attached conveyance; and
- (c) any balance rope or tail rope and the conveyance or counterpoise,

shall be annealed or given proper heat treatment or shall be discarded and replaced. With connections of a class of steel approved by the Chief Inspector of Mines, the interval for heat treatment may be extended with the written permission of the Chief Inspector of Mines.

8.13.67 A proper record shall be kept by the responsible engineer of the non-destructive testing, refurbishment and working life of any part connecting the conveyance to the winding rope. All such connections and their component parts shall be marked clearly for the purpose of identification.

Winding plant signalling arrangements

8.13.68 The following standard code of signals shall be used and strictly observed where a winding plant is operated at a shaft or winze:

Knocks or rings-	
1	Raise when engine at rest.
1	Stop when engine in motion.
2	Lower.
3	Persons about to travel.
3	In reply: persons may continue to travel or may enter the cage or other conveyance for the purpose of travelling.
3	From engine driver when cage or other conveyance containing persons is brought to rest at a station: persons may leave the cage or other conveyance.
2 pause 2	From driver (clear signal requested): driver wishes to start the winding engine at his discretion.
	[Code of signal substituted by GN R2703 of 11 December 1981]
2 pause 2	To driver (clear signal): driver may start the winding engine at his discretion.
	[Code of signal substituted by GN R2703 of 11 December 1981]
2 pause 2 pause 2	From driver: persons must leave the conveyance.
2 pause 2 pause 2	In reply: no persons in conveyance.
2 pause 2 pause 2 pause 2	Cancel or repeat signal.
3 pause 3 pause 3	Person giving signal is about to travel.
3 pause 3 pause 3	In reply: acknowledgement by driver that person signalling is about to travel.
4 pause 1	Raise slowly.
4 pause 2	Lower slowly.
4 pause 4	To driver: 'mark' signal.
4 pause 4	In reply: acknowledgement by driver of 'mark' signal.
4 pause 4 pause 4	To driver: clutching signal.
4 pause 4 pause 4	In reply: clutching operations completed.
5 pause 5	To driver: explosives about to be placed in the conveyance.
5 pause 5	In reply: explosives may be placed in the conveyance.
5 pause 5	From driver when conveyance containing explosives is brought to rest at a station: explosives may be removed from the conveyance.

Knocks or rings-	
5 pause 5 pause 5	To driver: no explosives in the conveyance.
5 pause 5 pause 5	In reply: acknowledgement by driver that there are no explosives in the conveyance.
6 pause 6	To driver: winding compartments served by engine locked.
6 pause 6	In reply: acknowledgement by driver of 'compartments locked' signal.
6 pause 6 followed by station signal	To driver: winding compartments served by engine locked below station designated.
6 pause 6 followed by station signal	In reply: acknowledgement by driver of 'compartments locked below station designated' signal.
6 pause 6 pause 6	To driver: compartments served by engine reopened.
6 pause 6 pause 6	In reply: acknowledgement by driver of 'compartments served by engine reopened' signal.
6 pause 6 pause 6 pause 6	To driver: shaft examination and repairs about to take place.
6 pause 6 pause 6 pause 6	In reply: acknowledgement by driver of 'shaft examination and repairs' signal
7	To driver: persons about to have access to the conveyance for a purpose I other than travelling or the loading or unloading of minerals in trucks or of material.
7	In reply: persons may have access to conveyance for a purpose other than travelling or the loading or unloading of minerals in trucks or of material.
7 pause 7	To driver: conveyance is clear of all persons who have had access to it for a purpose other than travelling or the loading or unloading of minerals in trucks or of material.
7 pause 7	In reply: acknowledgement by driver of 'persons clear' signal.
15	Electrician is testing bells.
15	In reply: acknowledgement of 'bell testing' signal.
15 pause 2 pause 2	Electrician has completed test.
10 followed by station signal	Accident to person: station where conveyance is required.
1 long ring	Accident to shaft: winding operations to be suspended immediately in all compartments of the shaft.
In any purely mechanical signalling system 'continued ringing' shall replace 'one long ring' for the 'accident to shaft' signal.	
When raising or lowering mineral in trucks or material other than explosives:	
8	To driver: raising or lowering of minerals in trucks or of material about to commence.
8	In reply: acknowledgement by driver that raising or lowering of minerals in trucks or of material is about to commence.

Knocks or rings-	
1	From driver: persons may have access to conveyance for the purpose of loading or unloading minerals in trucks or material.
8 pause 8	To driver: raising or lowering of minerals in trucks or of material completed.
8 pause 8	In reply: acknowledgement by driver that raising or lowering of minerals in trucks or of material is completed.

8.13.69 In addition to the standard code of signals, other signals may be used provided that they have been approved in writing by the Principal Inspector of Mines.

8.13.70 Any person acting in conflict with the standard code of signals or of any of the other signals approved in writing by the Principal Inspector of Mines and used on a mine shall be guilty of an offence.

8.13.71 No person shall enter or have access to or be permitted to enter or have access to a cage or other conveyance for any purpose whatsoever or shall continue to travel in a cage or other conveyance or shall leave or be permitted to leave a cage or other conveyance unless and until the appropriate signals have been exchanged, or, if a signal cannot be given on the bell system, some other appropriate and distinct signal has been received from the winding engine driver.

8.13.72 Every shaft in which winding is carried out, other than a shaft in the course of being sunk, shall be provided with some efficient signalling arrangements in respect of each winding plant for interchanging distinct and definite signals between:

- (a) the winding engine driver and the bank; and
- (b) the winding engine driver and every established point below the bank from which winding is carried out.

8.13.73 Every shaft where persons travel on or in the conveyance while carrying out any examination, repair or other work shall be provided with some efficient means, approved by the Principal Inspector of Mines whereby the persons doing such examination or work can signal effectively from any depth in the shaft to the winding engine driver.

8.13.74 Every inclined/declined shaft in the course of being sunk shall be provided with some efficient signalling arrangement in respect of each winding plant for interchanging distinct and definite signals between:

- (a) the winding engine driver and the bank;
- (b) the winding engine driver and every established intermediate landing station below the bank; and

- (c) the winding engine driver and a point not more than 40 metres from the bottom of the shaft. When this point is more than 15 metres from the bottom of the shaft, some efficient signalling arrangements shall also be provided and used for signalling from the bottom of the shaft to this point.

8.13.75 Every vertical shaft in the course of being sunk shall be provided with two separate means for each winding plant whereby persons employed in the sinking process can signal effectively from the bottom of the shaft and from any depth in the shaft to the winding engine driver and there shall also be provided in respect of each winding plant an efficient signalling arrangement for interchanging distinct and definite signals between the winding engine driver and the bank and between the winding engine driver and every established intermediate landing station below the bank.

8.13.76 At every shaft and winze, other than a shaft or winze in the course of being sunk, where persons are regularly conveyed and where the signalling arrangements are operated by electricity, the following provisions, except as provided for in other signals approved in writing by the Principal Inspector of Mines, shall be observed in respect of each winding plant used for the raising or lowering of persons.

8.13.76.1 There shall be provided and maintained in good working order, two separate, independent, and efficient signalling arrangements, hereinafter referred to as the locked-bell system and the call-bell system, which shall be used for transmitting signals.

8.13.76.2 The locked-bell system shall be for the interchange of signals between:

- (a) the winding engine driver and the bank; and
- (b) the winding engine driver and every established point below the bank from which winding is normally carried on, but it shall not enable the banksman to signal on this system to anyone but the winding engine driver.

8.13.76.3 The system shall be arranged so that the winding engine driver can easily distinguish between signals received from the bank and signals from below the bank and such a system has been approved by the responsible engineer.

8.13.76.4 The system shall further be arranged and maintained so as to prevent as far as possible, signals being given by unauthorized persons. The signal operating mechanism at the bank and at all points below the bank shall be securely enclosed in a metal casing of substantial construction and shall be kept locked when not in actual use. The key shall be removable and when not required shall be removed and retained by the banksman, onsetter or an authorised person. Without the key inserted, the bell system will be inoperable. Other locking arrangements may be used if approved by the Principal Inspector of Mines.

8.13.76.5 There shall be in use a device which automatically prevents the conveyance or conveyances being raised or lowered after the winding engine driver has given a signal on the circuit of the locked-bell system provided for interchanging signals with the bank or on the circuit of the locked-bell system provided for interchanging signals with the established points below the bank from which winding is normally conducted, until he has received a signal on each of the circuits on which he gave a signal.

8.13.76.6 The call-bell system shall enable signals to be transmitted:

- (a) to the winding engine driver from the bank; and
- (b) to the winding engine driver from every established point below the bank from which winding is normally conducted and shall also enable signals to be interchanged between the bank and every established point below the bank from which winding is normally conducted, but it shall not enable the winding engine driver to transmit signals on this system.

8.13.76.7 The signal operating mechanism of the call-bell system shall be accessible to any person to transmit the signal '10 followed by station signal' and 'one long ring' referred to in the standard code of signals, but it shall not be used for any other purpose, provided that the banksman or onsetter or any person duly authorised by the manager may use the system to indicate the station at which the conveyance is required and subject to the approval of the Principal Inspector of Mines to transmit special signals.

8.13.76.8 The tone of the bells of the call-bell system shall be such as to be easily distinguishable from that of the bells of the locked-bell system.

8.13.76.9 In a shaft or winze where efficient telephonic intercommunication is provided between the bank and every established landing station for persons below the bank, it shall be necessary to provide only one call-bell system in respect of all the winding plants serving such shaft or winze.

8.13.77.1 The standard code of signals or an abridged form thereof approved by the Principal Inspector of Mines, as well as any other approved signals that may be in use on a mine, shall be displayed suitably in the form of distinctly legible notices in letters and figures not less than 10 millimetres in height. The decision whether such notices are suitably displayed and distinctly legible shall rest with the Principal Inspector of Mines.

8.13.77.2 Such notices shall be posted up in the winding-engine room, at the bank and at all shaft or winze stations for the time being in use and easily readable by the operator of the signals.

8.13.78 The employer must take reasonably practicable measures to ensure that a winder used for the conveyance of persons is equipped with a device that will continuously record the signals exchanged between the winding engine driver and banksman and the winding engine driver and onsetter, and that the information recorded is kept readily available at the mine for a period of at least 30 days.

8.13.79 Any person acting in conflict with the code of signals referred to in these regulations or of any special signals used on a mine shall be guilty of an offence.

Requirements at shafts and winzes

8.13.80 Every vertical shaft and every vertical winze exceeding 30 metres in depth and used for winding purposes shall be provided with guides for skips, cages or other conveyances unless exempted in writing by the Principal Inspector of Mines.

8.13.81 At any place in a shaft or winze where it is necessary for workmen to pass from one side to the other, provision shall be made for them to do so without entering or crossing a compartment in which winding is taking place; such passage shall be securely fenced *off* from moving parts of machinery and from any conveyance.

8.13.82 No person shall enter or cross a compartment of a shaft, winze or of a headgear in which winding is taking place, except for the purpose of entering, leaving or having access to a cage, skip or other conveyance or for the purpose of conducting an examination, effecting repairs or doing other necessary work in such compartment.

8.13.83 No winding operations shall be conducted in a shaft, winze or headgear while persons are engaged in effecting repairs, conducting an examination or doing other work in such shaft, winze or headgear except:

8.13.83.1 where such winding operations are necessary for the purpose of effecting the repairs, conducting the examination or doing other work; or

8.13.83.2 where persons engaged in effecting the repairs, conducting the examination or doing other work are adequately protected from the conveyances and other winding equipment used in such winding operations as well as from falling stones and falling material.

8.13.83.3 any such repairs or maintenance or inspections contemplated in these regulations shall be recorded in the applicable Winder Engine Driver's Logbook affected by such activities, and such Winder Engine Driver's Logbooks are kept for a period of at least 12 months and readily available.

8.13.84 No person shall effect repairs, conduct an examination or do other work in a shaft, winze or a headgear while winding operations are being conducted in such shaft or headgear, except:

8.13.84.1 where such a person is adequately protected from the conveyances and from other winding equipment as well as from falling stones and falling material; or

8.13.84.2 where the winding operations are necessary for such person to effect the repairs, conduct the examination or to do other work.

8.13.85 The person in immediate charge of any inspection, repair, examination, maintenance or work in a winding compartment of a shaft, winze or a headgear or in immediate charge of any work in connection with maintenance or installation of equipment in a winding compartment of a shaft, winze or a headgear shall:

- a) make an entry into the Winding Engine Driver' s Logbook and such entry must be countersigned by the winding engine driver on duty. Such entry must be cleared by the person that made such entry and must be countersigned by the same person on duty, immediately after completion of such activities.
- b) where it is not practicable for the person in charge to make an entry during an inspection, repair, examination, maintenance or work into the Winding Engine Driver's Logbook, the winding engine driver may make such an entry on behalf of the person in charge of such inspection, repair, examination, maintenance or work. Such entry must be cleared by the person in charge thereof and must be countersigned by the winding engine driver on duty, immediately after completion of such activities.
- c) where it is not practicable for the person in charge to clear an entry after an inspection, repair, examination, maintenance, or work made into the Winding Engine Driver's Logbook, the engineer or person appointed by the manager may clear such an entry on behalf of the person that made the entry if they are satisfied that it is safe to do so. If the engineer or a person appointed by the manager cannot clear the entry in person, the engineer or the person appointed by the manager in question may give permission for it to be done; and
- d) where it is not practicable for the person in charge to make and clear an entry before and after an inspection, repair, examination, maintenance, or work made into Winding Engine Driver' s Logbook, the person in charge must notify the winding engine driver to make an entry in the logbook for him/her before and after the inspection, repair, examination, maintenance, or work conducted. Such entry must be cleared by the person in charge of such activities immediately after completion of such activities and must be countersigned by the winding engine driver on duty.

8.13.86 Where winding is conducted in a shaft or winze there shall be fitted above the bank spring keeps or jack catches or some other effective contrivance to support any conveyance detached from the winding rope because of an overwind: Provided that this requirement does not apply to a vertical shaft or winze in the course of being sunk.

8.13.87 For a winding system in a vertical shaft or winze where the end of the winding rope is fastened to the drum of the winding engine, there shall be fitted detaching hooks to detach from the winding rope any conveyance overwound in the headgear and to support it. Such detaching hooks shall be additional to

the devices required in a shaft or winze, provided that detaching hooks need not be fitted to the ropes of any winding plant in a vertical shaft or winze in the course of being sunk.

8.13.88 For a winding system in a vertical shaft or winze where the winding rope is not fastened to the drum or sheave of the winding engine:

8.13.88.1 The over-run space in the headgear above the highest established stopping place shall be provided with rigid guides or other appliances arranged so that an overwound conveyance is retarded to minimise the risk of the conveyance coming into contact with the rope sheave or the buffer stops in the headgear; and

8.13.88.2 The over-run space at the bottom of the shaft or winze below the lowest established stopping place shall be provided with rigid guides or other appliances arranged so that an overwound conveyance is retarded and arrested before it can come into contact with any fixed obstacle.

8.13.89 The headgear shall be carried sufficiently high to allow a clearance space that must be equal to or greater than the combined height of the conveyance in use, in which the conveyance can travel above or beyond the highest landing place for persons before it comes into contact with any fixed obstacle excluding any retarding appliance. This regulation will not apply to skips used for rock winding.

8.13.90 The shaft or winze shall be carried sufficiently deep to allow an over-run space that must be equal to or greater than the combined height of the conveyance in use, in which the conveyance can travel below or beyond the lowest landing for persons before it comes into contact with any fixed obstacle excluding any retarding appliance, provided that such over-run space need not be provided in a shaft or winze in the course of being sunk.

8.13.91.1 The employer must, for every station level:

- (a) identify and clearly demarcate an area surrounding the shaft as the shaft station;
- (b) show the shaft station, including the location of all safety devices on the shaft station, on a plan; and
- (c) prominently and conspicuously display a copy of such plan at every shaft station.

8.13.91.2 The employer must install a device or combination of devices that prevent inadvertent access of vehicles to the shaft as close as practicable to all entrances to the shaft.

8.13.91.3 The device or combination of devices must be:

- (a) fail-safe or lockable.

- (b) equipped with mechanisms that prevent their unauthorised operation;
- (c) operated only under the direct supervision of a competent person appointed by the engineer or by the person appointed by the manager;
- (d) operated only if a conveyance is being used for the loading or unloading of equipment, material, minerals or explosives at that entrance to the shaft; and
- (e) operated only in closed positions if a conveyance is being used for the loading or unloading of persons at that entrance to the shaft.

8.13.91.4 The employer must install a station stop block device or combination of devices which ensure that any self-propelled mobile machine or combination of vehicles entering the shaft inadvertently.

8.13.91.5 The employer must ensure that procedures are in place, or that the device or combination of devices are equipped with mechanisms that prevent the unauthorised operation or removal of such device or combination of devices.

8.13.91.6 The engineer or person appointed by the manager must approve any access configuration and must with regard to the device or combination of devices used for the purposes of these regulations:

- (a) approve the design of every such device; and
- (b) ensure that every such device is installed and maintained in good working order.

8.13.92 No self-propelled mobile machine may be parked in the shaft station.

8.13.93 A self-propelled mobile machine may only enter the shaft station under power if it is under the direct supervision of a competent person appointed by the engineer or the person appointed by the manager.

Requirements for loading of winding plant conveyances

8.13.94 No person shall travel in a conveyance operated by a winding engine if such conveyance is loaded or partially loaded with minerals, and no person shall travel in a conveyance operated by a winding engine that is being used simultaneously for the winding of minerals, provided that, if authorised by the manager or a person appointed by the manager, persons engaged in sinking operations in a vertical shaft or winze may descend such shaft or winze in a conveyance operated by a winding engine that is being used simultaneously for the raising of mineral.

8.13.95 No person shall travel-

- a) with material or explosives in a conveyance operated by a winding engine; and

- b) in a conveyance operated by a winding engine that is being used simultaneously for the winding of material or explosives.

8.13.96 Subject to the provisions of the regulation dealing with authorization for persons to travel with material in the conveyance:

- (a) the manager, engineer or a person appointed by the manager may grant permission in writing for persons to travel with material if such material is not likely to endanger persons travelling in the conveyance; and
- (b) the manager shall:
 - (i). cause a list to be kept of the material which is regularly conveyed in the shaft or winze for which permission has been granted in terms of paragraph (a);
 - (ii). ensure that all persons authorised to give signals for the raising and lowering of persons are conversant with the material mentioned in the list;
 - (iii). make a copy of the list readily available to all persons concerned; and
 - (iv). ensure that all persons authorized to carry such material must carry such suitable bag or enclosure to be approved by the engineer in charge.

8.13.97 The manager, engineer or a person appointed by the manager may authorise the following persons to travel in a shaft or winze with material or explosives prohibited in terms of these regulations if such travelling is necessary for the efficient carrying out of their duties:

8.13.97.1 Onsetters and their gangs;

8.13. 97.2 Persons engaged in sinking operations or in conducting an examination, effecting repairs or doing other work in the shaft or winze; and

8.13.97.3 Persons required to ensure the safe passage through the shaft or winze of material which cannot be conveyed inside a conveyance.

8.13.98 No person shall place explosives in or remove them from a conveyance operated by a winding engine except under the immediate supervision of the banksman, onsetter or a competent person authorised thereto by the manager, or a person appointed by the manager.

8.13.99 No person shall ride in any shaft or winze on the roof, top, side, bow, rim, bridle or frame of or in any position outside a conveyance operated by a winding engine, except for persons engaged in examining

or repairing the shaft or winze or doing other work in the shaft or winze may ride on the roof of such conveyance or on a special platform if authorised to do so by the manager or mine overseer and if such riding on the roof of such conveyance or on the special platform is necessary for the efficient carrying out of such examination, repairs or other work.

8.13.100 Persons shall not be raised or lowered in a conveyance attached to the normal conveyance except when permitted in writing by the Principal Inspector of Mines.

8.13.101 No bucket or other means of conveyance that can sway shall be allowed to leave the top or bottom of the shaft or winze unless the workman in charge thereof has steadied it or caused it to be steadied.

8.13.102 No bucket or other means of conveyance shall be filled with loose rock or ground above the level of the brim.

8.13.103 Tools or other material which project above the top of the cage, skip, bucket, kibble or other means of conveyance, and which are raised or lowered in a shaft or winze shall be fastened securely in such a manner that the operation of any arresting device or detaching hook is not affected.

Notices required at winding plants

8.13.104 Where a winding plant is used the following shall be kept posted up:

8.13.104.1 At each winding engine:

- a) a copy of the prescribed permit issued in terms of the Act;
- b) the code of signals and any special signals;
- c) a copy of a notice shall be placed regarding persons not to speak to or distract the attention of the person operating a winding engine while it is in motion; and
- d) a copy of a notice shall be placed regarding a person operating a winding engine while it is in motion not to be involved in distracting or be distracted by any person.

8.13.104.2 At each bank, station or landing platform:

- (a) a notice showing clearly the maximum number of persons permitted to ride in each conveyance, or a notice prohibiting the conveyance of persons where it is not allowed in terms of the prescribed permit issued under the Act;
- (b) the code of signals and any special signals;

- (c) a notice showing clearly the use of full body safety harness to be used when working near open shafts gates; and
- (d) a notice showing items that are prohibited to be carried or taken into the underground workings.

Requirements for Winding-engine drivers

8.13.105 Nobody shall drive or be caused to drive or permitted to drive a winding plant, for which a prescribed permit has been issued unless he is a certificated winding engine driver, provided that a learner winding engine driver may drive such a winding plant under the direct supervision of a certificated winding engine driver while no persons are being conveyed.

8.13.106 Upon engaging a winding engine driver, who is required in terms of this regulation to be the holder of a certificate, the manager shall record or cause to be recorded the number and type of such certificate, provided that if such winding engine driver has not driven a winding engine for the preceding two years or more, the manager shall not engage him, but shall require such winding-engine driver to undergo a medical examination with a full psychometric evaluation, refresher training and re-examined in accordance with these regulations.

8.13.107 No person shall speak to or, in any way, distract the attention of the person operating a winding engine while it is in motion, except an authorised person required to conduct such activities in the winding engine.

8.13.108 The driver of a winding engine:

8.13.108.1 shall not start his engine before he has received a distinct and proper signal to do so, unless he has been instructed in writing to do so by the manager, or by a person appointed by the manager, as the case may be, or unless he has received the 'clear signal' 2 pause 2, or unless he has sole control of the cage, skip or other means of conveyance;

8.13.108.2 shall not act on any signal if he has been unable to do so within one minute after receiving it but shall request a repeat signal: by ringing 2 pause 2 pause 2 pause 2, provided that after having received the 'clear signal' he may move at his discretion, but when a period of more than five minutes has lapsed after he has received such 'clear signal' he shall move the conveyance slowly;

8.13.108.3 shall not run such engine at a greater speed than that fixed by the Principal Inspector of Mines;

8.13.108.4 shall, except in the case of emergency, avoid shocks in starting, in running and in stopping the said engine;

8.13.108.5 shall apply correctly every device and means at his or her disposal to prevent the conveyance over-running:

- (a) the signalled destination; or
- (b) when the destination is not signalled, the highest or lowest landing place when persons are being conveyed and the highest or lowest established stopping place when persons are not being conveyed to an extent which may endanger the safety of persons or may cause damage to the winding equipment.

8.13.108.6 shall apply correctly every device and means at his disposal to prevent the conveyance moving in a direction opposite to that signalled;

8.13.108.7 shall not start the engine until the expiry of at least 10 seconds after receiving a signal to raise or lower persons, provided that this requirement shall not apply when blasting is about to take place in a shaft or winze in the course of being sunk;

8.13.108.8 shall not act in response to any signal on the call-bell system other than the one long ring referred to in these regulations.

8.13.108.9 shall not unclutch a drum of the engine until the driver has assured themselves immediately beforehand by testing the brake of the drum against sufficient holding power of the engine, that the brake is in proper condition to hold the load suspended from said drum;

8.13.108.10 shall when such engine is fitted with a friction clutch, test the holding power of the clutch after engaging the clutch and before releasing the brake of the corresponding drum. For a steam engine or an air engine the test shall be made against the full power of the engine, and for an electric engine against the normal starting current, while the brake of the other drum is kept off;

8.13.108.11 shall not perform clutching operations whilst persons are in either of the conveyances operated by his or her engine, provided;

- a) clutching may be performed on a sinking platform while the minimum number of persons are on the platform to ensure that the clutching operations are correctly conducted; and
- b) clutching may be performed on an equipped shaft in case of emergency under the instructions of an engineer after said engineer has satisfied themselves that it is safe to do so.

8.13.108.12 shall not, unless he intends operating the winding engine on single drum during shaft examination, shaft repairs or shaft sinking operations, give the signal that clutching operations

are completed until he has engaged the clutch and has securely locked it and where applicable has carried out the test prescribed in these regulations.

8.13.108.13 shall not work or be permitted to work a shift on the winding engine longer than 10 hours, except where permission has been obtained from the Principal Inspector of Mines and under such conditions directed by the Principal Inspector of Mines;

8.13.108.14 shall take all reasonable measures to safeguard persons being conveyed and to avoid any unnecessary delays in conveying such persons.

8.13.108.15 shall take a 20 minute drivers break as near in the middle of the shift as possible. Provided where a Principal Inspector of Mines has granted permission for working longer than the prescribed 10 hours shift, the driver's break interval shall be increased by 10 minutes for each additional hour permitted.

8.13.108.16 shall take breaks at intervals specified in the mine operating shaft schedule.

Banksmen and Onsetters

8.13.109 No unauthorised person shall give any signal other than an accident signal or shall in any manner whatsoever interfere with the signalling arrangement provided for winding operations.

8.13.110 No person shall be permitted to carry out the duties of a banksman or onsetter unless he is the holder of an onsetter's certificate issued in accordance with these regulations. Every appointment of a banksman or onsetter shall be made in writing by the manager.

8.13.111 If upon engaging a bankman or an onsetter, who is required in terms of this regulation to be the holder of a certificate and such a bankman or onsetter has not performed such appointed duties for the preceding two years or more, the manager shall not engage such banksman or onsetter, but shall require such banksman or onsetter to undergo a medical examination, refresher training and a proficiency examination conducted by an appointed engineer or his delegate.

8.13.112.1 No person, other than the banksman or onsetter on duty, shall give or shall be caused or permitted to give any signals for the raising or lowering of persons provided that:

- (a) when the banksman or onsetter is not available, a competent person to whom the manager has given written permission to do so may give signals for the conveyance of himself and of any person travelling with them;
- (b) the ganger or miner in charge at the bottom of a shaft or winze in the course of being sunk or a person acting under their immediate supervision may give a signal to raise persons; and

- (c) any person duly authorised in writing by the manager or mine overseer may give signal for the conveyance of persons between the main mineral loading station at the bottom of a vertical or inclined shaft and the lowest landing station for persons.

The Principal Inspector of Mines shall be furnished on demand with a list of the persons to whom permission has been granted in terms of paragraph (a) above and may order its revision.

8.13.112.2 No person other than the banksman or onsetter on duty shall give any signal for the raising or lowering of material or mineral unless duly authorised by the manager or mine overseer or engineer. Where the winding plant is also used for the conveyance of persons, such authorisation shall be in writing.

8.13.113 No person shall be appointed as a banksman or onsetter, nor shall any person be authorised to give signals, unless such person has sufficient knowledge of the shaft operations and of the signals to be given in connection with such operations.

8.13.114 The banksman, onsetter or other person authorised to give signals for winding operations:

8.13.114.1 shall not, after the winding engine driver has signalled that persons may enter the conveyance for the purpose of travelling or that persons in the conveyance may continue to travel, give any signal on the signalling arrangements for that winding compartment until all persons are properly placed in the conveyance and the doors or gates of the conveyance and the gates or barriers at the bank, station or landing platform are properly shut, provided that when the banksman, onsetter or other person authorised to give signals intends to travel, such doors, gates or barriers as will prevent his entrance to the conveyance may be left open until he or she has given the signal to raise or lower and has entered the conveyance;

8.13.114.2 shall not, when the conveyance containing persons is brought to rest in the proper position at the bank, station or landing platform and the winding engine driver has signalled that persons may leave the conveyance, give any signal on the signalling arrangements for that winding compartment until all persons who are to leave the conveyance are out and clear of it, Provided that in the event of an accident to shaft or person the 1 long ring and signal (10) is allowed to be given.

8.13.114.3 shall ensure that the roof, cover or hood, required to be provided in terms of these regulations, is properly in position before persons are raised or lowered in or on such conveyance.

8.13.114.4 shall take all reasonable measures to prevent persons from having unauthorised access to the conveyance and to the winding compartments;

8.13.114.5 shall not allow any person to travel in a conveyance operated by a winding engine if such conveyance contains minerals and, except as provided for in these regulations, shall not allow

any person to travel in a conveyance operated by a winding engine that is being used simultaneously for the winding of minerals;

8.13.114.6 shall not, except as provided for in these regulations, allow any person to travel in a conveyance operated by a winding engine that is being used simultaneously for the winding of material;

8.13.114.7 shall not, except as provided for in these regulations, allow any person to ride on the roof, top, side, bow, rim, bridle or frame of or in any position outside a conveyance operated by a winding engine;

8.13.114.8 shall acquaint himself with the maximum number of persons authorised by the Principal Inspector of Mines to travel at any one time in the cage and on each deck of the cage, or in the skip or other means of conveyance and shall not allow such maximum to be exceeded;

8.13.114.9 shall not allow any unauthorised person to give signals on the signalling arrangements used in connection with winding operations;

8.13.114.10 shall not give the 'clear signal' 2 pause 2 or any signal to raise or lower the conveyance unless all persons at the bank, station, landing platform, loading box or other place where he is in charge, are in a position in which they will not be endangered by the movement of such conveyance or any other conveyance operated by the same winding engine;

8.13.114.11 shall not give a signal to clutch unless all persons are out of and clear of the conveyance or conveyances operated by the winding engine;

8.13.114.12 shall not cause or permit any person to enter or to have access to the conveyance or conveyances until he or she has received a signal from the winding engine driver that clutching operations are completed; and

8.13.114.13 shall take all reasonable measures to safeguard against accidents to all persons at the place where he is in charge, whether such persons are under his direct supervision or not.

Winding plant record and Logbooks

8.13.115 The manager must take reasonably practicable measures to ensure that a recoverable recordable system is established and maintained at the mine for the winding system and shaft system and in which the following information is captured:

8.13.115.1 details of all maintenance, repairs, testing, inspections and examinations of the winding system and shaft system and of the findings, which must be captured by the competent person

who undertook the maintenance, repairs, inspections or examinations within 24 hours from completion of such maintenance, repairs, inspections or examinations;

8.13.115.2 all rope manufacturing and modification details, as well as dates of installation, modifications and removal for each winding rope, which must be captured by the competent person within 24 hours after installation, and which information must include at least the following:

- (a) Name of manufacturer;
- (b) Date of manufacture;
- (c) Coil number;
- (d) Length in metres;
- (e) Mass per metre in kilograms;
- (f) Diameter in millimetres, Width and thickness in millimetres;
- (g) Construction of rope:
 - (i). type and length of lay;
 - (ii). number of strands;
 - (iii). class of heart;
 - (iv). type of lubricant;
- (h) Construction of strands:
 - (i). number of wires;
 - (ii). diameter of wires in millimetres;
 - (iii). Class of core;
 - (iv). Class of steel in wires (galvanised or not);
 - (v). Tensile strength of steel in Megapascals;
 - (vi). Breaking force in kilo Newtons;

(vii). Rope test certificate number and place of test;

(i) whether used for winding or balance purposes:

(i). Name and type of shaft;

(ii). Name of compartment;

(iii). Winding plant licence (certificate) number.

8.13.115.3 All dates of installation, modification and removal of the winding rope attachments, which must be captured by the competent person within 24 hours after installation, modification or removal, as the case may be;

8.13.115.4 The current condition of the winder and signalling arrangements, which must be captured by the competent person (winding engine driver) before commencing their shift or before taking over from another winding engine driver; and

8.13.115.5 Any unsafe conditions or events that occur during the full period of control of a winder, which must be captured by the competent person (winding engine driver) upon occurrence of such event.

8.13.116 The manager must take reasonably practicable measures to ensure that the persons appointed:

8.13.116.1 scrutinise all entries made in the recoverable recordable system within 7 days of entry;

8.13.116.2 determine any required measures to be taken;

8.13.116.3 ensure that such measures are implemented;

8.13.116.4 record all the activities required by this regulation in the recoverable recordable system; and

8.13.116.5 if the system is electronic, it must be approved by the Principal Inspector of Mines, before it is put to use.

Requirements for loading of winding plant conveyances.

8.13.117 No person shall travel in a conveyance operated by a winding engine if such conveyance is loaded or partially loaded with minerals, and no person shall travel in a conveyance operated by a winding engine that is being used simultaneously for the winding of minerals, provided that, if authorised by the manager or mine overseer, persons engaged in sinking operations in a vertical shaft or winze may

descend such shaft or winze in a conveyance operated by a winding engine driver that is being used simultaneously for the raising of minerals.

8.13.118 Subject to the provisions of these regulations, no person shall travel-

- a) with material or explosives in a conveyance operated by a winding engine; and
- b) in a conveyance operated by a winding engine that is being used simultaneously for the winding of material or explosives.

8.13.119 Subject to the provisions of these regulations.

- a) the manager, engineer or mine overseer may grant permission in writing for persons to travel with material if such material is not likely to endanger persons travelling in the conveyance; and
- b) the manager shall:
 - i). cause a list to be kept of the material which is regularly conveyed in the shaft or winze for which permission has been granted in terms of paragraph (a);
 - ii). ensure that all persons authorised to give signals for the raising and lowering of persons are conversant with the material mentioned in the list; and
 - iii). make a copy of the list readily available to all persons concerned.

8.13.120 The manager, engineer or mine overseer may authorise the following persons to travel in a shaft or winze with material or explosives prohibited in terms of these regulations if such travelling is necessary for the efficient carrying out of their duties:

8.13.121.1 Persons engaged in sinking operations or in conducting an examination, effecting repairs or doing other work in the shaft or winze.

8.13.121.2 Persons required to ensure the safe passage through the shaft or winze of material which cannot be conveyed inside a conveyance.

8.13.122 No person shall place explosives in or remove them from a conveyance operated by a winding engine except under the immediate supervision of the banksman, onsetter or a competent person authorised in writing by the manager or mine overseer.

8.13.123 No person shall ride in any shaft or winze on the roof, top, side, bow, rim, bridle or frame of or in any position outside a conveyance operated by a winding engine, nevertheless persons engaged in examining or repairing the shaft or winze or doing other work in the shaft or winze may ride on the roof

of such conveyance or on a special platform if authorised to do so by the manager or mine overseer and if such riding on the roof of such conveyance or on the special platform is necessary for the efficient carrying out of such examination, repairs or other work.

8.13.124 Persons shall not, except when permitted in writing by the Principal Inspector of Mines, be raised or lowered in a conveyance attached to the normal conveyance.

8.13.125 No bucket or other means of conveyance that can sway shall be allowed to leave the top or bottom of the shaft or winze unless the workman in charge thereof has steadied it or caused it to be steadied.

8.13.126 No bucket or other means of conveyance shall be filled with loose rock or ground above the level of the brim.

8.13.127 Tools or other material which project above the top of the cage, skip, bucket, kibble or other means of conveyance, and which are raised or lowered in a shaft or winze shall be fastened securely in such a manner that the operation of any arresting device is not affected.

Care must be exercised in cases where a detaching hook is attached to the end of the winding rope that the material does not project above the detaching hook or interfere with it in any way whatsoever.

Trial run of winding plant

8.13.128 When winding in any compartment *or* compartments of a **shaft, winze** or headgear has been stopped *for* repairs or blasting operations *or* when it has been stopped *for* any other purpose for a period exceeding one hour in duration *or* when a conveyance has been changed, the winding engine serving such compartment *or* compartments shall not be used *for* the raising *or* lowering of persons until the cage, skip *or* other means of conveyance has been run at least one complete trip up and down such compartment *or* compartments, provided that this regulation shall not apply to the use of the winding engine for the raising *or* lowering of persons conducting an examination or effecting repairs; and provided further that where such stoppage is confined to a portion of any compartment or compartments, the requirements of this regulation shall only apply to such portion.

Requirements for the examination of winding plant and shaft

8.13.129 The manager or subordinate manager and an appointed engineer or appointed competent person, as the case may be shall, in respect of his area of responsibility, appoint in writing competent persons whose duty it shall be to examine carefully, to an extent to be clearly defined in their respective letters of appointment, at least once in each week, at intervals not exceeding 10 days, the guides *or* rails and the shaft compartments and equipment, including the doors, gates and barriers and ancillary equipment at stations, loading platforms and loading boxes.

8.13.130 An appointed engineer or appointed competent person, shall appoint in writing, competent person or persons whose duty it shall be to examine carefully:

8.13.130.1 at least once in each day the winding ropes, the balance ropes *or* tail ropes, the connection of the winding ropes to the drum, the connections referred to in these, the conveyances and the main members by which they are suspended and any safety catches attached thereto, the pulley wheels or sheaves, the brakes, the depth indicators, the safety devices and all external parts of the winding equipment upon the proper working of which the safety of persons depends, provided that these examinations will not be necessary on any day mentioned in section 9(1) of the Mines and Works Act if the winding plant makes less than 50 winding cycles during such day;

8.13.130.2 at least once in each day during the changeover of loading activities, conduct a thorough examination of the safety devices, dolly wheels and the **attachments** thereto for a **winding plant** *or* conveyance that is responsible for the conveyance of persons and minerals;

8.13.130.3 at least once in each day after a daily examination, artisans responsible for such winder examinations, to do a full trip trial run, inside the conveyances to verify and record that the winding conveyance is in a good state of use by other persons; and

8.13.130.4 at least once in each week the signalling arrangements and the safety devices used in connection therewith.

8.13.131 An appointed engineer or an appointed competent person, shall examine carefully:

8.13.131.1 at least once in each week, and at intervals not exceeding 10 days, the overspeed and overwind prevention devices and the external parts of the winding engine;

8.13.131.2 at least once in each week, and at intervals not exceeding 14 days, the integral structures joining the shaft infrastructure and the conveyor belt installations;

8.13.131.3 at least once in each year the winding engine as to the condition of the internal mechanical parts and, as far as reasonably practicable, the internal electrical parts;

8.13.131.4 at least once in each calendar month at intervals not exceeding 45 days, the structure of the winding rope and the balance rope *or* tail rope, with the aim ascertaining the amount of deterioration thereof. For the purpose of this examination the rope shall be cleaned at a place selected by the person making the examination who shall note any reduction in the circumference of the rope, any variation in the length of the rope, the superficial condition of the wires as to wear, corrosion, fractures and brittleness, and all other data necessary for ascertaining the amount, extent, and distribution of the deterioration of the rope. If the examination discloses features such as undue or rapid wear or fractures of the wires, which, although not constituting sufficient reason

for condemning the rope, call for more than usual attention, the examination required under this paragraph shall be made more frequently;

8.13.131.5 at least once in each calendar month at intervals not exceeding 45 days the connections between the winding rope and the drum, the connections referred to in these regulations and the sheave wheel or wheels;

8.13.131.6 after every accident or occurrence referred to in a chapter of the regulations and before winding operations are resumed, all portions of the winding equipment affected by such accident or occurrence on which the safety of persons depends; and

8.13.131.7 by dynamically testing the automatic overwind and overspeed prevention devices at least once in every six months, at intervals not exceeding 200 days.

8.13.132 In the case of connections referred to in these regulations being of a class of steel approved by the Chief Inspector of Mines, such connections and their component parts shall be dismantled, cleaned and then examined by an appointed engineer or an appointed competent person, at intervals not exceeding 12 months.

8.13.133 If on any examination required in terms of these regulations there is discovered any weakness or defect which may endanger the safety of persons, and such weakness or defect cannot be remedied immediately, the person making the discovery shall report such weakness or defect to the manager without delay. Until such weakness or defect is remedied, the winding plant shall not be used except in so far as may be necessary to remedy such weakness or defect.

Access to conveyance

8.13.134 No person shall enter the conveyance at the bottom of the shaft until the conveyance has been raised and lowered or until some other distinct signal has been received from the winding engine driver.

8.13.135 The banksman or onsetter shall not allow any person to enter the conveyance decking platform at any level until the conveyance is stationary and secured at that level or until some distinct signal has been received from the winding engine driver by the onsetter or banksman to indicate that it is safe to do so.

8.13.136 The person in charge of blasting operations shall notify the winding engine driver by a special signal, namely five knocks or rings, when blasting is about to take place, and, except in the case of firing by electricity, the driver shall reply by raising or lowering the conveyance approximately two metres.

Small winding plants

8.13.137 The prescribed permit shall not be required for a winding plant that is driven by an engine or motor developing not more than 250 kilowatts, provided that such winding plant:

- a) is not used for the raising or lowering of persons other than persons engaged in repairing or examining a shaft; and
- b) does not operate in any portion of a shaft or winze in any manner likely to interfere with the conveyance operated in that shaft served by a winding plant for which a prescribed permit has been granted.

8.13.138.1 A small winding plant, referred to in these regulations, shall not be subject to the provisions of the other winding regulations: Provided that the manager, or the appointed subordinate manager shall appoint in writing any competent person to carry out the duties and examinations prescribed in these regulations and provided further that the engineer, or the appointed subordinate engineer shall appoint in writing any competent person to examine at least once each week the item specified in these regulations.

8.13.138.2 Notwithstanding the provisions of these regulations, a record book or card index system may be provided in place of the machinery record book.

8.13.138.3 Notwithstanding the provisions of these regulations, a winding rope may not be used for a winding plant contemplated in these regulations unless:

- a) its breaking strength, determined by a test on a representative sample as prescribed in these regulations, is at least 10 times the attached load; and
- b) that part of the winding rope attached to the conveyance or counterweight is cut off and re-terminated at intervals not exceeding six months.

8.13.139 The engineer or appointed subordinate engineer shall satisfy himself that any person who is not a certificated winding engine driver, and who shall drive a small winding engine not permitted for the conveyance of persons is competent to do so.

(Regulation 8.13 added by GN 6054 in Government Gazette 52388 dated 28 March 2025)

(Regulation 8.13 substituted by regulation 1 of GN 6267 dated 30 May 2025)

CHAPTER 9

MINE ENVIRONMENTAL ENGINEERING AND OCCUPATIONAL HYGIENE

Environmental Engineering

Use of Compressed Air

9.1(1) No person may use, or permit any person to use, compressed air:

- (a) in such a manner that it might endanger the health or safety of any person; or
- (b) to clean the body of any person or clothes being worn by any person.

Early Warning Systems

9.1(2) Where the risk assessment at the mine indicates a significant risk of a fire and/or explosion and/or toxic release, that could lead to an irrespirable atmosphere or an atmosphere immediately dangerous to life or health, the employer must provide an early warning system or systems at all working places.

Ventilation Control Devices

9.1(3) The employer must ensure that polymer underground ventilation control devices or appliances, which have the potential for electrical static discharge-

- (a) comply with the SABS standard specifications 1287: Part I and Part II; and
- (b) are of anti-static characteristics when used in working places where there is a risk of igniting gas, dust or vapour.

(Regulation 9.1(3) commences on 1 September 2002 – See Government Notice R904 dated 2 July 2002)

Working places where work has ceased

9.1(4) The employer must take reasonably practicable measures to ensure that no employee is exposed to any health hazard at, or emanating from, any working place where work has ceased, either temporarily or permanently.

Occupational Hygiene

Occupational exposure to health hazards

9.2(1) The employer must ensure that the occupational exposure to health hazards of employees is maintained below the limits set out in Schedule 22.9(2)(a) and (b).

System of Occupational Hygiene Measurements

9.2(2) The employer must establish and maintain a system of occupational hygiene measurements, as contemplated in section 12, of all working places where the following hazard limits prevail:

- | | | |
|-----|---------------------|--|
| (a) | airborne pollutants | <ul style="list-style-type: none"> - particulates $\geq \frac{1}{10}$ of the occupational exposure limit; - gases and vapours $\geq \frac{1}{2}$ of the occupational exposure limit; |
| (b) | thermal stress | <ul style="list-style-type: none"> - heat $>25,0^{\circ}\text{C}$ wet bulb and/or $>32,0^{\circ}\text{C}$ dry bulb and/or $>32,0^{\circ}\text{C}$ mean radiant temperature; - cold $<10^{\circ}\text{C}$ equivalent chill temperature; and |
| (c) | noise | <ul style="list-style-type: none"> - $\geq 82\text{dBL}_{\text{Aeq},8\text{h}}$ - |

[Reference is made to the following Guidelines issued by the Chief Inspector of Mines in terms of section 9(2) of this Act

- (i) Guideline for the Compilation of a Mandatory Code of Practice for an Occupational Health Programme on Personal Exposure to Airborne Pollutants: Ref. No. DME 16/3/2/4-A1
- (ii) Guideline for the Compilation of a Mandatory Code of Practice for an Occupational Health Programme on Personal Exposure to Thermal Stress Ref. No. DME 16/3/2/4-A2]

Report to Employer

9.2(3) The competent person engaged by the employer in terms of section 12(1) must, as part of the compliance with section 12(2)(b), report to the employer on -

- (a) the occupational hygiene risk assessment, with specific reference to planning, design, implementation and management of occupational hygiene at the mine;
- (b) the occupational hygiene hazards that may cause illness or adverse health effects to persons, assess the results in terms of the implementation of control systems and the management thereof, and recommend remedial actions to the employer.

Provision of potable and palatable water

9.2(4) The employer must ensure that sufficient potable and palatable water, which comply with the requirements set out in Schedule 22.9(2)(c), is readily available to all employees and clearly identified as drinkable.

Provision and maintenance of ablution and change house facilities

9.2(5) The employer must provide and maintain suitable and adequate:

- (a) change houses to enable employees who perform work involving hazardous substances to change into working clothes at the start of their shift and to wash themselves and change their clothes at the end of their shift;
- (b) facilities to enable employees who perform work involving hazardous substances to wash their hands and faces before eating any meals at work; and

- (c) readily available latrine facilities, within a reasonable distance from each working place.

Working Clothes

9.2(6) No employee may remove clothes referred to in regulation 9.2(5)(a) from the mine unless such clothes have been decontaminated.

Report to Regional Principal Inspector

9.2(7) The employer must submit to the regional principal inspector of mines, on forms 21.9(2)(a); 21.9(2)(b); 21.9(2)(c) and 21.9(2)(d), 21.9.2(e) and 21.9.2(f) prescribed in chapter 21, and within 60 days from the end of the relevant reporting period as indicated on each form, reports which contain information on the airborne pollutant, thermal stress and noise aspects of the system of occupational hygiene measurements, established and maintained in terms of regulation 9.2(2).

(Regulation 9.2(7) commences on 1 September 2002 – See Government Notice R904 dated 2 July 2002)

(Regulation 9.2(7) amended by regulation 2 of Government Notice R1226 in Government Gazette 2833 dated 15 December 2005)

Respiratory Protective Equipment

9.2(8) The employer must ensure that all respiratory protective equipment used at a mine, other than body-worn self-contained self-rescuers, comply with the South African bureau of Standards Code of Practice, Homologation of Respiratory equipment SABS 0338.

Illumination of Working Places

9.2(9) The employer must ensure that the illumination at all working places is sufficient to enable employees, who have conformed with the requirements of the vision tests conducted in terms of the Guideline for the Minimum Standards of Fitness to Perform work at a Mine, to perform their work safely.

Repeal

The following regulations made under the Minerals Act, 1991 (Act 50 of 1991) in force in terms of Schedule 4 of the Mine Health and Safety Act, 1996 (Act 29 of 1996) are hereby repealed.

CHAPTERS									
2	4	6	7	8	9	10		15	24
2.10.7	4.2	6.3.2.4	7.2.2	8.4.2(c)	9.29	10.1.1	10.10.1	15.5.3	24.14.6
2.10.8	4.3.1		7.3.1	8.5.1		10.1.2	10.10.2	15.2	24.20.4
2.10.9	4.3.2			8.5.2		10.2.1	10.10.3	15.2.1	
2.10.10	4.3.3			8.9.3.1		10.2.2	10.10.4	15.2.2	

2.10.7	4.3.4			8.9.4		10.2.3	10.10.5	15.3.1	
2.16.1	4.8			8.9.5		10.2.4	10.10.6		
2.16.2	4.9			8.9.8		10.2.5	10.11.2		
2.16.3				8.9.9		10.2.6	10.16.1		
				8.9.10		10.3.1	10.16.2		
				8.10.12		10.3.2	10.16.3		
				8.10.13		10.3.3	10.16.4		
				8.10.41		10.3.4	10.17.1		
				8.10.42		10.3.5	10.17.2		
				8.10.43		10.3.6	10.17.3		
						10.4	10.17.4		
						10.5.1	10.19.1		
						10.5.2	10.19.2		
						10.6.1	10.19.3		
						10.6.2	10.20.1		
						10.6.3	10.20.2		
						10.6.4	10.20.3		
						10.6.5	10.21.1		
						10.6.6	10.21.2		
						10.6.7	10.21.3		
						10.7	10.21.4		
						10.8	10.21.5		
						10.9.1.1	10.22		
						10.9.1.2	10.23		
						10.9.2	10.25.2		
						10.9.3	10.25.3		
						10.9.4	10.25.4		
						10.9.5	10.25.5		
						10.9.6	10.25.8		
						10.10			

(Chapter 9 inserted by the Schedule of Government Notice R904 in Government Gazette 23583 dated 2 July 2002)

CHAPTER 10

PLACE OF AN ACCIDENT TO BE LEFT UNDISTURBED

10.1(1) When an accident causes the immediate death of any employee, the place where the accident occurred must not, without the consent of the Principal Inspector of Mines, be disturbed or altered before such place has been inspected by an Inspector or any other person authorised under section 49(4) by the Chief Inspector of Mines.

10.1(2) Regulation 10.1 (1) does not apply if:

- (a) such disturbance or alteration is unavoidable to prevent further accidents, to remove fatalities and injured employees or to rescue employees from danger; or

(b) the discontinuance of work at such place would seriously impede the working of the mine.

10.1(3) Despite regulation 10.1 (1), work may be resumed at the place where the accident occurred if such inspector or other person authorised by the Chief Inspector of Mines fails to inspect the place within three days after notice of the accident has been given.

RIGHT TO ATTEND INSPECTION IN LOCO

10.2 Any employee having a material interest in an accident referred to in paragraph 10.1(1) as well as that employee's representative may attend any inspection in loco conducted by an inspector but such attendance is at their own risk. In case such employee is, by reason of death or the severity of his/her injuries, unable to appoint any representative to attend the inspection in loco, the relatives, or in their absence the fellow employees, of such employee may appoint such representative.

(Chapter 10 inserted by the Schedule of Government Notice R134 in Government Gazette 22055 dated 9 February 2001)

CHAPTER 10 MISCELLANEOUS AND GENERAL PROVISIONS

Hazardous Location

Definitions

For purposes of regulation 10.1, unless the context indicates otherwise-

“certified” means type tested, batch tested or produced under an approved product certification scheme, as described in South African National Standard ARP 0108 “Regulatory requirements for explosion protected apparatus”;

“double protected” means a combination of any two independent types of explosion protection in such a way that in the event of failure of one of them, the other independent second means provides the required level of protection;

“explosion protected apparatus” means any apparatus used in a hazardous location and selected in accordance with the guidelines as defined in the South African National Standard SANS 10108-2005, 'The classification of hazardous locations and the selection of apparatus for use in such locations' and the Aanbevolle / Recommended Praktyk / Practice ARP 0108, “Regulatory requirements for explosion protected apparatus”

“hazardous location” means any location, where there may be a significant risk of igniting gas, dust, mist or vapour, including the following-

- (a) for underground coal mines any location where, under normal operating conditions, there is a continuous presence of flammable gas, measured at a concentration of 0,5 % or more by volume in the general body of the air, including:
 - (i) a return airway, and
 - (ii) any location determined by risk assessment but not less than 180m from any working face.
- (b) for underground mines other than coal mines any location where, under normal operating conditions, there is a continuous presence of flammable gas measured at a concentration of 0,5% or more by volume in the air.
- (c) for surface mines and surface locations at all mines including offshore installations any location as identified in accordance with South African National Standard SANS 10108: 2004 (Edition 5), "The classification of hazardous locations and the selection of apparatus for use in such locations".

"Light-metal" means-

- (a) aluminium;
- (b) magnesium;
- (c) titanium; and
- (d) any alloy containing more than -
 - (i) 15 per cent aluminium by mass of the alloy;
 - (ii) 15 per cent aluminium, magnesium and /or titanium, taken together by mass of the alloy; or
 - (iii) 6 per cent magnesium and /or titanium, taken together or separately, by mass of the alloy.

10.1(1) The employer must take reasonable measures to ensure that all electrical reticulation systems used in hazardous locations are designed and selected by a competent person or under the direct supervision of such a competent person.

10.1(2) The employer must take reasonably practicable measures to prevent persons from being injured in any hazardous location as a result of fire, explosion or the ignition of gas, dust, mist or vapour. Such measures must ensure that -

- (a) all hazardous locations are identified, clearly marked and recorded on a plan or register, which must be kept updated and readily available at the mine;
- (b) only explosion protected apparatus and systems certified for use in a hazardous location in accordance with the South African National Standard ARP 0108: 2005, "Regulatory requirements for explosion protected apparatus", are used in any hazardous location;
- (c) the selection of explosion protected apparatus used in any hazardous location is done in accordance with SANS 10108:2005 "The classification of hazardous locations and the selection of apparatus for use in such locations". The normative references as listed in SANS 10108 are not applicable to the employer;
- (d) the installation, inspection and maintenance of explosion protected apparatus used in a hazardous location is carried out in accordance with SANS 10086-1 2005 "The installation, inspection and maintenance of equipment used in explosive atmospheres Part 1: Installations including surface installations on mines" and SANS 10086-2 2004 "The installation, inspection and maintenance of equipment used in explosive atmospheres Part 2: Electrical equipment installed underground in mines" as appropriate;
- (e) any repair, overhaul or modification to any explosion protected apparatus used in any hazardous location does not alter its design characteristics and is carried out in accordance with SANS 10086-3 2005". The installation, inspection and maintenance of equipment used in explosive atmospheres Part 3: Repair and overhaul of apparatus used in explosive atmospheres";
- (f) explosion protected apparatus used in any hazardous location is installed, maintained, repaired, overhauled, inspected and tested by a competent person;
- (g) only double protected or intrinsically safe type Ex ia explosion protected apparatus remains energized where flammable gas is present in concentrations in excess of 1.4% by volume in the air. All other explosion protected apparatus must be de-energized at flammable gas concentrations in excess of 1.4% by volume in air;
- (h) every battery operated self propelled mobile machine used in any hazardous location complies with "SANS 1654: 2005 DC powered machines for use in hazardous areas in mines";
- (i) any trailing cable used in any hazardous location is -
 - (aa) provided with a pilot circuit of intrinsically safe voltage and current which will prevent power being supplied to the cable unless the earth conductor is continuous;
 - (bb) provided with a means (system) to prevent arcing of power contacts of any plug used in conjunction with the cable while such plug is being inserted or withdrawn;

- (cc) provided with a supply of electricity of which the earth fault current is limited to a value so that there is no significant risk of electrocution;
- (dd) individually screened on poly phase and collectively screened on single phase power conductors; and
- (ee) designed for being dragged across the ground;
- (j) measures are in place to verify, as far as reasonably practicable, that electrical circuits and components of such circuits used for explosion protected apparatus have been correctly designed, selected, installed and repaired;
- (k) only internal compression ignition engine system and machines that comply with the South African National Standard. SANS 868-1-1 2005: "Compression-ignition engine systems and machines powered by such engine systems, for use in mines and plants with explosive gas atmospheres or explosive dust atmospheres or both", Parts 1-1 or 1-2, whichever is applicable, are used in a hazardous location.
- (l) all compression ignition engines used in a hazardous location have a valid Inspection (IA) certificate for the components and the complete machine and test reports issued by an accredited testing laboratory (ATL) that must be available at the mine
- (m) when a compression ignition engine system has any defect which may contaminate the air and cause a significant risk to the safety or health of persons, the use of such engine system is discontinued immediately;
- (n) all maintenance and repairs to diesel-powered equipment is performed by a competent person;
- (o) no apparatus, component or machinery made of a light metal is used in a hazardous location unless such apparatus, component or machinery is:-
 - (ff) covered by a housing, sheath, cover or coating (excluding paint) that will prevent such ignition; or
 - (gg) contained, situated or used in such a manner that does not create a significant risk of such ignition; or
 - (hh) complies with South African National Standard SANS 10012:2004 "The use of light metals in hazardous locations at mines".

Water Storage and Pumping Regulations

Prepared by:

10.2(1) The employer must take reasonable measures to ensure that no person is injured as a result of the failure of any dam wall, plug or barricade keeping back water underground due to inappropriate design, sub-standard construction, or inadequate inspection and maintenance of such dam wall, plug or barricade.

10.2(2) The measures to be taken by the employer to comply with regulation 10.2(1) above, must include measures to ensure that-

- (a) any dam wall, plug or other barricade keeping back water underground, where the product of the capacity in cubic meters and the hydraulic head in meters of the dam storing water underground and of which they form part, exceeds 50 000, is designed by and constructed under the supervision of a competent person¹;
- (b) any dam wall, plug or barricade contemplated in sub-regulation (a) above is maintained by a competent person²;
- (c) any dam wall, plug or other barricade keeping back water underground, where the product of the capacity in cubic meters and the hydraulic head in meters of the dam storing water underground and of which they form part, does not exceed 50 000, is designed, constructed, inspected and maintained under the supervision of a competent person²; and
- (d) all design calculations and drawings of dam walls, plugs and barricades and mine plans indicating the exact position of such dam walls, plugs and barricades are stored safely for the life of such dam walls, plugs and barricades and are readily available.

10.2(3) The employer must:

- (a) take reasonably practicable measures to prevent persons from being injured by the unintentional release of water and hydraulic pressure from any dam storing water underground; and
- (b) prepare and implement a procedure to prevent injury to persons involved with the installation, construction, inspection, testing and maintenance of the following hydraulic pressure systems -
 - (i) high pressure water jetting systems;
 - (ii) shaft high pressure cement columns;
 - (iii) shaft water and sludge columns;

¹ "competent person" defined in Regulation 22.10.2(2)(a)

² "competent person" defined in Regulation 22.10.4(2)(b)

- (iv) dam water and sludge systems;
- (v) mine residue discharge pumps;
- (vi) hydraulic water accumulator systems;
- (vii) high pressure pumping installations; or
- (viii) backfill columns and associated equipment.

Draw Points, Tipping Points, Rock Passes and Box Fronts

Definitions

For purposes of regulation 10.3, unless the context indicates otherwise -

“box front” means a structure installed at an opening of a rock pass to control the flow of rock, and includes bulkheads, chutes, platforms, control mechanisms, cylinders and similar accessories;

“draw point” means a point where rock is loaded out or allowed to flow out from an excavation;

“rock” means any mineral, ore and waste in solid form and coal;

“rock pass” means any inclined excavation in which any rock is transported by the force of gravity; and

“tipping point” means the upper inlet into a rock pass.

10.3(1) The employer must take reasonably practicable measures to ensure that:

- (a) the designs, and any modification thereto that can change the design criteria, of structures for draw points, tipping points, rock passes and box fronts are recorded and approved in writing by a competent person; and
- (b) the approved designs and records of approval are kept readily available at the mine for the life of such installation.

10.3(2) The employer must take reasonably practicable measures to ensure that:

- (a) a competent person in writing certifies that the construction, installation and modification of draw points, tipping points, rock passes and box front structures have been done in accordance with their design criteria before they are used; and

- (b) the written certifications contemplated in regulation 10.3(2)(a) are kept readily available at the mine for the life of the particular structure.

10.3(3) The employer must take reasonably practicable measures to ensure that written procedures are prepared and implemented for:

- (a) the removal of structures for draw points, tipping points and box fronts;
- (b) persons entering a rock pass while it contains water, mud, rock or a combination thereof;
- (c) clearing blocked rock passes; and
- (d) the lock-out, maintenance and rehabilitation of draw points, tipping points, rock passes and box fronts.

(Second Chapter 10 inserted by Government Notice R94 in Government Gazette 30698 dated 1 February 2008)

CHAPTER 11 OCCUPATIONAL HEALTH

(Heading amended by the Schedule to Government Notice R786 in Government Gazette 23498 dated 14 June 2002)

(Heading replaced by Regulation 1 of Government Notice R621 in Government Gazette 36761 dated 23 August 2013)

Appeal regarding finding of unfitness to perform work

11.1 An appeal under section 20(1) must be lodged with the Medical Inspector-

- (a) within 30 days of a decision or finding that an employee is unfit to perform any particular category of work;
- (b) within 90 days of the date of issue of an exit medical certificate; or
- (c) within such period as the Medical Inspector may allow on good cause shown.

(Chapter 11, regulation 11.1, inserted by the Schedule of Government Notice R721 in Government Gazette 20155 dated 11 June 1999)

Annual Medical Report

11.2 The annual medical report contemplated in section 16(1) must include details regarding at least the following:

- (a) (i) Name of mine.
- (ii) Name, address and telephone number of the occupational medical practitioner responsible for compiling the annual medical report.
- (b) Type of mine. Commodity or commodities being mined.
- (c) Total number of employees (including contract workers) who were subject to medical surveillance in terms of section 13 during the reporting period and the total number of hours worked by those employees.
- (d) The number of initial, periodical and exit examinations conducted as part of the medical surveillance system.
- (e) An analysis of the employees' health based on the employees' records of medical surveillance, without disclosing the names of the employees.
- (f) Comments on the future direction of the medical surveillance system.
- (g) The number of employees certified for compensation for occupational diseases.

(Regulation 11.2 inserted by the Schedule of Government Notice R1486 in Government Gazette 20714 dated 17 December 1999)

11.3 Exit certificate

The exit certificate contemplated in section 17 must include details regarding at least the following:

11.3.1 Particulars of mine:

- (a) Name of mine
- (b) Types of mine commodities being mined
- (c) Postal address
- (d) Telephone number
- (e) Fax number
- (f) Name of Occupational Medical Practitioner responsible for producing the exit certificates in terms of Section 17(4).

11.3.2 Particulars of employees:

- (a) Name
- (b) Date of birth
- (c) Identification details: Identity number, Passport number, Industry number and company number
- (d) Date *[sic]* of initial medical examination

11.3.3 Exit medical summary:

- (a) Date of last medical examination.
- (b) Clinical comments on chest x-ray (CXY).
- (c) International Labour Organization (ILO) classification of the chest x-ray (CXR) if applicable.
- (d) Lung function Testing:
 - (i) Forced Expiratory Volume in 1 second (FEV1) - actual and predicable percentages.
 - (ii) Forced Vital Capacity (FVC) - actual and predicable percentages.
 - (iii) Ratio of forced Expiratory Volume in 1 second (FEV1)/Forced Vital Capacity (FVC) expressed as a percentage.
- (e) Audiometry
 - (i) Baseline Audiogram readings (measurement in dB at 0.5, 1, 2, 3, 4 KHz) in terms of regulation 11.4
 - (ii) Baseline Percentage Loss of Hearing (PLH) as contemplated in instruction 171, issued by the Compensation Commissioner in terms of the Compensation for Occupational Injuries and Diseases Act, 1993
 - (iii) Exit Audiogram readings (measurement in dB at 0.5, 1, 2, 3, 4 KHz)
 - (iv) Exit PLH as contemplated in instruction 171
- (f) Biological monitoring results of the employee, and provide comments on abnormal results.

(g) Occupational diseases previously incurred and current including severity.

(h) Any compensation claims submitted and/or compensation received.

(i) Name and signatures of Occupational Medical Practitioner.

(j) Signature of employee, witness and date of receipt by employee of a copy of the exit certificate.

(Regulation 11.3 inserted by the Schedule of Government Notice R1486 in Government Gazette 20714 dated 17 December 1999) and regulation 11.3(b)(v) corrected by GN R303 in Government Gazette 21029 dated 24 March 2000)

(Regulation 11.3 substituted Government Notice R1053 in Government Gazette 33752 dated 12 November 2010)

(Regulation 11.3 substituted by Regulation 2 of Government Notice R621 in Government Gazette 36761 dated 23 August 2013)

NOISE

System of Medical Surveillance

11.4(1) The employer must establish and maintain a system of medical surveillance, as contemplated in section 13, of all employees in any working place where the equivalent, continuous A-weighted sound pressure level, normalised to an eight hour working day or a forty hour working week, is equal to or exceeds 85 dB(A).

Types of Audiograms

11.4(2) The system of medical surveillance contemplated in regulation 11.4 (1) must consist of a baseline audiogram, periodic audiograms and an exit audiogram.

11.4(3) A competent person must perform all audiograms.

Baseline Audiogram

11.4(4) A baseline audiogram must be recorded before an employee commences employment or within 30 days of commencement of employment in any working place contemplated in regulation 11.4(1).

11.4(5) Testing for the baseline audiogram must not be done within 16 hours from when an employee has been exposed to an environment in which the noise level was equal to or exceeded 85 dB(A). The use of hearing protection devices to effect this attenuation will not be acceptable.

11.4(6) The baseline audiogram is the better of the employee's two audiograms performed on the same day and that do not differ from each other by more than 10 dB for any of the following measured test frequencies, i.e. 0.5, 1, 2, 3, and 4 kilohertz (kHz).

11.4(7) If it is impossible to obtain two audiograms that comply with the requirements of regulation 11.4(6), the employees must be referred to a competent person to establish baseline-hearing levels in accordance with regulation 11.4(6).

11.4(8) If it is impossible for the competent person to establish baseline-hearing levels as contemplated in regulation 11.4(7), the competent person may establish baseline-hearing levels by using other techniques, such as speech reception thresholds.

Periodic Audiograms

11.4(9) The employer must ensure that a periodic audiogram is obtained at least annually for all employees subject to medical surveillance in terms of regulation 11.4(1).

11.4(10) The periodic audiogram contemplated in regulation 11.4(9) must be performed at least 16 hours after any exposure of the employees to a noise level equal to or exceeding 85 dB(A.) Use of appropriate hearing protection devices to reduce exposure will be acceptable.

Exit Audiogram

11.4(11) In addition to the exit medical examination for the purposes of section 17, the employer must arrange an audiogram for every employees subject to medical surveillance in terms of regulation 11.4(1) and who is permanently transferred to a working place in respect of which medical surveillance is not required under regulation 11.4(1).

11.4(12) An audiogram conducted within the preceding six months may be used as an exit audiogram for purposes of section 17 or regulation 11.4(11).

(Regulation 11.4 inserted by the Schedule of Government Notice R786 in Government Gazette 23498 dated 14 June 2002)

REGULATIONS FOR MEDICAL SURVEILLANCE FOR ASBESTOS DUST EXPOSURE

ASBESTOS DUST

System of Medical Surveillance

11.5(1) The employer must establish and maintain a system of medical surveillance as contemplated in section 13, for all employees who perform work in any working place where exposure to asbestos dust occurs in excess of 50% of the OEL for asbestos dust as set out in Schedule 22.9(2)(a) and (b).

Types of Examinations to be Performed

11.5(2) The system of medical surveillance contemplated in regulation 11.5(1) must consist of an initial examination, periodic examinations and an exit examination.

Initial Examination

11.5(3) The employer must ensure that an initial examination is performed before an employee commences employment, or within 30 days of commencement of employment, in any working place contemplated in regulation 11.5(1). The initial examination must consist of:

- (a) the completion of an appropriate respiratory questionnaire aimed at establishing the employee's medical profile, including current and past cardio-respiratory problems and an occupational history detailing possible exposure to asbestos dust.
- (b) a cardio-respiratory examination, including:
 - (i) a full size chest x-ray; and
 - (ii) a lung function test.

Periodic Examinations

11.5(4) The employer must ensure that the following periodic examinations are conducted on all employees required to undergo medical surveillance in terms of regulation 11.5(1):

- (a) a cardio-respiratory examination, including a lung function test, but excluding a chest x-ray, one year after the initial examination contemplated in regulation 11.5(3); and thereafter
- (b) a cardio-respiratory examination, at three yearly intervals, which includes:
 - (i) a full size chest x-ray; and
 - (ii) a lung function test.

Exit Examination

11.5(5) In addition to the exit medical examination for the purposes of section 17, the employer must arrange a cardio-respiratory examination for every employee subject to medical surveillance in terms of regulation 11.5(1) and who is permanently transferred to a working place in respect of which medical surveillance is not required under regulation 11.5(1).

11.5(6) A full size chest x-ray conducted within the preceding twelve months may be used as the exit, chest x-ray for the purposes of section 17 and regulation 11.5(5).

11.5(7) A lung function test conducted within the preceding twelve months may be used as the lung function test for the purposes of section 17 and regulation 11.5(5).

(Regulation 11.5 inserted by the Schedule in Government Notice R1792 in Government Gazette 25812 dated 12 December 2003)

REGULATIONS FOR MEDICAL SURVEILLANCE FOR COAL DUST EXPOSURE

COAL DUST

System of Medical Surveillance

11.6(1)

- (a) The employer must establish and maintain a system of medical surveillance as contemplated in section 13, for all employees who perform work in any working place where exposure to coal dust occurs in excess of 50% of the OEL for coal dust with less than 5% crystalline silica content as set out in Schedule 22.9(2)(a) and (b).
- (b) If the crystalline [sic] silica content of the coal dust is 5% or more, the employer must establish and maintain a system of medical surveillance as contemplated in regulations 11.7(1) to 11.7(7).

Types of Examinations to be Performed

11.6(2) The system of medical surveillance contemplated in regulation 11.6(1)(a) must consist of an initial examination, periodic examinations and an exit examination.

Initial Examination

11.6(3) The employer must ensure that an initial examination is performed before an employee commences employment, or within 30 days of commencement of employment, in any working place contemplated in regulation 11.6(1)(a). The initial examination must consist of:

- (a) the completion of an appropriate respiratory questionnaire aimed at establishing the employee's medical profile, including current and past cardio-respiratory problems and an occupational history detailing possible exposure to coal dust.
- (b) a cardio-respiratory examination, including:
 - (i) a full size chest x-ray; and

- (ii) a lung function test.

Periodic Examinations

11.6(4) The employer must ensure that the following periodic examinations are conducted on all employees required to undergo medical surveillance in terms of regulation 11.6(1)(a):

- a) a cardio-respiratory examination, including a lung function test, but excluding a chest x-ray, one year after the initial examination contemplated in regulation 11.6(3); and thereafter
- b) a cardio-respiratory examination, at three yearly intervals, which includes:
 - (i) a full size chest x-ray; and
 - (ii) a lung function test:

Exit Examination

11.6(5) In addition to the exit medical examination for the purposes of section 17, the employer must arrange a cardio-respiratory examination for every employee subject to medical surveillance in terms of regulation 11.6(1)(a) and who is permanently transferred to a working place in respect of which medical surveillance is not required under regulation 11.6(1)(a).

11.6(6) A full size chest x-ray conducted within the preceding twelve months may be used as the exit chest x-ray for the purposes of section 17 and regulation 11.6(5).

11.6(7) A lung function test conducted within the preceding twelve months may be used as the lung function test for the purposes of section 17 and regulation 11.6(5).

(Regulation 11.6 inserted by the Schedule in Government Notice R1792 in Government Gazette 25812 dated 12 December 2003)

REGULATIONS FOR MEDICAL SURVEILLANCE FOR SILICA DUST EXPOSURE

CRYSTALLINE SILICA DUST

System of Medical Surveillance

11.7(1) The employer must establish and maintain a system of medical surveillance as contemplated in section 13, for all employees who perform work in any working place where exposure to crystalline silica dust occurs in excess of 10% of the OEL for crystalline silica dust as set out in Schedule 22.9(2)(a) and (b).

Types of Examinations to be Performed

11.7(2) The system of medical surveillance contemplated in regulation 11.7(1) must consist of an initial examination, periodic examinations and an exit examination.

Initial Examination

11.7(3) The employer must ensure that an initial examination is performed before an employee commences employment, or within 30 days of commencement of employment, in any working place contemplated in regulation 11.7(1). The initial examination must consist of:

- (a) the completion of an appropriate respiratory questionnaire aimed at establishing the employee's medical profile, including current and past cardio-respiratory problems and an occupational history detailing possible exposure to silica dust.
- (b) a cardio-respiratory examination, including:
 - (i) a full size chest x-ray; and
 - (ii) a lung function test.

Periodic Examinations

11.7(4) The employer must ensure that the following periodic examinations are conducted on all employees required to undergo medical surveillance in terms of regulation 11.7(1):

- (a) a cardio-respiratory examination, including a lung function test, but excluding a chest x-ray, one year after the initial examination contemplated in regulation 11.7(3); and thereafter
- (b) a cardio-respiratory examination, at three yearly intervals, which includes:
 - (i) a full size chest x-ray; and
 - (iii) a lung function test.

(Publisher's Note: Numbering as published in the original Government Gazette)

Exit Examination

11.7(5) In addition to the exit medical examination for the purposes of section 17, the employer must arrange a cardio-respiratory examination for every employee subject to medical surveillance in terms of regulation 11.7(1) and who is permanently transferred to a working place in respect of which medical surveillance is not required under regulation 11.7(1).

11.7(6) A full size chest x-ray conducted within the preceding twelve months may be used as the exit chest x-ray for the purposes of section 17 and regulation 11.7(5).

11.7(7) A lung function test conducted within the preceding twelve months may be used as the lung function test for the purposes of section 17 and regulation 11.7(5).

(Regulation 11.7 inserted by the Schedule in Government Notice R1792 in Government Gazette 25812 dated 12 December 2003)

11.8 REPORTING OF OCCUPATIONAL DISEASES

(1) The employer must report to the Principal Inspector of mines any of the following occupational diseases within 30 days from the date of diagnosis as a result of working in the mines:

- (a) Occupational lung diseases;
- (b) Other occupational diseases as covered by the Compensation for Occupational Injuries and Diseases Act, 1993 (Act no. 130 of 1993) as amended ("**COIDA**"), or Occupational Diseases in the Mines and Works Act, 1973 (Act no. 78 of 1973) as amended ("**ODMWA**");
- (c) Noise Induced Hearing Loss (when Percentage Loss of Hearing (PLH) shift is 5% or more);
- (d) Other illnesses that may impact on the health and safety of employees, as determined through instructions by the Chief Inspector of mines.

(2) In reporting the reportable occupational diseases listed in Regulation 11.8(1) using the form DMR 231 Health Incident Report (HIR) Form, the following must be considered.

(a) Occupational lung diseases

- (i) Silicosis and Coal Worker's Pneumoconiosis (CWP)

A radiological diagnosis of silicosis or coal-workers' pneumoconiosis that takes into account:

- (i) (a) History of significant exposure to airborne silica or coal dust; and
- (i) (b) Chest X-ray consistent with silicosis or coal-workers' pneumoconiosis, or
- (i) (c) Lung tissue pathology consistent with silica or coal-workers' pneumoconiosis exposure where history has been done at post mortem.

(ii) Cardio-respiratory Tuberculosis

Tuberculosis affecting the respiratory organs and/or the heart muscles:

- (ii) (a) Where an employee was exposed and contracted the disease while performing risk work at a mine; or
- (ii) (b) Within 12 months after leaving employment.

(b) Other Occupational Lung Diseases

These include other occupational lung diseases with significant correlation with the risk in that particular mine which are also compensable under “**ODMWA**” or “**COIDA**”.

(c) Noise Induced Hearing Loss

This includes an impairment of hearing as a result of exposure to excessive noise at a mine with:

- (i) PLH shift of more than or equal to 5% from the baseline audiometry; and
- (ii) PLH shift of more than 5% where baseline audiometry is unknown or regarded as zero.

(d) Other Illnesses

Other illnesses that may impact on the health and safety of employees, as determined through instructions by the Chief Inspector of Mines. These may include lifestyle diseases such as diabetes, hypertension etc.

- (3) Occupational diseases referred to in Regulation 11.8(1)(a), (b) and (c) must be reported on a prescribed form to the Principal Inspector of Mines within 30 days from the date of diagnosis; and other illnesses referred to in Regulation 11.8.1(d) based on an instruction from the Chief Inspector of Mines.

(Regulation 11.8 inserted by Government Notice R701 in Government Gazette 37980 dated 12 September 2014)

11.9

(9) RECORD OF HAZARDOUS WORK

- (a) An up to date copy of the employee's Record of Hazardous Work recorded in prescribed form DMR 276 must be delivered to the Medical Inspector and also attached to the Exit Certificate as contemplated in terms of Section 14 of the Act.

(For DMR 276 see Chapter 21)

(Regulation 11.9 inserted by Regulation 4 of Government Notice R621 in Government Gazette 36761 dated 23 August 2013)

CHAPTER 13

OUTLETS, LADDERWAYS AND TRAVELLING WAYS

Outlets

13.1(1) The employer must prevent employees from being trapped in any underground excavation by providing whenever practicable, from every underground working place, two exits, each of which is connected to separate means of egress to the surface.

13.1(2) Where it is not practicable to provide two exits as contemplated in regulation 13.1(1) above, the employer must implement other reasonably practicable measures, determined by the mine's risk assessment, to prevent employees from being trapped in any underground excavation.

(Regulation 13.1(2) amended by GNR 90 in Government Gazette 30698 dated 1 February 2008)

13.1(3) Except in the case of emergency no person may enter or leave the underground workings of a mine except by means of ingress or egress especially provided or set apart for that purpose by the employer unless such person is authorised to do so by the employer.

13.1(4) The following regulations promulgated under Minerals Act, 1991 (Act No. 50 of 1991) in force in terms of item 4 of Schedule 4 of the Act, are hereby repealed-

Chapter 6	Chapter 16	Chapter 19
6.1.1	16.98	19.1
6.1.2	16.98.1	19.2.1
6.1.3	16.98.2	19.2.2
6.2.1	16.98.3	19.3.1
6.2.2	16.98.4	19.3.2
6.2.3	16.98.5	19.3.3
6.2.4	16.99	19.3.4
6.2.5	16.100	19.4
6.3.1	16.101	19.5
6.3.2	16.102	19.6
6.3.2.1	16.103	
6.3.2.6	16.103.1	

Chapter 6	Chapter 16	Chapter 19
6.3.2.7	16.103.2	
6.3.2.8	16.104	
6.3.2.12		
6.3.3.1		
6.3.3.2		
6.3.3.3		
6.3.3.4		
6.3.3.5		
6.3.3.6		
6.9		
6.11		

(Regulation 13.1(4) deleted and substituted by GNR 90 in Government Gazette 30698 dated 1 February 2008)

(Chapter 13 inserted by the Schedule in Government Notice R1224 in Government Gazette 28333 dated 15 December 2005)

CHAPTER 14

FALL OF GROUND REGULATIONS

Entering of working places

14.1 At every underground mine where a risk of rock bursts, rock falls or roof falls exists, and at every other mine where a significant risk of rock bursts, rock falls or roof falls exists, the employer-

14.1(1) may not permit any person, other than those persons examining and making safe, to enter any of the following areas at the mine until such areas are declared safe by competent persons:

- (a) the area between the face and the nearest line of permanent support; and
- (b) access ways, travelling ways or places where persons need to travel or work;

14.1(2) must ensure that the examinations for purposes of regulation 14.1(1) are carried out as often as may be required, in terms of the mine's risk assessment, to maintain a safe working environment;

14.1(3) must ensure that a record of declarations contemplated in regulations 14.1(1) and 14.1(5) is kept for a period of at least three months;

- 14.1(4) must ensure that where areas contemplated in regulation 14.1(1) have not been examined, made and declared safe, persons are prevented from inadvertently entering such areas;
- 14.1(5) must ensure, if at any time a working place or part thereof becomes unsafe during a shift, that all persons, other than those examining and making safe, are removed from such unsafe area and are not permitted to return thereto until declared safe by a competent person.
- 14.1(6) must ensure that a quality, assurance system is in place, which ensures that the support units used at the mine provide the required performance characteristics for the loading conditions expected;
- 14.1(7) must ensure that only competent persons install, maintain and remove any support unit;
- 14.1(8) must ensure that the input of a competent person is properly and timeously considered and integrated into mine design, planning and operations.
- 14.2 No person, other than those persons examining and making safe, may enter any of the areas contemplated in regulation 14.1(1) until such areas have been declared safe as contemplated in regulations 14.1(1) and 14.1(5).
- 14.3 The following regulations made under the Minerals Act, 1991 (Act 50 of 1991) in force in terms of Schedule 4 of the Mine Health and Safety Act, 1996 (Act 29 of 1996) are hereby repealed

7.1	8.4.2(a), (b) and (d)
7.2.2	8.4.3
7.4.5	8.4.4.1
8.1.1	8.4.4.2
8.1.2	8.4.4.3
8.1.3	8.4.5
8.1.5	8.8
8.1.6	8.9.1, 8.9.2
8.2	8.9.6
8.3.1	8.10.11
8.3.2	

(Chapter 14, regulation 14.1 – 14.3, inserted by the Schedule of Government Notice R959 in Government Gazette 23615 dated 12 July 2002, with effect from 1 January 2003.)

- 14(4) The employer must take reasonable measures to ensure where the condition at any working place pose or might pose a significant risk to the health and safety of persons resulting from an ingress of water or other fluid material likely to cause drowning, asphyxiation, inundation, physical impact, chemical exposure or being trapped, that all working places are adequately protected against such ingress of water or other fluid material.
- 14(5) The employer must take reasonable measures to ensure that no person is endangered by any significant risks such as falling, drowning, slipping, asphyxiation or being struck by rock or other material associated with subsidences or cavities brought about by mining operations.

14(6) The employer must take reasonable measures to ensure that no person is endangered by any significant risks such as the collapse of surface buildings and structures thereon associated with structural failure as a result of the removal of any type of support provided for the protection of the surface of a mine or structures or objects thereon.

14(7) The following regulations made under the Minerals Act, 1991 (Act 50 of 1991), in force in terms of Schedule 4 of the Mine Health and Safety Act, 1996 (Act 29 of 1996) are hereby repealed: -

5.1.1
5.1.2
5.2
5.3.3
5.3.4
5.4.5
5.4.6
5.5
5.6.1
5.6.2
5.6.3
5.7
5.10

(Regulations 14(4), (5), (6) and (7) added by Government Notice R1323 in Government Gazette 26963 dated 12 November 2004)

CHAPTER 15

(Not yet published)

CHAPTER 16

RESCUE, FIRST AID AND EMERGENCY PREPAREDNESS AND RESPONSE

Definitions

For purposes of Chapter 16, unless the context indicates otherwise -

“Breathing apparatus” means an apparatus, which renders the user independent from breathing from the atmosphere for a minimum of two (2) hours;

“Data Logging Facility” means a system that collects, stores, and manages data related to the last known location of the wearer of a missing persons locator device over time;

“Emergency” means a situation, event or set of circumstances at a mine that could threaten the health or safety of persons at or off the mine, and which requires immediate remedial action, such as the evacuation, rescue or recovery of persons, to prevent serious injury or harm, or further serious injury or harm, to persons;

“Emergency Medical Care” means provision for facilities, suitably trained medical persons and response time capabilities to treat and evacuate persons who are in an emergency situation;

“Fresh Air Base” means the closest, safe place in through-ventilation to the site of an emergency;

“Gassing” means, for the purpose of this chapter, an incident where a person is/has been exposed to a hazardous or toxic gas which exceed the immediately dangerous to life and health level for respirable atmospheres.

“Irrespirable atmosphere” means an atmosphere in a mine requiring persons to wear breathing apparatus or Self-Contained Self-Rescuers (SCSR) due to the presence of hazardous gas, fumes or insufficient oxygen caused by an incident at the mine e.g. as a result of but not limited to combustible gases explosions, coal-dust explosions, combined gas and dust explosions, or mine fires.

“Missing person” means a person who is unaccounted for by the employer during or after any shift;

“Obsolete SCSR” means any Self-Contained Self-Rescuer that is older than ten years from date of manufacturing;

“Refuge Bay” means a durable and safe place located within a safe evacuation distance of each working place as stipulated in the mines’ code of practice for Emergency Preparedness and Response.

“Self-Contained Self-Rescuer (SCSR)” means a portable oxygen source (chemical or stored) that, when activated, will provide breathable air and includes:

- a) **“Body-Worn Self-Contained Self-Rescuer (BWSCSR)”** means a SCSR designed to be worn by workers on their body for the duration of a complete underground working shift.
- b) **“Long duration Self-Contained Self-Rescuer (LDSCSR)”** means a SCSR that will supply oxygen for a minimum of 60 minutes at a ventilation rate of 35 litres per minute. The unit must provide oxygen instantly when activated e.g. by chemical reaction or compressed air starters.

“Surface Fire Responder” means a person trained as stipulated in regulation 16.5(7) by a Mines Rescue Services provider, that is capable to deal with incidents and/or emergencies that may occur on every works, mine, surface mining operations or any mineral exploitation site other than underground mining.

“Unauthorised, Self-Contained Self-Rescuer” means a SCSR that has not been certified in terms of South African Bureau of Standards specification SANS 1737: “Body-Worn escape type breathing apparatus”

16.1 Report to Employer Relating to events that might lead to an emergency

- (1) The employer must ensure that competent persons report to the employer on the adequacy of emergency preparedness and response capabilities at appropriate intervals determined in accordance with the mine's risk assessment, on the adequacy of measures put in place for the management of the following events whether underground, on surface or both:
 - a) Fires and explosions
 - b) Flooding
 - c) Chemical release
 - d) Biological release
 - e) Gassing
 - f) Engineering emergencies (Electrical, mechanical, metallurgical, processing)
 - g) Mining - (seismicity, falls of ground)

(2) Report to the Employer on Emergency medical care

The employer must ensure that a competent person reports to the employer on the adequacy of emergency medical care and response capabilities at appropriate intervals as determined in accordance with the mine's risk assessment.

16.2 Issuing and deployment of Self-Contained Self-Rescuers

16.2.1 Underground Operations

The employer of every underground mine must ensure that no person goes underground at the mine without a **BWSCSR**, which complies with the latest amended version of the South African Bureau of Standards specification SANS 1737 “Body-Worn escape type breathing apparatus”.

16.2.2 Surface Operations

If at any surface mining operation, the risk assessment in terms of section 11 shows that employees are exposed to **irrespirable atmospheres** in any surface area at the mine, the employer must ensure that no person goes into such area without a **BWSCSR** which complies with the South African Bureau of Standards specification SANS 1737 "Body-Worn escape type breathing apparatus"

16.2.3 Sole Allocation of a Body Worn Self-Contained Self-Rescuer

The employer must take reasonably practicable measures to ensure that any **BWSCSR** supplied to any employee in terms of sub regulations 16.2.1 and 16.2.2, must be allocated to the employee for that employee's sole use for the duration of the deployment of that **SCSR** at the mine or until that **SCSR** becomes defective and the employee is issued with another **SCSR** as required by these regulations.

16.2.4 Deployment and use of a Self-Contained Self-Rescuer

- a) Any employee issued with a **BWSCSR** must wear it on the body at all times while underground at the mine or in places on surface as outlined in regulation 16.2.2;
- b) Any employee issued with a **SCSR** must use it in an **emergency** where an **irrespirable atmosphere** could exist and for purposes of escape to a **refuge bay** or place of safety.

16.2.5 Training on Self-Contained Self-Rescuer

The employer must ensure that:

- a) all employees issued with SCSRs are trained in the use of such an SCSR as per the provisions set out in the Mandatory Code of Practice for Lamproom Management as amended; and
- b) Any employee who may be required to use a **SCSR** during an **emergency** is either trained in the use of **SCSR** or will only use it under the direct supervision of a person so trained.

16.3 No Defective, Obsolete or Unauthorised Self-Contained Self-Rescuer to be issued for use

- 1) The employer must ensure that no defective, obsolete or unauthorised **BWSCSR** is issued for use to any person at a mine.
- 2) The employer must ensure that no defective, obsolete or unauthorised **LDSCSR** under their respective control is deployed during emergencies.

16.4 Monitoring Programme

Annual testing of Self-Contained Self-Rescuers

- 1) The employer must annually have a representative sample of the **SCSRs**, both **BWSCSR** and **LDSCSR**, in use or in reserve at the mine, tested by an organisation accredited to do so in terms of the South African National Accreditation System, for the assessment of the structural integrity and functional performance.
- 2) Where **LDSCSRs** are kept in a surface rescue room at a mine or at the premises of the mines rescue service provider, the mine and the mines rescue service provider must ensure that **LDSCSRs** are tested by an organisation accredited to do so in terms of the South African National Accreditation System, for the assessment of the structural integrity and functional performance.
- 3) Such a representative sample, as stated in sub-regulations 1 and 2 above, must not be less than 1% of the total number of **BWSCSRs** and not less than 1% of the total number of **LDSCSRs** in use at the mine or by a mines rescue service provider or in reserve. 1% of each sample must be representative of the make, age, and deployment of the **SCSR**.

Record keeping

- 4) The employer must keep the following information, relating to the **SCSR** at the mine, comprising the preceding 24 months. This information must be readily available at the mine:
 - a) The total number and make of **BWSCSRs** in service at the mine;
 - b) The number and make of **BWSCSRs** purchased by the mine in that period;
 - c) The number and make of **BWSCSRs** withdrawn from use by the mine in that period;
 - d) The number of shifts worked per day (1, 2 or 3);
 - e) The number of **BWSCSRs** issued daily (average for each month);
 - f) The number of employees working underground (on average per shift);
 - g) The number of spare **BWSCSRs** available (average per month);
 - h) A tabulation of the type of defects found;
 - i) The number of **BWSCSRs** repaired/refurbished; and
 - j) The number of **BWSCSRs** tested in terms of regulation 16.4(1)
- 5) The employer must keep the following information, relating to the **LDSCSRs** in use at the mine, covering the preceding 24 months. This information must be readily available at the mine:

- a) The total number and makes of **LDSCSRs** in service at the mine or mines rescue service provider;
- b) The number and make of **LDSCSRs** purchased by the mine or mines rescue service provider in that period;
- c) The number and make of **LDSCSRs** withdrawn from use by the mine or mines rescue service provider in that period;
- d) A tabulation of the type of defects found;
- e) The number of **LDSCSRs** repaired/refurbished; and
- f) The number of **LDSCSRs** tested in terms of regulation 16.4(1);
- g) The number of spare **LDSCSRs** available (average per month);
- h) A tabulation of the type of defects found;
- i) The number of **LDSCSRs** repaired/refurbished; and
- j) The number of **LDSCSRs** tested in terms of regulation 16.4(1).

16.5 Emergency Preparedness and Response

Mine Rescue Teams

- 1) The employer at every underground mine must-
 - (a) Provide and maintain, readily available at the *mine*, mine rescue teams in the following minimum proportions determined by the maximum number of persons who could be underground at any one time-
 - (i) where there could be between 150 and 3600 persons underground, at least 2 mine rescue teams.
 - (ii) where there could be between 3601 and 8100 persons underground at least 4 mine rescue teams; and
 - (iii) where there could be more than 8100 persons underground at least 4 mine rescue teams and at least 1 additional mine rescue team for every additional 5000 persons who could be underground.

- (b) At any underground mine where there may be less than 150 persons underground as contemplated in regulation 16.5(1)(a)(i) enter into a contract with a mines rescue service provider that has the resources to assist with mines rescue teams as contemplated in regulations 16.5(1)(a)(i)(ii)(iii).
- (c) Ensure that each such rescue team needs to consist of a minimum of eight rescue team members trained at the mine, whereby a minimum of six rescue team members needs to be readily available at the mine to be deployed at any time to any **emergency**.
- (d) Ensure that each operating mines rescue team deployed during an **emergency** to have a backup mines rescue team per operational team when entering any area that may be of **irrespirable atmosphere** or entering an area that exceeds the statutory environmental conditions or when conducting a rescue, recovery, reconnaissance, firefighting or mines rescue rope inspection.
- (e) Ensure that a minimum of two of the responding rescue team members in a rescue team must be the holders of a blasting certificate when called to any **emergency**.
- (f) Ensure that such mines rescue teams have a minimum of two rescue team members with an advance mines rescue member certificate of competency who can captain and/or vice-captain such rescue team during the deployment to any **emergency**.
- (g) Have readily available, at the mine for use by the mines rescue team members contemplated in regulation 16.5(1)(a), one **breathing apparatus** per trained mines rescue team member and such **breathing apparatus** must continually comply with SANS 50145: /EN 145: as amended from time to time "Respiratory protective devices - Self-contained closed-circuit breathing apparatus - Compressed oxygen or compressed oxygen-nitrogen type - Requirements, testing, marking"; The normative references in SANS 50145EN 145 as amended from time to time do not apply to the employer;
- (h) Enter into a contract with a mines rescue service provider per mining shaft to:
 - (i) coordinate and facilitate the provision of mines rescue teams and other services, relating to an **emergency**, on a cooperative basis;
 - (ii) train and certify mines rescue team members contemplated in regulation 16.5(1)(a) to the competency level contemplated in regulation 22.15(16)(a); and
 - (iii) train and certify persons to manage the control room in case of an **emergency** as contemplated in regulation 22.15(16)(a); where mine rescue teams are deployed;

- (i) Immediately notify such mines rescue service provider should any **emergency** occur at the mine that requires or may require the use of the mines own rescue team members contemplated in regulation 16.5.(1)(a), for whatsoever reason, or the use of the services of such mines rescue service provider or the deployment of outside mines rescue teams through such mines rescue services provider as contemplated in regulation 16.5.(1)(e)(f);
- (j) Identify a suitable location at the mine that can be used as emergency control room in case of an **emergency** with the following minimum requirements:
 - (i) An up to date copy of the mine ventilation and rescue plan, as contemplated in regulation 17.19, of any area that could be affected by a possible **emergency**.
 - (ii) a communication system to enable effective communication from such emergency control room to a potential **fresh air base** in case of an **emergency**.
 - (iii) a communication system independent from the communication system that is being used between the control room and the **emergency** or its **fresh air base** from where the mine can communicate to outside parties.
 - (iv) an emergency communication system which must have a different ring tone in comparison to any other communication systems in order for the control room operator and/or manager to immediate identify and attend to any incoming call on the emergency communication system when called for an emergency that may have occurred.
 - (v) such emergency control room is at all times under the control of a competent person as stipulated in regulation 16.5(1)(h)(iii), and shall be a holder of the Mine Manager's certificate as contemplated in regulation 2.5(2)(1)
 - (vi) a person is appointed as a competent person in the control room who records all sequence of events and instructions given by the competent person referred to in regulation 16.5(1)(h)(iii);
 - (vii) all relevant mine personnel, for the area at which the **emergency** exists, are available for consultation if required;
 - (viii) a written list of all known and anticipated hazards and risks to be expected in and around the area of the **emergency**, together with possible ways of addressing the risks, is compiled with the assistance of the persons mentioned in regulation 16.5(1)(j)(vii), and is provided to all persons assisting in dealing with the **emergency** before commencement of emergency operations;

- (ix) only persons authorised by the competent person contemplated in regulation 16.5(1)(j)(v), and that is directly involved with the actual **emergency** is present in the control room.

(k) Ensure during an **emergency**, that:

- (i) a sufficient number of mines rescue teams are deployed as soon as reasonably practicable to deal with the **emergency** and that the person contemplated in regulation 16.5(1)(j)(v) is advised of the name of the team captain and vice-captain of each such mines rescue team who will be coordinating the activities of that mines rescue team during the **emergency**, before the mines rescue team is deployed;
- (ii) a person appointed in terms of section 12(1) and a person appointed in terms of regulation 2.13(1) is also present in the control room and or relieved by a person with similar qualification and or appointment;
- (iii) a sufficient number of plans, to clearly indicate the full route from the shaft entrance to the scene of the **emergency** and possible second escapes, are available in the control room for all persons who may require them and that each mines rescue team is given their own copy before commencing rescue operations.
- (iv) a **fresh air base** is established as per the mines rescue service provider's requirements and that it is maintained by the mines rescue teams deployed during that **emergency**.
- (v) the control room manager ensures that no unauthorised mine personnel, other than mines rescue team members go beyond the **fresh air base** and enter the direct area where an **emergency** is dealt with, and
- (vi) where a mines rescue service provider assists in the **emergency** at the mine by mobilising mine rescue teams not employed at the mine, that the person appointed in terms of regulation 16.5(1)(j)(v) consults timeously with the employee of the mines rescue services provider present in the control room on the deployment of the mines rescue teams.
- (vii) ensure that mines rescue teams are trained and made available as per the contract in terms of regulation 16.5(1)(h) and stipulated in the code of conduct of such mines rescue services provider as contemplated in regulation 16.5.1(g)

2) For the purposes of regulation 16.5.1(g) and (h), a mines rescue service provider must:

- (a) be an organisation or institution which has personnel with specialist knowledge and experience in mines rescue and emergencies and which has access to rescue equipment and training facilities, including facilities for Heat Tolerance Testing, Workload Testing, Simulated Training and Vertical Shaft Rescue Capabilities.

- (b) render an emergency rescue service during an **emergency** on a co-operative basis with the respective mine employers.
 - (c) provide a mines rescue service which must focus on the mobilisation of a sufficient number of mines rescue teams not employed at the mine where the **emergency** requires such.
 - (d) ensure that any breathing apparatus that may be used by mines rescue teams complies with SANS 50145:1997/EN 145:1997 'Respiratory protective devices - Self-contained closed-circuit compressed oxygen breathing apparatus for special use - Safety requirements, testing, marking';;
 - (e) ensure that their personnel are competent to check and maintain any rescue equipment used by it in accordance with the Original Equipment Manufacturer's specifications;
 - (f) ensure that the functional performance of any other rescue equipment used by it is in accordance with the Original Equipment Manufacturer's specifications.
 - (g) ensure that the mines rescue team members provided by it meet the qualification requirements as prescribed in regulation 22.15(16)(a);
 - (h) ensure that where they assist in an **emergency** at a mine by mobilising mine rescue teams not employed at that mine, personnel of such mines rescue services provider is available at the mine to provide advice and guidance, as and when required, to the competent person contemplated in regulation 16.5(1)(j)(v) on the deployment of the mines rescue teams;
 - (i) provide a control room management course, during which persons are trained to manage the control room in case of an **emergency** where mines rescue teams are deployed, and issue a certificate upon successful completion on such terms and conditions as the mines rescue service provider may determine; and
 - (j) such control room management certificate as in regulation 16.5(2)(i) is renewed on a three yearly basis by such a mines rescue service provider.
- 3) Every mines rescue services provider, referred to in regulation 16.5(2), must:
- (a) keep a register of all persons who have been found competent to practice as a rescue team member by that mines rescue service provider;
 - (b) implement and maintain a system to issue licences to practice to persons contemplated in regulation 16.5(3)(a) and who meet such criteria as determined by the rescue service provider, which criteria must include at least the following:

- (i) the person has not attained the age of 46 years.
 - (ii) the person has been declared medically fit in terms of the requirements of the mine's "Code of Practice on Minimum Standards of Fitness to Perform work at the Mine" as may be amended from time to time, prepared in accordance with the: Guideline for the Compilation of a Mandatory Code of Practice on Minimum standards of Fitness to Perform Work at a Mine;
 - (iii) the person has undergone and passed the Heat Tolerance Test, conducted in terms of the Chamber of Mines of South Africa Research Organization Research Report No. 29/87 - "A guide to the selection and classification of rescue team members on the basis of Heat tolerance", initially and thereafter at intervals not exceeding 25 months.
 - (iv) the person has undergone quarterly refresher-training sessions annually as determined by the mines rescue service provider. At least 2 of these training sessions per annum must be in a mine or simulated mine, in an atmosphere filled with real or artificial smoke, whilst using a **breathing apparatus**; and
 - (v) the person has undergone and passed the physical Work Load Test conducted in terms of the Mines Rescue Services provider code document, initially and thereafter at intervals not exceeding 13 months.
- (c) monitor compliance by persons, issued with a licence to practice by it, with the requirements contemplated in regulation 16.5(3)(b) and suspend or revoke any such licence if the person no longer meets any of those requirements, and re-issue a licence when the person again meets the requirements.

4) Deployment of mine rescue teams:

- (a) whenever an **emergency** occurs at a mine that requires the deployment of mine rescue teams, the employer and any mines rescue service provider notified in terms of regulation 16.5.1(h) and whose assistance has been requested, must take reasonably practicable measures to ensure that the required mine rescue teams are deployed as soon as possible; and
- (b) every employer who has mine rescue teams in terms of regulation 16.5(1) must take reasonably practicable measures to ensure, if any of those mine rescue teams or rescue team members are called by the mines rescue services provider for training as stipulated in regulation 16.5(3)(b)(ii),(iii),(iv),(v) or to assist in an **emergency** at another mine, that they are deployed as soon as possible.

- 5) No employer or mines rescue service provider may allow any mine rescue team member contemplated in regulation 16.5.1(a) to be deployed as a member of a mine rescue team during an **emergency** unless

such mine rescue team member is in possession of a valid license to practice, as contemplated in regulation 16.5(3) and has passed a pre-operational medical examination, determined by the mines rescue service provider, to ensure that the rescue team member is medically fit at the time to be so deployed.

- (i) the employer should have readily available at the mine a system or required facilities and required resources whereby any mines rescue team member or rescue teams called to an **emergency** have the capability at such mine to conduct a pre-operational medical examination, determined by the mines rescue service provider as stipulated in regulation 16.5(1)(h);
 - (ii) the manager in control as contemplated in regulation 16.5.1(j)(v) should satisfy themselves that the first responding mines rescue teams on an immediate deployment has undergone and comply to the rescue team member medical declaration as prescribed by the mines rescue services provider and that such mines rescue teams should be declared medically fit as contemplated in regulation 16.5.5(i) once they can be relieved by other rescue teams.
- 6) The *employer* at every works, mine, surface mining operations or any mineral exploitation site other than underground mining must-
 - (a) provide and maintain, readily available a surface fire responder team or teams, competent and equipped with sufficient emergency equipment to deal with any **emergency** that may occur at that mine on all shifts worked at such mine;
 - (b) Ensure that such surface fire responder teams as stipulated in regulation 16.5(6)(a) consist of a minimum of seven rescue team members trained at the mine, whereby a minimum of five surface fire responder team members are readily available and can be deployed.
 - (c) Where there are surface fire responder teams in terms of regulation 16.5(6)(a), take reasonably practicable measures to ensure, if any of those surface fire responder teams or surface fire responder team members are called by the mines rescue services provider for training or any **emergency** as stipulated in regulation 16.5.7(i),(ii),(iv), that they are deployed as soon as possible.
- 7) The *employer* at every works, mine, surface mining operations or any mineral exploitation site other than underground mining must enter into a contract with a mines rescue service provider for each such works, mine, surface mining operations or any mineral exploitation site to:
 - (i) equip, train and certify such surface fire responder team members as stipulated in regulation 22.15(16)(a);

- (ii) ensure such surface fire responder team members undergo refresher training twice per year in a simulated training gallery at such mines rescue services provider and one such training to be in real or artificial smoke whilst using a **breathing apparatus**; and
 - (iii) provide a control room management course, during which persons are trained to manage the control room in case of an **emergency** where surface fire responder rescue teams are deployed, and issue a certificate upon successful completion on such terms and conditions as the mine rescue service provider may determine; such control room management certificate as in regulation 16.7(ii) to be renewed on a three yearly basis by such a mines rescue service provider.
- 8) The employer must ensure that every mines rescue services provider, referred to in regulation 16.5(7)(i):
- (i) keep a register of all surface fire responder team members who have been found competent to practice as a surface fire responder team member, and breathing apparatuses by that mines rescue service provider;
 - (ii) implement and maintain a system to issue licences to practice to surface fire responder team members contemplated in regulation 16.5(6)(a) and who meet such criteria as determined by the rescue service provider;
 - (iii) be an organization or institution which includes personnel with specialist knowledge and experience in mines rescue and emergencies and which has access to specialised mining rescue equipment, workload training gallery, heat tolerance climatic chamber, and training facilities with emergency response capabilities;
 - (iv) that the surface fire responder team members has undergone and passed the surface fire responder Workload Test, and other required trainings conducted in terms of the mines rescue services provider training program, initially and thereafter at intervals not exceeding 13 months;
 - (v) that any breathing apparatus that may be used by surface fire responder teams complies with SANS 50137/EN 137 : 2006 type 2 'Respiratory protective devices and as amended from time to time - "Self-contained breathing apparatus - Compressed air" - requirements and testing; and
 - (vi) monitor compliance by surface fire responder team members, issued with a licence to practice by it, with the requirements contemplated in regulation 16.5.6(a) and suspend or revoke any such licence if the surface fire responder team member who no longer meets any of those requirements, and re-issue a licence when the surface fire responder team member again meets the requirements;
 - (vii) verify that any firefighting and/or rescue and recovery gear used by the mines surface fire responders complies with the following minimum standards; firefighting clothing suits with EN469 and/or NFPA 1851, wildland clothing suits with EN15614, technical rescue clothing EN

16689:2017, boots EN15090 type 2 for building structures firefighting and type 1 for wildland firefighting, gloves EN659 and/or NFPA1971, structural helmets EN443, firefighting helmets EN16471 or as otherwise prescribed and approved by the mines rescue service provider.

16.6 Refuge Bays

- 1) The employer of every underground mine must ensure that:
 - a) readily accessible **refuge bays** are provided in the underground workings of the mine;
 - b) such **refuge bays** as stipulated in 16.6.1(a) are constructed in such a manner that allows for the mines rescue service providers' available equipment and to conduct rescue or recoveries safely from such refuge bays as referenced in the Mines Rescue Services - Member Mines Circular No. 02/2020 - Mobile Rescue Chamber in the Mining Industry - Dated 10 February 2020; and
 - c) where a mine is required to have BWSCSRs in terms of regulation 16.2, such **refuge bays** are located within the limits of protection afforded by the BWSCSRs in use at the mine.
- 2) The employer must take reasonably practicable measures to ensure, having regard to the number of persons likely to be present in the area served by the **refuge bay**, that every **refuge bay** should at least:
 - a) be of sufficient size;
 - b) be equipped with means for the sufficient supply of respirable air;
 - c) be equipped with a sufficient supply of potable water;
 - d) be equipped with sufficient and hygienic ablution facilities;
 - e) be equipped with sufficient illumination;
 - f) be equipped with sufficient first aid equipment;
 - g) be equipped with an efficient and effective means to communicate verbally to surface on its own independent line and dialling number, and not be shared with another telephone.
 - h) be situated, where practicable, in an area not being used for storage of combustible material or close to such an area.
 - i) should not be situated in the same excavation where permanent conveyor belts are installed.

- j) a plan of the escape route is displayed in the **refuge bay**, indicating the position of the **refuge bay** in relation to the shaft or any other egress or access way to the surface.
 - k) have adequate signage displayed in the **refuge bay**, setting out the emergency procedures to be followed in the **refuge bay** and relevant emergency phone numbers.
 - l) have a means to facilitate clear identification of the location of the **refuge bay** from the outside in poor visibility; and
 - m) be constructed in such a way that air containing noxious smoke, fumes or gases will not enter the **refuge bay**;
 - n) be of sufficient size to accommodate the maximum number of employees intended to use the **refuge bay**;
- 3) The employer must take reasonably practicable measures to ensure that every **refuge bay** is examined to ensure compliance with: 16.6(2)(a) to (o):
- a) at least once every 30 days by a person appointed in terms of regulation 2.15.1 of the regulations in force in terms of item 4 of schedule 4 to the MHSA as provided for in sub regulation 2.15.5(b); and
 - b) paragraph 2(a) to (l) at least once every 30 days by a person appointed in terms of regulation 2.15.1 and 2.17.1 in force in terms of item 4 of Schedule 4 of the Act or any other employee of a higher ranking; and
 - c) at least once every 90 days by a person appointed in terms of section 12 of the Act, or by a person who is the holder of a practical certificate issued by the Chamber of Mines or has successfully completed the practical examination of the Intermediate Certificate in Mine Environmental Control, issued by the Minerals Council of South Africa, working under the control of a person appointed in terms of section 12 of the Act.
- 4) The employer must take reasonably practicable measures to ensure that a written report on the inspection contemplated in 16.6(3)(c) is provided within 7 days to the manager appointed in terms of section 3 (1)(a).

16.7 Missing Person Locator System.

The employer must ensure that:

- 16.7 (1)** No person goes underground at the mine without an intrinsically safe device to determine the last known location of such a person or persons in the event that they go missing while in underground workings.
- 16.7 (2)** If at any surface mine, the risk assessment in terms of section 11 shows that there is a significant risk of employees going missing, including being engulfed by slope failure, the employer must ensure that persons are provided with a missing persons locating device, to determine their last known location, should they go missing at the pit.
- 16.7 (3)** At mines where unplanned or uncontrolled flow of water, broken rock, mud or slimes from a slimes dam may pose a significant risk to the safety of persons, the employer must ensure that persons are provided with a missing persons locating device, to determine their last known location, in the event they go missing.
- 16.7 (4)** The use of the missing persons locator device must form part of the mine's emergency preparedness and response strategy.
- 16.7 (5)** The battery life of the missing persons locator device must be informed by the outcome of the mine risk assessment to enable the locating of the missing person during and after a working shift.
- 16.7 (6)** The system providing the last known location of the **missing person** as contemplated in 16.7.(1), 16.7.(2) and 16.7(3) must be equipped with a **data logging facility**.
- 16.7(7)** All personnel required to make use of such missing persons locating systems are properly trained on the effective use thereof and that such a device must be always worn on the body.
- 16.7(8)** An effective procedure is determined for providing, amongst other things, the following;
- a) inspection, repair and maintenance of missing persons locating systems by suitably trained and qualified persons,
 - b) calibration where possible, and testing of missing persons locating systems as per the manufacturers' specifications.
 - c) testing to confirm the functionality of the missing persons locating systems and keeping of the records of such tests.

(Chapter 16 amended by the Schedule of Government Notice R569 in Government Gazette 23410 dated 17 May 2002 – with effect from 1 September 2002)

(Chapter 16 amended by the Schedule of Government Notice R904 in Government Gazette 23583 dated 2 July 2002)

(Chapter 16 amended by Government Notice 86 in Government Gazette 30697 dated 1 February 2008)

(Chapter 16 amended by Government Notice R906 in Government Gazette 38216 dated 21 November 2014)

(Chapter 16 substituted by Government Notice 6052 in Government Gazette 52388 dated 28 March 2025)

CHAPTER 17

SURVEYING, MAPPING AND MINE PLANS

17(1) DEFINITIONS

In this Chapter, unless the context indicates otherwise-

“bedded mineral deposit” means any reef, coal seam, lode, mineral bed or fissure, which occurs conformably within its country rock and is not of a massive nature;

“chart datum”; means the Lowest Astronomical Tide in all ports of the Republic of South Africa and Namibia as determined from time to time by the Hydrographer of the South African Navy;

“competent person” for purposes of regulation 17(2)(a) means:

- (a) in the case of an underground mine or a surface mine where blasting takes place, a person in possession of a Mine Surveyor's Certificate of Competency issued by the Department; or
- (b) in the case of a surface mine where blasting does not take place, a person in possession of a Mine Surveyor's Certificate of Competency issued by the Department; or

a person who has passed the examination for mining legislation as is required for the Mine Surveyor's Certificate of Competency issued by the Department and who is in possession of either:

- (i) an Advanced Certificate in Mine Surveying issued by the Chamber of Mines of South Africa and who has at least three (3) years practical experience in mine surveying; or
 - (ii) a National Diploma in Mine Surveying issued by a tertiary institution accredited by the Department of Education, or
 - (iii) a person who has been assessed competent against a qualification recognised by the Mining Qualification Authority for this purpose.
- (c) in the case of mining at sea, a person in possession of a Mine Surveyor's Certificate of Competency issued by the Department; or

a person who has passed the examination for mining legislation as required for the Mine Surveyor's Certificate of Competency issued by the Department and who is in the possession of either:-

- (i) a qualification in Hydrographic Surveying recognised by the Council for Professional and Technical Surveyors of South Africa for registration in the category of Technician; or
- (ii) a person who has been assessed competent against a qualification recognised by the Mining Qualifications Authority for this purpose.

“Director: Mine Surveying” means the person appointed as such by the Department in terms of the Public Service Act of 1994;

“fixed position” means any point other than a **survey station** which is fixed within the relevant accuracy requirements for the class of survey concerned, and which is used for the purpose of locating details to be shown on **plans**,

“fluid material” means any substance, excluding gas, that has a potential to flow, including water, slimes and mud;

“hazardous service” means any object, structure or installation rendering a service with a potential risk to health or safety;

“plan(s)” means any plan, section or projection required to be prepared by these regulations;

“professional geotechnical specialist” means a person who is registered with –

- (a) the Engineering Council of South Africa as a Professional Civil Engineer and is registered in the sub category of Geotechnical Engineering; or
- (b) the South African Council for Natural Scientific Professions as a Professional Scientist in the field of engineering geology;

“reserve land” means any piece of land over which a servitude is registered or reserved for possible registration of a servitude in respect of roads, railways, power lines, pipe lines, conveyor lines, canals, etc.;

“restricted area” means any area where mining is restricted due to significant risk;

“risk assessment” means the hazard identification and risk assessment required in terms of section 11 of the Act;

“safety pillar” means every portion of a reef, mineral deposit or ground left *in situ* for the support and protection of the surface, objects thereon or underground workings;

“sea” means the sea as defined in the National Environmental Management: Integrated Coastal Management Act 2008 (Act 24 of 2008);

“survey point” means any easily identifiable point located by localized surveying, other than a **survey station**;

“survey station” means any point that has been surveyed within the prescribed standards of accuracy; and

“workings” means any excavation made or being made for the purpose of searching for or winning minerals or for any purpose connected therewith.

GENERAL REQUIREMENTS AT SEA AND ON LAND

APPOINTMENT OF COMPETENT PERSONS

17(2)

- (a) The employer must appoint a **competent person** to be in charge of surveying, mapping and mine plans at the mine, and if the services of more than one **competent person** are engaged, ensure that their functions do not overlap. The Chief Inspector of Mines may require the appointment of more than one **competent person** where in his opinion such an appointment is necessary.
- (b) The employer must in writing inform the Chief Inspector of Mines of the appointment of any **competent person** in terms of regulation 17(2)(a), and of the termination of any such appointment, within 7 days of the date of such appointment or termination. In the case of an appointment, the notification must include –
 - (i) the name of the competent person;
 - (ii) certified copies of all relevant qualifications of the competent person; and
 - (iii) whether the appointment of the competent person is full time or part time.
- (c) In the case of an underground mine, one **competent person** appointed under regulation 17(2)(a) must be able to reach the mine in the case of those emergencies and within such time(s), as determined in terms of the mine's risk assessment. Such emergencies and time(s) must be included in the mine's mandatory Code of Practice for Emergency Preparedness and Response.

Appointment at two or more mines

- (d) The **competent person** appointed at any mine by the employer under regulation 17(2)(a) may not in addition be appointed under regulation 17(2)(a) as a **competent person** at any other mine,

except with the written permission of the Chief Inspector of Mines and subject to such terms and conditions as the Chief Inspector of Mines may determine.

Period permitted without a Competent Person

- (e) The employer must take reasonable measures to ensure that no mine is worked without a **competent person** appointed under regulation 17(2)(a) for more than 60 days in any period of 6 consecutive months. The employer must in writing appoint a suitably qualified person to perform the functions of the **competent person** under this Chapter during such period of 60 days or portion thereof, as the case may be.

DUTIES AND RESPONSIBILITIES

17(3)

- (a) The **competent person** appointed under regulation 17(2)(a), and the suitably qualified person appointed under regulation 17(2)(e) are not responsible for the accuracy of the surveying done before their appointments
- (b) No person may withhold from the employer any survey records or **plans** prepared in terms of these regulations.

17(4) The employer must take reasonable measures to ensure, in all surveying and mapping done and all **plans** prepared for purposes of these regulations by the **competent person**, that:

Units of Measure

- (a) all units of measure conform to the metric system, except angular measurements which must conform to the sexagesimal system;

Survey System

- (b) all mine survey systems conform to the National Control Survey System as determined by the Chief Director: Surveys and Mapping as contemplated in the Land Survey Act, Act No 8 of 1997. The projection origin may be changed to reduce the numerical values of the co-ordinates. Survey systems established on a mine prior to 1 January 1999 may be retained provided that a tabulation of the co-ordinates of at least 3 (three) **survey stations**, in both the existing mine survey system and the National Control Survey System, are shown on every sheet comprising a **plan**;

Datum Plane (Mining on land)

- (c) elevations determined above and below ground on mines established after 12 November 2004, refer to mean sea level, based on the South African Land Levelling Datum as determined by the Chief Director: Surveys and Mapping as contemplated in the Land Survey Act, Act No 8 of 1997;

Datum Plane (Mining at sea)

- (d) bathymetric elevations determined at **sea** refer to **chart datum**;

Colours and Sign Conventions

- (e) all **plans** conform to the conventional signs and colours provided by the **Director: Mine Surveying**;

Back up and storage of Data

- (f) if any **plans** required in terms of this Chapter are kept electronically, they are adequately backed up; and
- (g) all survey records are securely stored in a dry and fire proof place when not in use.

SAFETY PRECAUTIONS

Responsibilities regarding safety precautions

17(5) The employer must take reasonable measures to ensure that the **competent person** referred to in regulation 17(2)(a) is at all times aware of -

- (a) **workings** which are being advanced;
- (b) surface structures or objects which may be affected by mining;
- (c) **workings** which are being abandoned or closed down, in order to allow the final surveying thereof;
- (d) all **workings** or any place on surface where there is, or is likely to be, a dangerous accumulation of **fluid material**, noxious or flammable gas; and
- (e) **safety pillars** that are being, or have been, removed.

17(6) The employer must take reasonable measures to ensure that the **competent person** referred to in regulation 17(2)(a) in writing notifies the employer, which notification must be dated, of any **workings** being advanced to come within:

- (a) a horizontal distance of 100 (one hundred) metres from **reserve land**, buildings, roads, railways, dams, waste dumps or any other structure whatsoever including structures beyond the mining boundaries, or from any surface, which it may be necessary to protect in order to prevent any significant risk.
- (b) 50 (fifty) metres from any excavation, **workings**, **restricted area** or any other place where there is, or is likely to be a dangerous accumulation of **fluid material**, noxious or flammable gas. Such notification must include a sketch plan giving the distance to such place from the nearest **survey station**.

17(7) The employer must take reasonable measures to ensure that -

- (a) no mining operations are carried out within a horizontal distance of 100 (one hundred) metres from **reserve land**, buildings, roads, railways, dams, waste dumps, or any other structure whatsoever including such structures beyond the mining boundaries, or any surface, which it may be necessary to protect in order to prevent any significant risk, unless a lesser distance has been determined safe by **risk assessment** and all restrictions and conditions determined in terms of the **risk assessment** are complied with;
- (b) **workings** coming within 50 (fifty) metres, from any other excavation, **workings**, **restricted area** or any other place where there is, or is likely to be a dangerous accumulation of **fluid material**, noxious or flammable gas are mined subject to such restrictions and stopped at such positions as determined by **risk assessment**.
- (c) where ground movement, as a result of mining operations, poses significant risk, an effective ground movement monitoring system is in place.
- (d) survey records and **plans** relating to conditions described in paragraphs (a) and (b) above, are made available to the persons doing the **risk assessment**.

17(8) No person may erect, establish or construct any buildings, roads, railways, dams, waste dumps, **reserve land**, excavations or any other structures whatsoever within a horizontal distance of 100 (one hundred) metres from **workings**, unless a lesser distance has been determined safe -

- (a) in the case of the employer, by **risk assessment** and all restrictions and conditions determined in terms of the **risk assessment** are complied with; or
- (b) in the case of any other person, by a **professional geotechnical specialist** and all restrictions and conditions determined by him or her or by the Chief Inspector of Mines are complied with;

17(9) The person(s) responsible for activities in terms of regulations 17(7)(a) and 17(8) must –

- (a) in the case of an employer, provide the Chief Inspector of Mines with the distance and accompanying restrictions and conditions for comment, and
- (b) in the case of other persons, provide the Chief Inspector of Mines with the distance and accompanying restrictions and conditions for approval.

17(10) No mining operations, erecting, establishment, or construction, as contemplated in regulations 17(7)(a) and 17(8) respectively, may take place until such written comment or approval, as referred to in 17(9)(a) and 17(9)(b), has been obtained.

Boundary Pillars

17(11) The employer must take reasonable measures to ensure that on the inside of every mine boundary, continuous pillars are left standing (in situ) the width of which, measured horizontally and at right angles to the boundary line, must not be less than –

- (a) for underground coal mines, 15 (fifteen) metres;
- (b) for all other mines, 9 (nine) metres.

17(12) The employer must take reasonable measures to ensure that no boundary pillars are worked or cut through unless written permission has been obtained from all relevant adjacent employers and the Principal Inspector of Mines, provided that in the absence of any adjacent employer, permission need only be obtained from the Principal Inspector of Mines to work or cut through such boundary pillars.

Check Survey

17(13) Should the **Director: Mine Surveying** be of the view that there may be errors in any survey or plans constructed there from or where they do not conform to the standards of accuracy required by these regulations, he or she may cause a check survey to be carried out. The cost of such check survey must be borne by the employer if it is proved that there are errors in any survey or **plans** constructed there from, or that they do not conform to the standards of accuracy required by these regulations.

SURVEY PRACTICE ON LAND (SURFACE AND UNDERGROUND) AND AT SEA

17(14) The employer must take reasonable measures to ensure in all surveying and mapping done and all **plans** prepared for purposes of these regulations by the **competent person**, that:

Survey Stations

- (a) sufficient **survey stations** are established, so that all surface objects and all **workings** can be accurately surveyed. Each **survey station** must be clearly marked with a unique number and recorded in a register;

Standards of Accuracy: Surface and Underground

- (b) the minimum standard of accuracy and class of survey for the fixing of **survey stations** on both horizontal and vertical planes are in accordance with the following formula:

$$A = 0,015 + \frac{S}{30000}$$

where S is the distance in metres between the known and the unknown **survey station**; provided that in the case of a traverse, after a check survey has been completed, the error in direction of a line between any two consecutive **survey stations** must not exceed 2 (two) minutes of arc, provided that the horizontal and vertical displacement between the measured position and final position of a **survey station** does not exceed 0,1 (zero comma one) metres;

- (i) the allowable error for a Primary Survey (Class A) is not greater than A metres. Primary Survey means any survey carried out for the purpose of fixing shaft positions, shaft stations, underground connections, upgrading of secondary surveys to primary surveys and establishing primary surface survey control;
- (ii) the allowable error for a Secondary Survey (Class B) is not greater than 1,5A metres. Secondary Survey means any survey carried out for the purpose of fixing main or access development, mine boundaries and establishing secondary surface survey control;
- (iii) the allowable error for a Tertiary Survey (Class C) is not greater than 3A metres. Tertiary Survey includes **survey stations** established from secondary **survey stations** for localised survey purposes;
- (iv) the allowable error for a Localised Survey is not greater than 0,2 (zero comma two) metres in addition to the allowable error at the nearest **survey station**. Localised Survey means measurements taken from a survey network to locate surface or underground **workings**, structures and features. This includes normal tape triangulation for month-end measurements, plugging, offsetting and tachometric work;

Accurate Representation on Plan

- (v) errors in representation on **plan** do not exceed 0,1% (zero comma one per cent) of the denominator of the scale of the **plan**, in addition to the allowable survey error at the nearest **survey station** or **fixed position**. Where accurate surveying is not possible due to significant risks, the estimated position of affected **workings** or objects must be indicated

on the **plan** by broken lines and with reasons why accurate measurements could not be made;

Standards of Accuracy at Sea

- (c) all **fixed positions** determined at sea for the purpose of locating detail to be shown on **plans**, comply with the standards as set out in column 1b of Table 1 in the Minimum Standards of the International Hydrography Organisation (IHO) Standards, 5th Edition, dated February 2008;

Details required on Plans

- (d) the following detail is depicted on all **plans** where applicable -
 - (i) the name of the reef, lode or mineral bed;
 - (ii) planes of sections or planes of **plans**;
 - (iii) a subject heading indicating the name of the mine and the name of the **plan**;
 - (iv) the name and signature of the **competent person** for purposes of regulation 17(2)(a) against the relevant date of updating;
 - (v) the identification number allotted by authorities;
 - (vi) the survey system and co-ordinates of origin used;
 - (vii) a north point;
 - (viii) the scale of the **plan**;
 - (ix) a legend illustrating colours and conventional signs not provided for by the **Director: Mine Surveying**;
 - (x) co-ordinate lines sufficient in number for the scale of the **plan** to be verified;
 - (xi) in the case of mining at sea, also geographic co-ordinates of the centre point of the sheet (longitude and latitude);
 - (xii) in the case of mining at sea, also the relationship between the South African Land Levelling Datum and the latest **chart datum** determined;

Material and Size of the Plans

Prepared by:

- (e) all **plans** are drawn on durable transparent draughting material on sheets of a size not greater than AO as defined by the International Organisation for Standardisation. The **Director: Mine Surveying** may request in the case of **plans** produced by means of computer aided draughting (CAD), that such **plans** be produced on suitable draughting material;

Scale of Plans - Land

- (f) all **plans** are drawn to a scale of 1:1 500 in the case of a coal mine, and 1:1000 in the case of any other mine, unless specifically provided otherwise in these regulations;

Scale of Plans - Sea

- (g) in the case of mining at **sea**, the general **plan** referred to in regulation 17(25) is drawn to a legible scale;

Plans to be Kept Up to Date

- (h) **plans** are at all times correct to within 12 (twelve) months, except for the **plans** showing the **workings** which must at all times be correct to within 3 (three) months. In the case of offshore prospecting and mining, **plans** must at all times be correct to within 6 (six) months;

Inventory of Plans

- (j) an inventory of all **plans** and all copies called for in terms of regulation 17(26) is kept, showing the following details -
 - (A) the name of the mine;
 - (B) the name and number of the **plan**;
 - (C) the date of the last updating of the **plan** and the name of the **competent person** for purposes of regulation 17(2)(a);
 - (D) the relevant details where a **plan** has been superseded; and

Superseded Plans

- (k) when a **plan** or sheet is superseded by another **plan** or sheet, the old and the new **plan** are referenced accordingly.

RESPONSIBILITY FOR MINE PLANS

Prepared by:

17(15) The employer must take reasonable measures to ensure that the **competent person** referred to in regulation 17(2)(a) –

- (a) constructs accurate **plans**, as contemplated in regulations 17(16) to 17(25), which are readily available to the employer. Such **plans** must cover all **restricted areas** and the areas where the surface infrastructure and **workings** occur; and
- (b) determines the accuracy of any **plan** or drawing which was not prepared by him or her, where any inaccuracy on any such **plan** or drawing may create a risk of endangering the health or safety of any persons.

PLANS TO BE KEPT

Index Key Plan

17(16) A legible index key **plan**, showing the areas covered by the relevant **plan** sheets, the mine boundaries and the farm names and boundaries within and adjacent to the mine, or this detail may be shown on every **plan** sheet as an inset key **plan** drawn to a legible scale.

Surface Plan

17(17) A **plan** of the surface showing the boundaries of the mining area, names of adjacent mining areas, the primary surface **survey stations**, outcrops and dips of the mineral deposits, perimeters of all surface mining, shafts, openings, rescue boreholes, subsidence or cavities, areas of restricted mining affecting the surface, any **hazardous services** whether on surface or buried and every surface object, structure or **reserve land** which requires protection against mining.

Surface Contour Plan

17(18) A surface contour **plan** showing relevant mine and farm boundaries, original surface contours, boreholes and watercourses.

Mine Ventilation and Rescue Plan

17(19) At every underground mine, a ventilation and rescue **plan** of the **workings**, taking into consideration the requirements of regulation 17(22), drawn to a legible scale and depicting the ventilation districts, the direction of air currents, the quantity of air circulating in such ventilation district, the position of each permanent fan, door, regulator, crossing, stopping, telephone, refuge bay, rope-aided or normal escape route, safe place, first aid room, main water valve, fire fighting equipment site, emergency power source and any area sealed off for fire or spontaneous combustion.

- (a) A square grid, lettered horizontally and numbered vertically, drawn to a suitable scale must be shown on the **plan** contemplated in regulation 17(19).
- (b) The information relating to the ventilation aspects of the **plan** in sub regulation (19) must be provided by the person authorised by the employer to do so and must be certified as accurate on the **plan** by that person.
- (c) An updated hard copy of the **plan** contemplated in regulation 17(19) must be immediately available at the mine for rescue operation purposes. In the case of a coal mine, an updated hard copy must be submitted to the Principal Inspector of Mines at intervals not exceeding 3 (three) months.

Mine Residue Deposit Plans

17(20) **Plans** (including sections) showing mine residue deposits containing **fluid material**.

Geological Plan

17(21) A **plan**, drawn to a legible scale, depicting geological features that could affect mining, or these features may be shown on the **plan(s)** referred to in regulation 17(22).

Plans of the Workings

17(22) **Plans** of the **workings** showing the following: boundaries of the mining area; names of adjacent mining areas; outlines and dips of the **workings**, date of measurement on the excavated side of the outline of the workings, heights representative of **workings**, **survey stations**; relevant **survey points**; areas in which mining has been restricted or prohibited; dams; explosives magazines; lines indicating the planes of sections; faults; dykes and any containment wall or any explosion proof seal, showing the designed static pressure in Kilo Pascal (kPa) of such walls and seals.

- (a) In the case of underground mines:
 - (i) Where a **bedded mineral deposit** has an average inclination to the horizontal of more than 60° (sixty degrees), a **plan** showing the projection of the **workings** onto a vertical plane parallel to the average strike.
 - (ii) Where multiple **bedded mineral deposits** overlie each other, the **workings** thereof must be shown on separate **plans**.
 - (iii) Where a massive or irregular ore body is worked, level **plans** and vertical sections through the **workings** must be kept.

(b) In the case of surface mines:

- (i) Where **bedded mineral deposits** are worked by surface mining methods, there must be shown on the surface **plan** sufficient data regarding the thickness and elevation of every mineral deposit worked in a suitable grid pattern. As an alternative to the grid pattern data, vertical sections may be kept, the lines of which must be indicated on the surface plan.
- (ii) Where massive or irregular deposits are worked, level **plans** or vertical sections or a composite **plan** showing all the bench outlines, must be kept.

Level Plans

17(23) Level **plans** must show the outline of all **workings** at suitably chosen elevations. In the case of underground mines, the detail required in regulation 17(22) must be shown.

General Plan - Mining on Land

17(24) A general **plan** showing the detail required in regulations 17(17), 17(18) and 17(22)(a) on one **plan** instead of on three separate **plans**, or a general surface **plan** showing the detail required in regulations 17(17) and 17(18) on one **plan** instead of two separate **plans**, may be constructed.

General Plan — Mining at Sea

17(25) A general **plan** showing the boundaries of the mining area, the names of adjacent mining areas, bathymetric contours, dates of mining and the locality of semi permanent production rigs and platforms.

Departmental copies of plans

17(26) The employer must provide the Principal Inspector of Mines annually with updated copies of the **plans**. In the case of computer aided draughting (CAD), legible **plans** in book form (approximately A3 size) or a copy of the index key **plan** referred to in regulation 17(16), indicating additionally the outlines of the **workings** as well as the surface infrastructure, and a copy of the back-up referred to in regulation 17(4)(f) must be provided.

Unsatisfactory Plans

17(27) Where in the opinion of the **Director: Mine Surveying plans** are deficient, he or she may have the mine surveyed and new **plans** prepared at the expense of the employer,

Plans Confidential

17(28) The Principal Inspector of Mines and the **Director: Mine Surveying** must keep information contained in any **plan** confidential and may only release such information in accordance with the Promotion of Access to Information Act (Act 2 of 2000).

MINE CLOSURE

Plans brought Up to Date

17(29) The employer must take reasonable measures to ensure that, before a mine is abandoned, closed or rendered inaccessible, -

- (a) the **plans** and departmental copies thereof referred to in regulation 17(26) are brought up to date by the **competent person** referred to in regulation 17(2)(a) and that the **Director: Mine Surveying** is notified to inspect such **plans** and the copies thereof for approval; and
- (b) where the surface has been disturbed by mining, a rehabilitation **plan** is drawn, to a legible scale, showing the final surface contours and established water courses and that the **Director: Mine Surveying** is notified to inspect such **plan** for approval.

Plans and Books to be handed in

17(30) The employer must take reasonable measures to ensure that updated hard copies of the **plans**, copies referred to in regulation 17(26) and inventories thereof on durable draughting material, together with the **survey station** register are handed in at the office of the **Director: Mine Surveying**, following the inspection and approval of the **plans** as contemplated in regulation 17(29).

Updating of Surface Plans

17(31) The employer must take reasonable measures to ensure, where rehabilitation is completed after cessation of mining, that the surface and rehabilitation **plans** contemplated in regulations 17(17) or (24) and (29)(b) are updated upon such completion.

Certificate of compliance

17(32) The **Director: Mine Surveying** must issue a certificate of compliance with the requirements of regulations 17(29) to 17(31) to the employer within 60 (sixty) calendar days of compliance in respect of the said regulations.

(Chapter 17 inserted by the Schedule in Government Notice R1304 in Government Gazette 26963 dated 12 November 2004)

(Chapter 17 amended by GN R89 in Government Gazette 30698 dated 1 February 2008)

(Chapter 17 substituted by Government Notice R447 in Government Gazette 34308 dated 27 May 2011)

CHAPTER 18

TRIPARTITE INSTITUTIONS

Nomination of members to represent employees and owners

18.1(1) Nominations for the appointment of members of every tripartite institution are invited by notice in the *Gazette* from-

- (a) every registered trade union with employees as members to represent employees, and
- (b) every employers' organisation with owners as members to represent owners.

[18.1(1) - Section 98 (1) (zC) empowers the Minister to make regulations for the appointment of members to the Council.]

[18.1(1) - Section 98 (zD) empowers the Minister to make regulations for the appointment of members to the Mining Qualifications Authority.]

[18.1(1) - Schedule 2 allows for the nomination and appointment of members to tripartite institutions.]

18.1(2) Every nomination must be submitted in writing within 30 days of the notice referred to in subregulation (1) and must contain-

- (a) the name, address and a short curriculum vitae of the nominee;
- (b) the tripartite institution for which the person is nominated;
- (c) if submitted by-
 - (i) a registered trade union, a statement of the number of employees who are members of the union; or
 - (ii) an employer's organisation, a statement of the number of employees employed by the members of the organisation; and
- (d) any other information or documentation required in the notice.

18.1(3) Any registered trade union or employer's organisation that has submitted a nomination must, within 15 days of receiving a request from the Minister, provide such further information or documentation as the Minister may reasonably request regarding such nomination, including but not limited to information or documentation necessary to verify a statement contemplated in subregulation (2).

18.1(4) The nomination period referred to in subregulation (2) may be extended.

Appointment of members representing employees

18.2 The Minister must appoint persons, nominated under regulation 18.1 (2) to represent employees as members of tripartite institutions so that-

- (a) the members are all nominated by agreement between registered trade unions representing at least 75% of employees belonging to such trade unions in the mining industry; or
- (b) failing agreement in terms of paragraph (a)-
 - (i) at least half the members are persons nominated by a registered trade union or unions representing the majority of employees belonging to registered trade unions in the mining industry; and
 - (ii) the rest are persons nominated by registered trade unions with members employed in the mining industry and appointed in accordance with the significance in the mining industry of the trade unions concerned.

Appointment of members representing owners

18.3 The Minister, must appoint persons, nominated under regulation 18.1 (2) to represent owners in the mining industry, as members of tripartite institutions so that-

- (a) the members are all nominated by agreement between employers' organisations whose members employ at least 75% of employees in the mining industry; or
- (b) failing agreement in terms of paragraph (a)-
 - (i) at least half the members are persons nominated by an employer's organisation or organisations whose members employ the majority of the employees in the mining industry; and
 - (ii) the rest are persons nominated by employers' organisations and appointed in accordance with the significance in the mining industry of the organisations concerned.

Appointment of members representing departments of State

18.4 The Minister, after consulting the Chief Inspector, must appoint the members representing departments of the State on every tripartite institutions *[sic]*.

Term of office of members

18.5(1) A member of a tripartite institution is appointed for a period of three years.

18.5(2) Despite subregulation (1), a person appointed to replace a member of a tripartite institution who has vacated office before the expiry of such member's term of office, is appointed for the remainder of that member's term of office.

18.5(3) Every member of a tripartite institution is eligible for reappointment after the expiry of such member's term of office.

18.5(4) If for any reason a person to replace a member of a tripartite institution is not appointed at the expiry of the period of office of such member, the Minister may extend the period of office of such member for a period not exceeding six months.

Filling of casual vacancies

18.6(1) If a member vacates office in terms of the Constitution of the tripartite institution before the expiry of such member's terms of office, subject to subregulation (2)-

- (a) the party that nominated the member is invited to nominate a replacement; and
- (b) the Minister must appoint the person nominated as a member of the tripartite institution concerned.

[18.6(1) - Section 97 (3) empowers the Minister, after consulting the Council to add to this Act, Schedule 5 containing the constitution of the Council and its permanent committees.]

18.6(2) If the party contemplated in subregulation (1) (a) no longer satisfies the representative requirements of regulation 18.2 or 18.3 -

- (a) nominations of persons to fill the vacancy are invited in terms of regulation 18.1; and
- (b) the Minister must appoint a person to fill the vacancy in terms of regulation 18.2 or 18.3.

18.6(3) If a member representing a department of the State on a tripartite institution vacates office before the expiry of such member's term of office, a person must be appointed to fill the vacancy in terms of regulation 18.4.

Publication of names of members

18.7 The names of persons appointed in terms of these regulations, their period of office and the parties who they represent are published by notice in the *Gazette*.

CHAPTER 19

(Not yet published)

CHAPTER 20

DEFINITIONS

20. In these regulations a word or phrase to which a meaning has been assigned in this Act has that meaning and, unless the context otherwise indicates-

“Audiogram” means a chart, graph or table indicating the hearing threshold levels of an individual as a function of frequency (viz. 0.5, 1, 2, 3, 4, 6 and 8 kilohertz), as determined during a measurement of a person's hearing threshold levels by means of monaural, pure-tone, air-conduction threshold tests;

(Definition of “Audiogram” inserted by the Schedule of Government Notice R786 in Government Gazette 23498 dated 14 June 2002)

“braking system” means a device or combination of devices capable of reducing the speed of a **locomotive** or **train** to a standstill including emergency brake, park brake and service brake;

(Definition of “braking system” inserted by the Schedule in Government Notice R583 in Government Gazette 26333 dated 14 May 2004.)

“Cardio-respiratory examination” means a clinical examination of the cardio-respiratory system including a full size chest x-ray and a lung function test.

(Definition of “Cardio-respiratory examination” inserted by the Schedule in Government Notice R1792 in Government Gazette 25812 dated 12 December 2003)

“dynamic type test” means the test conducted on a **train** to determine the deceleration rate and braking efficiency;

(Definition of “dynamic type test” inserted by the Schedule in Government Notice R583 in Government Gazette 26333 dated 14 May 2004.)

“Full size chest x-ray” means a chest x-ray using a photographic plate measuring 35cm x 35 cm or 35 cm x 42 cm or the digital equivalent;

(Definition of “Full size chest x-ray” inserted by the Schedule in Government Notice R1792 in Government Gazette 25812 dated 12 December 2003)

“locomotive” means a self-propelled railbound machine which requires either a driver for manual operation or an operator for automatic operation;

(Definition of “locomotive” inserted by the Schedule in Government Notice R583 in Government Gazette 26333 dated 14 May 2004.)

“Lung function test” means the measurement of the inspired and expired volume of air by means of a spirometry;

(Definition of “Lung function test” inserted by the Schedule in Government Notice R1792 in Government Gazette 25812 dated 12 December 2003)

“Principal Inspector of Mines” means the officer appointed by the Chief Inspector to be in charge of health and safety in any region established by Government Notice No. R. 92 of 15 January 1997; and

“rolling stock” means any railbound equipment that is not self-propelled;

(Definition of “rolling stock” inserted by the Schedule in Government Notice R583 in Government Gazette 26333 dated 14 May 2004.)

“static test” means the test carried out to determine the compliance of the brake holding power of a **locomotive braking system** measured against the design specification or an appropriate safety standard;

(Definition of “static test” inserted by the Schedule in Government Notice R583 in Government Gazette 26333 dated 14 May 2004.)

“train” means one or more **locomotives** and **rolling stock**, all attached.

(Definition of “train” inserted by the Schedule in Government Notice R583 in Government Gazette 26333 dated 14 May 2004.)

“tripartite institution” means the Council and its permanent committees and the Mining Qualifications Authority.

(Chapter 20 substituted by regulation 4 of Government Notice R846 in Government Gazette 18078 dated 21 June 1997)

CHAPTER 21

FORMS

(Chapter 21 inserted by GN R134 of 9 February 2001.)

FORM	DESCRIPTION
DME 132 (SAMRASS 1)	ACCIDENT AND DANGEROUS OCCURRENCE REPORT
DME 200 (SAMRASS 2)	INJURY REPORT FORM
DME 136 (SAMRASS 3)	ROCKBURST AND FALL OF GROUND ACCIDENT
DME 201 (SAMRASS 4)	1 – 13 DAY INJURIES
DME 133 (SAMRASS 5)	EXPLOSIVES
DME 134 (SAMRASS 6)	FIRE
DME 135 (SAMRASS 7)	SUBSIDENCES (COAL MINES)
DME 137 (SAMRASS 8)	HEAT STROKE / HEAT EXHAUSTION QUESTIONNAIRE
DME 202 (SAMRASS 9)	REPORT ON DATE RESUMED WORK
<i>(Chapter 21, forms SAMRASS 1 – 9, inserted by the Schedule of Government Notice R134 in Government Gazette 22055 dated 9 February 2001)</i>	
Report Form 21.9(2)(a)	Airborne Pollutants - Particulate Personal Quarterly Report Form
<i>(Form 21.9(2)(a) substituted by regulation 1 of GN 2909 dated 21 December 2022)</i>	
Report Form 21.9(2)(b)	Airborne Particulates Gases and Vapours Personal Quarterly Report Form

FORM	DESCRIPTION
<i>(Form 21.9(2)(b) substituted by regulation 2 of GN 2909 dated 21 December 2022)</i>	
<i>Report Form 21.9(2)(c)</i>	<i>Heat stress exposure: Quarterly Report Form</i>
<i>(Form 21.9(2)(c) substituted by regulation 3 of GN 2909 dated 21 December 2022)</i>	
<i>Report Form 21.9(2)(d)</i>	<i>Cold Stress Exposure Quarterly Report Form</i>
<i>(Form 21.9(2)(d) substituted by regulation 4 of GN 2909 dated 21 December 2022)</i>	
<i>Report Form 21.9(2)(e)</i>	<i>Personnel Noise Exposure- Quarterly Report Form</i>
<i>(Form 21.9(2)(e) substituted by regulation 5 of GN 2909 dated 21 December 2022)</i>	
<i>Report Form 21.9(2)(f)</i>	<i>Operations Report Form</i>
<i>(Form 21.9(2)(f) substituted by regulation 6 of GN 2909 dated 21 December 2022)</i>	
<i>(Forms 21.9(2)(a) – (d) inserted by the Schedule of Government Notice R904 in Government Gazette 23583 dated 2 July 2002)</i>	
<i>(Forms 21.9(2)(a) – (d) substituted by and Forms 21.9(2)(e) and (f) inserted by regulation 3 of Government Notice R1226 in Government Gazette 28333 dated 15 December 2005)</i>	
<i>Form DMR 231</i>	<i>Health Incident Report (HIR)</i>
<i>(Form DMR 231 added by Government Notice R702 in Government Gazette 37980 dated 12 September 2014)</i>	
<i>(Form DMR 231 substituted by Government Notice R906 in Government Gazette 38216 dated 21 November 2014)</i>	
<i>Form DMR 276</i>	<i>Employee's Record of Hazardous Work</i>
<i>(Form DMR 276 added by Government Notice R621 in Government Gazette 36761 dated 23 August 2013)</i>	
<i>Form DMR 289</i>	<i>Form for Lifts</i>
<i>(Form DMR 289 added by Government Notice R893 in Government Gazette 41065 dated 25 August 2017)</i>	
<i>Form DMR 299</i>	<i>Form for Chairlifts</i>
<i>(Form DMR 299 added by Government Notice R893 in Government Gazette 41065 dated 25 August 2017)</i>	

DME 132 (SAMRASS 1)

DME 132

(SAMRASS 1)

**DEPARTMENT: MINERALS AND ENERGY****ACCIDENT AND DANGEROUS OCCURRENCE REPORT**

This form must be completed for reportable accidents in terms of regulations 23.1(a) (b) (c) and (d) and Dangerous Occurrences in terms of regulation 23.4. Sections E and F, need not be completed in the event of a Dangerous Occurrence. Attach forms SAMRASS 2, 3, 5, 6, 7, and 8, where applicable.

SECTION A: EMPLOYER DETAILS

1. NAME OF MINE

2. DME MINE CODE

3. MAIN COMMODITY

SECTION B: ACCIDENT OR DANGEROUS OCCURRENCE DETAILS

1. Mine Accident or Dangerous Occurrence Number

YEAR

ACC /DO REF NO

SHAFT

Y

Y

Y

Y

N

N

N

N

S

S

2. Number of persons killed

3. Number of persons totally disabled

4. Number of persons injured

5. Date of accident or dangerous occurrence (use YYYY/MM/DD format)

Y

Y

Y

Y

M

M

D

D

6. Time of accident or dangerous occurrence

H

H

M

M

7. Location of accident or dangerous occurrence

8. Name of working place

9. Depth below surface (in metres)

10. Section

11. Description of accident or dangerous occurrence in words

12. Accident classification code

13. Dangerous Occurrence classification code

14. Did accident or dangerous occurrence occur during normal working hours or overtime?

Normal

O/Time

15. Did accident or dangerous occurrence happen at normal workplace?

Y

N

16. Average number of persons at work during the previous month

SURF
OPS

UG

O/CAST

SURF MIN

MARINE

SECTION C: RESPONSIBLE PERSONS																							
NAME		IDENTITY NUMBER/PASSPORT NUMBER								CERTIFICATE No.				OCCUPATION									
1 st LEVEL SUPERVISOR																							
2 nd LEVEL SUPERVISOR																							
3 rd LEVEL SUPERVISOR																							
4 th LEVEL SUPERVISOR																							
Name of Manager				Designation				Signature				Date											
												Y Y Y Y M M D D											
SECTION D: FOR USE BY THE DEPARTMENT OF MINERALS AND ENERGY																							
1. Regional accident or dangerous occurrence number												Y Y Y Y R N N N											
2. Date report												Y Y Y Y M M D D											
3. Type of accident or dangerous occurrence																							
4. Accident or dangerous occurrence register by												Date		Y Y Y Y M M D D									
5. Inquiry type																							
6. Probable cause of accident or dangerous occurrence																							
7. Contravention in Inspector's opinion																		Yes		No			
8. If yes, act/regulation contravened																							
9. Administrative fine recommended?																		Yes		No			
10. Date evaluation form completed												Y Y Y Y M M D D											
INSPECTORATE DETAILS										NAME (IN BLOCK LETTERS)				DATE				SIGNATURE					
11. Inspector of mines																							
12. Senior inspector of mines (mining)																							
13. Senior inspector of mines (mining equipment)																							
14. Are criminal proceedings envisaged?																		Yes		No			



DEPARTMENT: MINERALS AND ENERGY

INJURY REPORT FORM

This form must be completed for reportable accidents in terms of regulations 23.1(a) (b) (c) and (d). Sections E and F, need not be completed in the event of a Dangerous Occurrence. Attach forms SAMRASS 2, 3, 5, 6, 7, and 8, where applicable.

Name of mine																
Mine Accident or Dangerous Occurrence Number	YEAR				ACC /DO REF NO				SHAFT							
	Y	Y	Y	Y	N	N	N	N	S		S					
Date of accident or dangerous occurrence (use YYYY/MM/DD format)								Y	Y	Y	Y	M	M	D	D	
Regional accident or dangerous occurrence number								Y	Y	Y	Y	R	N	N	N	I
SECTION E: EMPLOYEE'S DETAILS																
NOTE: THIS SECTION NEED NOT BE COMPLETED FOR A DANGEROUS OCCURRENCE ACCIDENT																
1. Surname																
2. Full first names																
3. Industry number																
4. PI/company number																
5. Identity/passport number																
6. Date of birth (use YYYY/MM/DD format)								Y	Y	Y	Y	M	M	D	D	
7. Country of origin																
8. Population group								01		02		03		04		
9. Was the injured a permanent employee ("E"), a contractor ("C") or a casual ("I")?										E		C		I		
10. Name of contracting company (if applicable)																
11. Male or female										M		F				
12. Normal occupation at time of accident																
13. Total experience in current occupation										Y	Y	M	M			
14. Was injured carrying out normal duties at time of accident?												Y	N			

15. Date first employed with current employer (use YYYY/MM/DD format)	Y	Y	Y	Y	M	M	D	D
16. Date last shift worked (use YYYY/MM/DD format)	Y	Y	Y	Y	M	M	D	D
17. Date resumed work (use YYYY/MM/DD format)	Y	Y	Y	Y	M	M	D	D
18. If fatal, date of death (use YYYY/MM/DD format)	Y	Y	Y	Y	M	M	D	D
SECTION F: INJURY DETAILS								
THIS SECTION NEED NOT BE COMPLETED FOR A DANGEROUS OCCURRENCE ACCIDENT								
1. Task: (person injured or killed while performing)								
2. Activity: (injured or killed while....)								
3. Nature of injury								
4. Part of body injured								
5. Type of accident of individual fatal (F), totally disabling (T), injury (I)					F	T	I	
6. Allocated days lost (to be completed by DME)								

DME 136 (SAMRASS 3)

DME 136

(SAMRASS 3)



DEPARTMENT: MINERALS AND ENERGY
ROCKBURST AND FALL OF GROUND ACCIDENT

A. DETAILS OF MINE																
MINE NAME																
MINE'S ACCIDENT NUMBER						T		T		T		T	Shift no.			
ACTIVITY																
DATE OF ACCIDENT						Y		M		D						
CAUSE OF ACCIDENT																
DEPTH BELOW SURFACE (m)																
MINING METHOD																
B. DETAILS OF ACCIDENT																
B.1. LOCATION																
DESCRIPTION OF WORKING PLACE																
DISTANCE FROM FACE (m)																
DISTANCE FROM PANEL BOTTOM STRIKE GULLY (m)																
DIMENSIONS OF STOPE					STRIKE SPAN (m)				DIPSPAN (m)				STOPPING (m)			
DIMENSIONS OF OTHER EXCAVATIONS					HEIGHT (m)				WIDTH (m)				LENGTH (m)			
DISTANCE FROM REEF (m)																
B.2. SITE DESCRIPTION																
QUALITY OF EXCAVATION:																
B.3. TEMPORARY SUPPORT																
B.3.1. ACCORDING TO CODE OF PRACTICE																
TYPE OF SUPPORT																
SIZE OF SUPPORT (m)																
SPACING OF SUPPORT (m)																

ROWS OF SUPPORT										
DISTANCE FROM FACE (m)										
B.3.2. OBSERVED AFTER ACCIDENT										
TYPE OF SUPPORT										
SIZE OF SUPPORT (m)										
SPACING OF SUPPORT (m)										
ROWS OF SUPPORT										
DISTANCE FROM FACE (m)										
B.4. PERMANENT SUPPORT										
B.4.1. ACCORDING TO CODE OF PRACTICE										
TYPE OF SUPPORT										
SIZE OF SUPPORT (m)										
SPACING OF SUPPORT (m)										
DISTANCE FROM FACE (m)										
B.4.2. OBSERVED AFTER ACCIDENT										
TYPE OF SUPPORT										
SIZE OF SUPPORT (m)										
SPACING OF SUPPORT (m)										
DISTANCE FROM FACE (m)										
B.5. REGIONAL SUPPORT										
B.5.1. ACCORDING TO CODE OF PRACTICE										
TYPE OF SUPPORT										
SIZE OF SUPPORT (m)										
SPACING OF SUPPORT (m)										
B.5.2. OBSERVED AFTER ACCIDENT										
TYPE OF SUPPORT										
SIZE OF SUPPORT (m)										
SPACING OF SUPPORT (m)										
COMMENTS ON SUPPORT:										
COMMENTS ON EFFECTIVE USE:										

B.6. INSTRUMENTATION													
INSTRUMENT							CODE		WARNING SIGNAL				
									YES	NO			
									YES	NO			
									YES	NO			
									YES	NO			
									YES	NO			
									YES	NO			
B.7. GEOLOGICAL DETAILS													
REEF BEING MINED				CODE:				DESCRIPTION:					
							ROCK TYPE	CODE	U.C.S. STRENGTH				
IMMEDIATE HANGING WALL							MPa						
IMMEDIATE FOOTWALL							MPa						
REEF CORE							MPa						
RELEVANT GEOLOGICAL STRUCTURE													
SHORTEST DISTANCE FROM SCENE TO DISTURBANCE (m)													
COMMENT ON DISTANCE:													
MEASURED OR ESTIMATED FIELD STRESS STATE													
INDUCED FRACTURES													
B.8. FALL OF GROUND													
DIMENSIONS OF FALL				HEIGHT (m)				WIDTH (m)				LENGTH (m)	
BOUNDARIES OF FALL													
B.9. ROCKBURST													
TOTAL SIZE OF AFFECTED AREA (m ²)						ESTIMATED MAXIMUM CLOSURE							
B.9.1 EXTENT OF DAMAGE													
HANGING WALL DAMAGE (m ²)													
FOOTWALL DAMAGE (m ²)													
SIDEWALL DAMAGE (m ²)													
ROOF SUPPORT UNITS DAMAGED													
SUSPECTED BURSTING MECHANISM													
SUSPECTED MECHANISM BASED ON													
DISTANCE BETWEEN HYPOCENTRE AND ROCKBURST DAMAGE (m)													
B.10. GENERAL MINE LAYOUT													
MINE LAYOUT							CODE		CONTRIBUT				
									YES	NO			
									YES	NO			
									YES	NO			
									YES	NO			
									YES	NO			
									YES	NO			
C. SEISMIC EVENT DETAIL													

REFERENCE NUMBER																								
HYPOCENTRE (m)										X	Y	Z												
LOCATION ERROR (m)										LOCATION MAGNITUDE														
TIME										h	m	s	SEISMIC MOMENT (Nm)											
ENERGY RADIATED: P-WAVE (J)										ENERGY RADIATED: S-WAVE (J)														
SOURCE RADIUS (m)										CORNER FREQUENCY (Hz)														
STATIC STRESS DROP (MPa)										DYNAMIC STRESS DROP (MPa)														
PEAK ACCELERATION (g)										PEAK VELOCITY (cm/sec)														
DISPLACEMENT (cm)										DURATION (sec)														
C.1. SEISMIC MOMENT RELEASED										1 WEEK					1 MONTH					AVERAGE				
PER 1m OF FACE ADVANCE (Nm/m)																								
PER 1: OF ROCK OUTPUT WITHIN 300m RADIUS																								
D. SEISMIC HISTORY																								
WITHIN 300m RADIUS OF SENE OF THE ACCIDENT										MAGNITUDE														
										< 0		0 - 1		1 - 2		> 2		TOTAL						
HISTORY DETAIL																								
1 Day before Accident	1. NUMBER OF SEISMIC EVENTS																							
	2. ENERGY RELEASED: P-WAVE (J)																							
	3. S-WAVE (J)																							
	4. SEISMIC MOMENT RELEASED (Nm)																							
	5. STATIC STRESS DROP (MPa)																							
	6. MAX. ENERGY INDEX (E-obs/E-expected)																							
1 Week before Accident	1. NUMBER OF SEISMIC EVENTS																							
	2. ENERGY RELEASED: P-WAVE (J)																							
	3. S-WAVE (J)																							
	4. SEISMIC MOMENT RELEASED (Nm)																							
	5. STATIC STRESS DROP (MPa)																							
	6. MAX. ENERGY INDEX (E-obs/E-expected)																							
6 Month before Accident	1. NUMBER OF SEISMIC EVENTS																							
	2. ENERGY RELEASED: P-WAVE (J)																							
	3. S-WAVE (J)																							
	4. SEISMIC MOMENT RELEASED (Nm)																							
	5. STATIC STRESS DROP (MPa)																							
	6. MAX. ENERGY INDEX (E-obs/E-expected)																							
D.1. BEFORE ACCIDENT																								
1 WEEK										1 MONTH										AVERAGE FOR LAST 6 MONTH				
E. COMPLETED BY																								
NAME		SIGNATURE								DATE														
DESIGNATION		MANAGER'S SIGNATURE								DATE														

DME 201 (SAMRASS 4)

DME 201

(SAMRASS 4)



DEPARTMENT: MINERALS AND ENERGY

This form must be completed for reportable accidents in terms of regulation 23.1(e)

1-13 DAY INJURIES

NAME OF MINE:

DME MINE CODE:

MONTH:

Codes to be used on this Form are specified in the Code Book

[illegible]

Prepared by:

DME 133 (SAMRASS 5)

(SAMRASS 5)

**DEPARTMENT: MINERALS AND ENERGY****EXPLOSIVES**

Complete a form for each accident involving explosives and attach this to form SAMRASS 1

REGIONAL ACCIDENT OR DANGEROUS OCCURENCE NO	Y	Y	Y	Y	R	N	N	N	N	I
--	---	---	---	---	---	---	---	---	---	---

WINE NAME												
WINE'S ACCIDENT OR DANGEROUS OCCURRENCE NUMBER	Y	Y	Y	Y	N	N	N	N	Shift	No.		
TYPE OF EXPLOSIVES												
SUPPLIER OF EXPLOSIVES												
RELATIVE ENERGY												
DETONATION												
TYPE OF DETONATOR												
SUPPLIER OF DETONATOR												
TYPE OF FUSE												
SUPPLIER OF FUSE												
PRIMER CARTRIDGE												
LENGTH OF CARTRIDGE (mm)												
DIAMETER OF CARTRIDGE (mm)												
DIAMETER OF SHOT HOLE												
METHOD USED TO DETECT MISFIRES												
EXPERIENCE OF MINER									Y	Y	M	M
CAUSE OF EXPLOSION												

Minerals and Energy for Development and Prosperity

DME 134 (SAMRASS 6)

DME 134

(SAMRASS 6)



DEPARTMENT: MINERALS AND ENERGY

FIRE

REGIONAL ACCIDENT OR DANGEROUS OCCURRENCE NO	Y	Y	Y	Y	R	N	N	N	N	I
---	---	---	---	---	---	---	---	---	---	---

MINE NAME																
MINE'S ACCIDENT OR DANGEROUS OCCURRENCE NUMBER		Y	Y	Y	Y	N	N	N	N	shut to						
DATE FIRE DETECTED					Y	Y	Y	Y	M	M	D	D				
TIME FIRE DETECTED									H	H	:	M	M			
BY WHOM DETECTED																
OCCUPATION OF PERSON																
WHAT BURNT?																
NUMBER OF PROTO TEAMS CALLED OUT																
NUMBER OF PROTOTEAMS SENT UNDERGROUND																
SEALED OFF																
TIME TAKEN									D	D	:	H	H	:	M	M
INDIRECT COST																
DIRECT COST																
LOSS IN PRODUCTION (Time)																
REPORTABLE CASUALTIES	KILLED					DISABLED					INJURED					
DID CODE OF PRACTICE CATER FOR PREVENTION OF FIRE?																
WAS THERE ANY NEGLIGENCE?																
WERE PERSONS ENDANGERED?																
WERE SELF RESCUERS USED?																
IS PROSECUTION ENVISAGED?																
IOM SIGNATURE:																
DATE:																

DME 135 (SAMRASS 7)**DME135****(SAMRASS 7)****DEPARTMENT: MINERALS AND ENERGY****SUBSIDENCES (COAL MINES)**

Complete a form for each subsidence and attach this form to form SAMRASS 1 Form.

MINE NAME														
MINE'S ACCIDENT OR DANGEROUS OCCURRENCE NUMBER		Y	Y	Y	Y	N	N	N	N	N	N	N	N	
DATE DETECTED		Y	Y	I	M	M	I	D	D					
MINING METHOD														
MAXIMUM DEPTH OF SUBSIDENCE (m)														
VENTILATION PLAN GRID REFERENCE														
INFLUENCE ON UNDERGROUND WORKINGS														
MINING PARAMETERS:		PLANNED MINING PARAMETERS:						ACTUAL MINING PARAMETERS:						
ROAD WIDTH:														
MINING HEIGHT (m)														
PILLAR CENTRES(m)														
PILLAR SIZE(m)														
BARRIER PILLAR(m)														
SAFETY FACTOR														
PANEL WIDTH(m)														
PANEL ROADS														
% OVERMINED														
GEOLOGY														
SEAM														
INFLUENCE ON STRUCTURES														
ACTION TO BE TAKEN														
IOM SIGNATURE:		DATE:												

DME 137 (SAMRASS 8)

(SAMRASS 8)



DEPARTMENT: MINERALS AND ENERGY

HEAT STROKE / HEAT EXHAUSTION QUESTIONNAIRE

Complete a form for each person suffering from heat stroke /
Heat exhaustion and attach this form to form SAMRASS 1

REGIONAL ACCIDENT NO	Y	Y	Y	Y	R	N	N	N	N	I
----------------------	---	---	---	---	---	---	---	---	---	---

A. PERSONAL DETAILS																					
NAME OF MINE																					
MINE'S ACCIDENT OR DANGEROUS OCCURENCE NUMBER										Y	Y	Y	Y	N	N						
SURNAME										FIRST NAME											
OCCUPATION										LENGTH OF TIME WORKED IN AREA					h	h	:	m	:	s	s
B. EXPERIENCE (OTHER MINES)																					
MINE					PERIOD WORKED					OCCUPATION											
C. HEAT STRESS ACCLIMATIZATION																					
METHOD OF ACCLIMATIZATION ON MINE																					
WAS ACCLIMATIZATION PERIOD EVADED IN ANY WAY?																				YES	NO
DETAILS REGARDING DATES, TEMPERATURE AND MASS RESPONSES DURING THE ACCLIMATIZATION PROCEDURE, TO BE OBTAINED FROM THE ACCLIMATIZATION CENTRE					ACCLIMATIZATION DETAILS																
					TIME TAKEN					TEMPERATURE											
D. SYMPTOMS, ETC																					
SIGN OF ILLNESS																				YES	NO

LENGTH OF TIME WORKED BEFORE COLLAPSE																
APPEARANCE NORMAL													YES	NO		
SIGN OF FATIGUE													YES	NO		
DRINKING WATER AVAILABLE													YES	NO		
WATER DRUNK													YES	NO		
SIGN OF COLLAPSE																
SWEATING													YES	NO		
DAY OF COLLAPSE (1 - MONDAY, 2 - TUESDAY, 3 - WEDNESDAY, 4 - THURSDAY, 5 - FRIDAY, 6 - SATURDAY, 7 - SUNDAY)																
E. TREATMENT																
DATE TAKEN								TIME TAKEN				TEMPERATURE				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
F. WORKING AREA																
WET KATA READING																
WET BULB READING																
DRY BULB READING																
AVERAGE WET BULB READING																
AVERAGE DRY BULB READING																
AIR QUANTITY																
AIR VELOCITY																
AVERAGE QUANTITY																
AVERAGE VELOCITY																
MEANS OF VENTILATION																

(SAMRASS 9)



MONTH:

[illegible]

This form is to be completed monthly and forwarded to the regional office of the Inspectorate in respect of all injured persons who returned to work during that month.

Report Form 21.9(2)(a)**I. Airborne Pollutants -Particulate Personal Quarterly Report Form 21.9(2)(a)(i) in terms of regulation 9.2.(7) - Single Pollutant HEG Category A and C**

MAIN COMMODITY CODE:							DMR MINE CODE:						
SAMPLE AREA:							SUB MINE CODE:						
ACTIVITY AREA CODE:							REPORTING PERIOD:						
HEG RECLASSIFICATION BAND: (based on previous annual 90 th percentile results)							Name and SANAS accreditation number of analytical laboratory used:						
			Q1	Q2	Q3	Q4	ANNUAL RESULTS: ANNUAL 90TH PERCENTILE BASED ON THE 4 QUARTERS MEASUREMENTS RESULTS						
NUMBER OF SAMPLES PLANNED FOR THE CURRENT SAMPLING CYCLE:													
Number of samples taken													
Quarterly HEG classification based on 90 th percentile measurement results													
HEG			Pollutant code	Sample Concentration per Occupation (TWA - 8hr) mg/m ³ (Sample Concentration = Sample mass (mg)/Sample Volume (m ³) 1. If Sampling time = exposure duration or < exposure duration TWA 8h= Sampling Concentration * actual exposure duration 480 (min)		Pollutant analytical mass (mg)	Pollutant Concentration per Occupation (TWA - 8hr) mg/m ³ (Pollutant Concentration = Pollutant mass (mg)/Sample Volume (m ³) 1. If Sampling time = exposure duration or < exposure duration Pollutant TWA 8h= Pollutant Concentration * actual exposure duration 480 (min)		Mean pollutants concentration dose allocated to medical records (Tick appropriate block) mg/m ³ i/ml		90 th percentile HEG classification	OEL (Tick appropriate block) mg/m ³ i/ml	
Occupations codes in HEG	Occupations in HEG	Number of persons per occupation		2. If Sampling time > exposure duration TWA 8h= Sampling Concentration* actual sampling time 480(min)			2. If Sampling time > exposure duration Pollutant TWA 8h= Pollutant Concentration* actual sampling time 480 (min)		ppm			ppm	
				(A)			(B)	(C)	(D)			(E)	(F)
TOTAL													
COMMENTS ON:													
Reasons for over-exposures													
Corrective measures that will be implemented to prevent / mitigate over-exposures													

ii. Airborne Pollutants -Particulate Personal Quarterly Report Form 21.9(2)(a)(ii) in terms of regulation 9.2.(7) - Single Pollutant HEG Category B

MAIN COMMODITY CODE:									DMR MINE CODE:				
SAMPLE AREA:									SUB MINE CODE:				
ACTIVITY AREA CODE:									REPORTING PERIOD:				
HEG RECLASSIFICATION BAND: (based on previous annual 90 th percentile results)									Name and SANAS accreditation number of analytical laboratory used:				
			Q1	Q2	BI - ANNUAL RESULTS (Q2- PERCENTILE RESULTS OF Q1 AND Q2)	Q3	Q4	ANNUAL RESULTS (ANNUAL 90TH PERCENTILE BASED ON THE 4 QUARTERS MEASUREMENTS RESULTS)					
NUMBER OF SAMPLES PLANNED FOR THE CURRENT SAMPLING CYCLE:													
Number of samples taken													
Quarterly HEG classification based on 90 th percentile measurement results													
HEG			Pollutant code	Sample Concentration per Occupation (TWA - 8hr) mg/m ³ (Sample Concentration = Sample mass (mg)/Sample Volume (m ³) 1. If Sampling time = exposure duration or < exposure duration TWA 8h= Sampling Concentration * actual exposure duration 480 (min)		Pollutant analytical mass (mg)	Pollutant Concentration per Occupation (TWA - 8hr) mg/m ³ (Pollutant Concentration = Pollutant mass (mg)/Sample Volume (m ³) 1. If Sampling time = exposure duration or < exposure duration Pollutant TWA 8h= Pollutant Concentration * actual exposure duration 480 (min)		Mean pollutants concentration dose allocated to medical records		90 th Percentile HEG classification	OEL	
Occupations codes in HEG	Occupations in HEG	Number of persons per occupation		2. If Sampling time > exposure duration TWA 8h= Sampling Concentration* actual sampling time 480(min)			2. If Sampling time > exposure duration Pollutant TWA 8h= Pollutant Concentration* actual sampling time 480 (min)		(Tick appropriate block)			(Tick appropriate block)	
									mg/m ³			mg/m ³	
									µm			µm	
			(A)		(B)	(C)		(D)		(E)		(F)	
TOTAL													
COMMENTS ON:													
Reasons for over-exposures													
Corrective measures that will be implemented to prevent / mitigate over-exposures													

iii. Airborne Pollutants -Particulate Personal Quarterly Report Form 21.9(2)(a)(iii) in terms of regulation 9.2.(7) - Additive effects HEG Category A and C

MAIN COMMODITY CODE:								DMR MINE CODE:										
SAMPLE AREA:								SUB MINE CODE:										
ACTIVITY AREA CODE:								REPORTING PERIOD:										
HEG RECLASSIFICATION BAND: (based on previous annual 90 th percentile results)								Name and SANAS accreditation number of analytical laboratory used:										
Number of samples planned for the current sampling cycle:		Q1		Q2		Q3		Q4		ANNUAL RESULTS (ANNUAL 90TH PERCENTILE BASED ON THE 4 QUARTERS MEASUREMENTS RESULTS)								
Number of samples taken																		
Quarterly HEG classification based on 90th percentile measurement results or AQI (HEG classification must be based on 90th percentile of each pollutant or AQI, whichever is the greatest)																		
HEG			Sample Concentration per Occupation (TWA - 8hr) mg/m ³ [Sample Concentration = Sample mass (mg)/Sample Volume (m ³) 1. If Sampling time = exposure duration or < exposure duration TWA 8h= Sampling Concentration * actual exposure duration 480 (min) 2. If Sampling time > exposure duration TWA 8h= Sampling Concentration* actual sampling time 480(min)		Pollutant analytical mass (mg)		Pollutant Concentration per Occupation (TWA - 8hr) mg/m ³ [Pollutant Concentration = Pollutant mass (mg)/Sample Volume (m ³) 1. If Sampling time = exposure duration or < exposure duration Pollutant TWA 8h= Pollutant Concentration * actual exposure duration 480 (min) 2. If Sampling time > exposure duration Pollutant TWA 8h= Pollutant Concentration* actual sampling time 480 (min)		Mean pollutants concentration dose allocated to medical records (Tick appropriate block) mg/ m ³ f/ml ppm		90 th percentile HEG classification		OEL (Tick appropriate block) mg/m ³ f/ml ppm		Pollutant index		AQI	
Occupation codes in HEG			Occupations in HEG		Number of persons per occupation		Pollutant code											
							(A)		(B)		(C) (D)		(E)		(F)			
TOTAL																		
COMMENTS ON:																		
Reasons for over-exposures																		
Corrective measures that will be implemented to prevent / mitigate over-exposures																		

iv. Airborne Pollutants -Particulate Personal Quarterly Report Form 21.9(2)(a)(iv) in terms of regulation 9.2.(7) - Additive effects HEG Category B

MAIN COMMODITY CODE:								DMR MINE CODE:			
SAMPLE AREA:								SUB MINE CODE:			
ACTIVITY AREA CODE:								REPORTING PERIOD:			
HEG RECLASSIFICATION BAND: (based on previous annual 90 th percentile results)								Name and SANAS accreditation number of analytical laboratory used:			
NUMBER OF SAMPLES PLANNED FOR THE CURRENT SAMPLING CYCLE:		Q1	Q2	BI - ANNUAL RESULTS (Q2- PERCENTILE RESULTS OF Q1 AND Q2)	Q3	Q4	ANNUAL RESULTS (ANNUAL 90TH PERCENTILE BASED ON THE 4 QUARTERS MEASUREMENTS RESULTS)				
Number of samples taken											
Quarterly HEG classification based on 90th percentile measurement results or AQI (HEG classification must be based on 90th percentile of each pollutant or AQI, whichever is the greatest)											
HEG		Sample Concentration per Occupation (TWA - 8hr) mg/m ³ [Sample Concentration = Sample mass (mg)/Sample Volume (m ³) 1. If Sampling time = exposure duration or < exposure duration TWA 8h= Sampling Concentration * actual exposure duration 480 (min) 2. If Sampling time > exposure duration TWA 8h= Sampling Concentration* actual sampling time 480(min)		Pollutant analytical mass (mg)	Pollutant Concentration per Occupation (TWA - 8hr) mg/m ³ [Pollutant Concentration = Pollutant mass (mg)/Sample Volume (m ³) 1. If Sampling time = exposure duration or < exposure duration Pollutant TWA 8h= Pollutant Concentration * actual exposure duration 480 (min) 2. If Sampling time > exposure duration Pollutant TWA 8h= Pollutant Concentration* actual sampling time 480 (min)		Mean pollutants concentration dose allocated to medical records (Tick appropriate block) mg/ m ³ f/m ^l ppm	90 th percentile HEG classification	OEL (Tick appropriate block) mg/m ³ f/m ^l ppm	Pollutant index	AQI
Occupations codes in HEG	Occupations in HEG	Number of persons per occupation	Pollutant code								
			(A)		(B)	(C)	(D)	(E)	(F)		
TOTAL											
COMMENTS ON:											
Reasons for over-exposures											
Corrective measures that will be implemented to prevent / mitigate over-exposures											

(Form 21.9(2)(a) substituted by regulation 1 of GN 2909 dated 21 December 2022)

Report Form 21.9(2)(b)

i. Airborne Particulates Gases and Vapours Personal Quarterly Report Form 21.9(2)(b)(i) in terms of regulation 9.2.(7) - Single Pollutant HEG Category A and C.

Main Commodity Code:							DMRE Mine Code:					
Sample Area:							Sub Mine Code:					
Activity Area Code:							Reporting Period:					
HEG reclassification Band (Based on previous annual 90 th Percentile results)												
			Q1	Q2	Q3	Q4					Annual Results: Annual 90th percentile based on the 4 quarters measurements results	
Number of samples planned for the current sampling cycle												
Number of samples taken												
Quarterly HEG classification (Based on 90 th percentile measurement results)												
HEG			Pollutant Code	Pollutant Concentration per Occupation in (Tick appropriate box)		Pollutant analytical %	Mean Pollutant Concentration Dose Allocated to Medical Record Mean Pollutant Concentration Dose = Average TWA Pollutant Concentration (average of all results calculated in A)	Range of Pollutant Concentration		90 th Percentile HEG Classification = PERCENTILE [(A),0.9]	OEL	
Occupations Codes in HEG	Occupation Name in a HEG	Number of Persons per Occupation		ppm							(Tick appropriate box)	
				mg/m ³								
				TWA - 8hr								
				STEL								
			CL			Min	Max	mg/m ³				
										ppm		
					(A)	(B)	(C)			(D)		
TOTAL												
COMMENTS ON: REASON/S FOR OVEREXPOSURES												
CORRECTIVE MEASURES THAT WILL BE IMPLEMENTED TO PREVENT/MITIGATE OVEREXPOSURES.												

ii. Airborne Particulates Gasses and Vapours Personal Quarterly Report Form 21.9(2)(b)(ii) in terms of regulation 9.2.(7) - Single Pollutant HEG Category B.

Main Commodity Code:						DMRE Mine Code:						
Sample Area:						Sub Mine Code:						
Activity Area Code:						Reporting Period:						
HEG reclassification Band (Based on previous annual 90 th Percentile results)						Annual Results: Annual 90 th percentile based on the 4 quarters measurements results						
	Q1	Q2	Bi - Annual Results (Q2- percentile results of Q1 and Q2)	Q3	Q4							
Number of samples planned for the current sampling cycle												
Number of samples taken												
Quarterly HEG classification (Based on 90 th percentile measurement results)												
HEG		Pollutant Code	Pollutant Concentration per Occupation in		Pollutant analytical %	Mean Pollutant Concentration Dose Allocated to Medical Record Mean Pollutant Concentration Dose = Average TWA Pollutant Concentration (average of all results calculated in A)	Range of Pollutant Concentration		90 th Percentile HEG Classification = PERCENTILE [(A),0.9]	OEL		
Occupations Codes in HEG	Occupation Name in a HEG		Number of Persons per Occupation	(Tick appropriate box)								
				ppm				(Tick appropriate box)				
				mg/m ³								
			TWA - 8hr		mg/m ³							
			STEL		ppm							
			CL									
				(A)	(B)	(C)	Min	Max	(D)			
TOTAL												
COMMENTS ON: REASON/S FOR OVEREXPOSURES												
CORRECTIVE MEASURES THAT WILL BE IMPLEMENTED TO PREVENT/MITIGATE OVEREXPOSURES.												

iii. Airborne Particulates Gasses and Vapours Personal Quarterly Report Form 21.9(2)(b)(iii) in terms of regulation 9.2.(7) - Additive effects HEG Category A and C

Main Commodity Code:						DMRE Mine Code:											
Sample Area:						Sub Mine Code:											
Activity Area Code:						Reporting Period:											
HEG reclassification Band (Based on previous annual 90 th Percentile results)																	
			Q1	Q2	Q3						Q4	Annual Results: Annual 90 th percentile based on the 4 quarters measurements results					
Number of samples planned for the current sampling cycle																	
Number of samples taken																	
Quarterly HEG classification (Based on 90 th percentile measurement results)																	
HEG			Pollutant Code	Pollutant Concentration per (Tick appropriate box)		Pollutant analytical %	Mean Pollutant Concentration Dose Allocated to Medical Record Mean Pollutant Concentration Dose = Average TWA Pollutant Concentration (average of all results calculated in A)	Range of Pollutant Concentration		90 th Percentile HEG Classification = PERCENTILE [(A),0.8]	OEL		Pollutant Index = 90 th Percentile HEG for the quarter Classification / OEL	AQI = Sum of Pollutant Index			
Occupations Codes in HEG	Occupation Name in a HEG	Number of Persons per Occupation		ppm							mg/m ³	TWA - 8hr			STEL	Min	Max
				mg/m ³													
				ppm													
			(A)		(B)				(D)		(E)	(F)					
TOTAL																	
COMMENTS ON: REASONS FOR OVEREXPOSURES																	
CORRECTIVE MEASURES THAT WILL BE IMPLEMENTED TO PREVENT/MITIGATE OVEREXPOSURES.																	

iv. Airborne Particulates Gasses and Vapours Personal Quarterly Report Form 21.9(2)(b)(iv) in terms of regulation 9.2.(7) - Additive effects HEG Category B

Main Commodity Code:				DMRE Mine Code:									
Sample Area:				Sub Mine Code:									
Activity Area Code:				Reporting Period:									
HEG reclassification Band (Based on													
		Q1	Q2	BI - Annual Results (Q2- percentile results of Q1 and Q2)	Q3	Q4	Annual Results: Annual 90th percentile based on the 4 quarters measurements results						
Number of samples planned for the													
Number of samples taken													
Quarterly HEG classification (Based on													
HEG													
Occupations Codes in HEG	Occupation Name in a HEG	Number of Persons per Occupation	Pollutant Code	Pollutant (Tick appropriate box)	Pollutant analytical %	Mean Pollutant Concentration Dose Allocated to Medical Record Mean Pollutant Concentration Dose = Average TWA Pollutant Concentration (average of all results calculated in A)	Range of Pollutant Concentration		90 th Percentile HEG Classification =PERCENTILE [(A),0.9]	OEL		Pollutant Index =90th Percentile HEG for the quarter Classification /OEL	AQI = Sum of Pollutant Index
				ppm						(Tick			
				mg/m ³									
				TWA - 8hr									
							Min	Max		mg/m ³			
										ppm			
TOTAL													
COMMENTS ON: REASONS FOR OVEREXPOSURES													
CORRECTIVE MEASURES THAT WILL BE IMPLEMENTED TO PREVENT/MITIGATE OVEREXPOSURES.													

(Form 21.9(2)(b) substituted by regulation 2 of GN 2909 dated 21 December 2022)

Report Form 21.9(2)(c)

Heat stress exposure: Quarterly Report Form 21.9(2)(c) in terms of regulation 9.2.(7)

Main Commodity Code:						DMR Mine Code	
Sampling/Measurement Area:	Surface ☐		Underground ☐			Sub Mine Code	
Activity Area:	Activity area name		Activity area code			Reporting Period	
	Q1	Q2	Q3	Q4		Start:	End:
Heat Environmental classification (based on 90 th percentile of the most significant parameter)							

Thermal: Heat Environment			Parameter	Number of measurements taken per parameter	Mean dose allocated to medical records (for each parameter)	90 th percentile of each parameter (for heat environment classification)	OEL/Standard (for each parameter)	Significant Parameter used for classification (tick relevant parameter)
Occupations Codes	Occupations Description	Number of Persons per Occupation						
			Wet bulb (WB) °C					
			Dry bulb (DB) °C					
			Globe (GT) °C					
			WBGT Index					
COMMENTS ON:								
Reasons for over-exposures								
Corrective measures that will be implemented to prevent / mitigate overexposure								

(Form 21.9(2)(c) substituted by regulation 3 of GN 2909 dated 21 December 2022)

Report Form 21.9(2)(d)**Cold Stress Exposure Quarterly Report Form 21.9(2)(d) in terms of regulation 9.2.(7)**

Main Commodity Code:						DMR Mine Code	
Sampling/Measurement Area:	Surface ☐		Underground ☐			Sub Mine Code	
Activity Area Code:	Activity area name		Activity area code			Reporting Period	
						Start	End
	Q1	Q2	Q3	Q4			
Cold Environmental classification (based on 10th percentile of the most significant parameter)							

Thermal Cold Environment			Cold stress Parameter	Number of measurements taken	Mean dose allocated to medical records	10th percentile cold environment classification	OEL
Occupations Codes	Occupations Description	Number of Persons per Occupation					
			Wind chill equivalent chill temperature °C				
COMMENTS ON:							
Reasons for over-exposures							
Corrective measures that will be implemented to prevent / mitigate overexposure.							

(Form 21.9(2)(d) substituted by regulation 4 of GN 2909 dated 21 December 2022)

Report Form 21.9(2)(e)

Personal Noise Exposure- Quarterly Report Form 21.9(2)(e) in term of regulation 9.2.(7)

MINE NAME:						
QUARTERLY NOISE EXPOSURE REPORT FORM 21.9(2)(e) in terms of regulation 9.2.(7)						
MAIN COMMODITY CODE:					DMRE MINE CODE:	
SAMPLE AREA:					SUB MINE CODE:	
ACTIVITY AREA CODE:					REPORTING PERIOD:	
HEG DESCRIPTION:					(e.g. January to March)	
HEG CLASSIFICATION BAND: (based on 90th percentile statistical analysis of the previous annual results)						
ANNUAL 90th PERCENTILE RESULT FOR THE HEG: (based on all individual measurements obtained from all quarters during the previous measurement cycle)						
NUMBER OF EXPOSED EMPLOYEES: (where there are new employees, number of exposed employees reported should be progressive)	Q1	Q2	Q3	Q4	ANNUAL RESULTS	
NUMBER OF SAMPLES PLANNED FOR THE CURRENT SAMPLING CYCLE:						
NUMBER OF SAMPLES TAKEN:						
QUARTERLY HEG CLASSIFICATION: (based in the Log average)						
OCCUPATION CODE IN HEG	OCCUPATION DESCRIPTION IN A HEG	NUMBER OF PERSONS PER OCCUPATION	Each recorded sound pressure level measured ($L_{Aeq, 8h}$) within the HEG linked to the occupation code			
Reasons for individual result/s exceeding the annual HEG Classification						
Corrective actions that will be implemented to mitigate the individual result/s exceeding the annual HEG Classification						

(Form 21.9(2)(e) substituted by regulation 5 of GN 2909 dated 21 December 2022)

Report Form 21.9(2)(f)

Operational – Report Form 21.9(2)(f)																																																																																											
Pages/Report																																																																																											
Report Exposure Level		Airborne Pollutants						Sampling Period																																																																																			
		Thermal Stress																																																																																									
		Noise																																																																																									
DMRE Mine Code								DMRE Sub Mine Code																																																																																			
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Section 4.1 Details																																																																																											
Employer Name								Production																																																																																			
Telephone																																																																																											
Email								Process																																																																																			
Fax																																																																																											
Section 12.1 Details																																																																																											
Full Time		Part Time		MEC Certificate No.		Intermediate MEC Certificate No.		SAIOH Registration																																																																																			
Name						Cell Phone																																																																																					
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(Form 21.9(2)(f) substituted by regulation 6 of GN 2909 dated 21 December 2022)

Form DMR 231

DMR 231



mineral resources
Department
REPUBLIC OF SOUTH AFRICA

HEALTH INCIDENT REPORT (HIR)

Instructions:

1. Please refer to the attached Annexures A, B, C, D and E when completing this form;
2. These Annexures serve as a guide and are NOT for submission to the Department: Mineral Resources;
3. PLEASE RETURN THE COMPLETED FORM TO: The Occupational Medicine Inspectors in the relevant regional offices as listed on Annexure E.

A. DETAILS OF EMPLOYER

Name of Mine: _____

SAMRASS Mine Code: _____

Mine Address: _____

Commodity(ies) mined: _____

B. PERSONAL DETAILS OF THE AFFECTED EMPLOYEE

Surname: _____

Name(s): _____

Date of birth: _____

Gender: _____

Male: ☐ Female: ☐

South African ID number/ Passport number: _____

Industry No: _____

Pension Fund No: _____

TEBA number: _____

COY number: _____

Occupation: _____

Surface or underground: _____

Surface: ☐ Underground: ☐

C. DETAILS OF DIAGNOSED DISEASE (Mark with an "X" on the specific diagnosed disease)

PTB	SIL + TB	MDR – TB	XDR – TB	SIL	ASB	CWP	COAD	OCCUPA- TIONAL- ASTHMA	HEAT STROKE	NIHL	OCCUPA- TIONAL SKIN DISEASES	MUSKULO- SKELETAL DISORDERS	OTHER (SPECIFY)

Date diagnosed:

--	--	--	--	--	--	--	--	--	--

Date of death (if applicable):

--	--	--	--	--	--	--	--	--	--

D. DETAILS OF SUBMISSION FOR COMPENSATION (Mark with an "X" where applicable)

Is the disease to be submitted for compensation?

Yes ☐ No ☐

Date submitted:

--	--	--	--	--	--	--	--

Did the reported disease(s) result in death?

Yes ☐ No ☐

Employment status changed:

Yes ☐ No ☐

If yes, state date:

--	--	--	--	--	--	--	--

Compensation House/ Bodies:

Compensation Commissioner ☐ MBOD ☐ RMA ☐

Compensation number (if applicable):

E. DESCRIBE THE WORK AND/OR EXPOSURES THAT LED TO THE DIAGNOSED DISEASE

[illegible]

F. EMPLOYMENT HISTORY RECORD

[illegible]

G. GENERAL DETAILS

Person submitting this form:

Surname: _____

Full Name(s): _____

Contact No.

--	--	--	--	--	--	--	--	--	--

E-mail address:

Date:

--	--	--	--	--	--	--	--

Signature (person submitting)

Occupational Medical Practitioner:

Surname: _____

Full Name(s): _____

HPCSA No:

Qualifications:

Practice No:

E-mail address:

Contact No:

--	--	--	--	--	--	--	--	--	--

Date:

--	--	--	--	--	--	--	--

INTRODUCTION

The Health Incident Report (HIR) has been developed from recommendations of GEN 501 to generate centralised database to record the occurrence of occupational diseases in the South African mining industry, together with the morbidity and mortality of such diseases.

The database is used by the Mine Health and Safety Inspectorate for research purposes. This research helps to identify and classify problem areas in occupational disease management, so that appropriate preventative measures can be implemented. The occupational diseases database has been designed with an attached user guideline/procedure and the data-input form for completion by Occupational Medical Practitioners (OMPs) in the mining industry in submitting details of disease occurrences.

The Health Incident Report occupational diseases system uses the same list of mines as SAMRASS, the intention being to standardise data on disease incidents for administrative simplicity, as well as for statistical purposes.

Normal medical ethics must apply to confidentiality of personal and medical data. An employee consent form is attached as an annexure (Annexure B). There is a legal obligation to notify certain diseases, such as tuberculosis, to the authorities for protection of the community. In such a case, the common good has to override personal interests. But, as mentioned, access to the detailed data must be restricted in order to prevent violation of personal privacy rights.

The system is not designed to record clinical details of a disease occurrence; the main purpose of the data is to address the lack of information on the prevalence of occupational diseases in the mining industry. The nature of the data is designed to facilitate subsequent statistical analysis of masses of cases, rather than an in-depth clinical analysis of any specific case. This is to enable corrective measures to be prioritised and monitored. The document was developed in consultation with representatives from State, Labour and Employer.

The following aspects were taken into account:

- **Simplification**

An important consideration in the revision process was to design the reporting system without adding to the workload for the mines. With this in mind, codes which are consistent with industry reporting to Rand Mutual Assurance have been incorporated with SAMRASS reporting.

- **Content**

The choice and definition of variables to be reported, statistical measures and categories and groups for which statistics are reported, were revisited.

The new system has also been designed to conform to international standards and to facilitate comparison with other statistics.

- **Accuracy and Consistency**

Coding structures should be consistent with previous code sets so that history is not lost and should be readily understood by persons completing the prescribed forms.

- **Accessibility**

Statistics will be published in the Mine Health and Safety Inspectorate (MHSI) Annual Report and disseminated. Graphs, diagrams and explanatory notes will be used.

- **Uses**

Statistics will be presented, illustrating the situation and trends within the different mining sectors.

- **Common Vocabulary**

The intention of this document is to ensure that all mines make use of the same terminology regarding disease reporting.

Annexure B**Employee Consent Form**

I _____ (*full names and surname*)
 understand that my personal information regarding disease and employment will be sent as
 regulated to the Health Incident report database and may be used for purposes of reporting of
 occupational disease in mines and research.

I have been informed that confidentiality will be maintained in terms of Section 15 of the Mine Health
 and Safety Act, 1996, as amended.

 Employee
 (Signature)

Date: ____/____/____

 Witness1
 (Signature)

Date: ____/____/____

 Witness2
 (Signature)

Date: ____/____/____

Annexure C

USER GUIDELINE ON HEALTH INCIDENT REPORT (HIR)**A. DETAILS OF EMPLOYER**

- *Name of mine:* The name of the mine must be filled in
- *SAMRASS Mine Code:* The Mine's SAMRASS code must be filled in
- *Mine Address:* The mine's postal address must be filled in

B. PERSONAL DETAILS OF THE AFFECTED EMPLOYEE

Supply **ALL** available information on personal details

- *UWG and surface:* Indicate the employee's designated working area

C. DETAILS OF DIAGNOSED DISEASE

Indicate with an "X" on the disease (s) / illness diagnosed

- *Date diagnosed:* Complete the date when the disease/illness was diagnosed, e.g. DD/MM/YYYY
- *Date of death (if applicable):* Indicate date if the diagnosed disease (s) / illness caused death

D. DETAILS OF SUBMISSION FOR COMPENSATION

- *Submitted for compensation:* Mark with "X" if a compensation claim has been submitted
- *Date submitted:* Date on which the compensation claim was submitted
- *Disease caused Death:* State whether the employee died as a result of the disease.
- *Employment status changed:* State if the employee's occupation has changed as a result of the disease
- *Date:* Indicate the date from which the employee's employment status has changed
- *Compensation Houses/ Bodies* Indicate which institution handled the compensation claim e.g.
Rand Mutual Assurance, Compensation Commissioner or
Medical Bureau for Occupational Diseases
- *Compensation /claim number* Indicate the compensation/claim number

E. WORK AND / EXPOSURES THAT LED TO THE DISEASE

Supply **ALL** available information on the affected employee's work and work exposures

F. EMPLOYMENT HISTORY RECORD:

Supply **ALL** information

G. GENERAL DETAILS:

Supply **ALL** information and sign the form where indicated

Annexure D**USER GUIDELINE ON HEALTH INCIDENT REPORT (HIR)****LIST OF ACRONYMS**

PTB	Pulmonary tuberculosis
SIL+TB	Silico-tuberculosis
MDR-TB	Multidrug-resistant tuberculosis
XDR-TB	Extensively drug-resistant tuberculosis
SIL	Silicosis
ASB	Asbestosis
CWP	Coal Workers' pneumoconiosis
COAD	Chronic obstructive airway disease
NIHL	Noise-Induced hearing loss
OTHER	Specify

Annexure E

MHSI Regional Offices - Contact List

Region	Telephone No.	Physical Address	Postal Address
Eastern Cape	041 396 3940	C/o Mount Road & Diaz, Mount Croix, PORT ELIZABETH	Private Bag X6076 PORT ELIZABETH 6000
Free State	057 391 1371/3	The Strip, 314 State Way & Bok Streets WELKOM 9459	Private Bag X33 WELKOM 9460
Gauteng	011 358 9700	Mineralia Building, 1 st and 2 nd Floor, c/o De Korte & De beer Streets BRAAMFONTEIN Johannesburg	Private Bag X5 BRAAMFONTEIN 2017
KwaZulu-Natal	031 335 9626	Durban Bay House 333 Anton Lambede Street (former Smith Street) DURBAN 4001	Private Bag X54307 DURBAN 3000
Limpopo	015 287 4705	101 Dorp Street POLOKWANE 0699	Private Bag X9467 POLOKWANE 0700
Mpumalanga	013 653 0500	Receiver of Revenue Building, C/o Paul Kruger & Botha Street EMALAHLENI 1035	Private Bag X7279 WITBANK 1035
Northern Cape	053 807 1735	65 Phakamile Mabija Street Perm Building KIMBERLEY 8300	Private Bag X6093 KIMBERLY 8300
North West-Klerksdorp	018 487 9867	Vaal University of Technology Building, C/o Voortrekker & Margaret Prinsloo Streets KLERKSDORP 2570	Private Bag A1 KLERKSDORP 2570
North West-Rustenburg	014 594 9240	254 C/o Beyers Naude & Unie Streets RUSTENBURG	P O BOX 150 TLHABANE 0390
Western Cape	012 427 1004	Atterbury House, 9 th Floor C/o Lower Burg & Rieboeck Streets CAPE TOWN 8012	Private Bag X9 ROGGE BAY 8012

Form DMR 276

mineral resources
Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

DMR 276

EMPLOYEE'S RECORD OF HAZARDOUS WORK

MINE NAME											MINE CODE								
FIRST NAME											SURNAME					MALE		FEMALE	
I.D./PASSPORT NUMBER											COMPANY/ INDUSTRY NUMBER								
DATE STARTED EMPLOYMENT	D	D	M	M	Y	Y	Y	Y	DATE ENDED EMPLOYMENT	D	D	M	M	Y	Y	Y	Y		
OCCUPATION	DATE		NUMBER OF EXPOSED SHIFTS	IDENTIFY STRESSOR AS PER MINE'S SPECIFIC RISK ASSESSMENT IN ACCORDANCE WITH THE DMR LISTING IN SCHEDULE 22.9(2)															
	FROM	TO		AIRBORNE POLLUTANTS (e.g. Silica, Coal Dust, etc.)							NOISE	THERMAL STRESS	OTHER	RADIATION					

SIGNATURE OF HYGIENIST/LINE MANAGER:

DATE:

SIGNATURE OF EMPLOYEE:

DATE:

Note Section 14 (i) & (ii) of the Mine Health and Safety Act states that:

"(i) The employer at every mine must keep a service record in the prescribed form, of employees at the mine who perform work in respect of which medical surveillance is conducted in terms of section 13. (ii) The employer must deliver to the Medical Inspector a copy of the relevant part of the record kept in terms of subsection (1) – (a) when an employee whose name appears in that record ceases to be employed at that mine; or (b) when required to do so by the Chief Inspector of Mines."

Prepared by:

Form DMR 289 (Lifts)



mineral resources
Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

Lift Particulars

In terms of regulation 8.11.1 Chapter 8 of the Mine Health and Safety Act, (Act 29 of 1996)

O.E.M:

Ref No:

The Principal Inspector of Mines

Region:

Date:

Please be advised that we wish to inform you of particulars of a lift as set out below:

Name of mine:

Address of mine:

The lift will be:

- a) Installed;
- b) Modified; or
- c) recommissioned.

(specify a, b or c)

Nature of loads to be transported:

Location of lift (including hatchway and landings):

DESCRIPTION OF LIFT INSTALLATION:

Type of Lift:

Manufacture's Name:

Manufacture's address:

Year of Manufacture:

Factory Number:

Location of installation:

Which SANS standard as contemplated in regulation 8.11.5 applies to the lift:

SANS Title

Describe any permissible variances of the lift design from the SANS Standard mentioned above

LIFT TYPE: (Electric, Hydraulic, Goods Only, other)

POSITION OF DRIVE MACHINERY:

Overhead:

Distance travelled by Car: meters

Distance travelled by counterweight: meters

Number of car entrances:

Vertical hatchway length: metres

Number of intermediate levels:

Speed: metres per second

Loads:

Persons: (number x 75kg) Material (kg): Mineral: (kg)

DRIVE SYSTEM:

Drive motor: (kW) Volts(AC/DC) (r.p.m)

Estimated maximum absorbed power: (kW)

Drive sheave mean diameter: metres

Gear reducer type and ratio(if used):

Type of Governor:

BRAKES:

Description of service brake system

Description of back-up brake system

HATCHWAY:

Drawing number

Air - upcast or downcast

Velocity

Wet or dry

If wet, is water acidic, neutral or alkaline?

COUNTERWEIGHT:

Counterweight mass (kg/MPa)
Diameter/specification of counter weight rope
Estimated breaking strength of Counterweight rope (Newtons)
Counterweight movement allowed (metres)

HEAD ROPES:

Number of Ropes:
Diameter/specification:
Finish
Maximum calculated dynamic rope tension (Newtons)
Calculated minimum dynamic rope safety factor

TAIL ROPES/CHAINS:

Number of Ropes/chains
Breaking Force
Estimated breaking strength

OTHER DETAIL

(Attach certified copies of OEM's lift calculations, specifications and general arrangement drawing of the lift installation.)

Name of Inspection Authority that conducts the Commissioning Inspection:

I certify that the particulars and specifications given herein are correct.

Signature of employer

Form DMR 299 (Chairlifts)



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

The Chairlift Particulars

In terms of regulation 8.12.2 Chapter 8 of the Mine Health and Safety Act, (Act 29 of 1996)

O.E.M.

Ref No:

The Principal Inspector of Mines

Region:

Date:

Please be advised that we wish to inform you of particulars of a chairlift as set out below:

Name of mine:

Address of mine:

The chairlift will be:

- a) installed,
 - b) modified, or
 - c) recommissioned
- (specify a, b or c)

Nature of loads to be transported:

Location of chairlift (including shaft and levels):

EXCAVATION:

Drawing number:

Air - upcast or downcast:

Velocity:

Indicate 'Wet or Dry':

If wet, is water acid, neutral or alkaline?

ILLUMINATION:

Are the stations and the traveling ways adequately illuminated?

COMMUNICATION ARRANGEMENTS:

Type:

DESCRIPTION OF CHAIRLIFT INSTALLATION:

Does the chairlift design comply in all respects with SANS 273:2006 Edition 1 – "Standard for the design, construction, maintenance and safe operation of chairlifts in mines"?

If not, describe variances

Chairlift Type: (Fixed Grip, Detachable Grip, Other)

Centre To Centre Length (Metres)

Vertical Lift (Metres)

Maximum Angle To Horizontal (Degrees)

Number Of Intermediate Stations

Chairlift Capacity (Persons Per Hour)

Rope Speed (Metres Per Second)

Minimum Time Interval Between Carriers (Seconds)

Minimum Equidistant Carrier Spacing (Metres)

Carrier Design – Personnel

Carrier Design – Specified (Loads)

Drive System:

Drive Motor (kW) Volts (AC/DC) (r.p.m)

Estimated maximum absorbed power (kW)

Drive sheave mean diameter (Metres)

Gear reducer type and ratio

BRAKES:

Service brake system (description of)

Back-up brake system (description of)

ROPE TENSIONING SYSTEM:

Return sheave mean diameter (Metres)

Method of applying tension

Counterweight mass or Hydraulic pressure (kg/MPa)

Initial tension applied to the rope or sheave axle (Newtons)

Diameter/specification of tension rope

Estimated breaking strength of tension rope (Newtons)

Counterweight/hydraulic cylinder movement allowed (metres)

Tension carriage movement allowed (metres)

HAULING ROPE:

Diameter/specification

Finish

Manufacturer's lubrication

Estimated breaking strength

Ratio of minimum sheave diameter (drive, return or idler), to rope diameter

Ratio of minimum sheave diameter (drive, return or idler), to rope outer wire diameter

Maximum calculated dynamic rope tension (Newtons)

Calculated minimum dynamic rope safety factor

(Attach certified copies of OEM's chairlift calculations, specifications and general arrangement drawing of the chairlift installation.)

I certify that the particulars and specifications given herein are correct.

Signature of employer

CHAPTER 22

SCHEDULES

COMPETENT PERSON FOR PRIMARY BLASTING, SECONDARY BLASTING AND BLASTING ASSISTANTS

22.4 Competent persons for explosives

22.4.1 For purposes of regulation 4.4(1) “**competent person**” means a person who is a holder of the following certificates recognized by the Department for this purpose, valid for the class of mine to which the mine belongs:

- (a) Blasting certificate issued by the Department until 30 June 2009; or
- (b) Rock breaker or equivalent certificate issued by the Mining Qualifications Authority from 01 July 2009 to 31 May 2017; or
- (c) Blasting certificate issued by the Department with effect from 01 June 2017.

22.4.2 For the purposes of regulation 4.4(3) “**competent person**” means a person who:

- (a) has been assessed and found competent against a skills programme issued by the Mining Qualifications Authority for this purpose; or
- (b) is qualified by:
 - (i) virtue of his/her knowledge, training, skills and experience to perform the activities contemplated in regulation 4.4(3);
 - (ii) being familiar with the provisions of regulation 4 which apply to the work to be performed by such person; and
 - (iii) being trained to recognise any potential or actual danger to health or safety that may arise from the work to be performed by such person.

(Chapter 22.4 inserted by Government Notice R1279 in Government Gazette 29458 dated 15 December 2006)

(Chapter 22.4 substituted by Government Notice R584 of 2015 with effect from 10 October 2015)

(Regulation 22.4 substituted by Government Notice R952 in Government Gazette 41904 dated 14 September 2018)

Machinery and Equipment

22.8.6(4) For purposes of regulation 8.6(4) the competent person means a person who is a certificated electrical or mechanical engineer or has an appropriate qualification registered on the National Qualifications Framework and recognised by the Mining Qualifications Authority for this purpose.

(Regulation 22.8.6(4) inserted by the Schedule in Government Notice 911 in Government Gazette 29214 dated 8 September 2006)

22.8.7(2) The competent person referred to in regulation 8.7(2) means a person who-

- (i) is a certificated electrical or mechanical engineer or has an appropriate qualification registered on the National Qualifications Framework and which is recognized by the MQA for this purpose;
- (ii) is familiar with the type of refrigeration and air conditioning plants used at the mine in so far it concerns aspects of safety, construction, erection, operation, inspection and testing of such plants, and
- (iii) is familiar with any relevant national or international Standards, Codes of Practice and specifications related to the type of refrigeration, and air conditioning plants used at the mine.

(Regulation 22.8.7(2) inserted by the Schedule in Government Notice 911 in Government Gazette 29214 dated 8 September 2006)

22.8.10 Hazardous Location

22.8.10.1 The competent person referred to in regulation 8.10.1 means a person who –

- (i) is the holder of a Certificate of Competency for mechanical or electrical engineering issued by the Chief Inspector of Mines and has knowledge and experience in the design, construction and maintenance of equipment in the Hazardous Location and is conversant with the relevant SANS Standards; or
- (ii) has been assessed competent against a qualification recognised by the MQA this purpose.

22.8.10.2 The competent person referred to in regulation 8.10.2(f) means a person who –

- (i)
 - (a) is in possession of an Electrician Trade certificate issued by the Department of Labour under the Manpower Training Act or who has been assessed competent against a skills programme or qualification recognised for this purpose by the Mining Qualifications Authority;
 - (b) has the experience in the design, construction, installation, operation and maintenance of the type of electrical apparatus used in a hazardous location on which he is required to work at the mine; and

- (c) is conversant with the relevant SANS Standards referred to in the regulations; or
- (ii) has been assessed competent against a qualification recognised by the MQA this purpose.

22.8.10.3 The competent person referred to in regulation 8.10.2(n) means a person who -

- (i)
 - (a) is in possession of Diesel Mechanic Trade certificate issued by the Department of Labour under the Manpower Training Act or who has been assessed competent against a skills programme or qualification recognised for this purpose by the Mining Qualification Authority;
 - (b) has the experience in the design, construction, installation, operation and maintenance of type of diesel equipment on which he is required to work at a mine; and
 - (c) is conversant with the relevant SANS Standards referred to in the regulations; or
- (ii) been assessed competent against a qualification recognised by the MQA this purpose.

(Regulation 22.8.10 inserted by Government Notice R1068 in Government Gazette 33763 dated 19 November 2010)

22.8.13 VESSELS UNDER PRESSURE

22.8.13 The competent person¹ referred to in regulation 8.13(9), 8.13(11), 8.13.(17) means a person –

- 1.1 who is the holder of a Certificate of Competency for Mechanical or Electrical Engineers (Mines and Works) issued by the Department; or
- 1.2 who has been assessed competent against a qualification, skills programme or unit standards recognised by the Mining Qualification Authority for this purpose; or
- 1.3 who is the holder of a valid certificate of registration: “Competent Person Pressure Vessels” issued by the South African Qualification and Certification Committee for competent persons (pressure vessels and boilers).

(Regulation 22.8.13 inserted by Government Notice R1068 in Government Gazette 33763 dated 19 November 2010)

22.9(2) OCCUPATIONAL HYGIENE

22.9(2)(a) OCCUPATIONAL EXPOSURE LIMITS FOR AIRBORNE POLLUTANTS

In this Schedule the following terms/abbreviations have the meanings as set out below.

TERMS

“Asbestos” means any of the following minerals: - Crocidolite, Amosite, Chrysotile, Fibrous actinolite, Fibrous anthophyllite, Fibrous tremolite, and any mixture containing any of these minerals.

“Occupational exposure limit” (OEL) means the time weighted average concentration for a 8 hour work day and a 40 hour work week to which nearly all workers may be repeatedly exposed without adverse health effects.

“Occupational exposure limit - Ceiling limit” (OEL - C) means an instantaneous value which must never be exceeded during any part of the working exposure.

“Occupational exposure limit - Short term exposure limit” (OEL-STEL) means a 15-minute TWA exposure which should not be exceeded at any time during a workday even if the 8-hour TWA is within the OEL-TWA. Exposures above the OEL-TWA up to the STEL should not be longer than 15 minutes and should not occur more than four times per day. There should be at least 60 minutes between successive exposures in this range. An averaging period other than 15 minutes may be recommended when this is warranted by observed biological effects.

For those substances for which no OEL-STEL have been specified, excluding airborne particulates, a figure of three times the occupational exposure limit is to be used when controlling short-term excursions in exposure.

“Respirable particulates” means the respirable fraction of airborne particulates.

“Inhalable particulates” means airborne particulates as collected by a personal gravimetric sampler without particle size selection.

ABBREVIATIONS

CAS	=	Chemical Abstracts Service is an organisation under the American Chemical Society. CAS Numbers are used to identify specific chemicals or mixtures.
ppm	=	parts per million
mg/m ³	=	milligrams per cubic metre
Sk	=	Skin absorption
Sen	=	Capable of causing respiratory sensitisation
f/ml	=	fibres per millilitre

OCCUPATIONAL EXPOSURE LIMITS FOR AIRBORNE POLLUTANTS

CURRENT SUBSTANCE	PROPOSED SUBSTANCE	POLLUTANT CODE	CURRENT MHSA SCHEDULE 22.9(A) OEL	SAMI NEW OEL	SAMI FINAL NOTATIONS
Acetone	Acetone	4	500 ppm/1185 mg/m ³ STEL 1000 ppm/2375 mg/m ³	250 ppm, STEL 500 ppm	Ns
Acetonitrile	Acetonitrile				BEI Urine: 25mg/L @ End of shift
Aluminium metal respirable particulate	Aluminium metal respirable particulate	5	40 ppm/70 mg/m ³ STEL 60 ppm/105 mg/m ³	20 ppm	Skin
Asbestos, all forms	Asbestos, all forms	17	5 mg/m ³	2 mg/m ³	None
		34	0,2f/ml	0,1f/ml	Carc
Benzene	Benzene	43	1 ppm/ 3 mg/m ³	0.5 ppm STEL 2.5 ppm	Carc a1, skin
					BEI Urine: End of shift 25/500µg/g creatinine
Calcium silicate inhalable particulate respirable particulate	Calcium silicate inhalable particulate respirable particulate	102	5 mg/m ³	1 mg/m ³	
Carbon monoxide (CO)	Carbon monoxide (CO)	113	35 mg/m ³ / 30 ppm	25 ppm	Blood: carboxyhaemoglobin=3,5% haemoglobin @ end of shift Exhaled air 20ppm
Carbon monoxide (CO)	Carbon monoxide (CO)	113	C 115 mg/m ³ / 100 ppm	C 100 ppm	
	Carbon monoxide (CO) for donning SCSR	113		300 ppm	

Cement dust respirable	Cement dust respirable	121	5 mg/m ³	3 mg/m ³	DSEN
None	Metallic chromium as Cr(0)		None	0.5 mg/m ³	
Chromium, metal and inorganic compounds (as Cr)	Cr(II) compounds	148	0.5 mg/m ³	0.5 mg/m ³	Carc category 1
Chromium, metal and inorganic compounds (as Cr)	Chromium (metal and inorganic compounds) Cr(III) water-soluble compounds	149	0.5 mg/m ³	0.003 mg/m ³	Carc A4; Sk; DSEN; RSEN
Chromium, metal and inorganic compounds (as Cr)	Chromium (metal and inorganic compounds) Cr(VI) water soluble compounds	150	0.05 mg/m ³	0.0005 mg/m ³	Total chromium in urine Chromium in plasma, whole blood, red cell
None	Chromium (metal and inorganic compounds) Cr(VI) water soluble compounds	150	None	STEL 0.015 mg/m ³	Urine: Total chromium at the End of shift at the end of the week=25µg/L Increase during shift =10µg/L Cr (VI): carc A1; Sk; DSEN; RSEN
Coal dust (respirable particulate)	None	151	2 mg/m ³	1.5 mg/m ³	
Coal dust (respirable particulate)	Coal dust, Anthracite	151	None	0.4 mg/m ³	carc A4
Coal dust (respirable particulate)	Coal dust, Bituminous	151	None	0.9 mg/m ³	carc A4
Copper Dust and mists (as Cu)	Copper fume	154	0.2 mg/m ³	0.2 mg/m ³	None
Copper Dust and mists (as Cu)	Copper dust & mist	155	1 ppm STEL 2 PPM	1 mg/m ³	None BEI
Ethyl benzene	Ethyl benzene	276	100 ppm/435 mg/m ³ STEL 125 ppm/545 mg/m ³	20 ppm	Sum of mandelic acid and phenylglyoxylic acid: urine @End of shift 0.15g/g creatinine CARC, SKIN/NS
*Formaldehyde	*Formaldehyde	300	1 ppm/1.2 mg/m ³ STEL 2 ppm/2.5 mg/m ³	0.3 ppm	CarC category 1 DSEN

CURRENT SUBSTANCE	PROPOSED SUBSTANCE	POLLUTANT CODE	CURRENT MHSA SCHEDULE 22.9(A) OEL	SAMI NEW FINAL OEL	SAMI FINAL NOTATIONS
None	Diesel particulate matter (DPM) – Elemental Carbon			0.1 mg/m ³	Carc A1
None	Diesel particulate matter (DPM) – Total Carbon		None	None	
Hydrogen sulphide	Hydrogen sulphide	341	10 ppm/ 14 mg/m ³ STEL 15 ppm/ 21 mg/m ³	1 ppm STEL 5 ppm	None
Iron oxide, dust and fume [as Fe]	Iron oxide, dust and fume [as Fe] (respirable particulate)	348	5 mg/m ³ C 10 mg/m ³	5 mg/m ³	Carc A4
Lead, elemental, and inorganic compounds [as Pb]	Lead, elemental, and inorganic compounds [as Pb]	366	0.1 mg/m ³	0.05 mg/m ³	Carc A3

Pr

Manganese, elemental, and inorganic compounds [as Mn]	Manganese, elemental, and inorganic compounds [as Mn]	378	1 mg/m ³	0.2 mg/m ³ [I] 0.04 mg/m ³ [R]	
Manganese, fume [as Mn]	Manganese, fume [as Mn]	379	1 mg/m ³ STEL 3 mg/m ³	0.1 mg/m ³ [I] 0.04 mg/m ³ [R]	
Molybdenum compounds [as Mo] soluble compounds	Molybdenum compounds [as Mo] soluble compounds	422	5 mg/m ³ STEL 10 mg/m ³	0.5 mg/m ³ [R]	None
*Nickel, inorganic compounds [as Ni] insoluble compounds	*Nickel, inorganic compounds [as Ni] insoluble compounds	433	0.5 mg/m ³	0.2 mg/m ³	Urine nickel
Nitrogen dioxide	Nitrogen dioxide	441	3 ppm 5 mg/m ³ STEL 3 ppm 9 mg/m ³	3 ppm 5 mg/m ³ STEL 3 ppm 9 mg/m ³	None
Particles not otherwise classified [PNOC] (inhalable particulate)	Particles not otherwise classified [PNOC] (inhalable particulate)	458	10 mg/m ³	10mg/m ³	None
Particles not otherwise classified [PNOC] (respirable particulate)	Particles not otherwise classified [PNOC] (respirable particulate)	459	3 mg/m ³	3 mg/m ³	None
Polyvinyl chloride [PVC] respirable particulate	Polyvinyl chloride [PVC] inhalable particulate	490	5 mg/m ³	1 mg/m ³	None
Portland cement respirable particulate	Portland cement respirable particulate	492	5 mg/m ³	2 mg/m ³	DSEN
CURRENT SUBSTANCE	PROPOSED SUBSTANCE	POLLUTANT CODE	CURRENT MHSA SCHEDULE 22.9(A) OEL	SAMI NEW FINAL OEL	SAMI FINAL NOTATIONS
Silica, crystalline (respirable particulate) - Quartz	Silica, crystalline (respirable particulate) - Quartz	522	0.1 mg/m ³	0.05 mg/m ³	carc A2
Silica, crystalline (respirable particulate) - Cristobalite	Silica, crystalline (respirable particulate) - Cristobalite	521	0.1 mg/m ³	0.05 mg/m ³	carc A2
Silica, crystalline (respirable particulate) - Tridymite	Silica, crystalline (respirable particulate) - Tridymite	523	0.1 mg/m ³	0.05 mg/m ³	None
Silica, crystalline (respirable particulate) - Tripoli	Silica, crystalline (respirable particulate) - Tripoli	524	0.1 mg/m ³	0.05 mg/m ³	None
Silica, amorphous (inhalable)	Silica, amorphous (inhalable)	526	10 mg/m ³	10 mg/m ³	None
Silica, amorphous (respirable)	Silica, amorphous (respirable)	527	5 mg/m ³	5 mg/m ³	None
Silica, fused (respirable particulate)	Silica, fused (respirable particulate)	525	0.1 mg/m ³	0.05 mg/m ³	None
Titanium dioxide (Inhalable particulate)	Titanium dioxide (Inhalable particulate)	569	10 mg/m ³	10 mg/m ³	carc A4
Titanium dioxide (respirable particulate)	Titanium dioxide (respirable particulate)	570	5 mg/m ³	5 mg/m ³	None
Vanadium Pentoxide (Inhalable particulate)	Vanadium Pentoxide (Inhalable particulate)	592	0.5 mg/m ³	0.5 mg/m ³	carc A3

Vanadium Pentoxide (Fume and Respirable particulate)	Vanadium Pentoxide (Fume and Respirable particulate)	593	0.05 mg/m ³	0.05 mg/m ³	None
Welding Fume	Welding Fume	598	5 mg/m ³	5 mg/m ³	None
Wood Dust (hard wood)	Wood Dust (hard wood)	600	1 mg/m ³	1 mg/m ³	Sen
Wood Dust (soft wood)	Wood Dust (soft wood)	601	5 mg/m ³	5 mg/m ³	None

¹ The OEL of 5 mg/m³ for inhalable welding fume, is coupled with compliance with OEL values for the individual elemental hazardous contaminants in the fume

Notations:

BEI - Biological Exposure Indices indicate to occupational health and hygiene professionals that biological monitoring needs to be performed for a particular pollutant.

Carc - The carcinogen notation refers to a pollutant that may produce a benign or malignant neoplasm. Range from Carc A1-A5.

Skin - The skin notation indicates that significant quantities of the pollutant may be absorbed through the skin to produce systemic effects following exposure.

Sen - The sensitizer notation indicates that the pollutant may produce dermal (DSEN) and/or respiratory sensitization (RSEN).

(Table substituted by regulation 2 of Government Notice R989 in Government Gazette 29276, dated 5 October 2006)

(Table substituted by regulation 1 of Government Notice 6053 in Government Gazette 52388 dated 28 March 2025)

22.9(2)**(b) OCCUPATIONAL EXPOSURE LIMITS FOR PHYSICAL AGENTS****(i) NOISE**

- (1) Noise Exposure : 85 dBL_{Aeq, 8h}
- (2) Peak Sound Level : 135 dB(A)

(ii) THERMAL STRESSES

- (1) Wet Bulb (°C) : 32.5
- (2) Dry Bulb (°C) : 37
- (3) Mean Radiant Temperature (°C) : 37
- (4) Equivalent Chill Temperature (°C) : 4

22.9(2)(c) POTABLE WATER**(i) QUALITY**

POTABLE WATER QUALITY	PHYSICAL REQUIREMENTS	CHEMICAL REQUIREMENTS	CONDUCTIVITY REQUIREMENTS
Allowable Limit	Odour } And } Not to be Taste } objectionable	pH 5.5 min 9.5 max	
Recommended Limit	Turbidity 1 (NTU) Colour 20 mg/l of Platinum	pH 6.0 min 9.0 max	70 ms/m
Maximum Allowable Limit	Turbidity 5 (NTU) Colour not specified		
Maximum Limit			300 ms/m

(NTU) = Expressed in Nephelometric turbidity units

(ii) Macro, Micro Determinants and Bacteriological Limits

DETERMINANTS	Formula	MAXIMUM ALLOWABLE LIMIT
Macro Determinants		mg/l
Total hardness	CaCO ₃	650
Magnesium	Mg	100
Sodium	Na	400
Chloride	Cl	600
Sulphate	SO ₄	600
Nitrate + nitrite	N	10
Fluoride	F	1.5
Zinc	Zn	5.0
Micro Determinants		µg/l
Arsenic	As	300
Cadmium	Cd	20
Copper	Cu	1000
Cyanide	CN	300
Iron	Fe	1000
Lead	Pb	100
Manganese	Mn	1000
Mercury	Hg	10
Phenolic Compounds	Phenol	10
Selenium	Se	50
Bacteriological Limits		
Total coliform bacteria count		5 per 100 ml
Faecal coliform bacteria count		NIL per 100 ml
Standard plate count		Not specified

(iii) **Other Constituents**

The water shall not contain any other constituents in concentrations, which may render it unsuitable for use as drinking water.

(Regulation 22.9(2) inserted by the Schedule of Government Notice R904 in Government Gazette 23583 dated 2 July 2002)

22.10.2 Water Storage and Pumping

22.10.2(2)

(a) **Competent Person¹**

For purposes of regulation 10.2(2)(a) the competent person¹ means a person who is registered as a professional engineer with the Engineering Council of South Africa and is competent in the design of underground dam walls, plugs and barricades.

(Regulation 22.10.2(2)(a) inserted by Government Notice R94 in Government Gazette 30698 dated 1 February 2008)

22.10.4(2)

(b) **Competent Person²**

For the purpose of regulation 10.2(2)(b) and (c) competent person² means a person who-

- (a) is the holder of a Certificate of Competency for mechanical or electrical engineering issued by the Chief inspector of Mines and has knowledge and experience in the design, construction and maintenance of dams and plugs; or
- (b) has been assessed competent against a qualification recognised by the MQA for this purpose.

(Regulation 22.10.4(2)(b) (should be 22.10.2(2)(b)) inserted by Government Notice R94 in Government Gazette 30698 dated 1 February 2008)

22.10.3 Draw Points, Tipping Points, Rock Passes and Box Fronts

22.10.3(1)

- (a) The competent person referred to in regulation 10.3(1)(a) means a person who is registered with the Engineering Council of South Africa as a professional engineer or professional technologist or who has been assessed competent against a qualification recognised by the Mining Qualification Authority for this purpose.

22.10(3)(2)

- (a) The competent person referred to in regulation 10.3(2)(a) means a person who is the holder of a Certificate of Competency for Mechanical or Electrical Engineers (Mines and Works) issued by the Department or who has been assessed competent against a qualification recognised

(Regulation 22.10.3 inserted by Government Notice R94 in Government Gazette 30698 dated 1 February 2008)

22.10.3 Water Storage and Pumping

22.10.3.1 The “**competent person**¹” referred to in 10.3(2)(a) means a person who is registered as a professional engineer with the Engineering Council of South Africa.

22.10.3.2 The “**competent person**²” referred to in regulations 8.10.(2)(b) and (c) means a person who –

- (a) is the holder of a Certificate of Competency for mechanical or electrical engineering issued by the Chief Inspector of Mines and has knowledge and experience in the design, construction and maintenance of dams and plugs; and
- (b) has been assessed competent against a qualification recognised by the MQA for this purpose.

(Second Regulation 22.10.3 added by Government Notice R1068 in Government Gazette 33763 dated 19 November 2010)

22.10.4 Draw Points, Tipping Points, Rock Passes and Box Fronts

22.10(4)(1)

- (a) The “**competent person¹**” referred to in regulation 10.4(1)(a) means a person who:
- (a) is registered with the Engineering Council of South Africa as a professional engineer or professional technologist; or
 - (b) has been assessed competent against a qualification recognised by the Mining Qualification Authority for this purpose.

22.10.4(2)

- (b) The “**competent person²**” referred to in regulation 10.4(2)(b) means a person who:
- (a) is the holder of a Certificate of Competency for Mechanical or Electrical Engineers (Mines and Works) issued by the Department; or
 - (b) who has been assessed competent against a qualification recognised.

(Regulation 22.10.4 added by Government Notice R1068 in Government Gazette 33763 dated 19 November 2010)

22.14.1

22.14.1(1) For the purpose of regulations 14.1.1, 14.1.5 and 14.1.7, a competent person means a person who-

- (a) is in possession of a valid certificate of competency, recognised for this purpose by the Mining Qualifications Authority; or
- (b) has been assessed competent against a unit standard, skills programme or qualification, recognised for this purpose by the Mining Qualifications Authority.

(Regulation 22.14.1(1) substituted by regulation 1 of Government Notice R886 in Government Gazette 25097 dated 20 June 2003)

(Regulation 22.14.1(1) substituted by regulation 1 of Government Notice 34 in Government Gazette 29544 dated 19 January 2007)

22.14.1(7)

(Regulation 22.14.1(7) substituted by regulation 2 of Government Notice R886 in Government Gazette 25097 dated 20 June 2003)

(Regulation 22.14.1(7) deleted by regulation 2 of Government Notice 34 in Government Gazette 29544 dated 19 January 2007)

22.14.1(8) For purposes of Regulation 14.1(8) competent person means a person who is at least in possession of either the Chamber of Mines Certificate in Rock Mechanics (Metalliferous Mines), or the Chamber of Mines Certificate in Rock Mechanics (Coal Mines), whichever is appropriate for the type of mine concerned.

(Regulation 22.14.1(1), (7) and (8) inserted by the Schedule of Government Notice R959 in Government Gazette 23615 dated 12 July 2002, and shall come into effect on 1 January 2003.)

22.15(5)

- (a) The competent person referred to in regulations 5.1(1) must be in possession of the following-

(i) Where the competent person performs the obligations underground:

- (1) Certificate in Mine Environmental Control, issued by the Chamber of Mines of South Africa.

(ii) Where the competent person performs the obligations on surface:

- (1) Intermediate Certificate in Mine Environmental Control, issued by the Chamber of Mines of South Africa, and be certified as an Occupational Hygienist by the Southern African Institute for Occupational Hygiene;

or

- (2) Certificate in Mine Environmental Control, issued by the Chamber of Mines of South Africa.

(Regulation 22.15(5) inserted by the Schedule of Government Notice R904 in Government Gazette 23583 dated 2 July 2002)

22.15(8)

- (a) The competent person referred to in regulation 8.2(6) must be in possession of the following:

- (i) An Electrical or Mechanical Certificate of Competency for Mines and Works issued by the Chief Inspector of Mines;

- (ii) A B degree in Electrical or Mechanical Engineering.

(Regulation 22.15.8(a) inserted by Government Notice R583 in Government Gazette 26333 dated 14 May 2004)

22.15(9)

- (a) The competent person referred to in regulations 9.2(3) must be in possession of the following-

(i) Where the competent person performs the obligations underground:

- (1) Certificate in Mine Environmental Control, issued by the Chamber of Mines of South Africa.

(ii) Where the competent person performs the obligations on surface:

- (1) Intermediate Certificate in Mine Environmental Control, issued by the Chamber of Mines of South Africa, and be certified as an Occupational Hygienist by the Southern African Institute for Occupational Hygiene;
- (2) Certificate in Mine Environmental Control, issued by the Chamber of Mines of South Africa.

(Regulation 22.15(9) inserted by the Schedule of Government Notice R904 in Government Gazette 23583 dated 2 July 2002)

22.15(11)

- (a) **“Competent person”** for purposes of sub-regulation 11.4(3) means:
- (i) A person registered with the Health Professions Council in any of the following three categories:
 - (a) as an ear, nose and throat specialist;
 - (b) in speech therapy and audiology; or
 - (c) as an occupational medical practitioner; or
 - (ii) A person qualified in audiometric techniques from an institution registered with the relevant Education and Training Quality Assurer (ETQA) registered in terms of the South African Qualifications Authority Act (Act No. 58 of 1995).
- (b) **“Competent person”** for purposes of sub-regulations 11.4(7) and 11.4(8) means
- (i) A person registered as an audiologist with the Health Professions Council.

(Regulation 22.15(11) inserted by the Schedule of Government Notice R786 in Government Gazette 23498 dated 14 June 2002)

22.15(16)

- (a) For purposes of Regulation 16.5(1)(a), competent person means a person who-
- (i) has passed a course of training approved for this purpose by the Chief Inspector of Mines;
- OR**
- (ii) has been assessed and found competent against applicable unit standards, skills programme and/or a qualification recognised for this purpose by the Mining Qualifications Authority (MQA).

(Regulation 22.15(16)(a) inserted by Government Notice 86 in Government Gazette 30697 dated 1 February 2008)

TECHNICAL COMPETENCIES

Electrical

22.16.3.1 Design of electrical apparatuses:

The competent person referred to in regulation 3.1(1); means a person who is registered with the Engineering Council of South Africa as a professional engineer and who by virtue of his or her knowledge and experience is competent to design, select and approve electrical systems and instalations *[sic]*.

Control of electrical apparatuses

22.16.3.2 The competent person referred to in regulation 3.1(2), 3.3.2 means:

- (a) where the only power supply to the mine is a single phase power supply at a **domestic voltage**, this person is a person who:
 - (i) is in possession of an installation electrician certificate issued by the Department of Labour under the Manpower Training Act or who has been assessed competent against a skills programme or qualification recognised for this purpose by the Mining Qualifications Authority; and
 - (ii) has at least two years post qualification experience in the construction, installation, operation and maintenance of the type of electrical apparatus and reticulation systems on which he or she is required to work at the mine.
- (b) notwithstanding 1.1, where a multi phase power supply of **low voltage** is supplied to a mine (even if single phase power is used at some parts of the mine) this person is a person who:
 - (i) is in possession of an installation electrician certificate issued by the Department of Labour under the Manpower Training Act or who has been assessed competent against a skills programme or qualification recognised for this purpose by the Mining Qualifications Authority; and
 - (ii) has at least two years post qualification experience in the construction, installation, operation and maintenance of the type of electrical apparatus and reticulation systems on which he is required to work at the mine.

- (c) notwithstanding 1:1 and 1.2, where power supplies above **low voltage** is supplied to a mine (even if **domestic** or **low voltage** power is used at some parts of the mine), this person is a person who:
 - (i) is the holder of a Certificate of Competency for Mechanical or Electrical engineer issued by the Department of Mineral Resources and who by virtue of his knowledge and experience is competent in the construction and installation of electrical apparatuses and reticulation systems: or
 - (ii) has been assessed competent against a qualification recognised for this purpose by the Mining Qualifications Authority.

Installation, repairs and maintenance of electrical apparatuses

22.16.3 The competent person referred to in regulation 3.1.3 means a person who has:

Qualifications under the Skills Development Act, Act No. 97 of 1998 as:

- a) an electrician or millwright; or
- b) a competency or competencies recognised by the Mining Qualification Authority for these purposes and has at least two years post qualification experience in the construction, installation, operation and maintenance of the type of electrical apparatus and reticulation systems on which he or she is required to work at the mine.

22.16.4 Energise, de-energise or isolation of electrical apparatuses

The competent person referred to in regulation 3.3.3 means a person or persons, who collectively hold the following:

Qualifications under the Skills Development Act, Act No. 97 of 1998 as:

- a) an electrician or millwright; or
- b) a competency or competencies recognised by the Mining Qualification Authority for these purposes and has at least two years post qualification experience in the construction, installation, operation and maintenance of the type of electrical apparatus and reticulation systems on which he or she is required to work on at the mine.
- c) has, attended a skills programme recognised by the Mining Qualifications Authority for this purpose; and

- d) has two years experience in doing switching on **medium voltage apparatuses**.

(Regulation 22.16 inserted by Government Notice R330 in Government Gazette 38708 dated 24 April 2015)

CHAPTER 23

REPORTING OF ACCIDENTS AND DANGEROUS OCCURENCES [sic]

(Heading of Chapter 23 substituted by Item 1 of the Schedule in Government Notice R787 in Government Gazette 23498 dated 14 June 2002)

ACCIDENTS TO BE REPORTED

23.1 The employer must report to the Principal Inspector of Mines in the manner prescribed in this chapter any accident at the mine that results in:

- (a) the death of any employee;
- (b) an injury, to any employee, likely to be fatal;
- (c) unconsciousness, incapacitation from heatstroke or heat exhaustion, oxygen deficiency, the inhalation of fumes or poisonous gas, or electric shock or electric burn accidents of or by any employee and which is not reportable in terms of paragraph (d).
- (d) an injury which either incapacitates the injured employee from performing that employee's normal or a similar occupation for a period totaling 14 days or more, or which causes the injured employee to suffer the loss of a joint, or a part of a joint, or sustain a permanent disability,
- (e) an injury, other than injuries referred to in paragraph (d), which incapacitates the injured employee from performing that employee's normal or a similar occupation on the next calendar day.

23.2(1) An accident referred to in paragraph (a), (b) or (c) of regulation 23.1 must be reported immediately by the quickest means available and must be confirmed without delay on Forms SAMRASS 1 and 2 prescribed in Chapter 21.

23.2(2) An accident referred to in paragraph (d) of regulation 23.1 must, after the accident becomes reportable, be reported within three days on Forms SAMRASS 1 and 2 prescribed in Chapter 21.

23.2(3) The Form SAMRASS 9 must be submitted on a monthly basis for all persons not having returned to work at the time of submitting SAMRASS 2 on a monthly basis.

23.2(4) An accident referred to in paragraph (e) of regulation 23.1 must be reported without delay on a monthly basis, on Form SAMRASS 4 prescribed in Chapter 21.

- 23.3(1) Where the death of an employee, referred to in regulation 23.1(a) is related to a rockburst or fall of ground, the duly completed Form SAMRASS 3, prescribed in Chapter 21, for such rockburst or fall of ground must be forwarded by the employer to the Principal Inspector of Mines within 14 days of such death.
- 23.3(2) When an injury results in the death of the injured employee after the report in terms of regulation 23.1 (b), (c), (d) or (e) has been given or when a slight injury, which was not reportable, results in the death of the injured employee, or when general sepsis or tetanus develops as a result of an injury, the employer must immediately report it to the Principal Inspector of Mines and without delay submit amended Form SAMRASS 1 prescribed in Chapter 21.
- 23.3(3) Where the injury of a person referred to in regulation 23 (1) or a dangerous occurrence referred to in regulation 23.4(o), is related to the use of explosives, in addition to Form SAMRASS 1, the duly completed Form SAMRASS 5, prescribed in Chapter 21, must be forwarded by the employer to the Principal Inspector of Mines within 14 days of such occurrence.
- 23.3(4) Where the injury of a person referred to in regulation 23 (1) or a dangerous occurrence referred to in regulation 23.4 (f) is related to fires, in addition to Form SAMRASS 1, the duly completed Form SAMRASS 6, prescribed in Chapter 21, must be forwarded by the employer to the Principal Inspector of Mines within 14 days of such occurrence.
- 23.3(5) Where the injury of a person referred to in regulation 23 (1) or a dangerous occurrence referred to in regulation 23.4 (b) is related to a subsidence in a coal mine, in addition to Form SAMRASS 1, the duly completed Form SAMRASS 7, prescribed in Chapter 21, must be forwarded by the employer to the Principal Inspector of Mines within 14 days of such occurrence.
- 23.3(6) Where the injury of a person referred to in regulation 23 (1) is related to heat stroke or heat exhaustion, in addition to Form SAMRASS 1, the duly completed Form SAMRASS 8, prescribed in Chapter 21, must be forwarded by the employer to the Principal Inspector of Mines within 14 days of such occurrence.

DANGEROUS OCCURRENCES TO BE REPORTED

23.4 The employer must report to the Principal Inspector of Mines in the manner prescribed in this Chapter any of the following dangerous occurrences at the mine-

(a) ROCKBURSTS AND FALLS OF GROUND

An extensive rockburst or fall of ground causing the following damage underground –

- (i) At least 10 linear metres of working face has been severely damaged and choked and will require re-establishment and re-supporting, or be abandoned;

- (ii) At least 25m² of working area has been severely damaged and choked rendering support units ineffectual and will have to be re-established and re-supported or be abandoned;
- (iii) At least 10 linear metres of gully has been restricted with rock clearly recently displaced from the hanging wall and gully sidewalls;
- (iv) At least 10 linear metres continuous or 30 linear metres cumulative of access ways of tunnel or travelling way has been severely damaged and will require rehabilitation or be abandoned;
- (v) At least 10m² of roof or 5m³ of rock has been displaced from the roof of the mining cavity or excavation;
- (vi) At least 10m³ of rock has been freshly displaced from pillars or tunnel sidewalls.

(b) CAVING

Any unplanned or uncontrolled caving, side wall or slope failure or subsidence in the ground or workings, causing damage to the surface, which may pose a significant risk to the safety of persons at a mine.

(c) FLOW OF WATER, BROKEN ROCK, MUD OR SLIMES

Any unplanned or uncontrolled flow of water, broken rock, mud or slimes at the mine which may pose a significant risk to the safety of persons.

(Regulation 23.4(c) amended by regulation 1 of Government Notice 783 in Government Gazette 26496 dated 2 July 2004)

(d) BREAKDOWN OF MAIN VENTILATION FAN

Breakdown of any main ventilation fan.

(e) POWER FAILURE

Any power failure occurring in the underground workings of a mine, which poses a significant risk to the health, or safety of persons at a mine.

(f) FIRES AND EXPLOSIONS

Any ignition or explosion of gas or dust, or any fire related to mining activities or any indication or recrudescence of fire or spontaneous combustion at or in a mine.

(g) FLAMMABLE GAS

The presence of flammable gas exceeding one comma four parts per hundred by volume in the general atmosphere at a mine, or any portion of a mine:

- (i) if such flammable gas is detected for the first time; or
- (ii) the first time such flammable gas is again detected after not having been detected therein for a continuous period of three months.

(h) WINDING PLANTS

- (i) Running out of control of winding-engine, winding drum or conveyance;
- (ii) Fracture or failure of any essential part of the winding-engine, fracture or failure of any safety device used in connection with the winding equipment;
- (iii) Fracture, failure or serious distortion of winding rope, fracture, failure or serious distortion of any connection between the winding rope and the drum or between the winding rope and the conveyance and any other load suspended from or attached to such rope; fracture, failure or failure or serious distortion of any connection between conveyances or between a conveyance and any suspended or attached load, fracture of guide rope or its connections, fracture of balance or tail rope or its connections;

(Regulation 23.4(h)(iii) amended by Item 2 of the Schedule in Government Notice R787 in Government Gazette 23498 dated 14 June 2002)

- (iv) Fracture or failure of winding or balance sheave; fracture or failure of any essential part of the headgear or other sheave support;
- (v) Jamming or accidental overturning of conveyance; conveyance or its load fouling shaft equipment; jamming of crosshead;
- (vi) Derailing of conveyance;
- (vii) Conveyance, bridle, frame or crosshead accidentally leaving guides;
- (viii) Fracture or failure of the **braking system** or of any critical parts thereof;
- (ix) Failure to activate when required of any safety catches and/or arresting devices or activation of any safety catches and/or arresting devices when not required;

- (x) Failure to activate when required of any overwinding prevention device or activation of such device when not required;
- (xi) Any overwind or over-run of the conveyance to an extent which may have endangered persons or may have caused damage to the winding equipment;
- (xii) Failure of depth indicator.

(i) LIFTS AND ELEVATORS

- (i) Fracture or failure of any essential part of the driving or operating machinery, fracture or failure of any safety device used in connection with lifts or elevators.
- (ii) Fracture or distortion of the lift or elevator rope, fracture or failure of attachments of such rope.
- (iii) Fracture or failure of any sheave or of the shaft or shaft bearing of such sheave.
- (iv) Jamming of car or counterpoise.
- (v) Fracture or failure of **braking system** or of any critical parts thereof.
- (vi) Failure to activate when required of any safety catches and/or arresting devices or activation of any safety catches and/or arresting devices when not required.

(j) OBJECTS FALLING DOWN SHAFTS

Any object falling down the shaft or any other incident which necessitates the inspection of the shaft.

(k) EMERGENCY OR RESCUE PROCEDURES

- (i) Any failure of breathing apparatus whilst deployed.
- (ii) The use of emergency escape apparatus, procedures or rescue mechanisms, or the rescue from entrapment, associated with mining or related activities, of any employee.

(l) SELF PROPELLED MOBILE MACHINERY

Any self-propelled mobile machine running out of control which may pose significant risk to the safety of persons at a mine.

(m) BOILERS AND PRESSURE VESSELS

Fracture or failure of any part of a boiler or safety device of a boiler or pressure vessel which may have endangered persons.

(n) CHAIRLIFTS

(i) Fracture or failure of any part or safety device of a chairlift installation which may have endangered persons or may have caused damage to such chairlift installation.

(ii) Fracture or failure of any essential part of the driving machinery.

(iii) Fracture failure or serious distortion of any rope or chain forming part of a chairlift installation.

(o) EXPLOSIVES

(i) Any unauthorised or accidental ignition or detonation of explosives.

(ii) Any exposure of persons to blasting fumes which is not reportable in terms of regulation 23.1.

(iii) Any detonation of explosives which may pose a significant risk to the safety of persons.

23.5 A dangerous occurrence referred to in regulation 23.4 must be reported immediately by the quickest means available and must be confirmed without delay on Form SAMRASS 1 prescribed in Chapter 21.

23.6 Every employer must ensure that a system is in place whereby the employer is informed, as soon as is practicable after its occurrence, of any accident or dangerous occurrence, which is reportable in terms of this Chapter.

23.7

(i) Every employer must keep and maintain a record in which the particulars of all accidents and dangerous occurrences, which are required to be reported in terms of this Chapter, must be recorded without delay.

(ii) The record contemplated in Regulation 23.7(i) in respect of all accidents or dangerous occurrences must be kept and maintained for two years from the time that the accident or dangerous occurrence becomes reportable.

(Regulation 23.7(iii) renumbered to 23.7(ii) by Item 3 of the Schedule in Government Notice R787 in Government Gazette 23498 dated 14 June 2002)

(Chapter 23 inserted by the Schedule of Government Notice R134 in Government Gazette 22055 dated 9 February 2001)