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1 February 2008

MINE HEALTH AND SAFETY ACT, 1996 (ACT NO 29 OF 1996)**REGULATIONS RELATING TO EXPLOSIVES**

I **BP, Sonjica** Minister of Minerals and Energy under section 98 (1) of the Mine Health and Safety Act, 1996 (Act No. 29 of 1996), after consultation with the Council, hereby make the regulations in the Schedule.

BP SONJICA
MINISTER OF MINERALS AND ENERGY

SCHEDULE**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 Aanbevole / 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

- 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 person**¹;
 - (b) any dam wall, plug or barricade contemplated in sub-regulation (a) above is maintained by a **competent person**²;
 - (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 person**²; 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;
 - (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.

SCHEDULE**CHAPTER 22****22.10.2 Water Storage and Pumping****22.10.2(2) (a) Competent Person ¹**

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.

22.10.4(2)(b) Competent Person ²

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.

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

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