

**DEPARTMENT OF MINERALS AND ENERGY
DEPARTEMENT VAN MINERALE EN ENERGIE**

No. R. 1279

15 December 2006

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)(k) 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.

The Regulation in the schedule will come into effect on 1 July 2007.

SCHEDULE

CHAPTER 4

EXPLOSIVES

Definitions

In this Chapter, unless the context otherwise indicates –

“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 Minister of Safety and Security 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;

“initiate” means the action or intended action to detonate or deflagrate explosives;

"manufacture" means the making or processing of any explosive, and includes the division of any explosive into its components by any process, the conversion of any kind of explosive into another kind and the alteration, testing or reworking of any explosive;

"misfire" means any explosives which have failed to explode;

"misfired hole" means a shot hole or part of a shot hole in which any explosives or any portion thereof has failed to explode;

"primary blasting" means the blasting operations normally associated with the breaking of in-situ ground for production purposes, including the blasting of big rocks, obstructions in ore passes or box holes or blasting operations where explosives are not contained in a shot hole;

"secondary blasting" means the blasting operations not associated with production from in-situ ground which can take place at any time during a shift to remove obstructions or reduce big rocks in size, but excludes the blasting of shot holes drilled in in-situ rock;

"shot hole" means any drill hole charged with or intended to be 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;

Security in respect of explosives

4.1(1) The employer must take reasonably practicable measures to prevent persons not authorized by the employer to do so, 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 authorized by the employer to do so 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(1)(d), no person may bury, hide, submerge or abandon any explosives.

Receipt, storage, issuing, transportation and destruction of explosives

4.2(1) The employer must ensure that -

- (a) explosives that are not being transported or prepared for use are stored in explosive stores, silos or containers which are, as far as reasonably practicable, designed and located so as to facilitate the safe and secure receipt, storage and issuing of explosives by a competent person;

- (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 of explosives, including associated with the inadvertent initiation and the deterioration of explosives;
 - (c) as far as reasonably practicable, explosives are only transported in vehicles or conveyances approved for that purpose by the employer, after consultation with the explosive manufacturer or supplier; and
 - (d) when mine closure is intended, or when a mine is not being worked as contemplated in section 2(2), 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 in the mine, of –
 - (i) the type, quantities and location of such explosives; and
 - (ii) the measures taken to safeguard persons from any significant risk associated with such explosives.
- 4.2(2) The employer must take reasonable measures to ensure that only the competent person contemplated in regulation 4.4(1) destroys explosives.
- 4.2(3) In the case of underground coal mines, explosives must be destroyed only on surface, and in accordance with a written procedure prepared for that purpose by the employer after consultation with the explosives manufacturer or supplier.
- 4.2(4) The employer must inform the Chief Inspector of Explosives (as defined in the Explosives Act, Act No 15 of 2003) in advance if more than 50kg of explosives are to be destroyed at any one time.
- 4.2(5) The employer must take reasonable measures to ensure that accurate records, covering the immediate preceding three years, are kept readily available at the mine of all explosives received, stored, issued, used and destroyed at the mine.

Approved explosives at mines

- 4.3(1) The employer must take reasonable measures to ensure that -
- (a) only explosives approved by the employer are used at the mine;
 - (b) the explosives are used in accordance with a written procedure prepared and implemented for that purpose after consultation with the explosive manufacturer or supplier;
 - (c) 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;
 - (d) if explosives are manufactured at the mine, it is done in accordance with a written procedure prepared and implemented for that purpose after consultation with the explosive manufacturer or supplier; and
 - (e) explosive powered tools are used and maintained in accordance with a written procedure prepared and implemented for that purpose.

Primary and Secondary blasting to be performed by competent persons

4.4(1) The employer must take reasonable measures to ensure, where blasting takes place, that a *competent person* -

- (a) exercises control over the explosives to be used for such blasting;
- (b) prepares primers;
- (c) tests for flammable gas in accordance with a written procedure prepared and implemented for that purpose by the employer;
- (d) examines any drilled hole to be deepened to ensure it is safe to deepen;
- (e) examines for and deals with misfires, sockets, old and damaged explosives in accordance with a written procedure prepared for that purpose by the employer;
- (f) marks or indicates shot holes for drilling or sanctions the drilling of shot holes marked or indicated by another person;
- (g) exercises control over any manufacturing at the mine of explosives to be used for such blasting;
- (h) the connecting up of blasting rounds or circuits;
- (i) charges shot holes with explosives or places explosive charges; and
- (j) initiates blasting.

Blasting Assistants

4.4(2) A *competent person* may, with the approval of the employer, assist the competent person referred to in regulation 4.4(1) with any of the following activities-

- (a) exercising control over the explosives to be used for such blasting;
- (b) the preparation of primers;
- (c) the charging of shot holes with explosives or the placing of explosive charges;
- (d) the timing of blasting rounds or circuits; and
- (e) initiating any blasting in the actual presence and under the direct supervision of the competent person referred to in regulation 4.4(1).

Certification of Initiation Apparatus and Blasting Systems

4.5(1) The employer must ensure that where initiation of explosives charges takes place by means of electricity -

- (a) apparatus used for the initiation of electronic detonators complies with Part 1 "Electronic Initiation Systems" of SANS 1717 'The design and approval of EED initiation systems for use in mining and civil blasting;
- (b) apparatus used for the initiation of electric detonators complies with Part 2 "Electric Initiation System – Shot Exploder based" of SANS 1717;
- (c) 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;
- (d) 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 that purpose by the government endorsed national accreditation body; and
- (e) all aspects pertaining to the use of electrical blasting are executed safely with specific reference to the following SANS Codes of Practice

10325: "The safe application of detonator systems for use in mining and civil blasting applications; Part 1: Electronic Detonator Systems (SABS 10325-1:2000) and Part 2: Electric Detonator Systems – Shot Exploder-based." (SABS 0325-2:2001).

- 4.5(2) The normative references in the SABS Standards referred to in 4.5(1)(e) above are not applicable to the employer.

General precautionary measures when blasting

- 4.6 The employer must take reasonable measures to ensure that when blasting takes place, air and ground vibrations, shock waves or 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.

Learners

- 4.7 Learners to be assessed competent against any of the qualifications referred to in these regulations may, with the approval of the employer, perform any of the activities listed under these regulations in the actual presence and under the direct supervision of the relevant *competent person(-s)*.

Prevention of flammable gas and coal dust explosions

- 4.8 The employer must take reasonable measures to ensure that:
- (a) a blow out or ignition of flammable gas or initiation of a coal dust explosion does not occur due to the design and positioning of the blast holes or due to the type of explosives that are used; and
 - (b) initiating devices or systems used in blast designs are designed not to cause a methane or coal dust explosion.

Shot Holes to be Stemmed

- 4.9 The employer must take reasonable measures to ensure that no explosive charge, contained in a shot hole where there is a significant risk of a flammable gas or coal dust explosion, is initiated, unless the explosives are contained in a shot hole and that the portion of the hole between the explosives and the collar is only filled with sand, clay or non flammable materials, provided that fine coal may not be used for stemming.

CHAPTER 22**COMPETENT PERSON FOR PRIMARY BLASTING, SECONDARY BLASTING
AND BLASTING ASSISTANTS****22.4 EXPLOSIVES**

22.4.1(1) For purposes of Regulations 4.4(1) and 4.4(2), the competent person must have the relevant competencies as indicated below -

1. Underground hard rock tabular mine -**(a) Primary blasting**

A person in possession of a valid blasting certificate for scheduled mines issued by the Department; or

A person assessed and found competent against a qualification recognised by the MQA for this purpose.

(b) Secondary blasting

A person in possession of a blasting certificate for scheduled mines issued by the Department, or

A person assessed and found competent against a skills programme recognised by the MQA for this purpose.

(c) Blasting assistant

A person assessed and found competent against a skills programme recognised by the MQA for this purpose.

2. Underground coal mines -**(a) Primary blasting**

A person in possession of a blasting certificate for fiery mines issued by the Department, or

A person assessed and found competent against a qualification for the type of mining to be undertaken recognised by the MQA for this purpose.

(b) Secondary blasting

A person in possession of a blasting certificate for fiery mines issued by the Department, or

A person assessed and found competent against a qualification recognised by the MQA for this purpose.

(c) Blasting assistant

A person assessed and found competent against a skills programme recognised by the MQA for this purpose.

3. Underground hard rock massive mine -**(a) Primary blasting**

A person in possession of a blasting certificate for scheduled mines issued by the Department, or

A person assessed and found competent against a qualification recognised by the MQA for this purpose.

(b) Secondary blasting

A person in possession of a blasting certificate for scheduled mines issued by the Department, or.

A person assessed and found competent against a skills programme recognised by the MQA for this purpose.

(c) Blasting assistant

A person assessed and found competent against a skills programme recognised by the MQA for this purpose.

4. Quarries other than dimension stone quarries**(a) Primary blasting**

A person in possession of a blasting certificate for opencast mines issued by the Department, or

A person assessed and found competent against a qualification recognised by the MQA for this purpose.

(b) Secondary blasting

A person in possession of a blasting certificate for opencast mines issued by the Department, or

A person assessed and found competent against a qualification recognised by the MQA for this purpose.

(c) Blasting assistant

A person assessed and found competent against a skills programme recognised by the MQA for this purpose.

5. Openpit/strip mine

(a) Primary blasting

A person in possession of a blasting certificate for opencast mines issued by the Department.

A person assessed and found competent against a qualification recognised by the MQA for this purpose.

(b) Secondary blasting

A person in possession of a blasting certificate for opencast mines issued by the Department, or

A person assessed and found competent against a qualification recognised by the MQA for this purpose.

(c) Blasting assistant

A person assessed and found competent against a skills programme recognised by the MQA for this purpose.

6 Dimension stone quarries

(a) Primary blasting

A person in possession of a blasting certificate for opencast mines issued by the Department, or

A person assessed and found competent against a qualification recognised by the MQA for this purpose.

(a) Secondary blasting

A person in possession of a blasting certificate for opencast mines issued by the Department, or

A person assessed and found competent against a qualification recognised by the MQA for this purpose.

(b) Blasting assistant

A person assessed and found competent against a skills programme recognised by the MQA for this purpose.