



**mineral resources**

Department:  
Mineral Resources  
REPUBLIC OF SOUTH AFRICA

## **DIRECTIVE A3/2**

# **BLASTING CERTIFICATES FOR SCHEDULED MINES**

**APPROVED**

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**ACTING CHIEF INSPECTOR OF MINES**

**MR. MMA ZONDI**

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**DMR 302: APPLICATION FORM FOR BLASTING CERTIFICATE FOR SCHEDULED MINES**

**DMR 303: CERTIFICATE OF COMPLIANCE FORM**

**DMR 304: SCORE SHEET FOR COMPULSORY QUESTIONS**

**DMR 305: SCORE SHEET FOR CHOICE QUESTIONS**

## **1 INTRODUCTION**

Chapter 28 of the Minerals Act, Regulations in force in terms of Schedule 4 of the Mine Health and Safety Act (Act 29 of 1996), as amended (MHSA) deal extensively with all aspects of the issuing of blasting certificates.

This directive contains instructions for the guidance for the examining and issuing authorities as well as rules for the conduct of examinations/assessment, as framed in terms of the Minerals Act Regulation 28.6 in force in terms of Schedule 4 of the MHSA.

## **2 PURPOSE**

The purpose of this directive is to:

- (a) Prescribe the instructions for the guidance for the examining and issuing authority, the rules for conducting the examination/assessment for blasting certificate for scheduled mines;
- (b) Specify the syllabi for the subjects/modules of the examination/assessment in terms of the Minerals Act Regulation 28.6;
- (c) Structure the examination/assessment to comply with the rules applicable for the conducting of the examination/assessment for the blasting certificate for scheduled mines;and
- (d) Ensure that the examinations/assessment for the blasting certificate for scheduled mines are conducted in a way that is lawful, fair, transparent, consistent and reasonable.

## **3 SCOPE**

This directive is applicable for blasting certificate for scheduled mines.

## **4 ACCEPTANCE AS A CANDIDATE**

### **4.1 QUALIFYING SHIFTS**

- (a) It is required that the applicant must have completed a number of qualifying shifts as prescribed in Regulation 28.41.3 and 75 of the qualifying shifts must have been spent at a working face on rock-breaking or winning minerals at a scheduled mine. It is of the utmost importance that a reliable record is kept by the employer of the above said shifts in each case.
  
- (b) In the case of persons in occupations where the qualifying shifts are accumulated over an extended period, a record book in which the number of shifts that a candidate has completed at the scheduled mine is kept at the mine and certified by the Mine Manager appointed in terms of section 3(1)(a) of the MHSa.
  
- (c) When the candidate applies for the blasting certificate examination/assessment, the record book must be handed in at the mine or another suitable place specified by the employer for safekeeping until the candidate has obtained his/her blasting certificate. The Principal Inspector of Mines must advise the employer of each mine in his/her Region of this requirement.
  
- (d) This requirement does not apply to learners undergoing an approved training course. The Principal Inspector of Mines is to satisfy himself/ herself by arranging regular inspections at suitable intervals of the means adopted by the employer to ensure that at least 75 of the qualifying shifts are spent by the trainee or candidate on rock breaking or winning minerals and that a proper and reliable record is kept of such shifts.
  
- (e) Applicants for the blasting certificate for scheduled mines must have completed the underground shifts as required by the Minerals Act Regulations

28.40.7.1 and 28.40.7.2, of which 75 underground shifts are on rock breaking or winning of minerals during which time the applicant achieves the following competencies/outcomes:

- i. Making safe and declaring the working place safe;
- ii. Mine gases;
- iii. Ventilation and dust;
- iv. Face preparation;
- v. Marking the face;
- vi. Drilling the face;
- vii. Handling of explosives and accessories (all types);
- viii. Charging up;
- ix. Initiating the blast and gas testing; and
- x. Mine Health and Safety Act (Act 29 of 1996), as amended.

(f) The balance of the outstanding qualifying underground shifts as required by the Minerals Act, Regulation 28.41.3, may be gained in any underground occupation, provided that the applicant achieves the following competencies/outcomes:

- i. Installation of temporary support;
- ii. Cleaning the face;
- iii. Installation of permanent support;
- iv. Sweepings;
- v. Strata control;
- vi. Transport of explosives;
- vii. Emergency procedures;
- viii. Rock handling systems;
- ix. Other related blasting activities; and
- x. Related health and safety procedures or systems.

(g) Emphasis is placed on the applicant achieving the above-mentioned competencies/outcomes rather than the occupation of the applicant.

- (h) An applicant employed to develop i.e. sink shafts will have to provide proof of the required shifts gained and the competencies/outcomes that are applicable to the development of sinking shafts.
- (i) Vacation work undertaken by university students underground is acceptable as underground service to qualify as a candidate for the blasting certificate for scheduled mines.
- (j) In terms of the Minerals Act, Regulation 28.40.5 in force in terms of Schedule 4 of the MHPA, the holder of a mining engineering degree or diploma recognised by the Chief Inspector of Mines may be exempted from one-half of the number of shifts of experience.

#### **4.2 FIRST AID CERTIFICATE**

Applicants for the blasting certificate for scheduled mines must be in possession of a First Aid Certificate issued in terms of the Minerals Act, Regulation 24.7.

#### **4.3 AGE RESTRICTION**

Applicants for blasting certificate for scheduled mines must have attained an age of 20 years.

#### **4.4 ACADEMIC QUALIFICATIONS**

Applicants for the blasting certificate for scheduled mines must have completed the following academic qualifications:

- a) Standard 8; or
- b) Grade 10; or
- c) N1 Certificate, provided that N1 Certificate holders must have six (6) subjects to their credit; or
- d) ABET Level 3 or equivalent.

#### **4.5 MEDICAL FITNESS**

Applicants for blasting certificate for scheduled mines must be in possession of a valid certificate of fitness to perform work at the mine issued by an Occupational Medical Practitioner (OMP) appointed in terms of section 13(3)(a)(i) of the MHSA.

#### **4.6 LANGUAGE PROFICIENCY**

Applicants for the blasting certificate for scheduled mines must be able to communicate both orally and in writing.

### **5 SYLLABI**

The syllabi for the blasting certificate for scheduled mines includes all the relevant Regulations under the MHSA and the Minerals Act Regulations in force in terms of Schedule 4 of MHSA. It consists of three sections namely:

#### **5.1 VENTILATION, DUST PREVENTION AND GASES**

##### **5.1.1 VENTILATION**

- a) Reasons why underground working places must be ventilated
- b) Methods of ventilating underground working places
- c) Corrective measures in case of ventilation deterioration/failure
- d) Legal requirements
- e) Basic ventilation lay-outs in terms of underground working places
- f) Measurement of thermal conditions in the working place

##### **5.1.2 DUST PREVENTION**

- a) Causes of dust in underground working places.
- b) Measures to prevent/minimise the appearance of dust in mine air.
- c) Legal requirements

### **5.1.3 GASES**

- a) Hydrogen
- b) Nitrous Fumes
- c) Methane
- d) Carbon Dioxide
- e) Carbon Monoxide
- f) Hydrogen Sulphide
- g) Hydrocyanic Acid Gas
- h) Oxygen

## **5.2 MINING PRACTICES**

### **5.2.1 ROCK MECHANICS**

- a) Basic terminology and definitions
- b) Types of fracturing
- c) Strata Control
- d) Pre-conditioning

### **5.2.2 BREAKING OF GROUND**

- a) Support (Stopes and Development)
- b) Remnants
- c) Drilling (Stopes and Development)
- d) Cleaning (Stopes and Development)
- e) Emergency Procedures
- f) Duties of a Miner
- g) Duties of Competent "A" person
- h) Legal Requirements

## **5.3 EXPLOSIVES**

### **5.3.1 BLASTING**

- a) Explosives
- b) Holes to be blasted
- c) Sockets
- d) Misfires
- e) Obstructions in box holes

### **5.3.2 DUTIES OF MINER/GANGER**

### **5.3.3 DUTIES OF A COMPETENT “A” PERSON**

### **5.3.4 DUTIES OF A BLASTING ASSISTANT**

## **6 APPLICATION FORMS**

6.1 Applications to be examined for a provisional blasting certificate for schedule mines or a permanent blasting certificate for schedule mines must be done on form DMR 302.

6.2 The application form DMR 302 must be accompanied by a:

- (a) Certified copy of the record of service on company letterhead with contact details as proof of the number of qualifying shifts attained;
- (b) Certified copy of a First Aid Certificate;
- (c) Certified copy of the identity document (ID) or passport;
- (d) Certified copy of minimum academic qualifications; and
- (e) Certified copy of a Medical Fitness Certificate.

6.3 The certified copies referred to in paragraph 6.2 above must be not be older than three (3) months and must be certified by the South African Police Service (SAPS).

- 6.4 The application form must be endorsed by the Mine Manager appointed in terms of section 3(1)(a) of the MHSA and a copy of the appointment letter of the Mine Manager must be attached to the application form.
- 6.5 Notwithstanding anything stated to the contrary, the issuing authority in exceptional circumstances, may accept an application for a provisional or a permanent blasting certificate for schedule mine without the application being endorsed by the Mine Manager.
- 6.6 Application for the exchange of a provisional blasting certificate for scheduled mines for a permanent blasting certificate for scheduled mines must be made on form DMR 314.
- 6.7 The application for the exchange of a provisional blasting certificate for scheduled mines for a permanent blasting certificate for scheduled mines must comply with the requirements as stipulated in paragraph 6.2 above.
- 6.8 The application for the exchange of a provisional blasting certificate for scheduled mines for a permanent blasting certificate must be accompanied by the applicant's original provisional blasting certificate for scheduled mines.
- 6.9 Applicants for the blasting certificate for scheduled mines must pay an application fee as required by the Minerals Act, Regulation 28.10 in force in terms of Schedule 4 of the MHSA.
- 6.10 Applicants may pay the required application fee:
- (a) Directly into the Department of Mineral Resources (DMR) bank account. The original bank deposit slip must be attached to the application form as proof of payment; or

(b) To the cashier at any Regional office of DMR. The cashier must be informed that the payment is for examination/assessment purposes. The original payment receipt must be attached to the application form as proof of payment.

6.11 Incomplete application forms will not be considered.

## **7 CERTIFICATE OF COMPLIANCE**

7.1 On receipt of applications, the applicant's names and other relevant details of the applicant who meets the acceptance requirements must be entered on a certificate of compliance form DMR 303 and the certificate of compliance form must be submitted to the Senior Inspector of Mines.

7.2 When the Senior Inspector of Mines has satisfied himself/herself that all the necessary documentation has been submitted and is acceptable, he/she must sign the certificate of compliance form DMR 303 and forward the documents to the Principal Inspector of Mines.

7.3 When the Principal Inspector of Mines has satisfied himself/herself that all the necessary documentation has been submitted and is acceptable, he/she must sign the certificate of compliance form DMR 303 as proof of compliance with the requirements for admission as a candidate.

7.4 A candidate or applicant must not be examined until the certificate of compliance DMR 303 has been signed by the Principal Inspector of Mines.

## **8 EXAMINATION/ASSESSMENT**

8.1 Examination/Assessment are to be conducted in accordance with the *Learners/Examiners Guide for the Assessment and Certification of Blasting Certificate Holders for Scheduled Mines*.

8.2 The examination/assessment consists of two (2) types of questions namely compulsory questions and choice questions.

**8.2.1 Compulsory Questions**

- (a) The score sheet for compulsory questions attached as DMR 304 must be used in preparing for and assessing a candidate;
- (b) The examiner must assess the candidate on a minimum of five compulsory questions in each subject/module (All candidates must be examined/assessed on equal number of questions);
- (c) The pass mark for the compulsory questions is 100%;
- (d) Questions asked under the compulsory section relate to the core knowledge that a miner is required to have;
- (e) The intention of the compulsory questions is to ascertain whether the candidates have the knowledge about issues that may impact on the health and safety of employees under his/her control;
- (f) Questions and model answers can be found under section 5 of the *Learners/Examiners Guide for the Assessment and Certification Holders for Scheduled Mines*;
- (g) The candidate must answer all the questions asked that may impact on the health and safety of employees by demonstrating an understanding of the associated risks to the satisfaction of the examiner in the above-mentioned part of the examination/assessment; and

- (h) The examiner must record all the questions asked and complete the 'Assessor Remarks' section on the score sheet if the candidate gives an unsatisfactory answer.

### 8.2.2 Choice Questions

- (a) The score sheet for choice questions attached as DMR 305 must be used in preparing for, and assessing a candidate;
- (b) The examiner must assess the candidate on a minimum of five choice questions in each subject/module (All candidates must be examined/assessed on equal number of questions);
- (c) The pass mark on choice questions is 60%;
- (d) Questions and model answers can be found under section 5 of the *Learners/Examiners Guide for the Assessment and Certification of Blasting Certificate holders for Scheduled Mines*;
- (e) The **examiner is not restricted to only the above-mentioned questions**, provided that the question he/she may ask are still within the boundaries of the syllabi and remain relevant to the blasting certificate for scheduled mines; and
- (f) The examiner must record all the questions asked and completes the "Assessor Remarks" section on the score sheet if the candidate gives an unsatisfactory answer.

## 9 GENERAL RULES FOR EXAMINATION/ASSESSMENT

- 9.1 All examination/assessment results must be recorded in writing by the Secretary to the Commission of Examiners for the blasting certificate for scheduled mines.

- 9.2 Where possible, record kept of the previous examination/assessment, must be read out and confirmed during the current examination/assessment.
- 9.3 The examination/assessment must be conducted orally and/or in writing.
- 9.4 No reference material must be allowed during the examination/assessment.
- 9.5 Examiners are required to complete the assessment score sheets accurately and comprehensively, as the assessment score sheets are required to be kept on file for the following reasons:
- (a) Documentation proof as a pass or fail;
  - (b) Provide feedback to a candidate in case of a fail; and
  - (c) Appeal purposes.
- 9.6 Examiners should ask questions clearly.
- 9.7 Examiners to ascertain whether the candidate has a clear understanding of the question before the candidate answers the question.
- 9.8 The examiners/assessors may ask follow up questions aimed at clarifying understanding or potential confusion relating to the answers provided by the candidate. The examiner's/assessor's score sheet should reflect this notion.
- 9.9 Examiners/assessors are encouraged, when posing questions, to ask the candidate what the candidate needs to know in order to enhance the understanding of practical application.
- 9.10 The candidate will be allowed three (3) attempts to pass all subjects/modules of the examination/assessment.
- (a) The candidate will be examined/assessed on all three (3) subjects/modules during the first attempt;

- (b) Should the candidate fail any subject(s)/module(s) during the first attempt, the failed subjects/modules will be examined/assessed during the second attempt and the passed subjects/modules will be credited;
- (c) Should the candidate fail any of the subjects/modules during the third attempt, that candidate will be considered as having failed the examination/assessment. The candidate will forfeit all the credited subjects/modules and must re-apply to be examined/assessed on all subjects/modules; and
- (d) The application for examination/assessment referred to in paragraph 9.10(c) above, must be made by the candidate after a period of one (1) year has lapsed from the date of the third attempt examination/assessment. This means that the candidate will not be allowed to sit for examination/assessment for a period of one (1) year from the date of the third attempt examination/assessment.

## **10 COMMISSION OF EXAMINERS**

- 10.1 The constitution of a Commission of Examiners for a blasting certificate for scheduled mines must remain in accordance with the Minerals Act, Regulation 28.39 in force in terms of Schedule 4 of the MHSA.
- 10.2 In order to promote the spirit of tripartite the Commission of Examiners must consist of:
  - (a) An officer in the service of the Department of Mineral Resources, who is a holder of a Mine Manager's Certificate of Competency, the Chairman, representing the State;
  - (b) A member, who is a holder of a Mine Manager's Certificate of Competency, representing the employers in the mining industry; and
  - (c) A member, who is a holder of a permanent blasting certificate for scheduled mines, representing employees in the mining industry.

- 10.3 The member representing the employers must be:
- (a) A practicing holder of a Mine Manager's Certificate of Competency at a mine; and
  - (b) Appointed in terms of section 3(1)(a) of the MHSA or appointed in terms of Minerals Act, Regulation 2.6.1 in force in terms of Schedule 4 of the MHSA.
- 10.4 The member representing the employees must:
- (a) Be a practising holder of a blasting certificate; and
  - (b) Exercising control over explosives to be used for blasting at a mine, for a minimum period of three (3) years in an underground mining environment.
- 10.5 The allocation of subjects/modules to be examined/assessed by examiners will be at the discretion of the Chairperson of the examination/assessment board.
- 10.6 In the event whereby a member of the Commission of Examiners for the blasting certificate for scheduled mines, failing to attend the examination/assessment, the Principal Inspector of Mines may use an additional appropriate qualified officer in the service of the DMR to replace the unavailable examiner/assessor, who is the holder of a Mine Manager's Certificate of Competency.
- 10.7 One person per stakeholder may attend the examination/assessment as an examiner in training until such time that the relevant examination/assessment authority is satisfied that the examiner/assessor in training may conduct blasting certificate for scheduled mines examinations/assessments.
- 10.8 The Principal Inspector of Mines must ensure that the Commission of Examiners for the blasting certificate for scheduled mines conducts the examinations/assessments in accordance with this directive for consistency, uniformity, feedback, record and appeal purposes.

## **11 APPEAL PROCEDURE**

- 11.1 A candidate for the blasting certificate for scheduled mines may appeal against any decision of any examining authority for the blasting certificate for scheduled mines, to the Chief Inspector of Mines.
- 11.2 Each appeal must be lodged in writing within a period of 30 days after the date of the examination/assessment authority's decision.
- 11.3 Each appeal must state the reasons or grounds of appeal.
- 11.4 The appeal case must be heard within a period 60 days from the date of lodging the appeal.
- 11.5 The appeal case must be heard by the Principal Inspector of Mines in the Region where the examination/assessment took place or his/her designated alternate, as long as such Principal Inspector of Mines or his/her designated alternate was not involved in the examination/assessment of the candidate.
- 11.6 After considering the grounds or reasons for the appeal and the Chairperson for the Commission of Examiners' reasons for the decision, the Principal Inspector of Mines or his/her designated alternate may:
- (a) Confirm the decision of the Chairperson of the Commission of Examiners; or
  - (b) Set aside the decision of the Chairperson of the Commission of Examiners and pass the candidate; or
  - (c) Set aside the decision of the Chairperson of the Commission of Examiners and directs another Commission of Examiners who were not part of the initial examination/assessment to re-examine/re-assess the applicant.
- 11.7 The appeal process must:
- (a) Be fair, transparent and credible;
  - (b) Have reasonable time frames; and

(c) Allow the right to representation by the candidate.

11.8 The candidate will not be allowed to be examined/assessed on the subject(s)/module(s) the candidate has appealed on, unless the outcome of the appeal has been determined and communicated to the parties concerned.

## **12 GENERAL**

### **12.1 EXAMINATION/ASSESSMENT VENUES**

- (a) The Principal Inspector of Mines is required to schedule the examinations/assessment at any venue that is suitable for the conduct of the blasting certificate for schedule mines examinations/assessment; and
- (b) The Principal Inspector of Mines is required to make arrangements necessary for the examinations/assessments; and
- (c) Candidates must be examined/assessed in Regional offices where their mines are located. A candidate may change Regional offices of examination/assessment under the following conditions.
  - i. An application has been made via a signed letter to the Region of examination/assessment for candidate's file to be moved to a different Region stating reasonable grounds for such transfer request;
  - ii. The candidate has been advised by the Regional office of approved request;
  - iii. The candidate's file plus application for examination/assessment is forwarded to the new Regional office of examination/assessment; and
  - iv. The candidate has been advised of the examination/assessment by the new Region of assessment.

### **12.2 EXAMINATION/ASSESSMENT BOARDS**

- (a) The blasting certificate for scheduled mines examination/assessment boards will take place at least once a month;
- (b) The number of the blasting certificates for scheduled mines examinations/assessment boards must not exceed five (5) per scheduled date;

- (c) The number of candidates per blasting certificate for scheduled mines examinations/assessment board must not exceed 10 per blasting certificate for scheduled mines examination/assessment board; and
- (d) Candidates who failed the examination/assessment on a particular examination/assessment board will not be re-examined in the next examination/assessment board, i.e. in the second month, after the date he/she failed the examination/assessment but will be examined in the third month after the date he/she failed the examinations/assessments.

### **12.3 BLASTING ON SURFACE**

- (a) The blasting certificate for scheduled mines is valid for a works where subterranean tunnel operations are in progress;and
- (b) The blasting certificate for scheduled mines is valid for blasting on the surface of the scheduled mine in addition to the workings;
- (c) The holder of the blasting certificate for scheduled mines is permitted to carry out work such as trenching, excavating for buildings, blasting ore blockages in surface ore bins or the reduction works and the destruction of explosives at a scheduled mine; and
- (d) The employer must, however, take cognisance of the provisions of the Minerals Act, Regulation 2.10.2, in force in of Schedule 4 of MHSA, in terms of which it will be necessary for the employer to satisfy himself/herself that the person doing the blasting on the surface of a scheduled mine is competent and experienced.

### **12.4 ABSENCE FROM THE EXAMINATION/ASSESSMENT**

A candidate absent from an examination/assessment, or withdrawing from such examination/assessment within seven days of the date on which the examination/assessment is to take place, will forfeit his/her examination/assessment fee and will be required to re-apply for examination/assessment unless such candidate can either furnish the examination/assessment authority with:

- (a) A medical certificate to the effect that the candidate was/is medically unfit for the examination/assessment; or
- (b) A letter signed by the candidate's Mine Manager on company letterhead with contact details stating circumstances of a sufficiently important and urgent nature involving the candidates work on the mine that prevented the candidate from attending the examination/assessment.

## **12.5 TRAINING**

The Principal Inspector of Mines is required to forward the syllabi, as described in this directive, for the blasting certificate for scheduled mines to the relevant training service providers on request, for the purpose of ensuring uniformity and consistency of training in all the Regions established by the Minister of Mineral Resources in terms of Section 47 (2) of the MHSA.