

Regulation 61

QUARRY BLASTING QUANTITY — DISTANCE TABLE

Distance from blast area to nearest structure, neither quarry-owned nor leased. In feet	Maximum quantity of explosives per shot for instantaneous firing or per delay for delay firing. In lbs.
100	4
200	16
300	36
400	64
500	100
600	144
700	196
800	256
900	324
1000	400
1200	576

Made in Council this 3rd day of February, 1976.

JENNY MANDERSON
Clerk of the Executive Council

CAYMAN ISLANDS



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EXPLOSIVES REGULATIONS, 1976.

EXPLOSIVES LAW 1975
(No. 28 of 1975)

EXPLOSIVES REGULATIONS, 1976

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Quantity of Explosives, in lb.		Distances in feet.		
		A	B	C
Up to	500	50	90	180
	1,000	60	150	300
	2,000	75	230	460
	5,000	100	400	800
	10,000	130	570	1,140
	20,000	160	750	1,500
	40,000	200	950	1,900

Provided that the Chief Engineer may in any particular instances place a structure or place in any class which he considers fitting and that for quantities of explosives in excess of 40,000 lb. he shall lay down the minimum distances for the above classes.

Provided further that for weights of explosives between 500 lb. and 40,000 lb. not stated in the above table the distances shall be obtained by interpolation.

Regulation 39(2)
Safe distances between magazines containing high explosives
and stores containing blasting agents.

Weight of high explosive stored		Minimum safe distance of store containing blasting agents from magazine. Feet
lbs.	lbs.	
Over	Not over	
	100	66
100	300	84
300	600	108
600	1000	132
1000	1600	150
1600	2000	174
2000	3000	192
3000	4000	216
4000	6000	240
6000	8000	258
8000	10000	282
10000	12000	300
12000	16000	324
16000	20000	348
20000	25000	390
25000	30000	408
30000	35000	432
35000	40000	456
40000	45000	474
45000	50000	498

EXPLOSIVES REGULATIONS, 1975
Form F. (Regulation 44 (1))

BLASTING PERMIT
Not transferable
Licence No.

Licence No.

PHOTOGRAPH

This is to certify that

.....
is licensed to conduct blasting operations for the
purpose of

.....
Issued at

Signature of permit holder

Date

Signature

CHIEF ENGINEER

SECOND SCHEDULE

Regulation 18 (1)

Table showing the minimum distances in feet by which magazines must be separated from other structures and places according to the class into which such structures and places fall, as set out hereunder:—

- A. Other magazines, overhead power lines.
- B. Public roads and aerodromes. Structures owned by the holder of the storage authorisation for the magazines. Areas where the public is accustomed to assemble. Private roads which are the principal means of access to buildings in which meetings of ten or more persons habitually occur, hospitals or factories. Electrical sub-stations.
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EXPLOSIVES LAW
(No. 28 of 1975)

EXPLOSIVES REGULATIONS, 1976

In exercise of the powers conferred upon the Governor in Council by section 6 of the Explosives Law the following Regulation are hereby made:

- Short title.
1. These Regulations may be cited as the Explosives Regulations, 1976.
- Interpretation.
2. In these Regulations, unless the context otherwise require —
“capped fuse” means a length of safety fuse to one end of which a detonator has been attached;
“detonating fuse” means a cord-like device used in blasting operations, containing an explosive which will explode at high velocity when suitably initiated by a detonator, such explosion initiating explosion in other lengths of detonating fuse or other explosives in close proximity;
“direct supervision” means that the person being supervised is within normal sight or hearing of the person supervising;
“Form” means one of the forms set out in the First Schedule;
“magazine” means any building or structure used or intended to be used for the storage of explosives;
“Manager” means the person responsible for the management of the site at which any blasting operations are carried out;
“misfire” means a drill hole or part thereof in which the blasting material, or any portion thereof, charged into the hole has failed to explode;
“primer” means a cartridge into which the detonator of a capped fuse, or electric detonator has been inserted;
“safety fuse” means a fuse for blasting which burns and does not explode, and which does not contain its own means of ignition, and which is of such strength and construction, and contains an explosive in such

EXPLOSIVES REGULATIONS, 1976
Form E. (Regulation 43 (1))

APPLICATION FOR A BLASTING PERMIT

Applicant’s Name

Address

.....

I hereby apply for a blasting permit and am prepared to present myself for examination, as being thoroughly acquainted with blasting operations and with the Government regulations applying thereto. I enclose two recent passport head and shoulders photographs of myself.

Signature Date

(Give details in the space below of any previous experience in blasting and the number and country of issue of any blasting certificates held by you).

.....

.....

.....

FOR OFFICIAL USE

Application received

.....

Photographs received

.....

Called for interview

Date

EXPLOSIVES REGULATIONS, 1976
Form D. (Regulation 15 (1))

AUTHORISED STORAGE BOXES

Authorisation for box storage for conveyance and storage of explosives is hereby granted to:—

Name

Address

.....
who has applied by letter dated certifying
that he has constructed such boxes in accordance with the following
requirements:—

BOXES

- (1) Boxes shall be of antproof and waterproof material.
- (2) Boxes shall be rigidly constructed.
- (3) Hasps, staples and hinges shall be affixed in such manner that the screws or bolts used cannot be unscrewed whilst the lid is shut.
- (4) Boxes shall be fitted with handles for conveyance.
- (5) Lids shall be clearly marked "EXPLOSIVES".

STORAGE

Shall be in accordance with the following conditions:—

- (1) Amount not more than:
 - * 100 lb. of explosives.
 - * 500 detonators.
- (2) Explosives shall be kept from shifting about by means of suitable packing. No other material, implements or tools shall be placed in such boxes.
- (3) Boxes shall be kept off the ground when used for storage.
- (4) The box containing explosives shall be stored as far as possible from the box containing detonators.
- (5) This authorisation permit shall be affixed inside the lid of the box.

Period for which authorisation is valid

Date
* Delete line not required

Chief Engineer

.....
Signed (holder)

quantity that the burning of such fuse will not communicate laterally with other like fuses;

"shot firer" means a person who is the holder of a valid blasting licence issued by the Chief Engineer and who has been authorised in writing by his employer to undertake blasting operations;

"socket" means any portion of a hole which may remain after all the blasting materials charged into the hole have exploded and which is proved by examination not to be a misfire;

"stemming" means any inert material described in regulation 56 used as a filling in blast holes;

"tamping" means the consolidation of stemming and explosives in a blast hole.

PART I — Responsibility for Observance

Observance
Regulations.

3. Except where herein otherwise expressly provided to the contrary the responsibility for the due observance of these Regulations shall be upon the holder of the appropriate licence or permit issued under these Regulations, or the person in official charge of the site or premises, or the particular operation where explosives are stored or used or otherwise dealt with, and where the provisions of these Regulations are not duly observed such holder or person shall be guilty of an offence unless he can prove that all reasonable means of enforcing them were taken by him.

Appointment
competent persons.

4. (1) The holder or person referred to in regulation 3 may appoint one or more competent persons to assist him in enforcing the provisions of these Regulations and such persons shall without prejudice to the appointor's own personal responsibilities under these Regulations have the same responsibility under the Regulations as the appointor for such duties as his permit shall specify, and shall be similarly guilty of an offence in the event of non-observance of these Regulations.

(2) Any permit made under subregulation (1) shall be in writing and shall clearly define the duties assigned to the person so appointed. The appointment, to be valid, shall also be accepted by the appointee in writing.

PART II — Permits

Import Permits.
Form A.

5. No person shall import any explosive into the Islands save under the written authorisation of the Chief Engineer in the Form A presented in the schedule.

Applications
import permits.

6. An application for an import permit shall contain —

- (a) the name and address of the applicant;
- (b) the name, exact description and quantity of explosive to be imported;
- (c) the country from which the explosive is to be imported;
- (d) the name and address of the manufacturer of the explosive;
- (e) the address and storage permit number of the magazine or store in which the explosive is to be stored; and
- (f) the purpose for which the explosive is to be used.

Dealers' permits. Form B.	<p>7. (1) A dealer's permit shall be in Form B, shall take effect on the day on which it is issued, shall expire on the 31st December next following, and shall not be transferable.</p> <p>(2) The issue of a dealer's permit shall not entitle the holder thereof to store explosives.</p>
Application for dealers' permits.	<p>8. An application for a dealer's permit shall be made in writing to the Chief Engineer and shall contain —</p> <p>(a) the name of the applicant and the name under which dealing in explosives is to be carried on;</p> <p>(b) the name(s) of the directors, partners or proprietor(s) of a company, partnership or other business;</p> <p>(c) the experience in the handling of explosives of the applicant and, where appropriate, of the persons referred to in paragraph (b);</p> <p>(d) the types of explosives it is desired to deal in;</p> <p>(e) the address at which such dealing is to be carried on; and</p> <p>(f) such other information as the Chief Engineer may require.</p>
Sale limited to persons holding a permit to store.	<p>9. A holder of a dealer's permit shall not supply explosives to any person who is not in possession of a permit to store explosives or a dealer's permit issued under these Regulations.</p>
Register of explosives.	<p>10. A holder of a dealer's permit shall keep a register in the form approved by the Chief Engineer in which he shall record details of all sales and dealings in explosives. Such register shall be kept available for inspection at any time and shall not be destroyed until after the lapse of two years from the date of the last entry in the register. No erasures shall be made in the register and any alteration shall be initialled by the person making it.</p>
Records and returns.	<p>11. Every holder of a dealer's permit shall keep such other records in a manner and form approved by the Chief Engineer and shall make such returns as may be required by the Chief Engineer.</p>
Prohibition on sale of defective explosives.	<p>12. (1) The holder of a dealer's permit shall not sell any explosives which are in any way damaged or defective.</p> <p>(2) Where any explosives are found to be damp, to exude liquid, or, for any reason whatsoever, are suspected of being defective, the explosives shall not be sold but the circumstances shall be forthwith reported to the Chief Engineer and the explosives shall be disposed of as the Chief Engineer directs.</p>
Storage permit. Form C.	<p>13. (1) No magazine or other place shall be used for the storage of explosives unless such magazine or place has been authorised under a storage permit issued for that purpose by the Chief Engineer. A storage permit shall be in Form C and shall specify the nature and maximum amount of explosives which may be stored, and may contain such special conditions as the Chief Engineer thinks necessary.</p> <p>(2) A storage permit issued under this Regulation may be cancelled by the Chief Engineer if the holder or the magazine master appointed in accordance with the Regulation is convicted of an offence under the Law of these Regulations.</p> <p>(3) For the purposes of a storage permit the magazine or other place provided for storing explosives, and the magazine or other place provided for</p>

EXPLOSIVES REGULATIONS, 1976
(Form C. (Regulation 13 (1))

STORAGE LICENCE
(Not transferable)

Name

Address

Is hereby permitted

To use a building situate at

.....

Approved by the Chief Engineer for use as a magazine and for the storage of explosives not exceeding the following quantities, subject to any conditions hereunder set forth or attached hereto:

Type of Explosive	Quantity
.....
.....
.....
.....

Licence issued at Date

.....
CHIEF ENGINEER

CONDITIONS

.....
.....
.....
.....
Signed (holder)

EXPLOSIVES REGULATIONS, 1976
Form B. (Regulation 7 (1))

DEALER'S PERMIT
(Not transferable)

Name of Firm
Address
Is hereby permitted
To purchase, sell and deal in the following types of explosives
.....
.....
.....
Address at which explosives will be stored
.....
.....
Date
.....
Chief Engineer

CONDITIONS

.....
.....
.....
.....
Signature of holder

storing detonators on the same site shall be regarded as one magazine.

(4) Whoever stores any explosives otherwise than under the authority of or in accordance with the terms and conditions of a storage permit shall be guilty of an offence.

Suspension of
storage permit.

14. (1) A storage permit issued under Regulation 13 may be suspended by the Chief Engineer if the magazine or other place used for the storage of explosives does not conform with these Regulations or if in his opinion the storage of explosives in such magazine or other place is likely to be dangerous to life or property.

(2) The permit holder shall be informed in writing of such suspension and of the reason therefor and of the steps to be taken before the suspension will be revoked and shall thereupon surrender the permit to the Chief Engineer.

(3) Explosives held under a suspended storage permit shall be disposed of in such manner as the Chief Engineer may direct provided that he shall not direct their destruction unless in his opinion they are so damaged or defective that they are dangerous.

Authorised storage
boxes.

15. (1) Where the applicant for a storage permit wishes to store a small quantity of explosives the Chief Engineer may sanction the use of an authorised storage box or authorised storage boxes for such storage in accordance with the conditions set out in Form D and such other conditions as the Chief Engineer considers desirable. No greater amounts than 500 detonators or 100 lb. of other explosives shall be stored in any one authorised storage box. Application shall be made to the Chief Engineer for the authorisation of the use of such storage boxes specifying that the boxes have been constructed in accordance with requirements of Form D. The Chief Engineer may at any time cancel any authorisation given under this Regulation.

(2) Whoever fails to comply with or contravenes any of the conditions attached to a permit issued to him under this Regulation is guilty of an offence.

Temporary storage.

16. (1) Notwithstanding anything contained in the previous Regulations of this Part, the holder of a storage permit may, unless the Chief Engineer otherwise directs for the period of one month only, keep on or in the neighbourhood of his premises, for private use and not for sale or trade, not more than the undermentioned quantities of explosives —

(a) 100 detonators (all types);

(a) 10 lb. of other explosives.

(2) Such detonators and other explosives shall be kept locked in separate wooden boxes in separate places and not less than 75 feet from any inhabited building or public road.

PART III — Construction of Magazine

Approval to be
obtained before
construction.

17. (1) Save in the case of magazines under the control of Public Works Department, before the construction of a magazine is started approval shall be obtained from the Chief Engineer.

(2) Written application shall be made for such approval and it shall be accompanied by —

(a) a statement of the types of explosives and the maximum quantity of each required to be stored;

- (b) detailed drawings and specifications of the magazine and mounds;
- (c) a site-plan of the magazine showing —
 - (i) its location in sufficient detail to enable it to be found easily; and
 - (ii) the minimum distances from the magazines of each of the classes of structures and places described in the Second Schedule.

Construction of magazine.

18. Except when exempted by the Chief Engineering in writing in any particular case every magazine shall conform with the following:—

- (a) if constructed after the date of coming into force of these Regulations it shall be separated from the structures specified in the Second Schedule and the manager shall forthwith report to the Chief Engineer in writing the erection of any structure by reason of which the magazine does not comply with such Schedule whether or not such structure is within his control;
- (b) its walls shall be constructed of either concrete or of brick or masonry laid in good quality cement mortar all not less than twelve inches thick and finished with an impervious cement plaster or other approved finish on the inside.
- (c) The roof shall be of reinforced concrete 9” thick at the crown and 6” thick at the eaves. A sun roof of corrugated asbestos, galvanised iron, or aluminium sheeting will be constructed over the main roof;
- (d) no ferrous metal shall be exposed internally;
- (e) the floor shall be surfaced with smooth impervious material and shall be at least six inches above the level of the ground outside the magazine;
- (f) its ceiling, if provided, shall be constructed of insulating and fire resisting material;
- (g) it shall have no windows;
- (h) it shall be provided with ventilators which in the opinion of the Chief Engineer are capable of adequately ventilating the interior of the magazine including any space between the ceiling and the roof;
- (i) the ventilators shall be constructed in such a manner that no substance can be introduced into the magazine from the outside of the magazine;
- (j) every door shall —
 - (i) open outwards;
 - (ii) be hung in a substantial steel frame securely set in the concrete of the building;
 - (iii) be recessed not less than two inches from the outer side of the wall;
 - (iv) be faced on the outside with steel not less than three eights of an inch thick adequately stiffened to prevent forcible bending;
 - (v) be faced on the inside with timber or similar material;
 - (vi) close on the inside against a stop not less than one inch wide as measured parallel with the door;
 - (vii) be fitted with one lock on a door with a side of four feet, such locks being heavy duty concealed and protected deadlocks with not less than five levers, and no two locks shall have the same key;

P.W.D. Third Schedule.

persons in a P.W.D. magazine upon payment of the fees and compliances with the conditions.

FIRST SCHEDULE
EXPLOSIVES REGULATIONS, 1976
Form A. Regulation 5

PERMIT TO IMPORT EXPLOSIVES
(Not transferable)

Name (in full)

Address

Is permitted

To import the following explosives into the Cayman Islands:

Description of explosives	Quantity
.....
.....
.....

Subject to the following special conditions:—

.....
.....
.....

Country from which explosives are to be imported

.....

Name and address of manufacturer of explosives

.....

Purpose for which explosives are to be used

.....

Address of magazine in which the explosives are to be stored

.....

Signature of Chief Engineer

Signature of holder

Precautions to prevent accidents.

70. During the conveyance, handling, storing, guarding or using of explosives, all persons so engaged shall take all due precautions for the prevention of accidents by fire, explosion or concussion and for preventing unauthorised or incompetent or unfit persons from having access to explosives, and shall abstain from any act which tends to cause fire, explosion or concussion and is not reasonably necessary in connection with such operations and shall use every reasonable endeavour to prevent any other person from committing such act, and any other person who, after being warned, commits any such act shall be guilty of an offence.

71. (1) Whenever an accident occurs —

- (a) at an explosive magazine;
- (b) in any tunnel, quarry, mine or excavation in which explosives are being used, and resulting in injury to persons or damage to property;
- (c) by fire or explosion in or about any premises occupied by the holder of a dealer's permit;
- (d) as a result of the use of explosives; or
- (e) in connection with the ignition or detonation of explosives, in any other circumstances,

the person in official charge of the factory or magazine, or at the tunnel, quarry, mine or excavation, the permit holder or the persons using the explosives, as the case may be, shall forthwith inform the Chief Engineer by telephone or telegram and shall also forward to the Chief Engineer in writing full particulars regarding such accident.

(2) Whether injury to persons or damage to property is caused or not every accident or occurrence in connection with the accidental ignition or detonation of explosives or their ingredients shall be reported forthwith to the Chief Engineer by the person in official charge of the place where the accident occurred, the permit holder or the person using the explosives.

(3) Whenever an accident occurs in connection with the accidental ignition or detonation of explosives or their ingredients, or as a result of the use of explosives and in connection with every other accident reportable under these Regulations, causing death or grievous bodily harm to any person, the place where the accident occurred shall not be disturbed or altered before the arrival or without the consent of the Chief Engineer, unless such interference is unavoidable to prevent further accidents, to remove dead and injured persons, or to rescue persons from danger:

Provided that work may be resumed if the Chief Engineer has not visited the scene within 30 hours after the accident.

(4) Where injury results in the death of the person injured after the official report has been forwarded, the person using the explosives or the permit holder or the person in official charge of the place where the accident occurred shall forthwith give notice thereof to the Chief Engineer.

PART XI — Penalties

General penalty.

72. Any person offending against any of the provisions of these Regulations for which a penalty is not provided in the Act shall be liable to a fine not exceeding \$500 or to imprisonment for a term not exceeding three months or both.

PART XII — General

Storage facilities by

73. The Chief Engineer may arrange for the storage of explosives by authorised

- (viii) be fitted with concealed butt hinges;
- (ix) be fitted on the hinged side with internal dog bolts or lugs at a distance of not more than one foot between each and engaging the frame when shut;
- (x) have the words "Explosives Magazine" conspicuously marked on it;
- (k) shelves shall be made of timber so constructed as not to interfere with the vertical circulation of air and so that containers of explosives can not touch the wall of the magazine;
- (l) it shall be provided with a lightning conductor of a type approved by the Chief Engineer;
- (m) (i) all electrical wiring shall be installed in a rigid conduit with screwed waterproof joints and such conduit shall be permanently earthed;
- (ii) the switches and fuses for the lighting circuits shall be installed in a fire-proof cabinet on the outside of the building such fuses for lighting shall not exceed 10 ampere capacity;
- (iii) no power line either above or below ground other than for carrying light to a magazine shall be permitted within a distance of 100 feet from the magazine;
- (n) it shall be surrounded by an earth mound which shall be —
 - (i) at least as high as the eaves of the tallest building of the magazine;
 - (ii) not less than three feet wide on the top;
 - (iii) at the natural slope of the earth on all sides;
 - (iv) not less than three feet away at the toe of the slope from the magazine building;
 - (v) made with such an entrance gap that no building inside it shall be visible to a person standing at ground level outside it; and
- (o) it shall be adequately drained in the area enclosed by the earth mound.

Portable magazine.

19. Portable magazines shall conform with the following:—

- (a) walls, floor and roof shall be constructed of mild steel plate not less than ¼" thick.
- (b) Internal hinges shall be of forged steel fitted with brass pins and shall be wrapped with asbestos;
- (c) the lining shall consist of matchboard or hardboard secured to the inner framing with copper nails;
- (d) the magazine shall have four ventilators two on each of opposite walls, and the lining and framing shall have holes drilled in order to allow the free passage of air behind the lining and into the store;
- (e) the ventilators shall be constructed in accordance with Regulation 18 (i);
- (f) the door shall be constructed in accordance with Regulations 18J (i), 18J (v), 18J (vi), 18J (vii), 18J (viii), 18J (x);
- (g) a sun roof of corrugated asbestos, galvanised iron or aluminium will be constructed over the portable magazine, when it is being used as a

static store, and a lightning conductor of a type approved by the Chief Engineer shall be provided.

PART IV — Management of magazine

- Magazine masters. 20. (1) The holder of a storage permit shall appoint in writing a trustworthy persons as magazine master, who shall be in sole charge of each magazine and be responsible for compliance with these Regulations. The appointment, to be valid, shall also be accepted by the appointee in writing. A copy of such letter of appointment with the appointee's acceptance in writing thereon shall be forwarded forthwith to the Chief Engineer.
- (2) In the event of failure to appoint such a magazine master, the permit holder shall be deemed to be the magazine master.
- (3) Where the requirements of this Part are not complied with or contravened in respect of a magazine or the storage of explosives, the permit holder and the magazine master concerned shall, unless otherwise provided, be guilty of an offence.
- Articles which shall be kept in a magazine. 21. In every magazine shall be kept:—
- (a) tools necessary for opening cases of explosives, which shall be of wood, copper or brass only; and
 - (b) a soft brush or broom with no metal fittings for cleaning out the magazine.
- Articles which may not be kept in a magazine. 22. (1) A magazine shall not be used for the storage of any goods or articles not mentioned in the licence, except that the tools and equipment necessary to comply with Regulation 21 may be kept in the magazine.
- (2) A larger quantity of explosives than that stipulated on the licence shall not be stored in a magazine.
- (3) Detonators shall not be stored with detonating fuses or with any other explosives except safety fuses, igniter cords and fuse igniters.
- Forms to be kept in or near magazine. 23. In, or near to every magazine, in a place where they can be conveniently seen or read, the following shall be kept posted up:—
- (a) a copy of these Regulations;
 - (b) the storage licence issued in respect of the magazine; and
 - (c) a copy of the letter of appointment of the magazine master.
- Floors to be kept clean. 24. The floor of a magazine shall at all times be kept scrupulously clean and dry, and free from grit or dirt likely to give rise to sparks. Loose explosives or broken portions of cartridges shall not be left lying on the floor of any magazine or in close proximity to any storage box.
- Protection from fires. 25. (1) Efficient means of extinguishing fire shall be maintained near every magazine.
- (2) Every magazine shall be effectively protected from fires, and to this end, grass surrounding a magazine shall be kept free of combustible material such as timber bush, dry grass, newspapers, boxes, cartons and the like.
- (3) Boxes, cartons and bags which have contained explosives shall not be used for any purpose, but shall be destroyed by burning if possible, as soon as possible after being emptied of their explosives contents.

ground and until he has done so and has taken all reasonable steps to make the place safe, shall not allow any person except those necessary to assist him in making safe, to enter or approach such place;

- (e) examine every visible drill hole for unexploded explosives, using a copper scraper or wooden stick; and after such examination shall plug such holes with wooden plugs painted red; such plugs shall not again be removed except by himself and temporarily for the purpose of inspection, until he has charged the drill holes in the immediate vicinity; and
 - (f) deal immediately with misfires as described in Regulation 66.
- Suspected Misfires. 65. Where there is not a good reason to believe that all the charges have fired:—
- (a) if the firing was effected electrically the circuit shall be tested again and an attempt made to refire the charge before it is approached by any person, and if the attempt fails, the leads shall be disconnected from the exploder and ten minutes shall be allowed to elapse before the charge is approached;
 - (b) if the firing was effected by safety fuse, the charge shall not be approached by any person until not less than thirty minutes has elapsed since the lighting of the fuse.
- Misfires. 66. In the case of a misfire the shot firer shall be responsible for taking the following action:—
- (a) no explosives, detonator, detonator wire or fuse shall be withdrawn from the hole;
 - (b) if the bore hole is stemmed and undamaged the stemming only shall be washed out by means of water under pressure or by compressed air and water applied through a blowpipe of a pattern approved by the Chief Engineer and a new primer inserted and the hole restemmed and blasted or where water under adequate pressure is not available the stemming only may be carefully scraped out by means of an instrument made of wood or copper and a new primer inserted and the hole re-stemmed and blasted; or
 - (c) a new hole shall be drilled parallel to, at least six inches deeper than and not nearer than three feet to the misfired hole and such new hole shall be charged and fired and the explosives liberated from the misfired hole. Provided that if the direction of the bore-hole cannot be accurately ascertained, a surface charge may be used.
- All clear signal. 67. The shot firer shall give audible signal after the blasting operation is completed and the period of danger is past. Such signal shall be distinctive and easily distinguished from the warning signal made under Regulation 60 (1) (d).
- No blasting operations in hours of darkness. 68. No blasting operations may be carried out between the hours of 6 p.m. and 7 a.m. unless with written authority from the Chief Engineer.

PART X — Dangerous practices and accidents

- Dangerous practices. 69. The Chief Engineer shall by notification in writing draw the attention of the permit holder or the persons responsible to any practice in connection with explosives which appears to be of a dangerous or defective character and he may issue such orders with regard to the cessation or modification of such practice as he thinks fit, and the licence or permit holder or persons responsible shall comply therewith.

- (4) Any person who, after the commencement of the warning signals referred to in sub-regulation (1) (d) enters or, on request being made to him by the competent person referred to in sub-regulation (1) (b), or any official or person engaged in the blasting, refuses to leave the blasting area shall be guilty of an offence.
- Maximum quantity of explosives per shot.** 61. The maximum quantity of explosives per shot for instantaneous firing and per delay for delay firing will be determined in accordance with the distance table in the Second Schedule.
- Electrical firing apparatus.** 62. When electric detonators are used the shot firer shall use only the following equipment of a pattern approved by the Chief Engineer which shall be provided and kept in good working order:—
- (a) an efficient electric exploder fitted with a detachable handle or key or other locking arrangement designed to prevent unauthorised use;
 - (b) an efficient galvanometer or other apparatus for testing the continuity and resistance of circuits; and
 - (c) a firing cable which is of sufficient length to provide for the firing of charges from a safe distance, and the shot firer shall also ensure that the cable cannot come into contact with any other cable or electrical apparatus.
- Precautions in electrical firing.** 63. When using electric detonators the shot firer shall —
- (a) when any hole has been charged, keep on his person the operating handle or key of the shot firing apparatus;
 - (b) not connect the firing cable to detonator wires of any charge or charges until he has completed all firing preparations other than those referred to in paragraphs (c) and (d);
 - (c) except when a photo-electric type of tester is used, not apply any electrical test to the firing circuit otherwise than through the firing cable and from a place of safety;
 - (d) not connect the firing cable to the terminals of the shot-exploder or other firing apparatus until immediately before firing or attempting to fire; and
 - (e) immediately after firing or attempting to fire disconnect both leads of the firing cable from the shot exploder or other firing apparatus and there and then remove the operating handle or key of the shot-exploder or secure the locking arrangement of the shot-firing apparatus and remove the key, as the case may be.
- Precautions after firing.** 64. After firing the shot firer shall:—
- (a) except in the case of firing by electricity or with detonating fuse, count, in conjunction with at least one other person, the number of shots exploding, and unless both he and such other person are certain that all the shots have been exploded shall not enter or allow any person to enter the places in which the shots have been fired until the expiration of thirty minutes from the time of lighting the fuses;
 - (b) not approach a charge fired by an electric current which has misfired until after an interval of ten minutes, provided that the conducting wires have first been disconnected;
 - (c) not enter, or permit or instruct any person to enter a place where charges have been fired until the fumes caused by the explosion have been dispelled;
 - (d) personally examine the working place for misfires and dangerous

Restrictions on persons entering magazine.

26. (1) A magazine shall be kept locked at all times save only when necessary to place explosives in or remove explosives from the magazine or to perform any other necessary operation.

(2) No person shall take a naked light into any magazine and no person shall smoke or carry or have about him any fire, matches, or any substance or article likely to cause fire or explosion while in or near any part of a magazine or authorised storage box.

(3) No person entering a magazine shall wear boots or shoes containing any exposed metal.

(4) Any person who contravenes or fails to comply with the provisions of this Regulation shall be guilty of an offence and in the event of such contravention or failure the licence holder and the magazine master shall also be guilty of an offence.

Stacking explosives.

27. (1) The explosives shall, as far as practicable, be kept in a magazine in the original packing as received from the supplier.

(2) The cases, cartons or containers shall not be stacked more than six feet high, and shall be stored in such manner as to admit of inspection and extraction of the explosives in rotation.

(3) Wooden gratings, or gratings of approved non-ferrous material, shall be placed between the floor and the bottom layer of explosives cases, to permit of adequate ventilation of the bottom cases.

(4) Any explosives, for the storage of which provision is not made in these Regulations, shall be stored only in such place and manner as may be prescribed in writing by the Chief Engineer.

Care in handling explosives.

28. Care shall be taken to prevent concussion in the storage of explosives in any magazine or storage box.

Loitering near magazine.

29. No authorised person shall loiter or be permitted to loiter in the vicinity of a magazine, and the holder of a storage permit or any employee of such permit holder may order any such person to leave the vicinity of the magazine, and any such person who fails to comply with any such order shall be guilty of an offence.

Illegal entry into magazine.

30. Whenever a magazine has been broken into or been interfered with in any way the matter shall be reported immediately to the nearest Police Station and to the Chief Engineer.

Closing down magazine.

31. Whenever the holder of a storage permit ceases to use explosives, the permit holder shall immediately notify the Chief Engineer of this fact and shall render a return of all explosives, if any, in the magazine. Such explosives shall be disposed of in a manner approved by the Chief Engineer.

Duties of storage permit holder.

32. The holder of a storage permit shall —

(a) ensure that at all times the magazine, including the mound drainage system and lightning protection system is kept in good condition;

- (b) provide the tools and equipment necessary to enable the magazine master to comply with these Regulations;
- (c) provide two sets of keys for all magazine doors one set for use by the magazine master and the other set to be kept in a secure place so as to be immediately available at any time for emergency use or for inspection of the magazine;
- (d) ensure that whenever it is necessary to carry out major repairs on any magazine, the explosives shall be removed to a safe distance therefrom until the repairs are completed;
- (e) cause all explosives which are liable to deterioration to be inspected not less than once in each month by a person having experience in the handling of explosives;
- (f) ensure that any explosives found to be damp, to exude liquid or which, for any reason whatsoever, are suspected of being defective are not removed from the magazine and shall report the circumstances forthwith to the Chief Engineer and shall dispose of the explosives as the Chief Engineer directs; and
- (g) whenever the appointed magazine master is necessarily away from his place of work for any reason whatsoever, ensure that another competent person is appointed in accordance with regulation 19 to act as magazine master.

PART V — Transportation of explosives by road vehicle

Maximum quantity of explosives to be carried.

33. (1) Up to 500 lbs. of explosives may be carried on a motor vehicle not specially constructed for the purpose, provided that the conditions in Regulation 34 are complied with.

(2) Up to 4000 lbs. of explosives may be carried in a vehicle specially constructed for the purpose, or in a portable magazine mounted in a road vehicle, provided that the conditions in Regulations 34 are complied with.

Transport of explosives.

34. The following conditions apply to the transportation of explosives by road vehicles:—

- (a) before any explosives are loaded onto a vehicle it must be approved by the Chief Engineer who will arrange to have it inspected for fitness.
- (b) the driver of the vehicle should be familiar with the Regulations.
- (c) the driver must be accompanied by one other man;
- (d) no stops may be made between the place of loading explosives and the final destination;
- (e) the speed of the vehicle may not exceed 25 miles per hour;
- (f) when two or more vehicles are used a distance of at least 50 yards must be maintained between them;
- (g) vehicles used in the transportation of explosives must display on all four sides notices with the wording in block capitals 6" high, EXPLOSIVES, painted white with red lettering;
- (h) explosives may only be transported by road between the hours of 7: a.m. and 6: p.m.;
- (i) the loading, unloading and transport of explosives must be supervised by a person experienced in the proper handling of explosives;
- (j) all iron and steel portions of a vehicle which are liable to come in

(2) Stemming shall not be allowed to come between blasting cartridges charged into a blast hole except when a detonating fuse is used to initiate the charge.

(3) No person shall remove the stemming from a hole that has been charged except as provided in Regulation 66 (b).

Preparation of charges.

57. A shot firer shall prepare only such charges at one time as he intends exploding at the blast and he shall not commence to prepare the charges until all persons not needed to assist him in this work have been removed to a safe place at least 50 feet away. The charges shall be exploded as soon as possible after being completed.

Use of blasting cartridges.

58. (1) All drill holes shall be sufficiently large to admit freely the insertion of the blasting cartridges.

(2) The wrapping shall not be removed from blasting cartridges, except when necessary for destruction purposes, and unwrapped cartridges shall not be inserted into drill holes.

(3) No person shall use for charging a hole any explosives that have been blown out or otherwise extracted from a hole. Any person finding any explosives blown out or otherwise extracted from a hole or loose explosives of any description lying about, shall collect or deliver the same to a shot firer for safe storage prior to destruction.

PART IX — Firing and misfires

Shot firer and foreman shot firers.

59. (1) At workings where more than one shot firer is employed, the manager shall appoint one of the shot firers to act as foreman over the other shot firers.

(2) The foreman shot firer shall, whenever practicable, personally supervise the lighting or firing of all explosives charges and be responsible for compliance with Regulations 63 (a), (d), and (e).

(3) Where, in connexion with any blasting operation, the provisions of this Part are not complied with or are contravened the shot firer, or foreman shot firer responsible for the particular blasting operation shall be guilty of an offence.

Precautions before firing.

60. (1) Before firing a charge the shot firer shall —

- (a) take every precaution to prevent possible injury to persons or damage to property;
- (b) station a competent person carrying a red flag at each avenue of approach at a point well beyond the probable range of flying material projected by the blast, to stop persons from approaching;
- (c) personally examine the danger zone to make certain that all persons have retired therefrom to a place beyond the probable range of flying debris from the blast, or to a safe shelter; and
- (d) give audible warning at least one minute and not more than three minutes before the blast is fired.

(2) The shot firer shall not fire a charge whilst any person is within the probable danger zone from the blast.

(3) Every person within the danger zone shall return to a place beyond the probable range of flying debris from the blast or to a safe shelter immediately upon hearing the warning referred to in sub-regulation (1) (d).

Secrecion of explosives.	49. (1) No person shall bury, submerge or otherwise hide or abandon any blasting material or store or leave blasting materials unattended in such a manner and for such a period that it will be possible for other persons to have access thereto. (2) No persons shall take away or attempt to take away from a working any explosives without the written permission of the manager.
Persons allowed to assist shot firers.	50. The holder of a blasting permit may be assisted in the preparation of primers and the conducting of blasting operations by reliable persons who are not holders of blasting permits but are acting under his direct supervision provided always that he shall take all reasonable measures to prevent any accident occurring to such persons.
Primers and charges.	51. (1) No person shall fasten detonators to fuses except by means of crimping pliers of a pattern approved by the Chief Engineer. (2) No person shall make up primers or charges in a magazine and all primers and charges shall be made up in a safe place. (3) Primers shall be made as required for immediate use and in their making the detonator shall not be pressed into the explosive without first having made a hole of sufficient diameter and depth in the cartridge with a sharpened wooden stick or pricker of non-ferrous material. The detonator shall be securely fastened to the cartridge in such a manner that it cannot pull out from the cartridge. No ferrous materials shall be used in such fastenings.
Drill holes.	52. (1) Immediately a hole has been drilled to the desired depth it shall be closed by means of a suitable plug and no such plug shall again be removed except temporarily for the purpose of inspection until the hole is required to be charged. (2) No person shall drill or cause or permit to be drilled a hole nearer than six inches to any socket or in such a direction as to approach nearer than six inches to any socket, nor shall any person deepen or cause or permit to be deepened any hole which has been left unplugged, and any person contravening the provisions of this Regulation shall be guilty of an offence. (3) No person shall deepen any hole which has contained explosives, or extract or attempt to extract explosives from a hole which has once been charged.
Thunderstorms.	53. On the approach of or during a thunderstorm, the shot firer shall suspend all blasting operations and no person shall remain or be caused or permitted to remain within an area where he may be injured by the accidental detonation of explosives.
Persons allowed to assist shot firer during charging.	54. During the operation of charging blast holes the shot firer shall have at least one and not more than two reliable persons to help him, acting under his direct supervision.
Tamping rods.	55. Tamping rods shall be of non-ferrous material and shall be cut off square at the ends. The rods shall be an easy fit in the holes to be charged and shall be kept clean and free from grit. No undue force shall be used during tamping operations and cartridges shall not be subjected to blows.
Stemming.	56. (1) All holes charged with explosives shall be stemmed. Only clay, fine sand, sifted earth or water shall be used as stemming.

	contact with the containers in which explosives are carried, shall be covered with wood, leather, cloth or other suitable material; (k) no detonators, detonating cord or Blasting Agents may be carried in the same vehicle as explosives; (l) when the quantity of explosives being transported on a vehicle exceeds 300 lbs. a Police Escort must be provided.
Transport of blasting agents.	35. Regulation 34 shall apply to the transport of blasting agents, but the maximum quantity which may be transported on any vehicle must not exceed 10,000 lbs. and no explosives, detonator or detonating cord may be carried in the same vehicle.
PART VI — Blasting agents	
Application and definition.	36. (1) Notwithstanding anything to the contrary in these Regulations this Part shall apply in relation to blasting agents; (2) For the purposes of Regulations 38, 39, 40 and 41 "Blasting agents" means a type of explosive of low sensitivity that, as mixed and packaged for use can be made to explode when installed with a high explosive primer. Materials classified as ammonium nitrate, Nitro-Carbo-Nitrates shall be included in this definition.
Permit required for certain purposes.	37. (1) No permit under these Regulations shall be necessary nor shall this Part apply in respect of ammonium nitrate where such is to be used exclusively (a) as a fertilizer; or (b) for analytical purposes in a bonafide laboratory; or (c) by pharmacists for dispensing under a doctor's prescription; or (d) by bonafide manufacturers for further processing, or where the blasting agent does not conform with the definition referred to in Regulation 36 (2).
Records to be kept.	38. (1) Every person who supplies blasting agents to another person for any purpose shall keep a record as follows:— (a) the name and address of the person supplied; (b) the quantity supplied; (c) the purpose for which the blasting agent is to be used; (d) the address where the blasting agent is to be used or stored; and (e) the number and date of any permit under these Regulations held by the person supplied. (2) It shall be the duty of all persons obtaining blasting agents to provide the supplier in writing with the information required to comply with sub-regulation (1).
Construction of stores for blasting agents.	39. (1) Blasting agents shall be kept in a store exclusively reserved for the purpose, which shall comply with the following:— (a) the store shall at all times be kept clean, dry and well ventilated; (b) no timber or similar material shall be used in its construction; (c) the floor shall be surfaced with smooth, impervious material and shall be at least six inches above the level of the ground outside the magazine; (d) the walls shall be constructed of brick, masonry or concrete finished

- with an impervious cement plaster or similar finish on the inside and shall be pierced at not less than two places at floor level to allow the escape of water used for dissolving loose blasting agents;

(e) the roof shall be constructed of impervious materials;

(f) where a ceiling is provided it shall be constructed of heat insulating and fire resisting material, with adequate roof ventilation above it; and

(g) doors and door frames shall be made of metal.
- (2) The distance between a store containing blasting agents and explosive magazines shall be determined in accordance with the distances set out in the Second Schedule.
- (3) Notwithstanding the provisions of sub-regulation (1) Blasting agents not exceeding ten pounds in weight which is contained in securely fastened water-tight bags made of a polyvinyl plastic or similar material may be stored in a magazine containing explosives other than detonators.
- Method of storage.

40. Except when exempted by the Chief Engineer in writing in a particular case blasting agents shall be stored as follows:—

(a) it shall be contained in water-tight bags made of polyvinyl plastic or similar material;

(b) no stack of bags shall contain more than 20,000 pounds of blasting agents or be higher than six feet;

(c) stacks shall rest on sheets of polyvinyl plastic or similar material;

(d) there shall be a space of not less than one foot between any bag and the wall of the store; and

(e) there shall be a space of not less than three feet between stacks.
- Storage precautions.

41. (1) Sacks containing blasting agents damaged in any way shall immediately be placed in a clean slip-over bag and for this purpose an adequate supply of such slip-over bags shall be kept on hand.

(2) No loose blasting agents shall be kept or left lying around in the store, spillages shall be swept up immediately and put to waste by dissolving in a large excess of water and washing away.

(3) No smoking, open lights or flames shall be allowed in any store containing blasting agents.

PART VII — Blasting permits

- Appointment of shot firers.

42. (1) All shot firers shall be appointed in writing by the Manager, who shall appoint only such persons as hold valid blasting permits issued under sub-regulation 44.

(2) All appointments made under sub-regulation (1) shall:—

(a) quote the name of the person appointed and the number of his blasting permit;

(b) be accepted in writing by the person appointed; and

(c) be notified to the Chief Engineer by a copy of the document of appointment, accepted in writing by the person appointed.
- Applications for blasting permit: Form E.
- (3) When a person ceases to be employed as a shot firer his employer shall notify the Chief Engineer of the fact in writing and shall state the date on which such employment ceased.
43. (1) An application for a blasting permit shall be made in Form E and sent, together with two recent passport size head and shoulders photographs of the applicant, to the Chief Engineer who may examine the applicant on all matters relevant to the application.
- (2) Any such applicant who is required to submit to an examination relevant to his application for a blasting permit shall:—
- (a) produce satisfactory evidence of previous experience in the use of blasting materials and knowledge of the applicable regulations and of blasting practice.
- Issue of blasting permit.
44. (1) If the Chief Engineer is satisfied that the applicant has the necessary knowledge and experience to use blasting materials he shall issue him with a blasting permit which shall be in Form F.
- (2) A blasting permit shall not be valid unless and until it is signed by the holder.
- Suspension of blasting permit.
45. If at any time the holder of a blasting permit shall in the opinion of the Chief Engineer be guilty of an act of negligence or a contravention of these Regulations or has a disability rendering him unfit to conduct blasting operations, the Chief Engineer may immediately cancel such permit.
- Custody of blasting permit.
46. Whilst engaged upon any work for which a blasting permit is required under the Regulations, the permit holder shall ensure that his permit is kept available for inspection at the site.
- Blasting permit not transferable.
47. It shall be an offence for any person to transfer or accept tranference of any blasting permit.
- PART VIII — Handling Explosives
- Safe transport and handling of explosives.
48. (1) No explosives shall be moved from any magazine except under the direct supervision of a blasting permit holder:
- Provided that explosives may be moved from a magazine for sale by the holder of a dealer's permit without the personal supervision of a blasting permit holder.
- (2) No person shall smoke or have a naked light within 50 feet of any place where explosives are being kept, conveyed, handled or used.
- (3) No person shall convey or cause or permit to be conveyed any explosives, other than safety fuses and fuse igniters, unless the explosives are contained in unopened cases or in receptacles of a design and construction approved for the purpose by the Chief Engineer.
- (4) When removing explosives from a magazine, detonators and fuse shall not be carried in the same container as other explosives.
- (5) Any explosive not used or destroyed shall be returned to the magazine on completion of the blasting except those explosives covered by Regulation 58 (3).