1967. No. 318 [NC]

METALLIFEROUS MINES

Explosives

REGULATIONS, DATED 1ST DECEMBER 1967, MADE BY THE MINISTRY OF COMMERCE UNDER SECTION 86 OF THE COAL MINES ACT 1911, AS APPLIED TO METALLIFEROUS MINES BY SECTION 19 OF THE MINING INDUSTRY ACT 1920.

The Ministry of Commerce in exercise of the powers conferred on it by section 86 of the Coal Mines Act 1911(**a**), as applied to metalliferous mines by section 19 of the Mining Industry Act 1920(**b**), and of all other powers enabling it in that behalf, hereby makes the following regulations:—

PART I

GENERAL

Citation

1. These regulations may be cited as the Metalliferous Mines (Explosives) Regulations (Northern Ireland) 1967.

Interpretation

2.—(1) In these regulations the following expressions have the meanings hereby respectively assigned to them, that is to say—

"detonating fuse" means fuse consisting of high explosive enclosed in a waterproof covering made of textile impregnated or coated with a plastic composition;

"detonator" includes a fuse capped with a detonator;

"explosive" does not include a detonator;

"explosives store" has the meaning assigned thereto in paragraph (1) of regulation 6;

"inspector" means an inspector appointed by the Ministry of Commerce under the Metalliferous Mines Regulation Act 1872(**c**);

"manager" means the agent of a mine as defined by the Metalliferous Mines Regulation Act 1872, or where there is no such agent, the owner;

"mine" means every mine to which the Metalliferous Mines Regulation Act 1872 applies;

"the Ministry" means the Ministry of Commerce;

"owner" has the same meaning as in the Coal Mines Act 1911;

"safety fuse" means fuse consisting of gunpowder or any other substance which burns at a regular rate, enclosed in a suitable covering and of such a quality that the rate of burning does not vary more than ten seconds above or below the rate of ninety seconds for each three feet of fuse;

"scheme of transit" has the meaning assigned thereto in paragraph (1) of regulation 12;

"shot firer" has the meaning assigned thereto in paragraph (1) of regulation 5.

(2) In these regulations any reference to the use of explosive includes charging of a shot hole therewith.

(a) 1 & 2 Geo. 5. c. 50.
(b) 10 & 11 Geo. 5. c. 50.
(c) 35 & 36 Vict. c. 77.

(3) The Interpretation Act (Northern Ireland) 1954(a) shall apply to these regulations and to documents issued thereunder as if the regulations were an enactment and such documents were statutory documents within the meaning of that Act.

Exemptions

3. An inspector may by notice served on the manager of a mine exempt the mine or any part thereof, or anything or class of things thereat, from the application of any provision of these regulations if he is satisfied that the safety of persons employed at the mine will not be prejudiced in consequence of the granting of the exemption.

Operation

4. These regulations shall have effect notwithstanding anything in the General Rules contained in section 23(2) of the Metalliferous Mines Regulation Act 1872.

PART II

APPOINTMENT AND QUALIFICATION OF SHOT FIRERS

5.—(1) No person shall fire a shot in any mine other than a competent person appointed to fire shots in that mine by the manager thereof (any person so appointed being, in these regulations, referred to as a "shot firer").

(2) No person shall be qualified to be appointed or to be a shot firer unless he has attained the age of twenty-one years.

PART III

STORAGE, ISSUE AND CONVEYANCE OF EXPLOSIVES AND DETONATORS

6.—(1) The manager of a mine shall not permit any explosive, detonator or fuse to be stored thereat except in a place on the surface appointed by him for the purpose (in these regulations referred to as an "explosives store").

(2) The manager of every mine in which explosives are used shall appoint at least one place, which shall be situate conveniently near the top of each shaft or outlet normally used by workmen, as a place for the deposit of explosives and detonators brought out of the mine, and may appoint a place (other than an explosives store) for the issue thereof.

(3) The manager of every mine in which explosives are used shall appoint such number of competent persons and make such arrangements as to secure that a competent person is in charge of each explosives store and place appointed for the purposes of the last preceding paragraph whenever explosives or detonators are taken into the store or place (as the case may be) or are to be issued thereat.

Control of issue of detonators

7.—(1) All detonators at an explosives store or at a place appointed in pursuance of paragraph (2) of regulation 6 shall be in the sole charge of the manager of the mine except—

(*a*) during a shift for which the manager has appointed a competent person to have charge of that store or place;

(*b*) during any other period, in any case in which there is no means of entry to that store or place otherwise than through a doorway or door-

(a) 1954. c. 33.

ways having a door or doors which can be securely locked and the manager has made such arrangements as to secure that that door is or those doors are kept securely locked throughout that period.

(2) No person shall be in possession of any detonator at any place at a mine other than an explosives store or a place appointed in pursuance of paragraph (2) of regulation 6 except a shot firer to whom the detonator has been issued for use or a person who has attained the age of eighteen years and is authorised in writing by the manager of the mine so to be and save as aforesaid no person shall issue or take any detonator from such a store or place.

(3) Every person for the time being in charge of an explosives store or a place appointed in pursuance of paragraph (2) of regulation 6 shall, forthwith after issuing to or receiving from any person any detonators, record in a book provided for the purpose by the owner of the mine the name of that person and the quantity of detonators so issued to or received from him (as the case may be).

Conveyance and care of detonators

8.—(1) Except in pursuance of regulation 33, no person shall take any detonator below ground in a mine except in a securely locked detonator case provided by the owner of the mine.

(2) No person shall put a delay detonator into a detonator case unless a number indicating the period of delay is clearly marked on the detonator or on a lead thereof.

(3) The manager of every mine in which detonators are used shall ensure that no detonator case is issued for use in the mine unless it is so constructed and maintained that when the case is closed it is impossible for any detonator or the leads of any detonator contained in the case to touch any metal part thereof which is exposed outside the case or is in contact with any other metal part so exposed.

9.—(1) Any shot firer to whom a detonator case has been issued shall—

(*a*) ensure that, apart from any checked sheet for recording shots fired by him, nothing except detonators is in it;

(*b*) ensure that at any time at which it is not on his person it is in a safe place and, unless he remains in the immediate vicinity, in a securely locked box;

(*c*) if at the end of his period of duty it contains any detonator, return it to the appropriate place on the surface appointed for the storage or deposit of explosives; and

(*d*) retain the key of the case in his own possession throughout the period during which he is on duty.

(2) No shot firer shall remove a detonator from a detonator case unless it is required immediately for charging a shot hole.

Conveyance and care of explosives

10. No person shall take any explosive below ground in any mine, unless it is in the form of a cartridge or such other form as may be permitted by the Ministry.

11.—(1) Except in pursuance of regulation 12 or 33 no person shall take any explosive below ground in any mine unless it is in a closed canister stoutly constructed and containing not more than 25 pounds of explosive.

(2) No person shall put anything other than explosives into a canister provided for the purpose of taking explosives below ground in a mine.

(3) Every person having any canister of explosives in his possession or control shall ensure that it is not deposited at any time elsewhere than in a place of safety, and in particular if at the end of his period of duty the canister contains any explosive shall return it to the appropriate place on the surface appointed for the storage or deposit of explosives, or if he received it from a reserve station established for the purpose of a scheme of transit, to that reserve station or to a person and at a place appointed by the manager for the purpose of that scheme.

(4) No person below ground shall unlock or open any canister of explosives or take any explosive from any canister unless the shot firer concerned requires to check the quantity of the explosives or the explosive is required immediately for charging a shot hole or the act in question has been authorised by an official of the mine.

Conveyance of explosives in bulk

12.—(1) Subject to the following provisions of this regulation the manager of any mine may as respects that mine or any part thereof make a scheme for the conveyance of explosives in bulk (herein referred to as a "scheme of transit") whereby explosives packed at an explosives store in securely locked canisters of any size may be conveyed in a special carriage to one or more reserve stations in that mine or part of the mine or to the working face.

(2) Every scheme of transit shall contain provisions for securing safety with respect to each of the following matters—

(*a*) the location, construction and marking of each reserve station and the custody of the keys thereof;

(*b*) the design and construction of the special carriage;

(*c*) supervision of and precautions to be taken during the transit of the carriage;

(*d*) supervision of any explosives at a reserve station;

(*e*) if explosives are to be taken in bulk to any working face, the manner of so doing;

(*f*) the maximum quantity of explosives to be at any reserve station at any time;

(*g*) the control of the issue of explosives from any reserve station;

(*h*) the return of explosives to a reserve station.

(3) Every scheme of transit shall contain provisions to ensure that—

(*a*) the quantity of explosives conveyed into the mine in pursuance thereof at any time together with any quantity so conveyed already in the mine does not exceed the quantity estimated to be required for use during the period of twenty-four hours, or the periods amounting to twenty-four hours, next following, being a period or periods throughout which the mine is being worked;

(*b*) except in pursuance of a provision of the scheme, no explosive shall while being conveyed in bulk be taken nearer to a working face (not being only a place in a road at which ripping or work of repair is in progress) than the reserve station nearest to that face.

(4) A scheme of transit may impose duties and prohibitions on persons employed at the mine and those persons shall comply therewith. It shall be the duty of the manager of the mine to secure that the provisions of any scheme of transit for that mine are executed and enforced.

(5) If an inspector is of opinion with respect to a scheme of transit that the provisions contained therein in pursuance of paragraph (2) are not adequate to secure safety, he may serve on the manager of the mine a notice stating that he is of that opinion, specifying the nature of the provision which in his opinion ought to be made and requiring the manager to amend the scheme accordingly, and any such notice shall, if it is so specified therein, become operative forthwith.

(6) If any manager on whom a notice has been served under paragraph (5) objects to the requirements of such notice he may within fourteen days of the service of such notice upon him serve upon the inspector by whom such notice was served a statement in writing of his objections thereto. The inspector shall consider such objections and may withdraw or modify such notice. If the inspector shall refuse to withdraw or modify such notice the manager may refer the matter to arbitration in the manner provided by regulation 39. On the hearing of such arbitration the arbitrator may quash, modify or confirm such notice and if any such notice is modified it shall take effect accordingly.

(7) The person in charge of the explosives store at any reserve station shall ensure that—

(*a*) any explosives remaining at the reserve station at the end of his period of duty are—

(i) delivered by him to a person appointed to have charge of them during the immediately following shift;

(ii) returned to the explosives store;

(iii) securely locked in the reserve station; and

(*b*) if any such explosives are locked in the reserve station as aforesaid, the key thereof is either deposited in the explosives store or is delivered by him to the person appointed to have charge of the reserve station during the immediately following shift.

(8) The manager of every mine at which a scheme of transit is in operation shall ensure that a copy thereof is posted at the mine where it may be easily read and that a copy thereof is supplied to each shot firer employed at the mine.

Part IV

Equipment, Apparatus and Material for Firing Shots

Equipment of a shot firer

13.—(1) No shot firer shall fire a shot in any mine—

(*a*) by means of electric shot firing apparatus, cable or fuse (as the case may be) not provided for the purpose by the owner of the mine; or

(*b*) by means of electric shot firing apparatus operated otherwise than by means of a removable handle or key.

(2) No person shall take into or use at a mine any fuse other than safety fuse, detonating fuse or fuse of a type approved by the Ministry.

14. A shot firer who is in charge of any electric shot firing apparatus—

(*a*) shall retain the removable handle or key in his own possession throughout the period while he is on duty;

(*b*) shall not place the removable handle or key in position in the apparatus until he is about to fire a shot; and

(*c*) shall remove it from the apparatus immediately after firing each shot.

15. If any electric shot firing apparatus appears to be defective or fails to fire any shot or any or all of the shots in any properly connected round at one operation the shot firer in charge of it shall not use it further but shall cause it to be returned forthwith to the surface or to a place appointed for the purpose by the manager and shall report the circumstance to the manager or to a person appointed by him for the purpose.

Misuse of equipment

16. No person shall use shot firing cable for any purpose other than shot firing.

PART V

SHOT FIRING

Drilling, cleaning and charging shot holes

17. No person shall introduce a drill or other tool made wholly or partly of metal into a hole in which a shot has been fired.

18.—(1) No person shall charge a shot hole with any cartridge the diameter of which is not at least one-eighth of an inch less than the diameter of that shot hole.

(2) No person shall—

(*a*) for the purpose of charging or stemming any shot hole; or

(*b*) for the purpose of testing any shot hole in which there is explosive; use any tool in the shot hole other than a tool made wholly of wood or any other tool of a type approved for the purpose by the Ministry:

Provided that if the depth of the shot hole exceeds six feet the tool may be made of wood with joints made of any suitable non-ferrous material, being a tool so constructed that any such non-ferrous material does not project beyond the general level of the wood and cannot come into contact with any explosive in the shot hole.

19. No person shall begin to charge any shot hole unless it has been thoroughly cleaned out.

20.—(1) No person shall charge a shot hole unless he is—

(*a*) a shot firer; or

(*b*) a person doing so under the supervision of a shot firer.

(2) No person shall charge a shot hole, and no shot firer shall permit a shot hole to be charged, before it is necessary to do so for the purpose of firing a shot.

(3) No person shall begin to charge any shot hole unless he, or, in the case of a person under the supervision of a shot firer, the supervising shot firer, has satisfied himself by taking all reasonable precautions that it is so placed and drilled as to be safe for the firing of a shot.

(4) No person shall charge a shot hole to be fired as one of a round until all shot holes for that round have been completely drilled.

21.—(1) No shot firer shall permit more than one canister of explosives to be open at any one time for the charging of shot holes by him or under his supervision.

(2) During the charging of any shot hole and until the shot has been fired the shot firer concerned shall ensure that no naked light or person smoking is directly above, or within four feet in any other direction of, the shot hole or any explosive or detonator.

(3) No explosive shall be violently or forcibly pressed into a shot hole.

(4) Any person charging or supervising the charging of a shot hole shall to the best of his judgment ensure that it is not overcharged having regard to the task to be performed.

22. Any person charging a shot hole shall ensure that it is adequately stemmed.

23.—(1) No person shall remove any stemming from any charged shot hole otherwise than by means of water.

(2) No person shall pull out any detonator lead or fuse from any charged shot hole.

(3) No person shall remove any explosive from any charged shot hole except a cartridge of explosive which is protruding out of the mouth of the hole.

Firing shots

24.—(1) No shot firer shall fire any shot unless he has ensured that all surplus explosives and detonators have been removed from the vicinity of the shot hole.

(2) Each shot firer, unless prevented by circumstances beyond his control, shall fire every shot which has been charged by him or under his supervision and shall do so during the period of his duty during which that shot was charged:

Provided that in any case in which there is for the time being in force in the mine a scheme made by the manager and approved by an inspector specifying a procedure whereby any shot may be fired by a shot firer who did not charge that shot or supervise the charging thereof, shots may be fired in accordance with the provisions of that scheme.

(3) The manager of every mine at which there is for the time being in force a scheme described in the proviso to the last preceding paragraph shall—

(*a*) ensure that a copy thereof is posted at the mine where it may be easily read and that a copy thereof is supplied to each shot firer employed at the mine; and

(*b*) make and secure the efficient carrying out of arrangements to ensure that a daily record is kept, in a book provided by the owner of the mine, either—

(i) by the person in charge of any part of the mine, in respect of the number of shots fired, and the quantity of explosives and number of detonators (if any) used, in that part of the mine on each shift of his; or

(ii) by each shot firer in respect of the number of shots fired, and the quantity of explosives and number of detonators (if any) used, by him on each shift of his.

Firing shots electrically

25.—(1) Where a round of shots is to be fired by means of electric shot firing apparatus, the shot firer shall ensure that the detonators are connected in series.

(2) No shot firer shall use any cable for firing any shot unless it is of sufficient length to enable him to take proper shelter before firing the shot, being a length which in no case shall be less than ninety feet.

(3) A shot firer who is about to use shot firing cable shall ensure that it is not in, and cannot make, contact with any other cable or electrical apparatus.

(4) No person other than a shot firer shall, for the purpose of the firing of any shot by means of electric shot firing apparatus, connect any electrical apparatus or cable to any other electrical apparatus or cable between the explosive charge and the electric shot firing apparatus, and no shot firer shall for that purpose connect any shot firing cable to any electric shot firing apparatus unless he has made every other connection required to be made for the said purpose.

Firing of shots by safety fuse

26. No shot firer shall fire a single shot by safety fuse less than three feet in length or any shot in a round by safety fuse less than four feet in length.

Warning and shelter

27. In every case where a shot may blow through into another place the shot firer about to fire that shot shall cause adequate warning to be given to all persons in that place, and he shall after firing the shot cause notice to be given to them that the period of danger is ended.

28.—(1) Any shot firer proposing to fire a shot shall before firing determine the danger zone likely to be created.

(2) No shot firer shall fire any shot unless he has—

(*a*) at each entrance to that danger zone either posted a sentry or placed an appropriate fence conspicuously marked with the words "danger" and "shot firing";

(*b*) ensured that all persons have withdrawn from that zone or have taken proper shelter; and

(*c*) himself taken proper shelter.

29.—(1) No person who has been posted as a sentry by a shot firer shall leave the place where he was posted until directed so to do by the shot firer who posted him in person.

(2) No person shall pass a danger sign exhibited for the purpose of shot firing without the authority of the shot firer concerned, or shall pass a sentry who has forbidden him to do so.

Precautions after shot firing

30.—(1) After the firing of any shot the shot firer who fired it or another competent person appointed for the purpose by the manager shall—

(*a*) ascertain by personal examination whether it is safe for ordinary working to be resumed in each working place affected by that shot; and

(*b*) ensure that any necessary action is taken to make each such place safe for such working.

(2) Where a round of shots has been fired—

(*a*) the examination referred to in paragraph (1) shall not be made before the expiry of five minutes;

(*b*) the person making the examination shall in the course thereof examine for miss-fires, for sockets in the face, for any explosive remaining in any such socket, and, if he has reason to think that any shot may not have completely exploded, for any unexploded charge in the material brought down; and

(*c*) if in the course of making the examination the person making it finds any explosive remaining in any socket in the face he shall (if he is a shot firer) forthwith either explode that explosive by means of a fresh primer cartridge or carefully remove it with a suitable tool made wholly of wood, or (if he is not a shot firer) forthwith report the circumstances to the shot firer concerned who shall thereupon take steps in accordance with the provisions of this paragraph as if he himself had found the said explosive.

PART VI

SHOT FIRING—ADDITIONAL PROVISIONS FOR SHAFTS, WINZES AND RAISES

31. No person shall drill a shot hole or any part thereof in any place in a shaft or winze in the course of being sunk or deepened unless any loose material in the vicinity of that place has been so cleared away that the position of any sockets or shot holes already in that place can easily be seen.

32. No person shall take any explosive into a shaft, winze or raise for use therein unless it is immediately required for charging a shot hole.

33. No person other than a shot firer shall take a primer cartridge fitted with a detonator into a shaft in the course of being sunk or deepened and no shot firer shall take such a cartridge into such a shaft—

(*a*) unless it was so fitted at a workshop used in conjunction with an explosives store in pursuance of section 47 of the Explosives Act 1875(**a**);

(*b*) otherwise than in a thick felt bag or other receptacle suitable for protecting it from shock.

34. No shot firer shall fire a shot in a shaft, staple-pit, winze or raise except by means of electric shot firing apparatus.

PART VII

MISS-FIRES

Meaning of miss-fire

35.—(1) A shot shall be treated as a miss-fire if it fails to explode, in the case of a shot being fired (whether or not in conjunction with detonating fuse)—

(*a*) by safety fuse, and either as a single shot or in a round, after the shot firer has withdrawn after once lighting or attempting to light the safety fuse or any other material used for firing shots in conjunction therewith; or

(*b*) electrically, and either as a single shot or in a round, after the shot firer, having attempted unsuccessfully to fire the shot, has followed the procedure described in paragraph (2).

(a) 38 & 39 Vict. c. 17.

(2) The said procedure is that the shot firer shall—

(*a*) disconnect from the shot firing apparatus the removable handle or key and the shot firing cable;

(*b*) after waiting five minutes, examine the cable and connections for any defect, and remedy any defect so found;

(*c*) make a further attempt to fire the shot.

General Precautions

36.—(1) In the event of a miss-fire, no person shall approach the shot hole until, if the shot is being fired—

(*a*) by safety fuse, there have elapsed, from the lighting of, or the attempt to light, the fuse or any material used for firing shots in conjunction therewith, not less than thirty minutes; or

(*b*) electrically, the shot firer has disconnected the removable handle or key and the shot firing cable from the shot firing apparatus, and there have elapsed, from the last attempt to fire the shot, not less than five minutes.

(2) No person shall attempt to remove any part of the charge from the shot hole of any shot which is to be treated as a miss-fire except a cartridge of explosive which is protruding out of the mouth of the hole.

(3) In the case of any shot which is to be treated as a miss-fire, the shot firer concerned shall—

(*a*) if he leaves the working place for the completion of the appropriate procedure specified in any scheme in force in pursuance of regulation 37—

(i) cause notice of the miss-fire to be given to the person in charge of the part of the mine in which is that working place; and

(ii) ensure that sufficient fences and danger notices are erected to warn any person approaching the place; and

(*b*) before leaving the mine, report the circumstances of the miss-fire to the person in charge of the said part of the mine.

(4) The shot firer concerned shall record the fact of any miss-fire in a book provided for the purpose by the owner of the mine.

Schemes for remedial action

37.—(1) The manager of every mine in which explosives are used shall ensure that there shall be at all times in force a scheme specifying the procedure to be followed in the event of a miss-fire, and any such scheme shall contain provisions for securing the safety of all persons in the vicinity.

(2) The manager of every mine at which such a scheme is in force shall ensure that a copy thereof is posted at the mine where it may be easily read and that a copy thereof is supplied to each shot firer employed at the mine.

(3) If an inspector is of opinion with respect to any such scheme that the provisions contained therein are not adequate to ensure the taking of proper remedial action in the event of a miss-fire or to ensure the taking of proper safety precautions, he may serve on the manager of the mine a notice stating that he is of that opinion, specifying the nature of the provision which in his opinion ought to be made and requiring the manager to amend the scheme accordingly and any such notice shall, if it is so specified therein, become operative forthwith.

(4) If any manager on whom a notice has been served under paragraph (3) objects to the requirements of such notice he may within fourteen days of the service of such notice upon him serve upon the inspector by whom such notice

was served a statement in writing of his objections thereto. The inspector shall consider such objections and may withdraw or modify such notice. If the inspector shall refuse to withdraw or modify such notice the manager may refer the matter to arbitration in the manner provided by regulation 39. On the hearing of such arbitration the arbitrator may quash, modify or confirm such notice and if any such notice is modified it shall take effect accordingly.

PART VIII

RESTRICTION ON USE OF BLASTING MATERIALS AND DEVICES IN MINES IN WHICH LOCKED SAFETY LAMPS ARE USED

38. No person shall use in any mine in any part of which the use of lamps or lights other than locked safety lamps or such other form of lighting as may be permitted is unlawful any blasting material or device except in accordance with special regulations applicable to that mine.

PART IX

ARBITRATION

39. Any matter which is referred to arbitration under regulations 12(6) and 37(4) shall be referred in accordance with the provisions of the Arbitration Act (Northern Ireland) 1937(a) as though these regulations were an arbitration agreement within the meaning of that Act and the parties to the reference shall be the manager of the mine and the inspector referred to in such regulations who shall represent the Ministry. The arbitrator shall be appointed by agreement between the manager and the inspector.

Sealed with the Official Seal of the Ministry of Commerce for Northern Ireland this first day of December 1967 in the presence of

(L.S.) *K. R. Shimeld,*
Assistant Secretary.

EXPLANATORY NOTE

(This note is not part of the regulations but is intended to indicate their general purport.)

These regulations deal with the appointment, qualification and duties of shot firers and storage, conveyance and use of explosives and related equipment in metalliferous mines.

(a) 1 Ed. 8 & 1 Geo. 6. c. 8 (N.I.).