(b) STRATIFIED IRONSTONE, SHALE AND FIRECLAY MINES

1956 No. 1943

The Stratified Ironstone, Shale and Fireclay Mines (Explosives) Regulations, 1956

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The Minister of Fuel and Power in pursuance of the powers conferred upon him by sections one hundred and forty-one and sixty-nine of the Mines and Quarries Act, 1954(a), and of all other powers him enabling hereby orders that the following regulations shall have effect:—

PART I

Application

1. Except where the application thereof is further expressly limited, these regulations shall apply to every mine of stratified ironstone, shale or fireclay, and in these regulations "mine" means (except in regulation three and where further expressly limited) such a mine.

(a) 2 & 3 Eliz. 2. c. 70.

PART II

Appointment and qualification of shot firers and persons appointed to fire shots by fuse

2.—(1) No person shall fire a shot in any mine other than a person appointed to be a shot firer by the manager of that mine (any person so appointed being hereinafter referred to as a " shot firer "):

Provided that any person appointed by the manager to fire shots in the mine by means of safety fuse other than safety fuse capped with a detonator (hereinafter referred to as a " person appointed to fire shots by fuse ") may do so by that means.

(2) No shot firer shall fire a shot in any mine by means of a delay detonator or in a round of more than six shots unless he is appointed so to do by the manager, and no shot firer shall be so appointed unless he has during not less than five shifts been employed in connection with the firing of such shots under the close personal supervision of a shot firer authorised to fire such shots who was not then supervising any other person for the purposes of this paragraph. The manager shall include a record of any such appointment in the record of the appointment of that shot firer kept in pursuance of section one hundred and thirty-four of the Act.

Qualification of shot firers

3. No person shall be qualified to be appointed or to be a shot firer unless—

(*a*) he has attained the age of twenty-one years ; and

(*b*) he has had not less than three years practical experience below ground in one or more mines in which coal, stratified ironstone, shale or fireclay was in the course of being worked, including employment for not less than eighteen months in one or more of the following, namely—

(i) getting or cutting any of those minerals ;

(ii) ripping in a roadhead ;

(iii) setting or withdrawing supports at or building packs at a face from which any of those minerals was in the course of being worked ;

(iv) drilling shot holes at a face from which any of those minerals was in the course of being worked ;

(v) for not more than six months, repairing or enlarging roads or driving cross measure drifts ;

(vi) in the case of a master sinker or a deputy whose district consists of a shaft in the course of being sunk, sinking operations.

PART III

Storage, issue and conveyance of explosives and detonators

4.—(1) The manager of a mine shall not permit any explosive, detonator or safety fuse to be stored thereat except in a place on the surface appointed by him for the purpose (hereinafter 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 to be issued or returned thereat.

5. No person shall cap safety fuse with a detonator at any place at a mine except at a workshop used in connection with an explosives store in pursuance of section forty-seven of the Explosives Act, 1875(**a**).

Control of issue of detonators

6.—(1) All detonators at an explosives store or at a place appointed in pursuance of paragraph (2) of regulation four 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 doorways 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 for the storage, issue or deposit of explosives except a shot firer to whom the detonator has been issued for use or a person 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.

Conveyance and care of detonators

7.—(1) 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:

Provided that nothing in this paragraph shall prevent a primer cartridge fitted with a detonator being taken into a shaft in the course of being sunk for use therein.

(2) No person shall put a detonator into a detonator case if it would then contain a delay detonator as well as a detonator which is not a delay detonator.

(3) No person shall put a delay detonator into a detonator case unless the detonator is clearly marked with a number which indicates the period of delay.

(4) 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.

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

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

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

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

(*c*) 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; and

(*d*) 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.

(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

9. No person shall take any explosive below ground in any mine unless it is in the form of a cartridge.

10.—(1) Except in pursuance of the next following regulation, 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 five pounds of explosive:

Provided that nothing in this paragraph shall prevent a primer cartridge fitted with a detonator being taken into a shaft in the course of being sunk for use therein.

(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 purposes of a scheme of transit, to that reserve station or to a person and at a place appointed by the manager for the purposes 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 or person appointed to fire shots by fuse (as the case may be) 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 a deputy or other official of the mine.

Conveyance of explosives in bulk

11.—(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 or other place appointed by the manager.

(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 next following;

(*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) of this regulation 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) The provisions of Part XV of the Act with respect to references upon notices served by inspectors shall apply to a notice served under the last preceding paragraph, and the relevant ground of objection shall be that the provisions contained in the scheme of transit in pursuance of paragraph (2) of this regulation are adequate to secure safety.

(7) The person in charge of the explosives at any reserve station shall ensure that any explosives remaining thereat at the end of his period of duty are either delivered by him to a person appointed to have charge of them during the immediately following shift or are returned to the explosives store.

(8) The manager of every mine at which a scheme of transit is in operation shall ensure that a copy thereof is provided in the covered accommodation provided in pursuance of section one hundred and thirty-five of the Act and that a copy thereof is supplied to each deputy, shot firer and person appointed to fire shots by fuse employed at the mine.

PART IV

Equipment, apparatus and material for firing shots

Equipment of a shot firer

12. Each shot firer who is to fire shots by means of electric shot firing apparatus shall be provided by the owner of the mine with the necessary cable of a specification approved by the Minister—

(*a*) if shots are to be fired in a round, for multi-shot firing; or

(*b*) in any other case, for single-shot firing:

Provided that nothing in this regulation shall restrict the use of any shot firing cable which was in use for firing shots, or was required to be delivered under a contract made, before the commencement of these regulations.

Apparatus and material for firing shots

13. No person shall fire a shot in any mine by means of electric shot firing apparatus or cable not provided by the owner of the mine.

14. No shot firer shall fire a shot by means of electric shot firing apparatus other than apparatus of a specification approved by the Minister—

(*a*) (in the case of electric shot firing apparatus not in use within the period of six months immediately following the date of commencement of these regulations) after the expiration of that period ; or

(*b*) (in any other case) after the expiration of two years from the date of commencement of these regulations.

15. 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.

16.—(1) If any electric shot firing apparatus appears to be defective, the shot firer in charge of it shall not use it further but shall cause it to be returned to the surface forthwith and shall report the circumstances to the deputy in charge of the district and in writing to the manager.

(2) If any electric shot firing apparatus approved for multi-shot firing fails to fire all the shots in any properly connected round at one operation, it shall be deemed to be defective for the purposes of the last preceding paragraph but it may be used to fire the shots in that round in accordance with the provisions of regulation forty.

17. It shall be the duty of the manager of every mine in which electric shot firing apparatus is used to make and secure the efficient carrying out of arrangements to ensure that—

(*a*) all such apparatus is thoroughly cleaned and overhauled at intervals not exceeding three months by the manufacturer thereof or by a competent person appointed for that purpose by the manager ;

(*b*) all multi-shot shot firing apparatus designed for firing a round of not more than six shots is tested at the surface at intervals not exceeding seven days in a manner approved by the Minister in respect of apparatus of that type ;

(*c*) if in connection with the firing of a round of shots by means of any apparatus described in the last preceding paragraph any of the shots fails to explode after firing, that apparatus is tested at the surface in such a manner before it is again taken below ground ;

(*d*) no apparatus described in paragraph (*b*) is taken or used below ground unless on the last previous test thereof it was found to be in satisfactory order ; and

(*e*) the date of each cleaning and overhaul and the result of each test carried out in pursuance of this regulation is entered in a book provided for the purpose by the owner of the mine.

Misuse of equipment

18.—(1) No person shall open or tamper with any electric shot firing apparatus below ground.

(2) No person shall use shot firing cable for any purpose other than shot firing.

PART V

Shot firing—all mines

Drilling and cleaning shot holes

19.—(1) No person shall drill a shot hole or any part thereof with a drill of which the diameter does not exceed by at least one eighth of an inch the diameter of any cartridge to be inserted in that shot hole.

(2) No person shall for the purpose of testing, charging or stemming any shot hole use any tool other than a tool, made wholly of wood, suitable for the purpose.

20.—(1) No person shall begin to charge any shot hole unless it is thoroughly cleaned out.

(2) No person shall use compressed air to clean out any shot hole unless he ensures that the giving off of any dust is minimised.

Charging shot holes

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

(*a*) a shot firer;

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

(*c*) a person appointed to fire shots by fuse.

(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 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) Except in the case of shots to be fired in one round or of a relieving shot fired in pursuance of the provisions of any scheme for the time being in force at the mine in pursuance of regulation forty-two for the purposes of a miss-fire, no person shall charge a shot hole (in the case of longwall working) within ninety feet of a charged shot hole or (in any other case) in the same face as a charged shot hole.

(5) No person shall charge a shot hole to be fired as one of a round in a cross measure drift, heading or ripping or in a shaft or staple-pit until all shot holes for that round have been completely drilled.

22.—(1) No shot firer or person appointed to fire shots by fuse (as the case may be) shall permit more than one canister of explosives to be open at any one time for the charging of shot holes by him or (in the case of a shot firer) under his supervision.

(2) No person shall charge a shot hole—

(*a*) otherwise than with a complete cartridge or complete cartridges; or

(*b*) with cartridges of different diameters or of explosives of different descriptions.

(3) No person shall press any cartridge into a shot hole if it cannot be inserted without the use of force.

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

23.—(1) Except as may be provided in any scheme for the time being in force at the mine in pursuance of regulation forty-two, no person shall insert a detonator into a shot hole if that hole already contains a detonator.

(2) No shot firer shall fire a shot by means of a detonator and fuse other than safety fuse capped with a detonator at a workshop in accordance with regulation five.

(3) No shot firer shall use any detonator in firing a round of shots electrically in any mine unless it is a low tension detonator or a delay detonator.

(4) No shot firer shall use a delay detonator unless it is clearly marked with a number which indicates the period of delay.

(5) Where a delay detonator is to be used and the charge is to consist of more than one cartridge, the person charging the shot hole shall insert the primer cartridge first with the detonator at the back of the hole.

24.—(1) Any person charging a shot hole shall ensure that it is stemmed with sufficient suitable and non-inflammable stemming to prevent a blown out shot.

(2) Except where a device for pneumatic stemming approved by the Minister is being used, no person shall insert any tool not made entirely of wood into a shot hole containing explosive.

25.—(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 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

26.—(1) No shot firer or person appointed to fire shots by fuse (as the case may be) shall fire any shot unless (except in the case of a shot being fired by him in accordance with the provisions of a scheme described in the proviso to the next following paragraph and for the time being in force) he has satisfied himself by taking all reasonable precautions that it is in a shot hole so placed and drilled as to be safe for the firing of a shot and is charged and stemmed in accordance with the provisions of these regulations.

(2) Subject to the provisions of the last preceding paragraph, each shot firer or person appointed to fire shots by fuse (as the case may be) shall unless prevented by circumstances beyond his control fire every shot which has been charged by him or (in the case of a shot firer) under his supervision:

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 or person appointed to fire shots by fuse (as the case may be) who did not charge that shot or (in the case of a shot firer) 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 ensure that a copy thereof is provided in the covered accommodation provided in pursuance of section one hundred and thirty-five of the Act and that a copy thereof is supplied to each shot firer and person appointed to fire shots by fuse employed at the mine.

27. The manager shall 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—

(*a*) by the deputy in charge of every district, in respect of the number of shots fired, and the quantity of explosives and number of detonators (if any) used, in that district on each shift of his ; or

(*b*) by each shot firer and each person appointed to fire shots by fuse, in respect of the number of shots fired, and the quantity of explosives and numbers of detonators (if any) used, by him on each shift of his.

Firing shots electrically

28.—(1) Where a round of shots is to be fired by means of electric shot firing apparatus, the shot firer shall ensure that—

(*a*) the detonators are connected in series ;

(*b*) no additional wire is used for connecting any detonator leads to each other.

(2) No shot firer shall use any cable for firing shots if its length is less than—

(*a*) sixty feet when a single shot is being fired otherwise than in a shaft in the course of being sunk ;

(*b*) two hundred and ten feet when a round of shots is being fired otherwise than in a shaft in the course of being sunk ;

(*c*) six hundred feet when a single shot or a round of shots is being fired in a shaft in the course of being sunk.

(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 electric apparatus.

(4) No person other than a shot firer shall couple any shot firing cable to any detonator or to shot firing apparatus.

(5) No shot firer shall couple a shot firing cable to shot firing apparatus for the purpose of firing a shot unless the cable has already been coupled by him to the detonator or detonator circuit.

(6) No shot firer shall fire any round of shots by means of electric shot firing apparatus unless he has tested the circuit for continuity by means of a testing device approved by the Minister and has found it to be satisfactory. A shot firer shall not make any such test unless all persons in the vicinity have withdrawn to a place of safety, and he himself has taken proper shelter :

Provided that a shot firer shall not be required to make any such test before firing a round of less than five shots if there is for the time being in force in relation to the mine or the part thereof in which the round is to be fired an exemption from that requirement granted by an inspector by notice served on the manager.

Firing of shots by fuse

29.—(1) No shot firer or person appointed to fire shots by fuse shall fire a single shot by fuse other than safety fuse not less than three feet in length or any shot in a round by fuse other than safety fuse not less than four feet in length.

(2) Not more than one shot firer or person appointed to fire shots by fuse shall charge shot holes or fire shots by means of fuse at any one time in any working place or at any working face which does not exceed one hundred and fifty feet in length, and not more than one shot firer shall permit shot holes to be charged at any one time in any working place or at such working face.

(3) At any working face exceeding one hundred and fifty feet in length no shot firer or person appointed to fire shots by fuse shall fire any shot by means of fuse within one hundred and fifty feet of another charged shot hole unless he has satisfied himself that no other shot firer or person appointed to fire shots by fuse is about to fire that other shot.

(4) Except where a round of shots is fired—

(*a*) by means of fuse lit by a length of plastic igniter cord of a type and description approved by the Minister ; or

(*b*) by other means approved by the Minister of firing a round of shots by means of fuse ;

no shot firer or person appointed to fire shots by fuse shall attempt to fire more than four shots at one time by means of fuse.

(5) Where any shot is to be fired by means of fuse the shot firer or person appointed to fire shots by fuse shall ensure that—

(*a*) no naked light or person smoking is directly above, or within four feet in any other direction of, any shot hole, explosive or detonator ;

(*b*) all surplus explosives are removed from the vicinity of the shot hole before a light is brought near to it for the purpose of lighting the fuse.

Warning and shelter

30. In every case where a shot may blow through into another place the person 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.

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

(2) No person 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.

32.—(1) No person who has been posted as a sentry by a shot firer or person appointed to fire shots by fuse (as the case may be) shall leave the place where he was posted until directed so to do by the person 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 or person appointed to fire shots by fuse (as the case may be) concerned, or shall pass a sentry who has forbidden him to do so.

Precautions after shot firing

33.—(1) After the firing of any shot the person who fired it or (if any arrangements described in paragraph (3) of this regulation are for the time being in force in the mine) a deputy acting in accordance with those arrangements shall—

(*a*) ascertain by a 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*) that examination shall not be made, if the round was a round of six shots or less, before the expiry of five minutes or, in any other case, before the expiry of ten minutes, from the firing of the round;

(*b*) the person making the examination shall in the course thereof examine 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.

(3) Arrangements in writing made by the manager and approved by an inspector may provide that, after the firing of every shot, the person who fired it shall not comply with paragraph (1) of this regulation but shall, at each entrance to the danger zone determined in pursuance of paragraph (1) of regulation thirty-one, leave placed an appropriate fence conspicuously marked as specified in paragraph (2) of that regulation, that the requirements of the said paragraph (1) of this regulation shall be fulfilled, in the course of the making in pursuance of regulation twelve of the Coal and Other Mines (Managers and Officials) Regulations, 1956(**a**) of the next pre-shift inspection of the deputy's district in which the shot was fired, by the deputy for the time being in charge of that district, and for matters ancillary and supplemental thereto.

(4) No person other than a deputy acting in accordance with arrangements made in pursuance of the last preceding paragraph or a person acting with the authority of such a deputy shall remove any fence left so placed.

(5) The manager of every mine at which there are for the time being in force arrangements described in paragraph (3) of this regulation shall ensure that a copy thereof is provided in the covered accommodation provided in pursuance of section one hundred and thirty-five of the Act and that a copy thereof is supplied to each deputy, shot firer and person appointed to fire shots by fuse employed at the mine.

PART VI

Shot firing—additional provisions for shafts and staple-pits

34. No person other than a shot firer shall fire a shot in a shaft or staple-pit.

35. No person shall take any explosive into a shaft or staple-pit for use therein unless it is immediately required for charging a shot hole.

Primer cartridges

36. No person other than a shot firer shall take a primer cartridge fitted with a detonator into a shaft and no shot firer shall take such a cartridge

(**a**) S.I. 1956/1758 (p. 1212 above).

into a shaft otherwise than in a thick felt bag or other receptacle suitable for protecting it from shock.

Detonators

37. No shot firer shall fire a shot in a shaft or staple-pit except by means of an electric detonator.

Precautions before firing

38.—(1) No shot firer shall couple a shot firing cable to a detonator in a shaft or staple-pit provided with winding apparatus unless—

(*a*) the kibble is conveniently placed for men in the shaft or staple-pit to enter it; and

(*b*) he has satisfied himself that the person operating the winding apparatus is ready to raise.

(2) No shot firer shall couple a shot firing cable to shot firing apparatus for the purpose of firing any shot in a shaft or staple-pit unless all persons who may be affected are in a place of safety.

Precautions after firing

39. No person shall enter a shaft or staple-pit after a shot has been fired therein until it has been inspected by the deputy in pursuance of regulation fifteen or paragraph (4) of regulation thirty-two of the Coal and Other Mines (Managers and Officials) Regulations, 1956.

PART VII

Miss-fires

Meaning of miss-fire

40.—(1) A shot shall be treated as a miss-fire if it fails to explode, in the case of a shot being fired—

(*a*) by fuse, after the shot firer or person appointed to fire shots by fuse (as the case may be) has withdrawn after once lighting or attempting to light the fuse; 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) of this regulation.

(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 (for which purpose, in the case of a shot being fired as a single shot in any part of a mine to which Part VIII of these regulations applies, he may, notwithstanding the provisions of regulation forty-seven, use shot firing apparatus of a specification approved by the Minister for multi-shot firing with all explosives).

General precautions

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

(*a*) by fuse, there have elapsed, from the lighting of the fuse or the attempt to light it, 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 (in the case of a miss-fire in a round of more than six shots) ten minutes or (in any other case) 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 or person appointed to fire shots by fuse (as the case may be) concerned shall—

(*a*) if he leaves the working place before the completion of the appropriate procedure specified in any scheme in force in pursuance of regulation forty-two—

(i) cause notice of the miss-fire to be given to the deputy in charge of the district; 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 deputy in charge of the district.

(4) The fact of any miss-fire shall be recorded, in the daily record kept in pursuance of regulation twenty-seven,—

(*a*) in any case in which the deputy for the district in which the miss-fire has occurred is responsible for the keeping of the said record, by that deputy; or

(*b*) in any other case, by the shot firer or person appointed to fire shots by fuse (as the case may be) concerned.

Schemes for remedial action

42.—(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 (if shots are fired electrically in the mine) in the event of an unsatisfactory result of a test made in pursuance of paragraph (6) of regulation twenty-eight, 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 provided in the covered accommodation provided in pursuance of section one hundred and thirty-five of the Act and that a copy thereof is supplied to each shot firer and person appointed to fire shots by fuse 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 an unsatisfactory result of a test made in pursuance of paragraph (6) of regulation twenty-eight, 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) The provisions of Part XV of the Act with respect to references upon notices served by inspectors shall apply to a notice served under the last preceding paragraph and the relevant ground of objection to such a notice shall be that the provisions contained in the relevant scheme are adequate to ensure the taking of proper remedial action or the taking of proper safety precautions (as the case may be).

PART VIII

Miscellaneous additional provisions—mines in which locked safety-lamps are used

Application of Part VIII

43. Except where the application thereof is further expressly limited, this Part of these regulations shall apply to every part of a mine being a part in which the use of lamps or lights other than permitted lights is unlawful.

Issue and use of detonators

44. No person shall issue for use in, and no person shall take into or use in, part of a mine to which this Part of these regulations applies—

(*a*) (except in the case of a mine of fireclay) any detonator other than an electric detonator with a copper tube ;

(*b*) any delay detonator having a period of delay exceeding five seconds.

Parts of mines in which only explosives approved by the Minister may be used

45. No person shall, within fifteen feet of any waste below ground in any part of a mine to which this Part of these regulations applies, being waste in which there is not constantly produced ventilation adequate for the purposes specified in subsection (1) of section fifty-five of the Act, use any explosive other than explosive of a type and description approved by the Minister for use in places hazardous by reason of the presence or possibility of inflammable gas or of combustible dust.

Additional qualifications—shot firers and persons appointed to fire shots by fuse

46. Without prejudice to the generality of Part II of these regulations, no person shall, with respect to any part of a mine to which this Part of these regulations applies, be qualified to be appointed or to be a shot firer or person appointed to fire shots by fuse unless he has within the last preceding five years obtained a certificate that he was then able to make accurate tests for inflammable gas (so far as is practicable with a flame safety-lamp) being a certificate granted—

(*a*) by a university or university college ; or

(*b*) by a school, college or institution maintained or assisted by a local education authority ; or

(*c*) in any other manner approved for the purpose by an inspector.

Shot firing apparatus

47. Without prejudice to the generality of regulation two, no person shall fire a shot in any part of a mine to which this Part of these regulations applies except by means of electric shot firing apparatus, and after the expiration of two years from the date of commencement of these regulations no person

shall fire a shot by means of any such apparatus unless it is of a specification approved by the Minister—

(*a*) if shots are to be fired in a round, for multi-shot firing with all explosives; or

(*b*) in any other case, for single-shot firing with all explosives:

Provided that if an inspector is of opinion in any case that it is expedient to allow the firing of a number of shots in a round for which no multi-shot firing apparatus has been approved, he may by notice served on the manager of the mine authorise the use therefor of electric shot firing apparatus specified in the notice.

Sheathed explosives

48. No person shall take into or use in any part of a mine to which this Part of these regulations applies any explosive having been sheathed explosive from which any part of its external sheath has been removed, and no person shall therein remove from any sheathed explosive any part of its external sheath.

Precautionary examinations

49.—(1) No person shall fire a shot in any part of a mine to which this Part of these regulations applies unless he has carried out with respect to it an examination for general safety and tests for the presence of inflammable gas in accordance with the following provisions of this regulation. Every such test for inflammable gas shall be made with—

(*a*) a locked flame safety-lamp—

(i) (in the case of a mine of shale) of a type approved by the Minister;

(ii) (in the case of any other mine) of a type approved by the Minister for the purpose of deputies' inspections; or

(*b*) a methanometer of a type approved by the Minister; or

(*c*) other apparatus of a type approved by the Minister for the purpose.

(2) No person shall fire a shot or charge a shot hole in any such part of a mine if on any such test made with respect to it he finds a percentage of inflammable gas exceeding one and a quarter per cent. or he can see an indication of gas on the lowered flame of a safety-lamp.

(3) If a person intends to fire a shot in any such part of a mine he shall—

(*a*) immediately before the shot hole is charged, carry out an examination for general safety and test for the presence of inflammable gas—

(i) in the vicinity and at the mouth of the shot hole;

(ii) throughout every accessible place within thirty feet thereof;

(*b*) immediately before firing, test for the presence of inflammable gas in the vicinity of the shot hole and at the edge of any waste opposite.

Use of safety fuse with attached igniter in mines of shale.

50. Notwithstanding anything in regulation forty-four or forty-seven, if an inspector is of opinion that it is expedient to allow the firing of shots in any part of a mine to which this Part of these regulations applies, being a mine of shale, by means of safety fuse ignited by means of an igniter contained in a tube and attached to the fuse in such manner as to form a completely closed chamber, he may by notice served on the manager—

(*a*) exempt that part of the mine from the application of the said regulation forty-four; and

(*b*) authorise the firing of shots therein by those means.

PART IX

Apparatus and explosives for killing horses

51.—(1) Nothing in Parts II to VIII of these regulations except regulation four shall apply to such apparatus or such cartridges of explosives as are approved by the Minister for use in mines for destroying horses.

(2) No person shall take or use below ground in any mine for any other purpose any such apparatus or cartridge.

52. The manager of every mine shall ensure that horse killing apparatus is—

(*a*) kept in the custody of a competent person appointed by him and used only by that person or under his close personal supervision;

(*b*) cleaned and examined immediately after use on any occasion.

53.—(1) The manager of every mine shall ensure that cartridges for horse killing are issued from the explosives store only to a person appointed to have custody of horse killing apparatus and in a case or box with a lock provided by the owner of the mine.

(2) No person shall put any cartridge for horse killing into a receptacle containing any other kind of explosive or a detonator.

(3) Every person having a case or box of cartridges for horse killing shall keep it separate from any other receptacle containing explosive or detonators and shall keep it locked.

(4) No person shall remove any cartridge for horse killing from its case or box below ground until it is required for immediate use.

54.—(1) In any part of a mine, being a part in which the use of lamps or lights, other than permitted lights, is unlawful, no person shall fire a shot with horse killing apparatus unless immediately before firing he or a superior official of the mine has made tests for the presence of inflammable gas throughout every accessible place within thirty feet of the place where the shot is to be fired and it has been found safe for the firing of that shot.

(2) Every such test shall be made with a locked flame safety-lamp of a type approved by the Minister for the purpose of deputies' inspections, a methanometer of a type approved by the Minister or other apparatus of a type approved by the Minister for the purpose.

(3) No person shall fire a shot with horse killing apparatus if on any such test made with respect to that shot there has been found a firedamp content exceeding one and a quarter per cent. or an indication of gas on the lowered flame of a safey-lamp has been seen at any place in the general body of the air.

PART X

General

Exemptions

55. The Chief Inspector of Mines if he is satisfied that the application of any provision of these regulations is inappropriate in relation to any mine or part thereof may by notice served on the manager of that mine exempt it or a part thereof from the application of that provision.

Interpretation

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

"the Act" means the Mines and Quarries Act, 1954;

"cross measure drift" includes any drift driven otherwise than in stratified ironstone, shale, fireclay or (in relation only to regulation three) coal or otherwise than for the purpose of getting stratified ironstone, shale, fireclay or (in relation only to regulation three) coal therefrom;

"deputy" and "deputy's district" have the meanings assigned thereto in the Coal and Other Mines (Managers and Officials) Regulations, 1956;

"detonator" includes safety fuse capped with a detonator;

"explosive" does not include a detonator;

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

"firedamp content" means the percentage of inflammable gas present in the general body of the air;

"mine" has the meaning assigned thereto in regulation one;

"person appointed to fire shots by fuse" has the meaning assigned thereto in paragraph (1) of regulation two;

"round", in relation to shots, means a number of shots fired—

(*a*) electrically in series, either simultaneously or by means of delay detonators; or

(*b*) by fuse, by means of apparatus approved for firing a number of shots by fuse simultaneously; or

(*c*) where the number does not exceed four, by fuses lighted at the same time;

"safety fuse" means fuse consisting of gun powder protected either by not less than three coverings of thread or by not less than two coverings of thread and one of tape or gutta-percha, being of such a quality that the rate of burning does not vary more than ten seconds above or below the rate of thirty seconds for each foot of fuse;

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

"sheathed explosive" means explosive covered by an external sheath of incombustible material spread evenly over the sides of the cartridge, and includes explosive in any type of cartridge certified by the Minister to be equivalent in safety to sheathed explosive;

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

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

(3) Expressions to which meanings are assigned by the Act or by these regulations shall (unless the contrary intention appears) have the same meanings in any document issued under the provisions of these regulations.

(4) The Interpretation Act, 1889(**a**), shall apply to the interpretation of these regulations as it applies to the interpretation of an Act of Parliament.

Commencement and citation

57. These regulations shall come into operation at the commencement of the Act and may be cited as the Stratified Ironstone, Shale and Fireclay Mines (Explosives) Regulations, 1956.

Dated this sixth day of December, nineteen hundred and fifty-six.

Aubrey Jones,
Minister of Fuel and Power.

(a) 52 & 53 Vict. c. 63.

EXPLANATORY NOTE

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

These regulations apply to mines of stratified ironstone, shale and fireclay.

Part II of the regulations prohibits the firing of shots below ground except by persons appointed by the manager to be shot firers or (with respect to the firing of shots by means of safety fuse only) by persons appointed to fire shots by those means. The qualifications required by shot firers are specified.

Under Part III explosives, detonators and safety fuse must be stored on the surface at an explosives store, and provision is made for the appointment of places, with competent persons in charge, for the deposit of explosives and detonators brought out of the mine, and for the issue thereof. Part III also provides for the control of the issue of detonators, the conveyance and care of explosives and detonators, and the making by the manager of a "scheme of transit" (containing provisions for securing safety with respect to specified matters) for the conveyance of explosives in bulk.

Part IV relates to the provision, use and care of equipment, apparatus and material for firing shots electrically. Defective electric shot firing apparatus must be dealt with as provided in reg. 16, and maintenance and testing must be carried out at regular intervals as specified in reg. 17.

Part V regulates the placing, drilling, cleaning, charging and stemming of shot holes, and the firing of shots electrically and by fuse. Provision is made for the giving of warning in every case where a shot may blow through into another place; for the withdrawal from the danger zone likely to be created by the shot of persons within that zone, or the taking of proper shelter; and for the taking of appropriate precautions after the firing of any shot to ensure that working may be resumed safely.

Additional provisions relating to shot firing in shafts and staple-pits are contained in Part VI.

Miss-fires are dealt with in Part VII. Reg. 40 lays down when a shot is to be treated as a miss-fire, and reg. 41 specifies the general precautions to be taken in the event of a miss-fire. There must, under reg. 42, at all times be in force a scheme specifying the procedure to be followed after any miss-fire.

Part VIII of the regulations contains miscellaneous additional provisions applicable only to parts of mines which are parts in which no lamps or lights, other than locked safety-lamps, are permitted to be used.

Part IX deals with apparatus and explosives for killing horses below ground.

The Chief Inspector of Mines is empowered, under Part X, to exempt any mine or any part of a mine from the application of any provision of the regulations, if he is satisfied that the application of the provision is inappropriate in the circumstances of the particular case.

The regulations will replace the Explosives in Coal Mines Order, 1934 (S.R. & O. 1934/6), as amended, the Explosives (Stratified Ironstone Mines) Order, 1944 (S.R. & O. 1944/945) and the Explosives in Coal Mines (Horse Killers) Order, 1931 (S.R. & O. 1931/521), made under the Coal Mines Act, 1911. Those Orders are now in operation only in so far as they apply to mines of stratified ironstone, shale and fireclay; they will cease to have effect upon the coming into operation of the Mines and Quarries Act, 1954.