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STATUTORY INSTRUMENTS

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**1993 No. 208**

**HEALTH AND SAFETY**

**The Coal and Other Safety-Lamp  
Mines (Explosives) Regulations 1993**

<i>Made</i>	- - - -	<i>4th February 1993</i>
<i>Laid before Parliament</i>		<i>16th February 1993</i>
<i>Coming into force</i>	- -	<i>1st April 1993</i>

The Secretary of State, in exercise of the powers conferred upon her by sections 15(1), (2), (3)(a) and (b), (4)(a), (5)(b) and (6)(b) and 82(3)(a) of, and paragraphs 1(1), (2) and (3), 3, 6, 7, 13(1) and (3), 14, 15(1), 16, 20 and 21(a) and (b) of Schedule 3 to, the Health and Safety at Work etc. Act 1974<sup>(1)</sup>, and of all other powers enabling her in that behalf and for the purpose of giving effect without modifications to proposals submitted to her by the Health and Safety Commission under section 11(2)(d) of the said Act after the carrying out by the said Commission of consultations in accordance with section 50(3) of that Act, hereby makes the following Regulations:

**PART I**

**INTERPRETATION AND APPLICATION**

**Citation and commencement**

1. These Regulations may be cited as the Coal and Other Safety-Lamp Mines (Explosives) Regulations 1993 and shall come into force on 1st April 1993.

**Interpretation**

2.—(1) In these Regulations, unless the context otherwise requires—

“appoint” means appoint in writing with a written statement summarising the authority and responsibilities of any person in respect of whom that word is used and “appointed” and “appointment” shall be construed accordingly;

“approved” means approved in writing for the time being by the Health and Safety Executive or (except in the case of regulation 4(4)(a)) conforming with a standard so approved;

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(1) 1974 c. 37; sections 15(1) and 50(3) were amended by the Employment Protection Act 1975 (1975 c. 71), Schedule 15, paragraphs 6 and 16(3) respectively.

“attendant” means any person appointed to work in an explosives store or at a place designated by the manager pursuant to regulation 7(3);

“carriage” means—

- (a) any vehicle specially constructed for carrying explosives; or
- (b) any skip specially constructed for carrying explosives by monorail, freesteered vehicle or other form of mine transport;

“container” means any container designed to hold explosives, detonators or primed cartridges, but does not include a carriage;

“the danger zone” means the area within which persons would be at risk were the shot or round of shots concerned to be fired (including any place into which the shot or round of shots may blow);

“designated” means designated in writing;

“detonator” means any instantaneous or delay initiator for explosives and itself containing a charge of explosives fired by means of an electric current;

“exploder” means any electrical apparatus designed and constructed for initiating detonators;

“explosives” means—

- (a) any solid or liquid substance or any mixture of solid or liquid substances or both (except when confined within an article) which is capable by chemical reaction in itself of producing gas at such a temperature and pressure and at such a speed as could cause damage to surroundings or which is designed to produce an effect by heat, light, sound, gas or smoke or a combination of these as a result of non-detonative self-sustaining exothermic chemical reactions; or
- (b) any article (except a detonator) containing any substance or mixture such as is described in sub-paragraph (a) above;

“explosives store” means any place situated above ground, being—

- (a) premises registered in accordance with section 21 of the Explosives Act 1875(2) (“the 1875 Act”);
- (b) a magazine licensed in accordance with sections 6 to 8 of the 1875 Act; or
- (c) a store licensed in accordance with section 15 of the 1875 Act;

“firedamp” means any flammable gas or any flammable mixture of gases occurring naturally in a mine;

“maintained” means maintained in an efficient state, in efficient working order and in good repair;

“the manager” means the manager of a safety-lamp mine, and any duty imposed on, or any power given to, such a person by these Regulations shall extend only to the particular safety-lamp mine of which he is the manager;

“mine” means a mine within the meaning of section 180 of the Mines and Quarries Act 1954(3);

“misfire” means an occurrence where—

- (a) testing before firing a shot reveals broken continuity which cannot be rectified; or
- (b) any shot fails to explode when an attempt is made to fire it;

“notice” means notice in writing;

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(2) 1875 c. 17; sections 6 and 8 were modified by S.I. 1974/1885.

(3) 1954 c. 70; section 180 was modified by S.I. 1974/2013.

“owner” means the owner of a mine within the meaning of section 181 of the Mines and Quarries Act 1954;

“primed cartridge” means a cartridge of explosives into which a detonator has been inserted;

“safety-lamp mine” means—

- (a) any coal mine; or
- (b) any other mine in which—
  - (i) there has occurred below ground an ignition of firedamp, or
  - (ii) more than 0.25 per cent by volume of firedamp has been found on any occasion at any place below ground in the mine;

“shothole” means a bored hole which is to be charged with explosives for blasting purposes.

(2) In these Regulations, unless the context otherwise requires, any reference to—

- (a) a numbered regulation is a reference to the regulation of these Regulations so numbered;
- (b) a numbered paragraph is a reference to the paragraph so numbered in the regulation in which that reference appears; and
- (c) “shotfiring operations” or to a “shotfiring operation” includes a reference to—
  - (i) priming a cartridge,
  - (ii) charging and stemming a shothole,
  - (iii) linking or connecting the detonator wires in a round of shots,
  - (iv) coupling a shotfiring circuit to a detonator circuit, circuit tester or exploder,
  - (v) testing a shotfiring circuit, and
  - (vi) firing a shot or round of shots.

### **Application**

- 3. These Regulations shall apply to every safety-lamp mine.

## **PART II**

### **APPOINTMENT OF SHOTFIRERS AND TRAINEE SHOTFIRERS**

4.—(1) The manager shall appoint a sufficient number of suitably qualified and competent persons to carry out shotfiring operations, and any such appointee shall in these Regulations be referred to as a shotfirer.

(2) The manager may appoint such number of persons as he considers appropriate to undergo training in shotfiring operations under the close personal supervision of a shotfirer, and any such appointee shall in these Regulations be referred to as a trainee shotfirer.

(3) The manager shall ensure that a record is made of every appointment effected under paragraph (1) or (2).

(4) A person shall be suitably qualified to be appointed as a shotfirer pursuant to paragraph (1) only if he is at least 21 years of age and—

- (a) he holds the qualifications approved for that post by the Health and Safety Executive; or
- (b) where no qualifications have been so approved, he is suitably qualified by way of education, knowledge and experience to undertake the duties of that post effectively.

(5) No person's wages shall depend upon the number of shots fired by him or the amount of mineral obtained by shots fired by him.

### PART III

#### MATERIALS AND EQUIPMENT

5.—(1) The manager shall ensure that no explosives, detonators, exploders, exploder test apparatus, circuit testers or shotfiring cable are provided for use or used unless they are safe for use and (except in the case of shotfiring cable) are of an approved type.

(2) No person shall—

- (a) issue or use any material or equipment in connection with shotfiring operations; or
- (b) use any vehicle, carriage or container to keep or carry explosives, detonators or primed cartridges,

unless (subject to paragraph (10)) it has been provided by the owner or manager of the mine concerned and is suitable for the purpose.

(3) The manager shall ensure that any equipment provided for use in connection with shotfiring operations is properly maintained and is stored when not in use.

(4) The manager shall ensure that each exploder available for use is thoroughly cleaned, overhauled and tested at appropriate intervals to ensure safety.

(5) The manager shall ensure that no exploder is issued for use unless the most recent of the tests required by paragraph (4) has proved it to be satisfactory.

(6) The manager shall ensure that a record is made each time an exploder is overhauled or tested in accordance with paragraph (4).

(7) The manager shall ensure that—

- (a) the issue, use and return of explosives, detonators and exploders is properly controlled; and
- (b) a record is made each time explosives, detonators or exploders are issued, used or returned.

(8) No person shall tamper with any explosives, detonator, exploder or circuit tester.

(9) If a shotfirer considers an exploder to be defective, he shall—

- (a) withdraw it from use immediately;
- (b) return it to the surface for examination; and
- (c) report the facts to a person appointed for the purpose.

(10) Paragraph (2)(b) shall not apply to any vehicle which, within the mine concerned, is engaged in carriage to which the Road Traffic (Carriage of Explosives) Regulations 1989(4) apply.

### PART IV

#### SAFETY AND SECURITY OF EXPLOSIVES AND DETONATORS

##### **Handling and use of explosives and detonators**

6. Each person who handles or uses explosives and detonators, or who supervises their handling or use, shall—

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(4) S.I. 1989/615, to which there are amendments not relevant to these Regulations.

- (a) treat them with care at all times; and
- (b) ensure that they are kept apart until used to prime a cartridge.

### **Manager's duties in respect of the storage, handling, use, issue and return of explosives and detonators**

7.—(1) The manager shall take all reasonable steps to ensure that explosives and detonators are stored, handled and used safely and securely.

(2) Subject to paragraphs (3) and (6), the manager shall ensure that no explosives or detonators are stored at, issued from or returned to any place other than an explosives store.

(3) Notwithstanding paragraph (2), the manager may designate such number of places as may be necessary for the temporary storage underground of explosives brought from an explosives store pending their use in connection with shotfiring operations.

(4) The manager shall not designate any place in pursuance of paragraph (3) unless—

- (a) it is suitable for the purpose referred to therein; and
- (b) it is capable of being made secure.

(5) The manager shall ensure that any place designated by him in pursuance of paragraph (3) is, when not made secure, supervised by an attendant.

(6) Notwithstanding paragraph (2), the manager may designate such number of places above ground as may be necessary (no such place being an explosives store) for the temporary and secure storage of unused explosives and detonators pending their return to an explosives store following shotfiring operations.

### **Rules for the movement of explosives and detonators**

8.—(1) The manager shall make suitable rules for the purpose of ensuring the safe and secure conduct and control of—

- (a) any bulk movement of explosives; and
- (b) any movement of detonators to or from an explosives store.

(2) For the purposes of paragraph (1), “bulk movement of explosives” means the carrying by one person of more than 10 kilograms of explosives or the movement of explosives by carriage.

### **Locked containers and carriages**

9.—(1) No person shall issue explosives or detonators unless they are locked in a container or (with regard to explosives only) locked in a carriage.

(2) Any person who issues a container of explosives or detonators shall ensure that it holds—

- (a) in the case of a container of explosives, nothing more than explosives of the same composition and a check sheet; and
- (b) in the case of a container of detonators, nothing more than detonators of the same type and a check sheet.

(3) No person who has control of a container of explosives or detonators shall place in it—

- (a) in the case of a container of explosives, anything other than explosives of the same composition and a check sheet; and
- (b) in the case of a container of detonators, anything other than detonators of the same type and a check sheet.

(4) The manager shall ensure that no container is issued unless it has been marked with a serial number unique to the mine.

(5) In this regulation, “check sheet” means a document for recording the number of shots fired.

### **Control of explosives and containers of explosives**

**10.**—(1) No person shall issue or take control of any container of explosives except in connection with his duties at the mine.

(2) No person except—

- (a) a shotfirer;
- (b) a trainee shotfirer;
- (c) (subject to regulation 22(2)(a)) a person authorised in writing by the manager for the purpose; or
- (d) a person present for the purpose of—
  - (i) examining defective or deteriorating explosives, or
  - (ii) giving specialist technical advice about explosives, and competent to handle same,

shall open any container of explosives or handle any explosives.

(3) Any person who has been issued with a container holding explosives shall keep the explosives concerned in his personal possession or under his direct control—

- (a) until he has used them or returned those which remain to an explosives store;
- (b) until he has given them to a shotfirer or trainee shotfirer with a view to their being used in shotfiring operations;
- (c) unless he has deposited them at a place designated by the manager pursuant to regulation 7(3) or (6); or
- (d) unless he has given them to a person above ground who has been appointed by the manager to receive unused explosives pending their immediate transfer to an explosives store.

(4) The manager shall make suitable arrangements to provide for the adequate control of any explosives left unused at the end of a shotfirer’s period of duty.

### **Control of detonators and containers of detonators**

**11.**—(1) A person shall not have charge of a container of detonators unless he is—

- (a) a shotfirer;
- (b) a trainee shotfirer;
- (c) a person authorised in writing by the manager for that purpose; or
- (d) a person present for the purpose of—
  - (i) examining defective or deteriorating detonators, or
  - (ii) giving specialist technical advice about detonators, and competent to handle same.

(2) No person except a person mentioned in paragraph (1) shall open any container of detonators or handle any detonator.

(3) A person who is at a place other than an explosives store shall not remove a detonator from a container unless the detonator is required immediately—

- (a) for priming a cartridge; or
  - (b) for checking.
- (4) A shotfirer or trainee shotfirer who has been issued with a container of detonators shall, throughout his period of duty—
- (a) keep the key to that container in his personal possession; and
  - (b) ensure that the container and all the detonators—
    - (i) remain in his personal possession, or
    - (ii) are kept in a securely-locked box;but nothing in this sub-paragraph shall prevent the shotfirer or trainee shotfirer concerned from using the detonators in shotfiring operations.
- (5) Subject to paragraph (6), every shotfirer or trainee shotfirer who, at the end of his period of duty, has not used all the detonators issued to him, shall return those which remain unused to an attendant at an explosives store.
- (6) Nothing in paragraph (5) shall prevent a shotfirer or trainee shotfirer from depositing unused detonators at a place designated by the manager pursuant to regulation 7(6) pending their return to an explosives store by any person such as is specified in paragraph (1).

#### **Action on finding explosives**

12. Nothing in these Regulations shall prevent a person who finds any explosives, detonators or primed cartridges from taking them directly to a person competent to deal with them or such a competent person from so receiving them.

## **PART V**

### **SHOTFIRING PROCEDURES**

#### **Duty to ensure safe shotfiring operations**

13. Every shotfirer and trainee shotfirer shall take all reasonable precautions to ensure that all stages of a shotfiring operation on which they are engaged are carried out in such a way as to ensure the safety of persons.

#### **Stray electrical currents and voltages**

14. The manager shall—
- (a) take all reasonable steps to identify any risks to safety present during shotfiring operations which arise out of any stray electrical currents or voltages; and
  - (b) (having identified such risks) set up a system of shotfiring which will minimise them.

#### **Shotfiring fumes**

15. The manager shall—
- (a) take all reasonable steps to identify any risks to health or safety which arise out of toxic fumes produced by shotfiring operations; and
  - (b) take effective measures either to eliminate those risks or (where it is not practicable to eliminate them) reduce them to the lowest extent reasonably practicable.

### **Priming cartridges**

16.—(1) A person shall not prime or assist with priming cartridges unless he is a shotfirer or trainee shotfirer.

(2) A person shall not prime cartridges unless he is satisfied that—

(a) all shotholes to be charged with the primed cartridges will be available for charging by the time that he has finished priming the cartridges; and

(b) all the primed cartridges can be fired during his period of duty.

(3) A person who primes a cartridge at the place where it is to be used shall place it in a shothole before priming any further cartridges.

### **Use of priming station and security of primed cartridges**

17.—(1) A person shall not prime cartridges away from the place where they are to be used unless—

(a) he has been authorised in writing by the manager to do so; and

(b) he does so at a suitable priming station designated by the manager for the purpose.

(2) A person who primes cartridges at a priming station shall—

(a) carefully pack them into one or more containers; and

(b) (in the case of a shotfirer, subject to paragraph (2) of regulation 33 or, in the case of a trainee shotfirer, subject to paragraph (3) of regulation 33) keep any such container secure until all the primed cartridges are used.

(3) A person shall not—

(a) open a container of primed cartridges; or

(b) handle a primed cartridge,

unless he is a shotfirer or trainee shotfirer.

### **Examination for general safety and tests for firedamp**

18.—(1) Immediately before—

(a) charging a shothole or round of shotholes; or

(b) firing a shot or round of shots,

the person who is to fire the shot or round of shots shall make suitable tests for the presence of firedamp and (where appropriate) an examination for general safety.

(2) If any test carried out in accordance with paragraph (1) shows the presence of firedamp in a concentration of or greater than 1.25 per cent by volume or (where the estimated period of delay between the first and the last shot to be fired, calculated by reference to the markings on the detonators, exceeds 0.1 seconds) 0.8 per cent by volume, the person who made the test shall not proceed with charging or firing until the concentration of firedamp has been reduced below 1.25 per cent or, as the case may be, 0.8 per cent by volume; and when the concentration of firedamp cannot be so reduced, he shall—

(a) inform the person having immediate control of the mining operations being carried on in the part of the mine where the relevant concentration was detected of that fact; and

(b) take appropriate precautions to prevent danger arising from any shothole which he has charged but not fired.



### **Firedamp in the general body of the air**

**19.**—(1) Where any shotfirer or any person having immediate control of any mining operations being carried on in any part of the mine finds or has reported to him the presence of firedamp in a concentration of or greater than 1.25 per cent by volume in the general body of the air he shall take all reasonable steps to ensure that—

- (a) the charging of shotholes or firing of shots ceases immediately at—
  - (i) the place where firedamp in the above concentration was found to be present, and
  - (ii) any part of the return side of that place which is within the same district or part of a mine as that place;
- (b) the person for the time being in charge of the mine is informed forthwith; and
- (c) if the concentration of firedamp in the general body of the air cannot be reduced below 1.25 per cent by volume, appropriate precautions are taken to prevent danger arising from any shothole situated at the place referred to in subparagraph (a)(i) of this paragraph which has been charged but not fired.

(2) Where the person for the time being in charge of the mine has the presence of firedamp reported to him in accordance with paragraph (1)(b) he shall take all reasonable steps to ensure that—

- (a) the charging of shotholes and the firing of shots are prohibited in any part of the mine ventilated by such air as has been found to contain firedamp in a concentration of or greater than 1.25 per cent by volume in its general body;
- (b) any charging of shotholes or firing of shots which has ceased in accordance with paragraph (1)(a) or which has been prohibited in accordance with subparagraph (a) of this paragraph is not resumed or, as the case may be, does not take place until he has—
  - (i) satisfied himself that such resumption or taking place is safe, and
  - (ii) authorised such resumption or taking place; and
- (c) the circumstances are reported to the manager.

(3) The manager shall notify the Health and Safety Executive forthwith whenever the charging of shotholes or firing of shots ceases or is prohibited in accordance with this regulation.

### **Restrictions on the drilling and charging of shotholes**

**20.**—(1) Any person who drills a shothole shall ensure that it is not placed or drilled into any charge or socket remaining from a previous shot.

- (2) A person shall not charge a shothole unless it is safe to do so.
- (3) A person shall not charge a shothole as part of a delay round unless—
  - (a) he inserts the primed cartridge first with the detonator at the back of the shothole; and
  - (b) he has allowed for suitable delay periods between the shots having regard to the circumstances of the particular case.
- (4) A person shall not charge a shothole or different shotholes in a round with primed cartridges which contain explosives or detonators of a different type from those used in the remainder of the charge or round concerned.
- (5) A person responsible for charging a shothole shall ensure that—
  - (a) where necessary, the back of the shothole is plugged with stemming material;
  - (b) the shothole is stemmed with a sufficient amount of suitable stemming material; and
  - (c) any tool inserted into a charged shothole is made of wood or of an anti-static material.

### **Removal of part of a charge from a charged shothole**

21. A person shall not remove any part of a charge from a charged shothole unless he is dealing with a misfire.

### **Persons who may carry out shotfiring operations**

22.—(1) Subject to paragraph (2), no person except a shotfirer or trainee shotfirer shall carry out shotfiring operations.

(2) Nothing in—

- (a) regulation 10(2)(c) or paragraph (1) shall prevent not more than one person from inserting into a shothole any part of a charge which is not a primed cartridge when he does so under the close personal supervision of a shotfirer; or
- (b) paragraph (1) shall prevent several persons from stemming shotholes when they do so under the supervision of a shotfirer.

(3) The manager shall ensure that each shotfiring operation is carried out by or under the supervision of a single shotfirer.

### **Danger zones and withdrawal of persons**

23.—(1) Before a shot or round of shots is fired, the shotfirer who is to fire the shot or round or supervise its firing shall—

- (a) identify the danger zone;
- (b) so far as is reasonably practicable, examine all parts of the danger zone; and
- (c) take all reasonable steps to ensure that—
  - (i) suitable sentries are posted or such fencing is erected as will prevent, so far as is practicable, persons from entering the danger zone,
  - (ii) no equipment or apparatus in the danger zone is rendered dangerous by the firing of a shot, and
  - (iii) subject to paragraph (2), all persons (other than himself and any trainee shotfirer who may be with him) are withdrawn from the danger zone.

(2) Nothing in paragraph (1)(c)(iii) shall prevent one other person from remaining with the shotfirer or trainee shotfirer concerned in a shaft or staple pit.

(3) A person shall not couple a shotfiring cable to a detonator circuit in a shaft or staple pit provided with winding apparatus which is not permanent manwinding apparatus unless—

- (a) the kibble is conveniently placed for persons 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 the kibble.

### **Sentry's duties**

24. A person who has been posted under regulation 23(1)(c)(i) to act as a sentry in respect of a particular danger zone—

- (a) shall forbid all persons (except the shotfirer whose duty it was to ensure that he was so posted or any trainee shotfirer working under that shotfirer's close personal supervision) to enter that danger zone; and
- (b) shall not leave his post until the particular person who posted him to it has personally directed him to do so.

### **Duty to comply with sentry's orders and notices**

25. A person shall not—

- (a) pass a sentry who has forbidden him to enter a danger zone in accordance with regulation 24(a); or
- (b) pass a fence erected in accordance with regulation 23(1)(c)(i) unless he has the permission of the person firing the shot.

### **Shotfiring cable**

26.—(1) A person shall not use shotfiring cable other than for firing shots.

(2) A person using any shotfiring cable shall take all reasonable steps to ensure that the cable is safe for use.

### **Steps to be taken before firing a shot or round of shots**

27. A person shall not fire a shot or round of shots unless—

- (a) where transformer coupled electric detonators are not to be used) he has—
  - (i) checked that all the detonators concerned are connected in series,
  - (ii) connected the detonator circuit to the shotfiring cable,
  - (iii) withdrawn himself and any person with him from the danger zone, and
  - (iv) tested the circuit for continuity and electrical resistance with an ohmmeter suitable for the purpose or the exploder testing circuit; or
- (b) (where transformer coupled electric detonators are to be used) he has—
  - (i) checked that the primary looping wire has been threaded through all the toroids,
  - (ii) connected the primary looping wire to the shotfiring cable,
  - (iii) withdrawn himself and any person with him from the danger zone,
  - (iv) checked the circuit for electrical impedance and tested the primary looping wire and the shotfiring cable for continuity with the exploder testing circuit; and
- (c) (in either case)—
  - (i) he has determined that the electrical resistance or impedance of the circuit is such as to make a misfire unlikely, and
  - (ii) it is safe to do so.

### **Operation of exploder**

28. A shotfirer or trainee shotfirer—

- (a) shall not place the removable handle or key in position in the exploder until he is about to use the exploder to test the circuit or fire a shot; and
- (b) shall withdraw the removable handle or key from the exploder immediately after the operation of the exploder or an unsatisfactory test on the firing circuit.

### **Maximum number of shots**

29.—(1) The manager shall—

- (a) give each shotfirer written notice of the maximum number of shots he may fire or have fired during his period of duty; and

(b) keep an up-to-date copy of that notice at the office of the mine.

(2) The maximum number of shots notified in accordance with paragraph (1)(a) shall in each case be one which is consistent with the requirements of safety.

(3) If, pursuant to paragraph (1)(a), the manager of a coal mine gives any shotfirer who, for the duration of his period of duty, is also a deputy assigned to a district written notice that that shotfirer may fire or have fired more than 10 shots during that period, the manager shall, as soon as practicable thereafter, give notice thereof, in a suitable form, to the Health and Safety Executive.

(4) In paragraph (3), “deputy” has the same meaning as in regulation 33(1) of the Coal and Other Mines (Managers and Officials) Regulations 1956(5).

### **Prohibited shots**

**30.**—(1) A person shall not fire a shot in the roof of any longwall working between the coal face and the waste, except—

- (a) in accordance with suitable rules made by the manager;
- (b) with the authority of the person for the time being in charge of the mine;
- (c) for the purpose of providing access to machinery or grading through geological disturbances; and
- (d) where the shot is not in the waste of that longwall working and it is not foreseeable that it will break into that waste.

(2) A person shall not fire a detonator or primed cartridge unless it forms part of a charge in a shothole.

### **Precautions after firing**

**31.**—(1) Subject to regulation 33(2), in the case where a shot or round of shots has been fired at a coal mine, the shotfirer who fired the shot or round or who supervised its firing shall personally examine the area affected by the blast for the purpose of ensuring that it is safe for work to be resumed.

(2) In the case where a shot or round of shots has been fired at a safety-lamp mine shotfirer (whether or not that shotfirer fired the shot or round or supervised its firing) personally examines the area affected by the blast for the purpose of ensuring that it is safe for work to be resumed.

(3) A shotfirer shall not make an examination in accordance with paragraph (1) or (2) until the appropriate period specified below has elapsed—

- (a) 5 minutes, where fewer than 7 shots have been fired; and
- (b) 10 minutes, where 7 or more shots have been fired.

### **Steps to be taken in the event of a misfire**

**32.**—(1) Subject to regulation 33(2), in the event of a misfire the shotfirer in charge of the shot shall—

- (a) take whatever steps are necessary to determine the cause of and deal with the misfire; and
- (b) report the misfire to the manager.

(2) The manager shall—

- (a) investigate the circumstances of any misfire reported to him pursuant to paragraph (1)(b); and

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(5) [S.I. 1956/1758](#), to which there are amendments not relevant to these Regulations.

- (b) (following any such investigation) ensure, so far as is reasonably practicable, that no further misfire occurs.
- (3) No person shall attempt to recover a misfired charge from a shothole by—
  - (a) using a tool to remove the charge or the mineral directly round it; or
  - (b) pulling forcibly on the detonator leads.

#### **Additional duties of shotfirers**

**33.**—(1) Subject to paragraph (2), a shotfirer shall ensure that all shotholes charged and all primed cartridges held by him or by other persons acting under his supervision are fired before the end of his period of duty.

(2) Where a shotfirer is prevented by reasons beyond his control from complying with paragraph (1), regulation 17(2)(b), regulation 31(1) or regulation 32(1), that shotfirer shall report the matter either to the person under whose direction he is working or to a person senior to that person, who shall either carry out the relevant duty himself or require it to be carried out by another shotfirer, in which case that other shotfirer shall be obliged to comply with the duty concerned.

(3) Where a trainee shotfirer is prevented by reasons beyond his control from complying with regulation 17(2)(b), the duty imposed upon him by that provision shall be carried out by the shotfirer under whose close personal supervision he is working.

#### **Shotfirer's records**

- 34.** Every shotfirer shall in respect of each period of duty that he works make a record of—
- (a) every shot fired by him or under his supervision, including the weight of explosives and number of detonators used;
  - (b) any misfire which occurred in respect of a shot intended to be fired by him or under his supervision;
  - (c) any steps taken by him pursuant to regulation 32(1)(a); and
  - (d) any report made by him pursuant to regulation 33(2).

## **PART VI**

### **APPLICATION TO BARRIERS**

**35.**—(1) Nothing in Parts II to V of these Regulations shall apply in relation to any explosives or detonators taken into a mine as part of an approved barrier.

(2) At any mine where there is an approved barrier, the manager shall make arrangements for its safe storage, movement and installation.

(3) For the purposes of this regulation, “barrier” means an appliance which is intended to prevent the extension of flame and which contains explosives or detonators.

## PART VII

### MISCELLANEOUS AND GENERAL

#### Records

**36.**—(1) The manager shall ensure that any record required by regulation 4(3) is kept for the period that the person to whom it relates is employed at the mine and for five years thereafter.

(2) The manager shall ensure that the records required by regulations 5(6) and (7) and 34 are kept for a period of three years from the date of being made.

#### Defence

**37.** In any proceedings for an offence consisting of a contravention of regulation 4(3), regulation 5(1), (3), (4), (5), (6) or (7), regulation 7(2), (4) or (5), regulation 9(4), regulation 22(3), regulation 31(2) or regulation 36, it shall be a defence for the manager concerned to prove that he took all reasonable steps and exercised all due diligence to avoid the commission of the offence.

#### General duty of mine manager

**38.** It shall be the duty of the manager to ensure, so far as is reasonably practicable, that any requirement or prohibition imposed upon any other person by or by virtue of these Regulations is duly complied with by the person concerned.

#### Exemption certificates

**39.**—(1) Subject to paragraph (2), the Health and Safety Executive may, by certificate in writing, exempt any—

- (a) person;
- (b) class of person;
- (c) safety-lamp mine;
- (d) class of safety-lamp mine;
- (e) part of a safety-lamp mine;
- (f) activity;
- (g) class of activity;
- (h) thing; or
- (i) class of thing,

from any requirement or prohibition imposed by these Regulations and any such exemption may be granted subject to conditions and to limit of time and may be revoked by certificate in writing at any time.

(2) The Executive shall not grant any such exemption unless, having regard to the circumstances of the case, and in particular to—

- (a) the conditions, if any, which it proposes to attach to the exemption; and
- (b) any other requirements imposed by or under any enactment which apply to the case,

it is satisfied that the health or safety of persons who are likely to be affected by the exemption will not be prejudiced because of it and that the security of explosives or detonators will not be so prejudiced.

### **Disapplication of sections 69(3) and (4) and 157 of the Mines and Quarries Act 1954**

**40.**—(1) Section 69(3) and (4) of the Mines and Quarries Act 1954 (which places restrictions on the taking or use below ground in a mine of any blasting material or device) shall not apply in respect of any safety-lamp mine.

(2) Section 157 of the Mines and Quarries Act 1954<sup>(6)</sup> (which provides a defence in certain legal proceedings in the circumstances specified therein) shall not apply in relation to any legal proceedings to recover damages or any prosecution based on an allegation of a contravention of a requirement or prohibition imposed by or under these Regulations.

### **Revocations and modifications**

**41.**—(1) The Regulations specified in column 1 of the Schedule to these Regulations are revoked to the extent specified in the corresponding entry in column 3 thereof.

(2) The Stratified Ironstone, Shale and Fireclay Mines (Explosives) Regulations 1956<sup>(7)</sup> shall be modified as follows—

(a) in regulation 1, there shall be inserted after the word “fireclay” the words “which is not a safety-lamp mine as defined by regulation 2(1) of the Coal and Other Safety-Lamp Mines (Explosives) Regulations 1993”; and

(b) in regulation 51(1), the words “Parts II to VII” shall be substituted for the words “Parts II to VIII”.

(3) The following regulation shall be substituted for regulation 5 of the Miscellaneous Mines (Explosives) Regulations 1959<sup>(8)</sup>:

“5. These Regulations shall apply to every mine other than one to which the provisions of the Stratified Ironstone, Shale and Fireclay Mines (Explosives) Regulations 1956 or the Coal and Other Safety-Lamp Mines (Explosives) Regulations 1993 apply.”.

### **Transitional and saving provisions**

**42.**—(1) Any person who, immediately before the coming into force of these Regulations, was lawfully employed as a shotfirer at a coal mine in any part of which (in accordance with regulation 7 of the Coal Mines (Explosives) Regulations 1961<sup>(9)</sup>) only permitted explosives as defined by paragraph (1) of that regulation could be used shall be deemed to have been appointed as a shotfirer at the mine in question in compliance with regulation 4(1) for the period that the certificate obtained by him pursuant to regulation 10(1)(b) of the above Regulations of 1961 would have remained valid had not those Regulations been revoked by these Regulations.

(2) Any person who, immediately before the coming into force of these Regulations, was lawfully employed as a shotfirer at a coal mine except one in any part of which (in accordance with regulation 7 of the Coal Mines (Explosives) Regulations 1961) only permitted explosives as defined by paragraph (1) of that regulation could be used shall be deemed to have been appointed as a shotfirer at the mine in question in compliance with regulation 4(1) for the period of two years which follows the coming into force of these Regulations.

(3) Any person who, immediately before the coming into force of these Regulations, was lawfully employed as a shotfirer at a safety-lamp mine which is not a coal mine shall be deemed to have been appointed as a shotfirer at the mine in question in compliance with regulation 4(1).

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<sup>(6)</sup> 1954 c. 70; section 157 was modified by S.I. 1974/2013.

<sup>(7)</sup> S.I. 1956/1943, to which there are amendments not relevant to these Regulations.

<sup>(8)</sup> S.I. 1959/2258, to which there are amendments not relevant to these Regulations.

<sup>(9)</sup> S.I. 1961/854, amended by S.I. 1975/1102 and S.I. 1978/1648.

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Signed by order of the Secretary of State.

4th February 1993

*Patrick McLoughlin*  
Parliamentary Under Secretary of State,  
Department of Employment



## THE SCHEDULE

Regulation 41(1)

## REVOCATIONS

Column 1 Name of Regulations	Column 2 Reference	Column 3 Extent of revocation
The Stratified Ironstone, Shale and Fireclay Mines (Explosives) Regulations 1956	<a href="#">S.I. 1956/1943</a>	Regulations 43 to 50 and 54; in regulation the definition “firedamp content”
Miscellaneous Mines (Explosives) Regulations 1959	<a href="#">S.I. 1959/2258</a>	Regulation 39
Coal Mines (Compressed Air Blasting Shells) Regulations 1960	<a href="#">S.I. 1960/1114</a>	The Whole Regulations
Coal Mines (Explosives) Regulations 1961	<a href="#">S.I. 961/854</a>	The whole Regulations
Thistleton Mine Special Regulations 1962	<a href="#">S.I. 1962/364</a>	The whole Regulations
Brightling Mine (Precautions against Inflammable Gas) Special Regulations 1966	<a href="#">S.I. 1966/784</a>	The whole Regulations
Lynemouth Mine (No. 3 and No. 4 Shaft Sinkings and Surface Drift) Special Regulations 1967	<a href="#">S.I. 1967/521</a>	The whole Regulations
Boulby Mine (No. 1 and No. 2 Shaft Sinkings) Special Regulations 1970	<a href="#">S.I. 1970/864</a>	The whole Regulations
Mines and Quarries Acts 1954 to 1971 (Repeals and the Coal Mines Modifications) Regulations 1975	<a href="#">S.I. 1975/1102</a>	The entries in Schedule 2 relating to the Coal Mines (Explosives) Regulations 1961
Coal and Other Mines (Metrication) Regulations 1978	<a href="#">S.I. 1978/1648</a>	The entries in the Schedule relating to— (a) regulation 45, 49(3) (a)(ii) and 54(1) of the Stratified Ironstone, Shale and Fireclay Mines (Explosives) Regulations 1956; and (b) the coal mines (Explosives) Regulations 1961

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## EXPLANATORY NOTE

*(This note is not part of the Regulations)*

1. These Regulations (“the Regulations”) impose a series of requirements and prohibitions in relation to the use of explosives and associated material and equipment in safety-lamp mines. In so doing, they replace a number of Regulations relating to the use of explosives in coal mines and in other mines where flammable gas is likely to be present, which Regulations have been revoked or, where appropriate, modified.

2. The expressions “explosives” and “safety-lamp mine” are, together with other words and phrases used in the Regulations, defined in regulation 2(1).

3. Regulation 4–

- (a) requires the manager of a safety-lamp mine to appoint shotfirers at the mine and enables him to appoint trainee shotfirers there;
- (b) requires him to ensure that records are made of such appointments;
- (c) specifies the qualifications a person must have before being appointed as a shotfirer under the Regulations; and
- (d) prohibits a person’s wages depending on the number of shots he fires or the amount of mineral obtained by such shots.

4. Regulation 5–

- (a) requires the manager of a safety-lamp mine to ensure that–
  - (i) no explosives or associated equipment are provided for use or used at the mine unless they are safe and, in certain cases, of a type approved by the Health and Safety Executive,
  - (ii) equipment provided for use in connection with shotfiring operations at the mine is properly maintained and is stored when not in use,
  - (iii) exploders are regularly cleaned, overhauled and tested and are only issued when the most recent of such tests proves them to be satisfactory,
  - (iv) a record is made each time an exploder is overhauled or tested as aforesaid,
  - (v) the issue, use and return of explosives and associated equipment is properly controlled, and
  - (vi) a record is made each time explosives and associated equipment are issued, used or returned;
- (b) imposes restrictions on persons–
  - (i) issuing or using material or equipment in connection with shotfiring operations, and
  - (ii) using carriages, containers or certain vehicles to keep or carry explosives and associated equipment;
- (c) prohibits persons from tampering with explosives and associated equipment; and
- (d) requires shotfirers to take certain precautionary steps if they consider any exploder to be defective.

5. Regulation 6 requires persons who handle or use explosives and detonators, or who supervise their handling or use, to treat them with care and keep them apart until used to prime cartridges.

6. Regulation 7 requires the manager of a safety-lamp mine–

- (a) to take all reasonable steps to ensure that explosives and detonators at the mine are stored, handled and used safely and securely; and
- (b) to ensure that (except as provided below) explosives and detonators are stored only at an explosives store.

However, the manager may under regulation 7(3) to (5) designate places for the temporary storage underground of explosives brought from an explosives store pending their use in connection with shotfiring operations. He may also under regulation 7(6) designate places above ground for the temporary storage of unused explosives and detonators pending their return to an explosives store following shotfiring operations.

7. Regulation 8 requires the manager of a safety-lamp mine to make rules for the purpose of ensuring the safe and secure conduct and control of, first, bulk movements of explosives at the mine and, second, movements of detonators to and from explosives stores there.

8. Regulation 9–

- (a) requires the manager of a safety-lamp mine to ensure that no container is issued at the mine unless it has a serial number unique to that mine;
- (b) prohibits persons from issuing explosives or detonators unless they are locked in containers or, alternatively (in the case of explosives only), locked in carriages;
- (c) requires persons issuing containers of explosives or detonators to ensure that they hold specified material only; and
- (d) prohibits persons having control of containers of explosives or detonators from placing specified extraneous material in them.

9. Regulation 10–

- (a) requires the manager of a safety-lamp mine to arrange for the adequate control of explosives left unused there at the end of a shotfirer's shift;
- (b) prohibits persons from issuing or taking control of containers of explosives except in connection with their duties at the relevant mine;
- (c) specifies the persons who may open containers of explosives or handle explosives; and
- (d) specifies what a person who has been issued with a container of explosives may do with the explosives concerned.

10. Regulation 11 specifies–

- (a) the persons who–
  - (i) may have charge of containers of detonators, and
  - (ii) may open containers of detonators or handle detonators;
- (b) the circumstances in which detonators may be removed from containers other than at explosives stores;
- (c) what shotfirers and trainee shotfirers who have been issued with containers of detonators must do with such containers in the course of their respective periods of duty; and
- (d) what shotfirers and trainee shotfirers must do with any detonators issued to them which remain unused at the end of their respective periods of duty.

11. Regulation 12 provides that nothing in the Regulations is to be taken as preventing–

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- (a) a person who finds explosives or associated material from taking them to a competent person; or
  - (b) the competent person concerned from receiving those explosives or that material.
- 12.** Regulation 13 requires shotfirers to take all reasonable steps to ensure that shotfiring operations are carried out safely.
- 13.** Regulation 14 requires the manager of a safety-lamp mine—
- (a) to identify safety risks present during shotfiring operations there which arise out of stray electrical currents or voltages; and
  - (b) to set up a shotfiring system at the mine which will minimise those risks.
- 14.** Regulation 15 requires the manager of a safety-lamp mine—
- (a) to identify health and safety risks arising out of toxic fumes produced by shotfiring operations there; and
  - (b) to take specified measures in respect of those risks.
- 15.** Regulation 16—
- (a) imposes conditions with respect to who may prime or assist in priming cartridges;
  - (b) specifies what a person must do before priming cartridges; and
  - (c) specifies what steps a person must take if he primes a cartridge at the place where it is to be used.
- 16.** Regulation 17—
- (a) specifies who may—
    - (i) prime cartridges away from the place where they are to be used,
    - (ii) open containers of primed cartridges, and
    - (iii) handle primed cartridges; and
  - (b) imposes requirements on persons who prime cartridges at a priming station.
- 17.** Regulation 18—
- (a) requires persons who are to fire single or multiple shots to test for firedamp and make general safety examinations immediately before firing the shots and charging the shotholes for them;
  - (b) (where the above tests reveal the presence of firedamp in specified concentrations) requires the persons who made those tests to desist from charging or firing until those concentrations have been reduced; and
  - (c) requires those persons to take specified additional steps where those concentrations cannot be reduced.
- 18.** Regulation 19—
- (a) requires shotfirers and persons having control of mining operations who find or have reported to them the presence in the general body of the air of a specified concentration of firedamp to take certain safety precautions (including in particular informing the person in charge of the mine of that presence);
  - (b) requires persons in charge who are informed as aforesaid to take specified safety precautions as regards the charging of shotholes and the firing of shots; and
  - (c) requires the manager of a safety-lamp mine to notify the Health and Safety Executive whenever persons in charge who are informed as aforesaid ensure that the charging of shotholes or the firing of shots ceases or is prohibited at the mine.

- 19.** Regulation 20–
- (a) requires persons who drill shotholes to take specified safety precautions; and
  - (b) imposes restrictions with respect to the charging of shotholes.
- 20.** Regulation 21 prohibits persons from removing parts of a charge from a charged shothole unless they are dealing with a misfire.
- 21.** Regulation 22–
- (a) specifies who may carry out shotfiring operations (whilst at the same time expressly permitting other specified activities in connection with shotholes); and
  - (b) requires the manager of a safety-lamp mine to ensure that all shotfiring operations there are carried out by or under the supervision of a single shotfirer.
- 22.** Regulation 23–
- (a) imposes requirements on shotfirers who are about to fire shots or rounds of shots (including in particular requirements for them to identify danger zones and to ensure that sentries are posted or fencing is erected); and
  - (b) imposes restrictions on the coupling of shotfiring cable to detonator circuits in certain shafts and staple pits.
- 23.** Regulation 24 imposes requirements on persons appointed to act as sentries (including in particular a requirement for them to forbid certain persons to enter danger zones).
- 24.** Regulation 25 prohibits persons from passing sentries who have forbidden them to enter danger zones and restricts the power of persons to pass fencing erected by or on behalf of shotfirers.
- 25.** Regulation 26 imposes conditions with regard to the use of shotfiring cable.
- 26.** Regulation 27 specifies the steps a person must take before firing a shot or round of shots.
- 27.** Regulation 28 imposes conditions with regard to the use by shotfirers and trainee shotfirers of exploders.
- 28.** Regulation 29–
- (a) requires the manager of a safety-lamp mine to give shotfirers there written notice of how many shots they may fire or have fired during their respective periods of duty;
  - (b) provides that the maximum number of shots so notified shall be consistent with the requirements of safety; and
  - (c) imposes ancillary requirements on such a manager with regard to the giving of such notices (in particular where he is the manager of a coal mine and gives a shotfirer who is also a pit deputy notice that he may fire or have fired more than 10 shots during his period of duty).
- 29.** Regulation 30 imposes restrictions on–
- (a) the firing of shots in the roof of a longwall working; and
  - (b) the firing of detonators or primed cartridges.
- 30.** Regulation 31 requires shotfirers to make examinations for safety after shots or rounds of shots have been fired and states when those examinations are to take place. In the case of a coal mine, the shotfirer who fired the shot or round or supervised its firing shall make the examination, but in the case of other safety-lamp mines any shotfirer may make the examination.
- 31.** Regulation 32 requires–
- (a) the shotfirer in charge of the shot; and
  - (b) the manager of the relevant safety-lamp mine,

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to take specified steps in the event of a misfire.

**32.** Regulation 33 imposes further duties—

- (a) on shotfirers with respect to the firing of charged shotholes and primed cartridges; and
- (b) on shotfirers and other persons senior to them relating to the inability of shotfirers and trainee shotfirers (through circumstances beyond their control) to comply with specified requirements of the Regulations.

**33.** Regulation 34 requires shotfirers to make specified records.

**34.** Regulation 35—

- (a) provides that regulations 4 to 35 do not apply to explosives or detonators used in an approved barrier; and
- (b) requires the manager of a safety-lamp mine to make specified arrangements with regard to approved barriers at the mine.

**35.** Regulation 36 imposes requirements on the manager of a safety-lamp mine with regard to the keeping of records.

**36.** Regulation 37 provides that in criminal proceedings under regulations 4(3), 5(1), (3), (4), (5), (6) or (7), 7(2), (4) or (5), 9(4), 22(3), 31(2) or 36, it shall be a defence for the accused (in each case the manager of a safety-lamp mine) to prove that he took all reasonable steps and exercised all due diligence to avoid the commission of the offence.

**37.** Regulation 38 requires the manager of a safety-lamp mine to ensure, so far as is reasonably practicable, that other persons at the mine comply with their obligations under the Regulations.

**38.** Regulation 39 enables the Health and Safety Executive to grant exemptions from any requirements or prohibitions imposed by the Regulations.

**39.** Regulation 40—

- (a) disapplies section 69(3) and (4) of the [Mines and Quarries Act 1954 \[c.70\]](#) (which subsections place restrictions on the taking or use below ground in mines of blasting materials and devices) in respect of safety-lamp mines; and
- (b) disapplies section 157 of the above Act of 1954 (which provides a defence in certain legal proceedings) in relation to any legal proceedings based on an allegation of a contravention of a requirement or prohibition imposed by or under the Regulations.

**40.** Regulation 41—

- (a) revokes the instruments specified in column 1 of the Schedule to the Regulations to the extent specified in the corresponding entry in column 3 thereof; and
- (b) modifies the Stratified Ironstone, Shale and Fireclay Mines (Explosives) Regulations 1956 ([S.I. 1956/1943](#)) and the Miscellaneous Mines (Explosives) Regulations 1959 ([S.I. 1959/2258](#)).

**41.** Regulation 42 lays down transitional and saving provisions respecting persons who were employed as shotfirers at safety-lamp mines before the coming into force of the Regulations.