

1956 No. 1781

MINES AND QUARRIES

The Quarries (Electricity) Order, 1956

<i>Made - - - - -</i>	<i>7th November, 1956</i>
<i>Laid before Parliament</i>	<i>26th November, 1956</i>
<i>Coming into Operation</i>	<i>1st January, 1957</i>

Whereas by subsection (1) of section one hundred and ninety of the Mines and Quarries Act, 1954(a) (hereinafter referred to as “the Act”), the Minister of Fuel and Power (hereinafter referred to as “the Minister”) is empowered to re-enact amongst other things (to the extent to which they could by virtue of the Act be enacted in regulations made under section one hundred and forty-one thereof) provisions of any regulation having effect by virtue of section eighty-six of the Coal Mines Act, 1911(b), subject to such modifications (if any) as appear to him to be consequential on the passing of the Act or requisite for the purpose either of bringing those provisions into conformity with the Act or of expressly limiting their operation to quarries of the class to which their operation is limited immediately before the commencement of the Act:

And Whereas by subsection (2) of that section it is provided amongst other things that an order under subsection (1) shall set out in a schedule to the order the provisions thereby re-enacted and may direct that those provisions shall have effect as if they were regulations made under section one hundred and forty-one of the Act:

Now, therefore, the Minister in pursuance of the powers conferred upon him by section one hundred and ninety of the Act hereby orders as follows:—

1.—(1) The provisions set out in the schedule hereto, being provisions of the Quarries General Regulations (Electricity), 1938(c), subject to such modifications as aforesaid, are hereby re-enacted and shall have effect as if they were regulations made under section one hundred and forty-one of the Act coming into operation at the commencement of the Act.

(2) The provisions set out in the schedule hereto may be cited as the Quarries (Electricity) Regulations, 1956.

2. Any exemption, approval or notice given for the purpose of a provision of the Quarries General Regulations (Electricity), 1938, shall, if in force at the commencement of the Act and so far as it could have been given for the purposes of the Quarries (Electricity) Regulations, 1956 (whether by that instrument or an instrument to the like effect), have effect as if it had been so given.

3. This order shall come into operation at the commencement of the Act and may be cited as the Quarries (Electricity) Order, 1956.

Dated this seventh day of November, nineteen hundred and fifty-six.

Aubrey Jones,
Minister of Fuel and Power.

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

(b) 1 & 2 Geo. 5. c. 50.

(c) S.R. & O. 1938/1233 (Rev. XV, p. 77; 1938 II, p. 2911).

SCHEDULE

THE QUARRIES (ELECTRICITY) REGULATIONS, 1956, HAVING EFFECT AS IF MADE UNDER SECTION ONE HUNDRED AND FORTY-ONE OF THE MINES AND QUARRIES ACT, 1954.

Means of cutting off electricity

1.—(1) There shall be provided in relation to every electrical circuit at any quarry, other than a circuit comprising solely telephone or signalling apparatus, effective means for cutting off the supply of electricity automatically from that circuit if the current therein should be dangerously excessive.

(2) There shall be provided in relation to every such electrical circuit—

(a) in which alternating current at a voltage exceeding six hundred and fifty is used ; or

(b) which comprises portable apparatus and in which alternating current at a voltage exceeding one hundred and twenty-five is used ;

effective means for cutting off the supply of electricity automatically from that circuit if the leakage current to earth should exceed fifteen per cent. of the maximum current for which that circuit is designed or five amperes whichever is the greater.

Suitability of apparatus

2. No electrical apparatus shall be used at any quarry unless it is of sufficient power or capacity to avoid dangerous overloading and, without prejudice to the generality thereof, every circuit breaker shall be of adequate breaking capacity to operate safely on the occurrence of a short circuit.

Earthing

3.—(1) There shall be connected to earth in such manner as will ensure immediate electrical discharge without danger—

(a) every metallic part of any electrical apparatus at any quarry, except a part used as a conductor ;

(b) every metallic part of any covering or container of, or mounting for, any such electrical apparatus ; and

(c) every metallic part of any equipment of the quarry so situate as to be likely to become charged by contact with any conductor.

(2) Every earthing conductor installed for the purposes of the last preceding paragraph shall have a cross-sectional area not less than 0.022 square inches :

Provided that the provisions of this paragraph shall not apply to an earthing conductor being—

(a) the metallic covering of a cable ; or

(b) in the case of a multi-core flexible cable used to supply portable apparatus, one of the conductors in that cable ; or

(c) a part of an overhead line.

(3) Every connection to or in any earthing conductor shall be mechanically secure and electrically efficient.

(4) No automatic circuit opening device shall be placed in any earthing conductor provided in pursuance of this regulation.

(5) Nothing in this regulation shall apply to—

(a) any metallic part which cannot be touched by any person while any relevant circuit is live ; or

(b) any metallic part, other than a part of portable apparatus, where the voltage in any relevant circuit does not exceed two hundred and fifty direct current or one hundred and twenty-five alternating current ; or

(c) any telephone or signalling apparatus.

4.—(1) In every two-wire system which is used wholly or mainly for the purposes of traction at any quarry and in which the running rails form part of the circuit, the pole to which they are connected shall be connected to earth in such manner as will ensure immediate electrical discharge without danger.

(2) In every two-wire circuit at any quarry in which the supply of electricity is derived from the secondary winding of a single phase transformer, being a circuit used solely for indicating instruments or other accessories of switchgear including any fixed lights associated therewith, one pole shall be connected at one place but no more to earth.

(3) In every circuit in which alternating current at a voltage exceeding twenty-five is used the neutral point shall be connected at one place but no more to earth:

Provided that in the case of a three phase three-wire circuit in which the supply of electricity is derived from the secondary winding of a three phase transformer, being a circuit used solely for indicating instruments or other accessories of switchgear including any fixed lights associated therewith, one pole thereof may be so earthed instead of the neutral point.

(4) Any system or circuit other than the aforesaid which is connected to earth shall be so connected at one place but no more.

(5) No automatic circuit opening device shall be placed in any such connection to earth.

5. Where at any quarry two or more earth plates are used for the purposes of the two last preceding regulations and the electrical resistance between them or any two of them exceeds two ohms, they shall be connected by a conductor having a cross-sectional area not less than 0.022 square inches:

Provided that if any such earth plate used for the purposes of regulation four is inaccessible to the owner of the quarry, the provisions of this regulation shall not apply in relation to that earth plate but the resistance between any other earth plates and the general mass of earth shall not exceed two ohms.

Insulation and armouring

6.—(1) Every conductor forming part of an electrical system at a quarry other than—

(a) a conductor so placed or otherwise safeguarded as to prevent danger; or

(b) telephone or signalling apparatus; or

(c) a conductor in a circuit in which the voltage does not exceed twenty-five; shall be covered with insulating material.

(2) The insulation resistance of any circuit at a quarry, other than the insulation resistance of any conductor which is an earthing conductor, shall be so maintained that in normal working the leakage current does not exceed one ten thousandth part of the maximum current for which that circuit is designed:

Provided that this paragraph shall not apply to overhead lines or to telephone or signalling apparatus.

7.—(1) Every cable at a quarry comprising a conductor which is required by these regulations to be covered with insulating material, other than a flexible cable used to supply portable apparatus, shall be a cable protected throughout by a suitable metallic covering containing all the conductors forming part of the same electrical system at that place.

(2) Every such metallic covering shall have a conductivity throughout not less than half that of the conductor having the greatest current carrying capacity enclosed thereby:

Provided that in the case of a cable of which the metallic covering is wire and which is covered with a lead sheath, the conductivity of that sheath may be taken into account for the purposes of this paragraph if plumbed joints are used where the cable is jointed or terminated.

(3) Where it is necessary to move an electric motor from time to time to adjust the tension of a driving belt, rope or chain, such length of cable as is requisite may be protected by flexible metallic tubing instead of a metallic covering but a separate earthing conductor having a cross-sectional area not less than 0.022 square inches shall be provided therewith.

(4) Nothing in this regulation shall apply to a cable in any circuit in which the voltage does not exceed two hundred and fifty direct current or one hundred and twenty-five alternating current.

8.—(1) Wherever any cable (including a flexible cable) protected by a metallic covering is connected to other apparatus at a quarry, that metallic covering shall be securely attached to that apparatus.

(2) Any material insulating any conductor in any cable shall be efficiently sealed at any point at which that conductor is connected to other apparatus where its insulating property might be diminished by moisture.

Flexible cables.

9.—(1) No single-core flexible cable shall be used for supplying portable apparatus at any quarry:

Provided that where the conductivity required for the live conductor is such as to render the use of one two-core or multi-core cable impracticable there may be used single-core cables of such construction and bonded and earthed in such manner as may be approved by the Minister.

(2) Every flexible cable so used shall comprise an earthing conductor having throughout a cross-sectional area and conductivity not less than that of the other conductor in that cable having the greatest current carrying capacity.

(3) Every flexible cable so used in a circuit in which the voltage exceeds two hundred and fifty direct current or one hundred and twenty-five alternating current shall be protected throughout by—

(a) a metallic covering containing all the conductors forming part of that circuit at that place and having a conductivity not less than half that of the conductor enclosed thereby, other than the earthing conductor, having the greatest current carrying capacity or, where that is impracticable, having a conductivity not less than that of a copper conductor with a cross-sectional area of 0.022 square inches; or

(b) a screen of wires containing more or less completely all the conductors forming part of the circuit at that place and having a conductivity not less than that of a copper conductor with a cross-sectional area of 0.022 square inches; or

(c) screens of wires enclosing separately but more or less completely all the conductors forming part of the circuit at that place, other than the earthing conductor, and each of construction and having a conductivity approved by the Minister:

Provided that in a circuit in which the voltage exceeds six hundred and fifty the protection shall be by metallic covering in accordance with sub-paragraph (a).

(4) Without prejudice to the application of paragraph (1) of regulation eight wherever any flexible cable is connected to other apparatus it shall be so attached as to hold the cable securely and, where necessary having regard to its position, to exclude water, and any screen of wires shall be securely attached to that apparatus.

(5) Nothing in this regulation shall apply to telephone or signalling apparatus.

Restriction on use of high voltages

10.—(1) Electricity at a voltage exceeding two hundred and fifty direct current or at a voltage to earth exceeding sixty-four alternating current shall not be applied to any portable hand lamp at any quarry.

(2) Electricity at a voltage exceeding two hundred and fifty direct current or one hundred and ten alternating current shall not be applied to any portable apparatus at any quarry unless—

(a) in the case of apparatus comprising one or more motors, that motor or one of them is rated at more than four horse power; or

(b) in the case of other apparatus, the rated input exceeds four kilovolt amperes.

Transformers

11. In any transformer at a quarry suitable provision shall be made by earthing or otherwise to guard against danger arising from the charging of lower voltage components by leakage or induction from higher voltage components.

Testing and operation of electrical apparatus

12.—(1) It shall be the duty of the appropriate person at every quarry at which electrical apparatus is installed to make and ensure the efficient carrying out of arrangements for the testing by a competent person appointed by him of all parts of every circuit at the quarry at intervals not exceeding six months, or such longer interval as an inspector may by notice served on the appropriate person permit, as regards the insulation resistance thereof and the conductivity of the earthing conductor and earth plates.

(2) Every person who has made a test in pursuance of this regulation shall forthwith record and sign a report thereon in a book provided by the owner of the quarry for the purpose.

13. No person other than a competent person authorised by the appropriate person so to do shall undertake any work relating to the installation, repair, examination, testing or operation of any electrical apparatus, and, without prejudice thereto, the appropriate person shall not authorise any person to undertake any work for which technical knowledge is required to avoid danger except a person appointed by him as an electrician of the quarry.

14. No person shall commence work upon any conductor in a circuit in which the voltage is such that that conductor might be a source of danger to him until that conductor has been made dead and any necessary steps have been taken, whether by earthing or otherwise, to ensure that it will remain dead until the work is **finished**.

Protection of apparatus

15. Every person doing any work which may result in such damage to any electrical apparatus at a quarry that that apparatus might be a source of danger to persons employed thereat shall take such steps to protect it from such damage as may be **appropriate**.

Fencing of outdoor apparatus

16. Wherever any transformer or switchgear is installed at a quarry otherwise than in a building the apparatus shall be efficiently protected by fencing not less than eight feet high or other efficient means for preventing any unauthorised person from gaining access to the apparatus or any thing connected therewith used as a **conductor**:

Provided that this regulation shall not apply where the apparatus is completely enclosed with a metal casing which is connected with earth and any cables connected with the apparatus are protected by a metallic covering.

Overhead lines

17. Every overhead line at a quarry constructed after the thirteenth day of October, nineteen hundred and thirty-eight, shall be so constructed and maintained that if it was the line of an authorised undertaker or an Electricity Board it would be in compliance with any regulations relating thereto in force at the date of construction and made under the Electricity (Supply) Acts, 1882 to 1936, or made or having effect under section sixty of the Electricity Act, 1947(d):

Provided that nothing in this regulation shall require compliance in respect of any temporary line installed and removed within a period of three months with any provision of such regulations relating to the factor of safety of supports.

Notices

18. It shall be the duty of the appropriate person at every quarry at which electrical apparatus is installed to secure that notices containing directions on the treatment of persons suffering from electric shock are kept posted in such positions and such characters as to be easily seen and read wherever electrical apparatus is installed from which a dangerous shock might be received.

Savings

19. Nothing in these regulations shall apply to—

- (a) any electrical apparatus which is not used and is not intended to be used as, and does not form and is not intended to form, part of the equipment of a quarry ; or
- (b) any electrical apparatus operated at a quarry by an Electricity Board within the meaning of subsection (1) of section sixty-seven of the Electricity Act, 1947, being such apparatus thereat other than any such apparatus on the consumer's side of the consumer's terminals within the meaning of section one of the Schedule to the Electric Lighting (Clauses) Act, 1899(e), as incorporated with the said Electricity Act, 1947.

Exemptions

20. The Chief Inspector of Mines, if he is satisfied that the application of any provision of these regulations is inappropriate in relation to any quarry or part of a quarry or is not requisite for safety in relation to any electrical apparatus therein, may by notice served on the appropriate person grant exemption from that provision in respect of that quarry or part thereof or in respect of that apparatus, as the case may be.

Interpretation

21.—(1) In these regulations, unless the context otherwise requires, the following expressions have the meanings hereby respectively assigned to them, that is to say—

“ the Act ” means the Mines and Quarries Act, 1954 ;

“ appropriate person ” in relation to a quarry means—

(a) with regard to any matter the responsibility for which is for the time being duly reserved to the owner in accordance with section one hundred of the Act, the owner of the quarry ;

(b) with regard to any other matter, the manager of the quarry or where there are two or more managers, the manager having jurisdiction over the relevant part of the quarry ;

“ circuit breaker ” includes a fuse ;

“ electrical apparatus ” includes electric cables and any part of any machinery, apparatus or appliance being a part designed for the generation, conversion, storage, transmission or utilisation of electricity ;

“ flexible cable ” means a cable which is designed to be movable while in use ;

“ metallic covering ” in relation to any cable means an iron or steel wire covering or a rigid iron, steel or other hard metal pipe ;

“ portable apparatus ” includes any electrical apparatus that is designed to be moved while working ;

“ telephone or signalling apparatus ” means any system used exclusively for either or both of such purposes and supplied with electricity from a battery of primary or secondary cells at a voltage not exceeding fifty or, in the case of telephones, from magneto generators operated by hand.

(2) 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.

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

EXPLANATORY NOTE

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

This order is made under the Mines and Quarries Act, 1954, s. 190, which empowers the Minister of Fuel and Power to re-enact (to the extent to which they could be enacted in regulations made under the Act and subject to modifications of the kind specified in that section) the provisions of regulations which will cease to have effect at the commencement of the Act.

The provisions set out as regulations in the schedule to this order apply to quarries, and specify various requirements, prohibitions and restrictions with regard to the installation, construction and use of electrical apparatus thereat. Provision is also made with respect to the protection and examination of such apparatus. These regulations comprise, and will at the commencement of the Act replace, provisions of the Quarries General Regulations (Electricity), 1938.

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

STATUTORY INSTRUMENTS

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