1969. No. 190 [NC]

QUARRIES

Electricity

RULES, DATED 8TH JULY 1969, MADE BY THE MINISTRY OF COMMERCE UNDER SECTION 10 OF THE QUARRIES ACT (NORTHERN IRELAND) 1927.

The Ministry of Commerce in exercise of the powers conferred on it by section 10 of the Quarries Act (Northern Ireland) 1927(a), and of all other powers enabling it in that behalf, hereby makes the following Rules:—

PART I

GENERAL

Citation and Commencement

1. These Rules may be cited as the Quarries (Electricity) Rules (Northern Ireland) 1969 and shall come into operation on 1st November 1969.

Interpretation

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

"the Act" means the Quarries Act (Northern Ireland) 1927(a);

"the Ministry" means the Ministry of Commerce;

"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) Without prejudice to the provisions of the Interpretation Act (Northern Ireland) 1954(b) expressions to which meanings are assigned by the Act or by these Rules shall (unless the contrary intention appears) have the same meanings in any document issued under the provisions of these Rules.

Exemptions

3.—(1) Subject to paragraph (2) the requirements of these Rules relating to the construction of cables or other apparatus shall not apply until the 1st day of November 1972 to any cables or apparatus in use in any quarry at the date of the making of these Rules.

(a) 17 & 18 Geo. 5. c. 19 (N.I.). (b) 1954. c. 33.

(2) Notwithstanding paragraph (1) the Ministry may by notice served on the owner, occupier or agent of any quarry in which any cables or apparatus were in use as aforesaid direct that the requirements of these Rules specified in such notice shall apply to such cables or apparatus, and the said notice shall take effect accordingly 14 days after the service thereof unless the person on whom it was served serves a statement of objections in accordance with paragraph (3). Any such notice shall state the address to which a statement of objections under paragraph (3) is to be sent.

(3) If any person on whom a notice is served under paragraph (2) (hereinafter called "the objector") objects to the requirements of such notice he may, within 14 days of the service of such notice upon him, serve upon the Ministry at the address specified in such notice a statement in writing of his objections thereto. The Ministry shall consider such objections and withdraw or modify such notice. If the Ministry refuses to withdraw or modify such notice or the objector is not satisfied with any modification thereof he may refer the matter to an arbitration in the manner provided by Rule 23. On the hearing of such arbitration the arbitrator may quash, modify or confirm such notice, and if any such notice is modified it shall take effect accordingly.

(4) The Ministry, if it is satisfied that the application of any provision of these Rules 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 owner, occupier or agent grant exemption from that provision in respect of that quarry or part thereof or in respect of that apparatus, as the case may be.

Savings

4. Nothing in these Rules 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 Undertaker within the meaning of subsection (1) of section 31 of the Electricity (Supply) Act (Northern Ireland) 1967(**c**), being such apparatus thereat other than any such apparatus on the consumer's side of the consumer's terminals within the meaning of section 1 of the Schedule to the Electric Lighting (Clauses) Act 1899(**d**), as incorporated with the Electricity (Supply) Act (Northern Ireland) 1931(**e**).

PART II

EQUIPMENT: INSTALLATION, OPERATION AND MAINTENANCE THEREOF

Means of cutting off electricity

5.—(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;

(c) 1967. c. 11 (N.I.). (d) 62 & 63 Vict. c. 19. (e) 21 & 22 Geo. 5. c. 9 (N.I.).

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

6. 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 hereof, every circuit breaker shall be of adequate making and breaking capacity to operate safely on the occurrence of a short circuit.

Earthing

7.—(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 Rule.

(5) Nothing in this Rule 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.

8.—(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.

9. Where at any quarry two or more earth electrodes are used for the purposes of the two last preceding Rules 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 electrode used for the purposes of Rule 8 is inaccessible to the owner or occupier of the quarry, the provisions of this Rule shall not apply in relation to that earth electrode but the resistance between any other earth electrodes and the general mass of earth shall not exceed two ohms.

Insulation and armouring

10.—(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.

11.—(1) Every cable at a quarry comprising a conductor which is required by these Rules 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.