



THE COAL MINES (ELECTRICAL) REGULATIONS 1980

KEITH HOLYOAKE, Governor-General

ORDER IN COUNCIL

At the Government Buildings at Wellington this 24th day of March 1980

Present:

THE RIGHT HON. R. D. MULDOON PRESIDING IN COUNCIL

PURSUANT to the Coal Mines Act 1979, His Excellency the Governor-General, acting by and with the advice and consent of the Executive Council, hereby makes the following regulations.

ANALYSIS

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| <ol style="list-style-type: none"> 1. Title and commencement 2. Interpretation 3. Application 4. Conditions of use 5. Notification of intention 6. Notification of incidents 7. Notices to be exhibited 8. Plans 9. Electricians 10. Attendance by electrician | <ol style="list-style-type: none"> 11. General requirements 12. Voltage limitations 13. Physical protection of equipment 14. Colour coding of equipment 15. Electrical protection of equipment 16. Earthing 17. Types and use of cables 18. Installation of cables 19. Tests 20. Signalling and telephones 21. Revocations |
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REGULATIONS

1. Title and commencement—(1) These regulations may be cited as the Coal Mines (Electrical) Regulations 1980.

(2) These regulations shall come into force on the 1st day of April 1980.

2 Interpretation—In these regulations, unless the context otherwise requires,—

“The Act” means the Coal Mines Act 1979:

“Apparatus” means electrical apparatus: and includes appliances, capacitors, joint boxes, lighting fittings, plug and socket couplings, switchgear, and transformers:

- “Appliance” means any device which utilises electricity for a particular purpose:
- “Apprentice”, “improver”, and “student” shall have the meanings ascribed to them in the Electrical Registration Act 1979:
- “Approved” means approved by the Chief Inspector of Coal Mines:
- “Cable” means a length of insulated single conductor, or two or more such conductors, each provided with its own insulation, which are laid up together, which insulated conductor or conductors may or may not be provided with an overall mechanical protective covering:
- “Conductor” means any wire, cable, bar or tube used for conducting electricity:
- “Chief Inspector” means the Chief Inspector of Coal Mines appointed for the purposes of the Act:
- “Earthed” means effectually connected to the general mass of the earth:
- “Earthing system” means an electrical system in which all the conductors are earthed:
- “Electrical Inspector of Coal Mines” means a person appointed under the Act to inspect electrical apparatus and electrical wiring work used in coal mining operations:
- “Electrician” means a person who is registered as an electrician under the Electrical Registration Act 1979:
- “Fixed appliance” means an appliance which is installed in a permanent position:
- “Flameproof”, when applied to an enclosure for electrical apparatus, means an enclosure that will withstand, without injury, any explosion of the prescribed flammable gas that may occur within it under practical conditions of operation within the rating of the apparatus (and recognised overloads, if any, associated therewith) and will prevent the transmission of flame such as will ignite the prescribed flammable gas which may be present in the surrounding atmosphere:
- “Flammable” shall have the same meaning as “inflammable” used in the Act:
- “Flammable gas” means that gas which produces a halo or cap over the lowered flame of a flame safety lamp:
- “Flexible cable” means a cable consisting of one or more cores, each formed of a group of wires, the diameter of the wires and the insulating material and the overall mechanical protective covering, if any, being such as to afford flexibility:
- “Hand-held portable appliance” means an appliance which, from the nature of its use, requires to be held by a person while it is working and is of such weight as to enable it to be held by a person while it is working:
- “High voltage” means any voltage exceeding 1,200 volts but not exceeding 12,000 volts:
- “Inspector” means an Inspector of Coal Mines appointed for the purposes of the Act:
- “Insulated” means enclosed, surrounded, or supported by insulating material.

“Intrinsically safe”—

(a) When applied to a circuit, means a circuit in which any electrical sparking that may occur in normal working under the conditions specified by the certifying authority, and with the prescribed components, is incapable of causing an ignition of the prescribed flammable gas or vapour:

(b) When applied to apparatus, means apparatus that is so constructed that, when installed and operated under the conditions specified by the certifying authority, any electrical sparking that may occur in normal working, either in the apparatus or in the circuit associated therewith, is incapable of causing an ignition of the prescribed flammable gas or vapour:

“Low voltage” means any voltage exceeding 32 volts but not exceeding 250 volts:

“Manager” means the manager of a coal mine duly appointed in terms of the Act:

“Medium voltage” means any voltage exceeding 250 volts but not exceeding 1,200 volts:

“Metallic covering” means—

(a) Iron or steel wire armouring applied to cables with or without a lead or other metallic sheath:

(b) Solid steel conduit enclosing insulated cables:

(c) The copper sheath of mineral-insulated copper-sheathed cables:

“Portable appliance” means an appliance which, from the nature of its use, requires to be moved while it is working or is so designed that it can be moved while it is working:

“Protective screen” means a metallic screen applied either individually or collectively to the cores of a flexible cable:

“Semi-portable appliance” means an appliance which, from the nature of its use, requires to be moved to a new position from time to time between periods of working:

“Supply authority” means any person or body authorised to supply electrical energy:

“Switchgear” means switches, contactors, controllers, or fuses together with the conductors, other components, and enclosures associated therewith, used for the purpose of controlling the electricity to apparatus and to a system or part of a system:

“System” means an electrical system in which all the conductors and apparatus are electrically connected to a common source of supply; and includes the said conductors and apparatus:

“Voltage” means root mean square value of the potential difference between conductors or between conductors and earth.

3. Application—(1) Subject to these regulations the provisions of these regulations shall apply to electrical wiring and apparatus for the utilisation of electricity at a coal mine inbye from the mine entrance:

Provided that nothing in regulations 13 to 19 hereof shall apply to electrical wiring and equipment for signalling and for telephones in mines.

(2) Every addition to, or alteration of, existing electrical wiring and apparatus shall be deemed to be new work in part and the provisions of these regulations shall apply to all work done in connection with any such addition or alteration.

(3) Any electrical wiring and apparatus which, at the commencement of these regulations, had been installed in accordance with the Coal Mines (Electrical) Regulations 1962 and which did not conflict with the requirements of those regulations, may remain in use as if it had been installed under these regulations.

(4) Where strict compliance with these regulations would involve expenditure out of proportion to the degree of freedom from electrical hazard obtained by any such compliance, or where modern materials and techniques are evolved, the Chief Inspector may permit modification of the requirements of these regulations and under such conditions as he may impose if he is satisfied that reasonable freedom from electrical hazard can otherwise be obtained.

(5) The manager shall notify the supply authority from which the supply of electricity is obtained of any increase of electrical load caused by the use of electricity inbye from the mine entrance.

(6) It shall be the duty of the mine owner, agent, and manager to comply with and enforce these regulations, and it shall be the duty of all workmen and persons employed in mines to conduct their work in accordance with these regulations.

4. Conditions of use—(1) Electricity shall not be introduced within 300 metres of any working face if any one of 6 consecutive weekly samples of the general body of the air taken at the return end of the face, or elsewhere if so directed by the Inspector, contains more than 1 percent of flammable gas.

(2) Electricity shall not be introduced into or used in any place where the Inspector has prohibited the use of electricity on the grounds that any such use would be dangerous to life.

(3) If at any time in any place in a mine the percentage of flammable gas in the general body of the air in that place is found to exceed 1.25 percent, all cables and apparatus in that place (other than cables or apparatus used for signalling or telephoning) shall at once be disconnected from the supply of electricity and shall not be reconnected so long as the percentage of flammable gas exceeds that amount.

(4) In any coal mine where flammable gas has been found in terms of section 152 (2) of the Act, the following provisions shall apply:

- (a) Apparatus shall be of a type approved by a competent certifying authority as regards safety in respect to flammable gas and shall bear a flameproof or explosion proof certificate;
- (b) All apparatus approved by the certifying authority shall be installed, used and maintained so as to comply with the conditions of the approval;
- (c) The enclosure of apparatus shall not be opened so as to expose live conductors to the surrounding atmosphere at any time;
- (d) Apparatus containing remote control or electrical interlock circuits, when associated with plug and socket couplings, shall be designed so that the said circuits are intrinsically safe;

- (e) Where a plug and socket coupling is used without an electrical interlock, the plug shall not be withdrawn from the socket while the circuit is live and the circuit shall not be made live while the plug and the socket are disengaged:
- (f) Portable testing instruments shall be intrinsically safe.
- (5) For the purposes of subclause (4) of this regulation, the Chief Inspector shall name the competent certifying authorities.
- (6) In any mine to which subclause (4) of this regulation does not apply, apparatus of the industrial type may be used.
- (7) Should a fault occur or a hazardous condition arise in any part of the system, that part shall be disconnected forthwith from the supply until the fault has been remedied or the hazard removed.
- (8) Electricity from the electrical wiring shall not be used for shot-firing.

5. Notification of intention—(1) The manager shall give notice to the Inspector, as follows:

- (a) Notice of intention to introduce electricity into any mine or into any ventilating district of a mine in which electricity is not already lawfully in use:
- (b) Notice of intention to use electricity in any intake airway between the place where it is already lawfully in use and any working face if within 300 metres thereof:
- (c) Notice of intention to use electricity in any return airway between the place where it is already lawfully in use and any working face:
- (d) Notice of intention to reverse the ventilation in any ventilating district in which electricity is lawfully in use except with respect to such reversal in emergency or as a temporary measure.

(2) The notices required by this regulation shall be sent not less than one month nor more than 3 months before the date of the intention specified therein.

(3) If the Inspector does not object in writing within one month after receipt by him of the notice, it shall be lawful to carry out the intention specified therein.

6. Notification of incidents—(1) The manager shall send to the Inspector notice, as follows:

- (a) Notice of any accident due to the use of electricity resulting in loss of life or personal injury:
- (b) Notice of any ignition of flammable gas or of coal dust or any outbreak of fire due to use of electricity when loss of life or personal injury has not occurred:
- (c) Notice of any occasion when the supply of electricity has been disconnected in any place because the general body of the air in that place contained more than the 1.25 percent of flammable gas specified in regulation 4 (3) of these regulations.

(2) The notices required by this regulation shall be sent to the Inspector within 24 hours of the occurrence to which the notice relates.

(3) A copy of the notice required by subclause (1) (a) of this regulation shall be sent by the Inspector to the New Zealand Electricity Division of the Ministry of Energy.

7. Notices to be exhibited—(1) The manager shall exhibit the following notices:

- (a) A notice prohibiting unauthorised persons operating or interfering with apparatus except for the purpose of cutting off the supply of electricity in an emergency;
- (b) A notice giving details of the action to be taken in the case of fire caused by or involving apparatus or cables;
- (c) A notice containing directions for the treatment of persons suffering from electric shock;
- (d) A notice giving details of the action to be taken to have the supply of electricity to the mine cut off at the surface of the mine.

(2) The notices required by this regulation shall be constructed of durable material and shall be so protected as to be easily readable at all times.

(3) The notices required by paragraphs (a), (b), and (c) of subclause (1) of this regulation shall be exhibited in all rooms and recesses specified in subclause (1) of regulation 13 hereof.

(4) The notice required by subclause (1) (d) of this regulation shall be exhibited at the surface of the mine and at those places in the mine between which and the surface of the mine telephonic communication is provided.

8. Plans—(1) The manager shall keep at the mine a plan, to a scale of not less than 1:1,500, showing the position of all transformers, capacitors, switchgear, joint boxes, fixed appliances, transportable appliances, and portable appliances.

(2) The plan shall be corrected as often as is necessary to keep it reasonably up to date.

(3) The plan shall be produced to an Inspector or an Electrical Inspector of Coal Mines at his request.

9. Electricians—(1) No person shall do any prescribed electrical work to which these regulations apply—

- (a) Unless he is registered as an electrical technician or an electrician; or
- (b) Unless he holds a provisional licence under the Electrical Registration Act 1979, to carry out the work of an electrician.

(2) Only apprentices, improvers, electrical mechanics and students may assist in doing any such electrical wiring work:

Provided that, at all times while they are so assisting, they are under the supervision and in the presence of an electrician.

(3) The duties of an electrician, in premises to which these regulations apply, shall be to:

- (a) Do electrical wiring work and test all such work;
- (b) Examine and test all new apparatus and all apparatus which is reinstalled in a new position before it is put into service;
- (c) Test—

(i) All such apparatus as often as may be necessary to prevent danger after making periodic examinations of the apparatus:

(ii) The insulation resistance of insulated conductors:

(iii) The continuity of earth conductors, metallic coverings, and earth connections.

(4) The interval between the tests specified in subclause (3) of this regulation shall not exceed 3 months.

(5) The electrician shall record the result of the examinations and tests specified in subclause (3) of this regulation.

(6) All such records shall be written in a logbook, in the form provided for the purpose, daily or, where daily attendance is not required by these regulations, immediately after each examination or test. The logbook shall be produced to the Inspector or the Electrical Inspector of Coal Mines at his request.

10. Attendance by electrician—(1) An electrician shall be in daily attendance:

(a) At every mine where, in the underground workings of which, the number of motors exceeds 6 and the aggregate power of those motors exceeds 150 kilowatts:

(b) At every other mine where the aggregate power of the motors at the mine exceeds 300 kilowatts.

(2) At every mine, other than one to which subclause (1) of this regulation applies, where semi-portable appliances or portable appliances or hand-held portable appliances, other than electric safety lamps, are in use in the underground workings of the mine, an electrician shall attend at the mine at intervals not exceeding 14 days.

(3) At every mine where electricity is used and to which subclause (1) or subclause (2) of this regulation does not apply, an electrician shall attend at the mine at intervals not exceeding 28 days.

11. General requirements—(1) Apparatus and cables shall be adequate in size and rating for the conditions under which they are to be used.

(2) Apparatus and cables shall be so constructed, installed, protected, used, and maintained as to prevent danger.

(3) Hand-held portable appliances, and all flexible cables associated therewith, shall be removed to the surface of the mine for special examination and test at intervals not exceeding 3 months.

(4) Handles of apparatus intended to be operated shall be conveniently placed for that purpose.

(5) The standard of construction of apparatus and of all parts of the electrical installation shall not be inferior to that to which the apparatus and parts were originally constructed.

12. Voltage limitations—(1) Electricity shall not be transmitted underground at a voltage exceeding high voltage.

(2) Electricity shall not be used in any appliance at a voltage exceeding medium voltage.

(3) Electricity shall not be used in any hand-held portable appliance at a voltage exceeding 125.

(4) Electricity shall not be used for lighting at a voltage exceeding 125:

Provided that low voltage may be used in places that are not within 300 metres of any working place.

(5) Electricity shall not be used for the remote control or interlocking of apparatus at a voltage exceeding low voltage.

(6) In any circuit which includes a plug and socket coupling other than a bolted plug and socket coupling, electricity shall not be used for the remote control or interlocking of apparatus at a voltage exceeding 30.

13. Physical protection of equipment—(1) Where necessary to prevent danger or mechanical damage or to provide protection against falls of coal or stone, fixed appliances, switchgear, capacitors, and transformers shall be housed in a room or covered recess set apart for the purpose.

(2) The room or recess referred to in subclause (1) of this regulation shall be kept clear of rubbish.

(3) At all other places where apparatus is installed, rubbish and loose coal or stone shall be kept clear of the apparatus.

14. Colour Coding of Equipment—(1) Where more than one voltage of supply is distributed underground, the distributing switchgear, cable couplers and plugs shall be painted the following colours:

(a) 400 volts—nominal	.....	.....	.....	.....	Orange
(b) 1000 volts—nominal	.....	.....	.....	.....	Blue
(c) 3300 volts—nominal	.....	.....	.....	.....	Green
(d) 6600 volts—nominal	.....	.....	.....	.....	White
(e) 11 000 volts—nominal	.....	.....	.....	.....	Red

15. Electrical protection of equipment—(1) Suitable switchgear for switching off the electricity to the underground workings of a mine shall be provided at the surface of the mine and easy access to any such switchgear shall always be readily available.

(2) Every circuit for conveying electricity at high or medium voltage within the mine shall be protected—

(a) On at least two live conductors, by an overload device arranged that when the current in any such circuit exceeds the rated current, and permissible overload, the electricity shall be cut off automatically from all live conductors; and

(b) By an earth-leakage device so arranged that, when the leakage current to earth exceeds 0.5 amps, the electricity shall be cut off automatically from all live conductors.

(3) Every circuit conveying electricity into a section from a main circuit shall be protected by a switching and overload device so that—

(a) Electricity can be cut off from the section; and

(b) When the current in the circuit to the section exceeds the rated current of the cable, the electricity shall be cut off automatically.

(4) Where smaller cables branch from larger cables of a parent circuit, the smaller cables shall be protected by an overload device so that when the current in the branch circuit exceeds the rating of the smaller cable the electricity shall be cut off automatically.

(5) All hand-held portable appliances shall be supplied from switchgear which includes a monitored earth circuit arranged to cut off the electricity automatically in the event of the earth continuity conductor to the appliance breaking or becoming disconnected and before the leakage current to earth can exceed 0.020 amps.

(6) All portable appliances connected to flexible trailing cables shall be supplied from switchgear which includes—

- (a) A monitored earth circuit arranged to cut off automatically the electricity in the event of the earth continuity conductor to the appliance breaking or becoming disconnected;
- (b) A cable fault lock-out device which prevents the electric power being restored to a faulty flexible cable.

(7) Motors having a rating exceeding 3 kilowatts shall be provided with—

- (a) A device for automatically disconnecting the motor from the supply when the voltage falls sufficiently low to cause the motor to stop; and
- (b) A time-lagged overload device in at least 2 live conductors for automatically disconnecting the motor from the supply when the current exceeds the rated current, and permissible overload, of the motor.

(8) Where a motor is located at a considerable distance from its controlling apparatus, a switch shall be provided within easy reach of the motor to isolate the motor from the supply.

(9) Portable electric welders and conveyor belt electric vulcanisers, when authorised in accordance with section 153 (2) of the Act, shall be supplied through the switchgear specified in subclause (5) of this regulation.

16. Earthing—(1) All metallic structures forming part of apparatus and all metallic sheaths and metallic coverings and screens of cables and all earthing conductors in cables shall be earthed by connection to an earthing system.

(2) The connection of the earthing system to the general mass of the earth shall be made at the surface of the mine by one or more earthing electrodes or by an earthed water supply with metal-to-metal joints.

(3) The metallic covering of cables may be used as a part of an earthing system.

(4) Excepting the metallic covering of cables and flexible metallic covering and earthing conductors comprised in flexible cables, no conductor of an earthing system shall have a conductance less than that of a copper conductor of 14 sq mm cross-sectional area.

(5) All joints in and connections to an earthing system shall be mechanically secure and electrically effective.

(6) No automatic circuit opening device shall be included in an earthing system.

(7) The neutral point of any high or medium voltage transformer owned by the mine owner, shall be earthed through a device which limits any earth fault current to not more than 5 amps.

(8) Where such a transformer is owned by the supply authority and the neutral point is solidly earthed, the voltage of supply to mine appliances shall not exceed 440 volts.

17. Types and use of cables—(1) Cables used for the main circuit conveying electricity into the mine, for permanent wiring and for supplying permanently installed apparatus shall be an approved type with wire armouring and flame resisting outer sheath.

(2) Cables used for conveying electricity to semi-portable appliances or to apparatus which requires to be shifted as development advances may be cables complying with subclause (1) of this regulation or approved pliable armoured cables.

(3) Flexible trailing cables for conveying electricity from switchgear to portable appliances shall be an approved shielded type.

(4) Non-shielded flexible trailing cables used to convey electricity from switchgear to hand-held portable appliances and submersible pumps shall be an approved type.

(5) Cables used for supplying lighting systems shall be an approved armoured or screened type, with outer flame resisting sheath.

(6) Notwithstanding subclause (1) of this regulation, approved pliable armoured cables may be used between any fixed appliance and its controlling switchgear.

(7) Flexible trailing cables, if damaged underground, shall be sent to the surface for repair. An approved repair method shall be used.

(8) In any mine to which subclause (4) of regulation 4 of these regulations does not apply—

(a) Armoured cables may be used in place of those cables specified in subclause (1), subclause (2), and subclause (5) of this regulation:

(b) Poly-vinyl-chloride insulated or rubber insulated cables in solid steel conduit or mineral insulated copper-sheathed cables may be used between—

(i) Units of switchgear making up a composite switchboard; and

(ii) Any appliance and its controlling switchgear when both are fixed on a common rigid bedplate:

(c) Flexible cables of the following construction, that is, poly-vinyl-chloride insulated, poly-vinyl-chloride sheathed, copper braid screened, and poly-vinyl-chloride sheathed overall, may be used between any fixed appliance or transportable appliance and the plug and socket connection or fixed controlling switchgear associated with any such appliance.

(9) Cables that are no longer required to be used shall be disconnected from the source of supply.

18. Installation of cables—(1) The following requirements shall apply to the installation of armoured cables and to pliable armoured cables:

(a) Cables suspended in shafts and in boreholes shall—

(i) Unless adequately protected by virtue of their location, be specially protected against damage by the normal operations of winding or by falling material; and

(ii) Unless designed to sustain their own weight, be secured at such intervals and in such a manner as may be necessary to relieve them from undue stress:

(b) Cables suspended in haulage roadways shall be so placed as to be clear of passing wheeled traffic or they shall be specially protected therefrom:

(c) Cables shall be suspended at sufficiently frequent intervals and in such a manner as to avoid unnecessary sag and undue damage:

- (d) For the purpose of paragraphs (b) and (c) of this regulation, it is desirable that wire rope be used from which to suspend cables:
- (e) Cable-supporting devices shall be designed to release the cable when subjected to abnormal stress:
- (f) Cables shall not be buried in a roadway except where necessary to cross a roadway or to avoid an obstruction or in order to secure special protection to the cable:
- (g) Where a cable is buried, it shall be enclosed in a substantial trough or duct:
- (h) The metallic covering of cables shall be specially protected against chemical corrosion where necessary:
- (i) Where cables are jointed or terminated, the insulating material shall be effectively sealed in a cable sealing or dividing box against access of moisture:
- (j) Where the lead sheath of a cable ends, it shall be securely attached to the metallic structure of the apparatus associated with the conductors which it encloses so as to secure effective electrical contact therewith:
- (k) Where the metallic covering of a cable ends, it shall be securely attached to the metallic structure of the apparatus associated with the conductors which it encloses so as to secure effective electrical contact therewith:
- (l) Where pliable armoured cable is connected to any apparatus, the outer sheath shall be gripped so as to relieve undue stress on and to prevent sharp bends in the conductors:
- (m) Surplus cable shall be stowed in a figure-of-eight:
- (n) Sections of cable shall be joined only by joint boxes especially constructed for the purpose or by bolted plug and socket couplings:
- (o) Cable shall be connected to the apparatus with which it is associated either—
 - (i) Directly; or
 - (ii) By means of a bolted plug and socket coupling.
- (2) The following requirements shall apply to the installation of flexible trailing cables:
 - (a) Where the protective screen of a cable or an earthing conductor ends, it shall be securely attached to the metallic structure of the apparatus, associated with the conductors which it encloses, so as to secure effective electrical contact therewith:
 - (b) Where a cable is connected to apparatus, the outer sheath shall be gripped so as to relieve undue stress on and to prevent sharp bends in the conductors:
 - (c) The cable shall be adequately protected from damage and surplus cable shall be stowed in a figure-of-eight:
 - (d) Cables shall be removed from the coal face when not required for immediate use:
 - (e) Cables shall be examined immediately before they are used in any shift:
 - (f) Cables found to be defective or damaged shall not be put into use or continue to be used:

- (g) Defective or damaged cables shall be taken to the surface for repair:
- (h) After cables have been repaired or refitted to apparatus they shall be tested to prove that they are safe for use:
- (i) At the point where the cable is connected to the parent circuit, a switch shall be provided to cut off the electricity to the cable:
- (j) Sections of cable shall be joined only by—
 - (i) A bolted plug and socket coupling; or
 - (ii) A restrained plug and socket coupling.
- (k) Cable shall be connected to the apparatus with which it is associated either—
 - (i) Directly; or
 - (ii) By means of a bolted plug and socket coupling; or
 - (iii) By means of a restrained plug and socket coupling.

19. Tests—(1) The tests specified in this regulation shall be carried out before supplying any system with electricity after the initial installation or the reinstallation and thereafter at intervals not exceeding 3 months.

(2) Insulation tests shall be carried out with direct current—

(a) In the case of medium or any lower voltage systems, at a voltage of not less than 500; or

(b) In the case of high voltage systems, at a voltage of not less than 1000.

(3) The tests specified in subclause (2) (a) of this regulation shall be deemed to be satisfied if the insulation resistance—

(a) Of the system, but not including any appliance, is not less than 1 megohm; and

(b) Of any appliance is not less than half a megohm.

(4) The tests specified in subclause (2) (b) of this regulation shall be deemed to be satisfied if the insulation resistance—

(a) Of the system, but not including any appliance or transformer, is not less than 100 megohms; and

(b) Of any appliance or transformer is not less than 50 megohms.

(5) Earth continuity tests shall be carried out with suitable instruments.

(6) Earth continuity tests shall be deemed to be satisfied if the resistance—

(a) Between any earthing electrode or earthed water supply with metal-to-metal joints and the mass of the earth is not more than 2 ohms; and

(b) Between any metal of any part of an earthing system and the earthing electrode or earthed water supply with metal-to-metal joints is not more than 1 ohm.

20. Signalling and telephones—(1) In any mine to which regulation 4 (4) of these regulations applies, the requirements of this regulation shall apply to all circuits comprising signalling equipment and telephones and to all accessories associated therewith:

(a) The equipment comprised in the circuit, including batteries and other sources of electricity, shall be of a type approved by the Chief Inspector:

(b) The circuits shall be intrinsically safe:

- (c) The circuits shall not be connected with other circuits except by means of equipment approved by the Chief Inspector:
 - (d) Equipment approved as aforesaid shall be installed, used, and maintained so as to comply with the conditions of the approval:
 - (e) Circuits shall not be connected to earth:
 - (f) If bare line conductors are used in any circuit, adequate precautions shall be taken to prevent the conductors from touching other conductors or cables or apparatus:
 - (g) Contact-making devices used for signalling shall be constructed so as to prevent accidental closing of the circuit:
 - (h) Electricity shall not be used in any circuit for signalling at a voltage exceeding 25 volts:
 - (i) Electricity shall not be used in any circuit for magneto telephones at a voltage exceeding 150 volts:
 - (j) The maximum short circuit current in any circuit shall not exceed 2 amperes.
- (2) Efficient telephone or other equivalent means of communication shall be provided between the room in which the switchgear provided in accordance with regulation 13 (1) of these regulations is installed and the place at which the switchgear provided in accordance with regulation 15 (1) of these regulations is installed.

21. Revocations—The Coal Mines (Electrical) Regulations 1962 and the Coal Mines (Electrical) Regulations, Amendment No. 1 are hereby revoked.

P. G. MILLEN,
Clerk of the Executive Council.

EXPLANATORY NOTE

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

These regulations consolidate and amend the Coal Mines (Electrical) Regulations 1962 and their amendments.

Issued under the authority of the Regulations Act 1936.
Date of notification in *Gazette*: 27 March 1980.
These regulations are administered in the Mines Division of the Ministry of Energy.