

shall be at least equal to 25 per cent. of the conductivity of the conductor enclosed thereby.

- (f.) Cables and conductors where joined up to motors, transformers, switch gear, and other apparatus shall be installed so that (i) they are mechanically protected by securely attaching the metallic covering (if any) to the apparatus; and (ii) the insulating-material at each cable-end is efficiently sealed so as to prevent the diminution of its insulating properties. Where necessary to prevent abrasion or to secure gastightness there shall be properly constructed bushes.

172. (1.) Flexible cables for portable apparatus shall be two-core or multi-core, and covered with insulating-material which shall be efficiently protected from mechanical damage. If a flexible metallic covering be used either as the outer conductor of a concentric system or as a means of protection from mechanical damage, the same shall not alone be used to form an earth conductor for the portable apparatus.

(2.) Every flexible cable for portable apparatus shall be connected to the system and to the portable apparatus itself by a properly constructed connector.

(3.) At every point where flexible cables are joined to main cables a switch capable of entirely cutting off the pressure from the flexible cables shall be provided.

(4.) No lampholder shall be in metallic connection with the guard or other metal work of a portable lamp.

173. (1.) Every person appointed to work, supervise, or adjust any apparatus shall be competent for the work that he is set to do. No person except an electrician or a competent person acting under his supervision shall undertake any work where technical knowledge or experience is required in order adequately to avoid danger.

(2.) An electrician shall be appointed in writing by the manager to supervise the apparatus. If necessary for the proper fulfilment of the duties detailed in the succeeding paragraphs of this rule, the manager shall also appoint in writing an assistant or assistants to the electrician.

(3.) The electrician shall be in daily attendance at the mine. He shall be responsible for the fulfilment of the following duties, which shall be carried out by him or by an assistant or assistants duly appointed under subclause (2):

(a) The thorough examination of all apparatus (including the testing of earth conductors and metallic coverings for continuity) as often as may be necessary to prevent danger; and (b) the examination and testing of all new apparatus, and of all apparatus re-erected in a new position in the mine before it is put into service in the new position: Provided that in the absence of the electrician for more than one day the manager shall appoint in writing an efficient substitute.

(4.) The electrician shall keep at the mine a log-book made up of daily log-sheets kept in the form prescribed by the Minister. The said log-book shall be produced at any time to an Inspector of Mines on his request.

(5.) Should there be a fault in any circuit the part affected shall be made dead without delay, and shall remain so until the fault has been remedied.

(6.) All apparatus shall be kept clear of obstruction and free from dust, dirt, and moisture as may be necessary to prevent danger. Inflammable or explosive material shall not be stored in any room, compartment, or box containing apparatus, or in the vicinity of apparatus.

(7.) Adequate precautions shall be taken by earthing or other suitable means to discharge electrically any conductor or apparatus or any adjacent apparatus if there is danger therefrom, before it is handled, and to prevent any conductor or apparatus from being accidentally or inadvertently electrically charged when persons are working thereon. While lamps are being changed the pressure shall be cut off; provided that this paragraph shall not apply to the cleaning of commutators and slip-rings working at low or medium pressures.

(8.) The person authorized to work an electrically driven coal-cutter or other portable machine shall not leave the machine while it is working, and shall, before leaving the working-place, ensure that the pressure is cut off from the flexible trailing cable which supplies such coal-cutter or other portable machine. Trailing cables shall not be dragged along by the machine when working.

(9.) Every flexible cable shall be examined periodically (if used with a portable machine, at least once in each shift by the person authorized to work the machine), and if found damaged or defective it shall forthwith be replaced by a spare cable in good and substantial repair. Such damaged or defective cable shall not be further used underground until after it has been sent to the surface and there properly repaired.

174. In any part of a mine in which inflammable gas, although not normally present, is likely to occur in quantity sufficient to be indicative of danger, the following additional requirements shall be observed:—

- (a.) All cables, apparatus, signalling-wires, and signalling-instruments shall be constructed, installed, protected, worked, and maintained so that in the

normal working thereof there shall be no risk of open sparking.

- (b.) All motors shall be constructed so that when any part is live all rubbing-contacts (such as commutators and slip-rings) are so arranged or enclosed as to prevent open sparking.

(c.) The pressure shall be switched off apparatus forthwith if open sparking occurs, and during the whole time that examination or adjustment disclosing parts liable to open sparking is being made. The pressure shall not be switched on again until the apparatus has been examined by the electrician or one of his duly appointed assistants and the defect (if any) has been remedied or the adjustment made.

(d.) Every electric lamp shall be enclosed in an airtight fitting, and the lamp-globe itself shall be hermetically sealed.

(e.) A safety-lamp shall be provided and used with each motor when working, and should any indication of fire-damp appear from such safety-lamp the person appointed to work the motor shall forthwith cut off the pressure therefrom, and report the matter to a fireman-deputy or other official.

(f.) Haulage by electric locomotives on the overhead trolley-wire system is prohibited in any mine in which coal is worked.

(g.) Haulage by storage-battery locomotives may be used in any mine, with the consent in writing first obtained of the Minister, and subject to such conditions affecting safety as may be prescribed by him.

175. (1.) Current from lighting or power circuits shall not be used for firing shots.

(2.) Shot-firing cables shall be covered and protected as provided by Regulation 172 (1) for flexible cables. Adequate precautions shall be taken to prevent them from touching other cables and apparatus.

176. (1.) Where electricity is used for signalling, the pressure in any one circuit shall not exceed 25 volts.

(2.) Contact-makers shall be so constructed as to prevent the accidental closing of the circuit.

(3.) Adequate precautions shall be taken to prevent signal and telephone wires from touching cables and apparatus.

177. (1.) All relighting-apparatus shall be so constructed, worked, and maintained as to preclude the accumulation of explosive gas within it.

(2.) Relighting-apparatus shall not be used in any part of a mine in which Regulation 114 applies.

(3.) All safety-lamps when relighted shall be examined before being issued.

178. (1.) Any of the requirements of this part of these regulations shall not apply in any case in which exemption is obtained from the Minister on the ground either of emergency or special circumstances, on such conditions as the Minister may prescribe.

(2.) The requirements of this part of these regulations which relate to the construction of cables and other apparatus shall not before the 1st day of January, 1920, apply to any apparatus which was in use before the 1st day of June, 1915, and which had been constructed or had before the 1st day of June, 1915, been adapted so as to comply with the requirements relating to the construction of electrical apparatus in mines in force before that date, unless the Inspector of Mines, by written notice served on the owner, agent, or manager as regards either all or any of the said requirements of the foregoing rules, so directs. If the owner, agent, or manager, within fourteen days after the receipt of such notice, objects to comply with the requirements specified in the notice, the matter shall be settled in manner provided by the Act for settling disputes.

#### SCHEDULE.

FORM 1.

[Reg. 6.]

The Coal-mines Act, 1908.

FIRST-CLASS MINE-MANAGER'S CERTIFICATE.

No. . . . . Office of Board of Examiners,  
Wellington, 19 . . . . .

THIS is to certify that [State the name in full, address, and occupation of person examined] has produced a certificate from his previous employers that he has been actually engaged in underground workings in a mine for a period of not less than five years, and has passed a satisfactory examination as a first-class mine-manager of a coal-mine, as required by sections 25 to 27 of the Coal-mines Act, 1908, and the regulations made thereunder.

A. B.,

Chairman of Board of Examiners.

Entered, Vol. . . . folio . . . . .

C. D., Secretary.