

Inspector, there shall, in every mine in which a mechanical contrivance for ventilation is used, be provided and maintained in a condition to be put into immediate operation adequate means for reversing the air-current.

#### PREVENTION OF THE INFLAMMATION OF COALDUST.

155. (1.) In all working-places of a mine where permitted explosives are required to be used, and where the coaldust does not contain normally more than one-third its own weight of water, no shot shall be fired unless efficient steps have been taken by watering by a suitable atomizer the floor, roof, and sides, within a radius of 5 yards of the drilled shot-hole. The quantity of water distributed before firing shall not be less in weight than the coaldust present.

(2.) In all haulage or travelling roads of a mine where permitted explosives are required to be used, or where fine coaldust does not normally contain more than one-third its own weight of water, or more than such quantity of incombustible matter as would make a mixture yielding on incineration at least 50 per cent. of ash, the floor, roof, and sides shall be treated with—

- (a.) Incombustible dust thrown about by hand or distributed by other approved methods, the proportion of incombustible dust to coaldust being maintained in all roads at equal parts by weight;
- (b.) Water in a state of intimate mixture with the coaldust, and maintained at a proportion of one-third by weight (of water) in such mixture; or
- (c.) A combination of the two previous methods—*i.e.*, the treatment of the roads first with incombustible dust and then with water.

(3.) No incombustible dust containing free silica shall be used in a mine. All incombustible dust shall be ground to pass through a 28 by 28 to an inch sieve, and shall contain not less than 50 per cent. by weight of fine material capable of passing through a 200 by 200 to an inch sieve.

#### ELECTRICITY.

The following regulations shall not apply in the case of any apparatus used above ground, except such as may directly affect the safety of persons below ground.

156. It shall be the duty of the mine-owner, agent, and manager to comply with and enforce the following regulations, and it shall be the duty of all workmen and persons employed to conduct their work in accordance with the regulations.

157. "Pressure" means the difference of electrical potential between any two conductors, or between a conductor and earth as read by a hot wire or electrostatic voltmeter.

"Low pressure" means a pressure in a system normally not exceeding 250 volts where the electrical energy is used.

"Medium pressure" means a pressure in a system normally above 250 volts, but not exceeding 650 volts, where the electrical energy is used.

"High pressure" means a pressure in a system normally above 650 volts, but not exceeding 3,300 volts, where the electrical energy is used or supplied.

"Extra-high pressure" means a pressure in a system normally exceeding 3,300 volts where the electrical energy is used or supplied.

"System" means an electrical system in which all the conductors and apparatus are electrically connected to a common source of electromotive force.

"Concentric system" means a system in which the circuit in a conductor or conductors, called the "inner conductor," is completed through one or more conductors, called the "outer conductor," arranged so that the inner conductor is insulated and the outer conductor is disposed over the insulation of and more or less completely around the inner conductor.

"Conductor" means an electrical conductor arranged to be electrically connected to a system.

"Apparatus" means electrical apparatus, and includes all apparatus, machines, and fittings in which conductors are used, or of which they form a part.

"Circuit" means an electrical circuit forming a system or branch of a system.

"Covered with insulating-material" means adequately covered with insulating-material of such quality and thickness that there is no danger.

"Metallic covering" means iron or steel armouring with or without a lead or other metallic sheath as the conditions of the case may require, or an iron or steel pipe surrounding two or more conductors.

"Bare" means not covered with insulating-material.

"Live" means electrically charged.

"Dead" means at or about zero potential, and disconnected from any live system.

"Open sparking" means sparking which, owing to the lack of adequate provision for preventing the ignition of inflammable gas external to apparatus, would ignite such inflammable gas.

"Earthed" means connected to the general mass of earth in such manner as will ensure at all times an immediate discharge of electrical energy without danger.

"Earthing system" means an electrical system in which all the conductors are earthed.

"Switch gear" means switches or fuses, conductors, and other apparatus in connection therewith used for the purpose of controlling the current or pressure in any system or part of a system.

"Authorized person" means a person appointed in writing by the manager of the mine to carry out certain duties incidental to the generation, transformation, distribution, or use of electrical energy in the mine, such person being a person who is competent for the purposes of the rule in which the term is used.

"Electrician" means a person appointed in writing by the manager of the mine to supervise the apparatus in the mine and the working thereof, such person being a person who is over twenty-one years of age and is competent for the purposes of the rule in which the term is used.

"Danger" means danger to health or danger to life or limb from shock, burn, or other injury to persons employed, or from fire explosion attendant upon the generation, transformation, distribution, or use of electrical energy.

"Use" of electricity means the conversion of electricity into mechanical energy, heat, or light for the purpose of providing mechanical energy, heat, or light.

158. Electricity shall not be used in any part of a mine where, on account of the risk of explosion of gas or coaldust, the use of electricity would be dangerous to life; and if the owner of a mine, on being required by an Inspector not to use, or to desist from using, electricity in the mine or any part thereof on such ground as aforesaid, refuses to do so, the question as to the application of this regulation to the mine or any part thereof shall be settled by the Inspector.

159. If at any time at any place in the mine the percentage of inflammable gas in the general body of the air in that place is found to exceed  $1\frac{1}{2}$ , the electric current shall at once be cut off from all cables and other electrical apparatus in that place, and shall not be switched on again as long as the percentage of inflammable gas exceeds that amount.

Provided that nothing in this regulation shall apply to any telephone or signalling wires or instruments, as long as the conditions prescribed with reference to the installation and use of such wires and instruments are complied with, nor to any electric hand-lamps for the time being approved.

160. Notices shall be sent to the Inspector on forms prescribed by the Minister, as follows, namely,—

- (a.) Notice of the intention to introduce apparatus into any mine or into any ventilating district in any mine.
- (b.) Notice of the intention to introduce or reintroduce electricity into any mine where the use of electricity has previously been prohibited.
- (c.) On or before the 21st day of January in every year, an annual return giving the size and type of apparatus, and any particulars which may be required by the Minister as to the circumstances of its use.

If the Inspector does not object in writing, within one calendar month from the receipt by him of the notice, to the carrying-out of either of the intentions specified in the first or second notices, the owner shall be entitled to carry out such intention or intentions:

Provided that this regulation shall not apply to telephones and signalling-apparatus.

161. A proper plan on the same scale as that kept at the mine in fulfilment of the requirements of the Act shall be kept in the office at the mine, showing the position of all fixed apparatus in the mine other than cables, telephones, and signalling-apparatus. The said plan shall be corrected as often as may be necessary to keep it reasonably up to date, and it shall be produced to an Inspector of Mines at any time on his request.

162. The following notices, constructed of durable material, shall be exhibited where necessary:—

- (a.) A notice prohibiting any person other than an authorized person from handling or interfering with apparatus.
- (b.) A notice containing directions as to procedure in case of fire. This notice shall be exhibited in every place containing apparatus other than cables, telephones, and signalling-apparatus.
- (c.) A notice containing directions as to the restoration of persons suffering from the effects of electric shock.
- (d.) A notice containing instructions how to communicate with the person appointed in charge of the switch gear, as provided by Regulation 172 (1) hereof. This notice shall be exhibited at the shaft-bottom.

163. In all places lighted by electricity, where a failure of the electric light would be likely to cause danger, one or more safety-lamps or other proper lights shall be kept continuously burning.

164. (1.) Efficient telephonic or other equivalent means of communication shall be provided for communicating between the place in which the switch gear provided under Regulation 172 (1) is erected and the shaft-bottom or main distributing centre in the pit.