

**MINISTRY OF LABOUR AND EMPLOYMENT**  
**NOTIFICATION**

New Delhi, the 27th November, 2017.

**G.S.R. 1449(E).**—Whereas the draft of certain regulations which the Central Government proposes to make, in exercise of the powers conferred by section 57 of the Mines Act, 1952 (35 of 1952) and on the recommendations of the Committee constituted under section 12 of the said Act, were published in the Gazette of India, Extraordinary, Part II, section 3, sub-section (i), vide number G.S.R. 773 (E), dated the 20<sup>th</sup> October, 2011, as required by sub-section (1) of section 59 of the said Act, inviting objections and suggestions from all persons likely to be affected thereby on or before the expiry of a period of three months from the date of publication of the said notification in the Official Gazette;

And whereas the objections and suggestions received on the said draft have been considered by the Central Government;

Now, therefore, in exercise of the powers conferred by section 57 of the said Act and in supersession of the Coal Mines Regulations, 1957, the Central Government hereby makes the following regulations, namely:-

**CHAPTER I**  
**PRELIMINARY**

**1. Short title, commencement, application and extent.**—(1) These regulations may be called the Coal Mines Regulations, 2017.

- (2) They shall come into force on the date of their publication in the Official Gazette.
- (3) They shall apply to every coal mine.
- (4) They shall extend to the whole of India.

**2. Definitions.**—(1) In these regulations, unless the context otherwise requires, -

- (a) “abandoned working” means such working as have been abandoned with no intention of working in future;
- (b) “Abandoned Mine Methane (AMM)” means a natural gas recovered from abandoned coal mines or part thereof;
- (c) “Act” means the Mines Act, 1952 (35 of 1952);
- (d) “approved safety lamp” and “approved electric torch” mean respectively, a safety lamp or an electric torch, manufactured by such firm and of such type as the Chief Inspector may, from time to time, specify by a general or special order;
- (e) “assistant manager” means a person possessing a Manager’s Certificate appointed in writing by the owner, agent or manager to assist the manager in the management, control, supervision and direction of the mine or part thereof, and who holds the rank immediately below the manager and superior to an overman and a sirdar;
- (f) “auxiliary fan” means a forcing fan or an exhausting fan used belowground wholly or mainly for ventilating one or more faces forming part of a ventilating district;
- (g) “average output” of any mine, means the average output per month during the preceding financial year of the total output from all workings within the specified mine boundaries;
- (h) “banksman” means a person appointed to superintend the lowering and raising of persons, tools and materials and to transmit signals at the top of a shaft or incline;
- (i) “booster fan” means a mechanical ventilator used belowground for boosting the whole current of air passing along the intake or return airway of a mine or ventilating district;
- (j) “coal” includes anthracite, bituminous coal, lignite, peat and any other form of carbonaceous matter sold or marketed as coal;
- (k) “Coal Mine Methane (CMM)” means a natural gas recovered from a coal mine or part thereof;

- (l) “Committee” means a committee appointed under section 12 of the Act;
- (m) “competent person” in relation to any work or any machinery, plant or equipment means a person who has attained the age of twenty years and who has been duly appointed in writing by the manager as a person competent to supervise or perform that work, or to supervise the operation of that machinery, plant or equipment, and who is responsible for the duties assigned to him, and includes a shot firer;
- (n) “contractor” means an individual, association of individuals, company, firm, local authority or local body who provides for the services or operations in a mine on contract basis, and includes a sub-contractor;
- (o) “deep-hole drilling and blasting” means drill holes more than three meters in depth and used for blasting in an opencast mining operation;
- (p) “designer” means an individual, association of individuals, company or institution who designs a coal mining system, method of coal mining, machinery, plant, equipment, appliance or substances for use in coal mines;
- (q) “discontinued working” means such working in a mine as have been discontinued for any reason and are inaccessible or rendered inaccessible but are likely to be worked again;
- (r) “District Magistrate” in relation to any mine, means the District Magistrate or the Deputy Commissioner, as the case may be, who is vested with the executive powers of maintaining law and order in the revenue district in which the mine is situated:
 

Provided that in the case of a mine, which is situated partly in one district and partly in another, the District Magistrate for the purpose of these regulations shall be the District Magistrate authorised in this behalf by the Central Government;
- (s) “disused working” means such working in a mine where work has been temporarily stopped, but which are accessible and include unused working;
- (t) “explosive” shall have the same meaning as is assigned to it in the Explosives Act, 1884 (4 of 1884);
- (u) “face” means the moving front of any working place or the inbye end of any gallery, roadway or drift;
- (v) “fiery seam” means a seam in which a fire or spontaneous heating exists in the working belowground or in open cast workings lying within the precincts of a mine;
- (w) “financial year” means a period of twelve months from the first day of April to the last day of March of the successive year;
- (x) “flame proof enclosure” shall have the same meaning as defined under the Central Electricity Authority (Measures Relating to Safety and Electric Supply) Regulations, 2010;
- (y) “Form” means a form as may be specified by an order or instruction by the Chief Inspector under these regulations;
- (z) “gas” includes fume or vapour;
- (za) “gassy seam of the first degree” means a coal seam or part thereof lying within the precincts of a mine not being an open cast working whether or not inflammable gas is actually detected in the general body of the air at any place in its workings below ground, or when the percentage of the inflammable gas, if and when detected, in such general body of air does not exceed 0.1 and the rate of emission of such gas does not exceed one cubic meter per tonne of coal produced;
- (zb) “gassy seam of the second degree” means a coal seam or part thereof lying within the precincts of a mine not being an open cast working in which the percentage of inflammable gas in the general body of air at any place in the workings of the seam is more than 0.1 or the rate of emission of inflammable gas per tonne of coal produced exceeds one cubic meter but does not exceed ten cubic meters;

- (zc) “gassy seam of the third degree” means a coal seam or part thereof lying within the precincts of a mine not being an open cast working in which the rate of emission of inflammable gas per tonne of coal produced exceeds ten cubic meters;
- (zd) “general body of air” means the general atmosphere in a coal seam and includes the atmosphere in the roof cavities, but does not include general atmosphere in the sealed off area or in any borehole drilled in coal or in the adjacent strata;
- (ze) “goaf” means any part of workings below ground wherefrom a pillar or part thereof, or in the case of longwall workings, coal has been extracted but which is not a working place;
- (zf) “haul road” means any passage or road, which is maintained and used in connection with the working of opencast mines for plying of machinery within the precincts of a mine;
- (zg) “Heavy Earth Moving Machinery (HEMM)” means machinery used in opencast mines for digging, drilling (excluding hand held drills and drill machines capable of drilling hole of a diameter up to 50 mm), dredging, hydraulicking, ripping, dozing, grading, excavating, loading or transporting minerals or overburden;
- (zh) “incline” means an inclined passage or road either on the surface or belowground;
- (zi) “intrinsically safe” shall have the same meaning as defined under the Central Electricity Authority (Measures Relating to Safety and Electric Supply) Regulations, 2010;
- (zj) “inset” means a landing or platform in a shaft, and includes an excavation therefrom between the top and the bottom of the shaft;
- (zk) “machinery” means –
  - (i) any locomotive or any stationary or portable engine, air compressor, boiler or steam apparatus which is, or
  - (ii) any such equipment used for cutting, drilling, loading and transport of material which is, or
  - (iii) any such apparatus, appliance or combination of appliances intended for developing, storing, transmitting, converting or utilizing energy which is, or
  - (iv) any such apparatus, appliance or combination of appliances if any power is developed, stored, transmitted, converted or utilised thereby is,
 used or intended for use in connection with mining operations;
- (zl) “manager” means a manager appointed under regulation 27;
- (zm) “manufacturer” means an individual, association of individuals, company or institution who manufactures machinery, plant, equipment, appliance or substances for use in coal mines;
- (zn) “material” includes coal, stone, debris, or any other material;
- (zo) “mine”, for the purpose of chapter IV under these regulations, means all excavations within the mine boundary and all premises, plants, machinery and works as specified in clause (j) of sub section (1) of Section 2 of the Act and the same shall collectively constitute a mine;
- (zp) “misfire” means the failure to explode of an entire charge of explosives in a shot hole or blast hole;
- (zq) “month” means a calendar month;
- (zr) “official” means a person appointed in writing by the owner, agent or manager to perform duties of supervision in a mine or part thereof and includes an assistant manager, a ventilation officer, a safety officer, a sampling incharge, a dust in- charge, an overman, a sirdar, an engineer and a surveyor;
- (zs) “onsetter” means a person appointed to superintend the raising and lowering of persons, tools and materials and to transmit signals at any inset or shaft bottom;
- (zt) “overman” means a person possessing a Manager’s or Overman’s Certificate, appointed by the manager in writing, under any designation whatsoever, to perform the duties of supervision or control in a mine or part thereof, and is as such superior to a sirdar;

- (zu) “permitted explosive” means an explosive manufactured by such firm and of such types as the Chief Inspector may, from time to time specify by a general or special order;
- (zv) “pipeline” means a pipeline laid or being used in a mine for the purpose of pumping or supply of water, sand stowing or filling of material other than sand stowing, nitrogen flushing or for any other purpose including extraction of Coal Mine Methane (CMM), Abandoned Mine Methane (AMM) and other associated pipelines;
- (zw) “principal official” means the senior-most mine official in mining discipline on duty in the mine;
- (zx) “public road” means a road maintained for public use and under the jurisdiction of any Government or local authority;
- (zy) “quarter” means a period of three months ending on the 31<sup>st</sup> March, 30<sup>th</sup> June, 30<sup>th</sup> September and 31<sup>st</sup> December;
- (zz) “railway” means a railway as defined in the Railways Act, 1989 (24 of 1989);
- (zza) “Regional Inspector” means an Inspector of Mines having jurisdiction over a geographical area in which the mine is situated and over which he exercises his powers under the Act;
- (zzb) “river” means any stream or current of water, whether seasonal or perennial, and includes its banks extending up to the highest known flood level;
- (zzc) “risk” means combination of likelihood of a specific unwanted event and its potential consequences;
- (zzd) “roadway” means any part of a passage or gallery below ground which is maintained in connection with the working of a mine;
- (zze) “Schedule” means a Schedule appended to these regulations;
- (zzf) “shaft” means a way or opening leading from the surface to workings below ground or from one part of the workings belowground to another, in which a cage or other means of conveyance can travel freely suspended, with or without the use of guides;
- (zzg) “shot-firer” means a person so appointed under regulation 190;
- (zzh) “socket” means a shot hole or blast hole or part thereof remaining after being charged with explosive and blasted, and which is not known to be a misfired hole;
- (zzi) “supplier” means an individual, association of individuals, company or institution who supplies a technology, machinery, plant, equipment, appliance or substance for use in coal mines;
- (zzj) “tub” includes a wagon, car, truck or any other vehicle moving on rail(s) for conveying materials;
- (zzk) “ventilation district” means such part of a mine belowground as has an independent intake airway commencing from a main intake airway, and an independent return airway terminating at a main return airway, and, in the case of a mine or part thereof which is ventilated by natural means, the whole mine or part;
- (zzl) “working” means any excavation made or being made in a mine for search of or obtaining coal;
- (zzm) “working place” means any place in a mine to which any person has lawful access.

(2) Words and expressions used in these regulations and not defined herein but defined in the Act shall have the meanings respectively assigned to them under the Act.

## CHAPTER II

### RETURNS, NOTICES AND RECORDS

**3. Notice of opening.-** (1) The notice for commencement of any mining operation under section 16 of the Act shall be submitted in the Form and method as may be specified by the Chief Inspector for the purpose, accompanied by a plan showing the boundaries of the mine and the shafts or openings of the mine, tri-junction or revenue pillars and other prominent and permanent surface features to the Chief Inspector and a copy thereof to the Regional Inspector:

Provided that in case of change in the boundary of a mine under regulations 121 and 122, a plan showing the new boundary shall be submitted within seven days of the said change.

(2) The notice referred to in sub-regulation (1) shall be accompanied by,-

- (a) a copy of the surface plan prepared under clause (a) of sub-regulation (1) of regulation 65;
- (b) a copy of Safety Management Plan prepared under regulation 104;

Provided that in respect of a mine which has already been opened, the plan referred to in clauses (a) and (b) shall be submitted within sixty days and one year respectively of coming into force of these regulations.

(3) When a mine has been opened, the owner, agent or manager shall forthwith communicate the actual date of opening to the Chief Inspector, the Regional Inspector and to the District Magistrate.

**4. Annual returns.-** (1) On or before 1<sup>st</sup> day of February in every year, the owner, agent or manager shall submit to the Chief Inspector, the Regional Inspector and to the District Magistrate annual returns in respect of the preceding year in the Form and method as may be specified by the Chief Inspector for the purpose.

(2) If a mine is abandoned or closed or workings thereof is discontinued over a period exceeding sixty days or if a change occurs in the ownership of a mine, the returns required under sub-regulation (1) shall be submitted within thirty days of such abandonment or closure or change of ownership or within ninety days of discontinuance, as the case may be.

**5. Notice of abandonment, closure or discontinuance.-** (1) When it is intended to abandon or close a mine or seam or to discontinue workings thereof for a period exceeding sixty days, the owner, agent or manager shall give a notice in the Form and method as may be specified by the Chief Inspector for the purpose, to the Chief Inspector, the Regional Inspector and to the District Magistrate stating the reasons for such abandonment, closure or discontinuance and the number of persons likely to be affected thereby, not less than thirty days before such abandonment or discontinuance:

Provided that when on account of unforeseen circumstances a mine is abandoned, closed or discontinued before the said notice has been given or without previous intention the discontinuance extends beyond a period of sixty days, the notice shall be given forthwith.

(2) Notwithstanding anything contained in sub-regulation (1), when it is intended to abandon, close or discontinue for more than sixty days any working belowground over which is situated any property vested in the Government or any local authority or any railway or any building or permanent structure not belonging to the owner, the owner, agent or manager shall, not less than thirty days before the date of such abandonment, closure or discontinuance give notice of his intention to the Chief Inspector and the Regional Inspector.

(3) When a mine or seam has been abandoned, closed or the workings thereof has been discontinued over a period exceeding sixty days, the owner, agent or manager shall, within seven days of the abandonment, closure or expiry of the said period of discontinuance, give to the Chief Inspector, the Regional Inspector and to the District Magistrate, notice in the Form and method as may be specified by the Chief Inspector for the purpose.

**6. Notice of reopening.-** (1) When it is intended to reopen a mine or seam after abandonment, closure or discontinuance for a period exceeding sixty days, the owner, agent or manager shall, not less than thirty days before resumption of mining operations, give to the Chief Inspector, the Regional Inspector and to the District Magistrate notice in the Form and method as may be specified by the Chief Inspector for the purpose.

(2) When a mine has been reopened, the owner, agent or manager of the mine shall forthwith communicate the actual date of the reopening to the Chief Inspector, the Regional Inspector and to the District Magistrate.

**7. Notice of change in ownership and appointment of agent, manager, etc.-** (1) When a change occurs in the name or ownership of a mine or in the address of the owner, the owner, agent or manager shall, within seven days from the date of the change, give to the Chief Inspector and the Regional Inspector a notice in the Form and method as may be specified by the Chief Inspector for the purpose:

Provided that where the owner of a mine is a firm or other association of individuals, a change –

- (i) of any partner in the case of a firm;
- (ii) of any member in the case of an association;
- (iii) of any director in the case of a public company; or
- (iv) of any shareholder in the case of a private company,

shall also be intimated to the Chief Inspector and the Regional Inspector, within seven days from the date of the change.

(2) When the ownership of a mine is transferred, the previous owner or his agent shall make over to the new owner or his agent, within a period of seven days of the transfer of ownership, all plans, sections, reports, registers and other records maintained in pursuance of the Act and of the regulations, or orders made thereunder, and all correspondence relating to the working of the mine relevant thereto; and when the requirements of this clause have been duly complied with, both the previous and the new owners or their respective agents shall forthwith inform the Chief Inspector and the Regional Inspector in writing.

(3) When any appointment is made of an agent, manager, engineer, surveyor, ventilation officer, safety officer, or assistant manager or when the employment of any such person is terminated or any such person leaves the said employment, or when any change occurs in the address of any agent or manager, the owner, agent or manager shall, within seven days from the date of such appointment, termination or change, give to the Chief Inspector and the Regional Inspector a notice in the Form and method as may be specified by the Chief Inspector for the purpose.

(4) The owner of a mine shall submit in writing to the Chief Inspector and the Regional Inspector, a statement showing the name and designation of every person authorised to act on behalf of the owner in respect of management, control, supervision or direction of the mine.

(5) The statement referred to in sub-regulation (4) shall state the responsibilities of every such person and the matters in respect of which he is authorised to act on behalf of the owner.

(6) Every person referred to in sub-regulation (4) shall be an agent for the mine or group of mines, as the case may be, in respect of the responsibilities as specified in the statement referred therein.

(7) Any change, addition or alteration in the names or other particulars of the statement referred to in sub-regulation (4) shall be reported in writing to the Chief Inspector and Regional Inspector within seven days from the date of change, addition or alteration.

#### **8. Notice of dangerous occurrence or accident.-** (1) When there occurs in or about a mine,

- (a) an accident causing loss of life or serious bodily injury in connection with any mining operation; or
- (b) a readily identifiable event with potential to cause an injury to persons at work, hereinafter referred to as “dangerous occurrence”, such as –
  - (i) an explosion or ignition;
  - (ii) a spontaneous heating or outbreak of fire, or appearance of smoke, or other indication of heating or outbreak of fire;
  - (iii) fire in any part of workings or in any machinery;
  - (iv) fall from height of any excavation, loading or transport machinery;
  - (v) bursting of equipment under pressure;
  - (vi) an influx of inflammable or noxious gases;
  - (vii) an irruption or inrush of water or other liquid matter;
  - (viii) an instantaneous failure of a pillar, part of a pillar or several pillars of coal (i.e., a ‘bump’) in working below ground;
  - (ix) a premature collapse of any part of the working;
  - (x) any accident due to explosives;
  - (xi) a breakage or fracture of rope, chain, headgear, pulley or axle or bearing thereof, or other gear by which persons or materials are lowered or raised;

- (xii) an over winding of cages or other means of conveyance while men or materials are being lowered or raised;
  - (xiii) a breakage or fracture of an essential part of winding engine, crankshaft, coupling, bearing, gearing, clutch, drum or drum shaft, or failure of emergency brake;
  - (xiv) a bursting of any equipment containing steam, compressed air or other substance at high pressure;
  - (xv) a breakage, fracture or failure of an essential part of any machine or apparatus whereby the safety of persons may be endangered;
  - (xvi) a slide causing injury to any person, damage to any machinery, or interruption of normal mining operations;
  - (xvii) failure of dump or side in opencast working;
  - (xviii) a failure of any structure or installation whereby the safety of persons may be endangered; or
  - (xix) spark generated due to electrical flash-over causing burn injury to any person,
- the owner, agent or manager shall forthwith inform the Regional Inspector about the occurrence by telephone, fax, e-mail or by special messenger; and shall also, within twenty-four hours of every such occurrence, give notice thereof in the Form and method as may be specified by the Chief Inspector for the purpose, to the District Magistrate, the Chief Inspector and the Regional Inspector and in the case of an accident mentioned in clause (a), also to the Competent Authority for payment of compensation:

Provided that in case such notice is sent by e-mail, it shall be immediately followed by fax or letter.

(2) The owner, agent or manager shall simultaneously exhibit a copy of the notice referred to in sub-regulation (1) on a special notice board at the office of the mine for a period of not less than fourteen days from the date of such exhibition.

(3) When an accident causing loss of life, serious bodily injury or burn injury occurs in or about a mine in connection with the generation, storage, transformation, transmission, supply or use of electrical energy, the owner, agent or manager shall also forthwith inform the Inspector of Mines (Electrical) by telephone, fax, e-mail or by special messenger:

Provided that in case such notice is sent by e-mail, it shall be immediately followed by fax or letter.

(4) If death results from any injury already reported as serious under sub-regulation (1) or if an injury other than the serious injury becomes serious, the owner, agent or manager shall within twenty-four hours of his being informed of the same, give notice thereof to the District Magistrate, the Chief Inspector, the Regional Inspector and to the Competent Authority for payment of compensation and, if such death or injury is connected with any reason as specified under sub-regulation (3), also to the Inspector of Mines (Electrical).

(5) In respect of every persons killed or injured as above, the owner, agent or manager shall send particulars in the Form and method as may be specified by the Chief Inspector for the purpose, within seven days of the occurrence, and also within fifteen days of the injured person returning to duty.

**9. Notice of disease.-** Where any person employed in a mine contracts any disease notified by the Central Government in the Official Gazette under section 25 of the Act, the owner, agent or manager shall within three days of his being informed of the disease, give notice thereof in the Form and method as may be specified by the Chief Inspector for the purpose, to the Chief Inspector, the Regional Inspector, the Inspector of Mines (Medical), the District Magistrate, and to the Competent Authority for payment of compensation.

### CHAPTER III

#### EXAMINATION AND CERTIFICATES OF COMPETENCY AND OF FITNESS

**10. Board of Mining Examination.-** (1) For the purpose of these regulations, there shall be constituted a Board of Mining Examination (hereinafter referred to as ‘the Board’).

(2) The Board shall consist of the Chief Inspector, who shall be its Chairman (*ex officio*), and five members possessing degree in mining engineering; with

- (a) first class Manager's Certificate granted under regulation 11; or
- (b) practical experience of not less than two years in management, control, supervision and direction of a coal mine or part thereof; or
- (c) service in an institution imparting education in mining engineering at the degree or equivalent level; or
- (d) engagement in mining research or planning,

to be appointed by the Central Government:

Provided that the Board shall be so constituted that it shall include at least three members possessing qualifications laid down in clauses (a) and (b) and at least one member possessing qualifications laid down either in clause (c) or in clause (d).

(3) Every member of the Board other than its Chairman shall hold office for a period of three years from the date of appointment, or until his successor is appointed, whichever is later:

Provided that,—

- (i) a member may at any time resign his office by a notice in writing addressed to the Chairman;
- (ii) a member appointed under clause (c) of sub-regulation (2) shall cease to hold office upon his ceasing to serve in any such institution, as is referred to in that clause;
- (iii) a person appointed to fill a vacancy caused by reason of the death, resignation, or by reason of cessation of office under sub-clause (ii) or otherwise, shall hold office for the remaining period for which such member would have, but for such reason, continued as member.

(4) A person who holds, or who has held, office as member of the Board shall, subject to the other provisions of this regulation, be eligible for re-appointment to that office.

(5) A member of the Board other than the Chairman shall receive such remuneration as the Central Government may fix.

(6) An Inspector nominated in this behalf by the Chief Inspector shall act as the Secretary to the Board (hereinafter referred to in these regulations as the Secretary).

(7) Notwithstanding anything contained in this regulation, the Central Government may, if satisfied that it is necessary to do so in the public interest, re-constitute the Board even though the term of office of all or any of the members thereof has not come to an end.

(8) Meetings of the Board shall be held as and when the Chairman considers them necessary, and unless otherwise decided by the Chairman, all meetings of the Board shall be held at Dhanbad.

(9) (a) For every meeting of the Board, not less than ten clear days prior notice intimating the time and place of the proposed meeting and signed by the Chairman or the Secretary shall be given to each member who is not absent from India.

(b) Such notice shall be delivered at, or posted to the usual place of residence of the member, and each such notice shall be accompanied by a list of items of business to be disposed off at that meeting.

(c) Notwithstanding anything contained in clauses (a) and (b), in cases of urgency, an emergent meeting may be called for by the Chairman at any time by intimating the members, only two days in advance, of the time and date of such meeting and the subject matter for discussion at such meeting.

(10) (a) The Chairman shall preside at every meeting of the Board.

(b) If the Chairman is absent for any reason, members present shall elect one from among themselves to preside over the meeting; and the member so elected shall, for the purposes of that meeting, have all powers of the Chairman.

(11) No business shall be transacted at a meeting of the Board unless at least three members, including the Chairman, are present:

Provided that if at any meeting there is no quorum as aforesaid, the meeting shall automatically stand adjourned to a date which is seven days later or if that day is a public holiday to the next working day

and the time, place and agenda for the adjourned meeting shall remain unchanged, and it shall thereupon be lawful to dispose off the business at such meeting, irrespective of the number of members attending.

- (12) (a) All matters which the Board is required to consider shall be considered at its meeting, or if the Chairman so decides, by circulation of the papers, to every member who is not absent from India.
- (b) When any matter is referred to by circulation of paper under clause (a), any member may request that it should be considered at a meeting of the Board, and the Chairman may direct that it shall be so considered but when two or more members so request, the Chairman shall direct that the matter shall be so considered at a meeting to be held.
- (13) (a) The Secretary shall place before the Board a list of business to be transacted at the meeting.
- (b) No business which is not included in such list shall be considered unless the Chairman permits.
- (14) (a) Every matter at a meeting shall be decided by the majority of votes of the members present at such meeting.
- (b) Every matter referred to the members by circulation under sub-regulation (12) shall be decided by the majority opinion of the members to whom the papers were circulated, unless the Chairman reserves it for consideration at a regular meeting to be held later.
- (c) In case of equal division of votes or opinions of the members, the Chairman shall have a casting vote or opinion.
- (15) (a) The Secretary shall record the minutes of each meeting in a bound-paged book kept for the purpose and copies of such minutes of meeting shall be circulated to all members present in India.
- (b) The minutes so recorded shall be confirmed at the next meeting of the Board and signed by the Chairman in token thereof.
- (16) (a) The Chairman, in addition to any other power and duties conferred upon him under these regulations, shall-
  - (i) present all important papers and matters to the Board as early as possible;
  - (ii) issue orders for carrying out the decisions of the Board;
  - (iii) have power to refer, in his discretion, any matter to the Central Government for their orders; and
  - (iv) have powers generally to take such action or pass such orders necessary to implement the decisions of the Board.
- (b) The Chairman may, during his temporary absence by reason of leave or otherwise, authorise any member of the Board to perform all or any of duties of the Chairman during such absence.
- (c) Unless the Chairman otherwise directs, all proceedings of the Board shall be conducted in-camera and be regarded as confidential.

**11. Certificate granted by Board.-** (1) The certificates specified in sub-regulation (2) shall be granted by the Board.

(2) Certificate granted by the Board shall be valid throughout the territories to which these regulations extend, and shall be of the following kinds, namely: –

- a) Manager's first class certificate of competency to manage a coal mine (hereinafter referred to as a First Class Manager's Certificate);
- b) Manager's second class certificate of competency to manage a coal mine (hereinafter referred to as a Second Class Manager's Certificate);
- c) Surveyor's certificate of competency to survey the working of a mine (hereinafter referred to as a Surveyor's Certificate);
- d) Overman's certificate of competency to carry out inspections and duties as required under these regulations (hereinafter referred to as an Overman's Certificate);

- e) Sirdar's Certificate of competency to carry out inspections and duties as required under these regulations (hereinafter referred to as a Sirdar's Certificate);
- f) Winding engineman's certificate (hereinafter referred to as a Engine Driver's Certificate) to drive a winding engine of any type or class; and
- g) Certificate of competency to test for the presence of inflammable gas (hereinafter referred to as a Gas Testing Certificate):

Provided that any of the certificates aforesaid, other than an Engine Driver's Certificate and a Gas Testing Certificate, may be restricted to mines having opencast working only, and this fact shall be endorsed on the certificate.

**12. Examinations and examiners.-** (1) Certificate shall be granted to candidates after such examinations and in such form as the Board may specify:

Provided that the Board may, subject to the conditions specified in bye-laws, exempt any person from appearing at the examination or part thereof for the grant of a certificate referred to in regulation 11.

(2) The examination shall be held at such times and at such centres as may be fixed by the Board, and shall be conducted by examiners appointed by the Board.

(3) The examiners referred to in sub-regulation (2) shall be subject to the orders of the Board in respect of all matters relating to the conduct of the examinations, and shall receive such remuneration as the Board, with the sanction of the Central Government, may fix.

(4) The Board may make bye-laws as to the procedure for, and the conduct of the examinations and as to the granting of certificate of competency and of fitness as required under these regulations, and shall so far as may be practicable, provide that the standard of knowledge required for the grant of certificates of any particular class and the standard of medical fitness shall be uniform throughout the territories to which these regulations extend:

Provided that the Board may take decision on any matter, not specified under the bye-laws, which may be brought to it for disposal.

**13. Submission of application.-** (1) Application for an examination conducted by the Board shall be made to the Board not less than sixty days prior to the date fixed for the examination in a manner and on a form specified for the purpose.

(2) Notice regarding the date and place of the examination for the Manager's Certificate, Surveyor's Certificate and Overman's Certificates shall be published under the order of the Board in such periodicals or by any other means as the Board may direct, not less than sixty days prior to the date fixed by the Board for receiving applications.

**14. Age limit and general qualifications of candidates.-** (1) No person shall be admitted as a candidate at any examination held by the Board unless he is twenty years of age.

(2) No person shall be admitted as a candidate at any examination for a Manager's Certificate, Surveyor's Certificate, Overman's Certificate or Sirdar's Certificate unless he holds a valid first-aid certificate of the St. John Ambulance Association (India) or any other equivalent standard as may be specified by the Chief Inspector.

(3) Every application for any examination as aforesaid shall be accompanied by,-

- (i) a certificate of age verified by a Gazetted Officer of the Government or by the headmaster of a recognised school of a higher secondary or equivalent standard;

Provided that in the case of a person holding a matriculation or equivalent certificate, such certificate shall be submitted as evidence of age;

- (ii) a medical certificate obtained not more than one year prior to the date of his application, from a qualified medical practitioner not below the rank of a Civil Assistant Surgeon or from a Certifying Surgeon or from a medical practitioner holding at least a degree in Bachelor of Medicines and Bachelor of Surgery (M.B.B.S.) and registered with Medical Council of India, certifying the candidate to be free from deafness, defective vision or any other infirmity, mental or physical, likely to interfere with the efficiency of his work; and

- (iii) a certificate from some person of good repute as to the general good conduct and sobriety of the candidate.
- (4) No person shall be admitted as a candidate to any examination for Manager's Certificate, Surveyor's Certificate, Overman's Certificate or Sirdar's Certificate, unless he has passed the senior secondary school examination or intermediate examination or its equivalent from a recognised Board or University or passed a Diploma or Degree in Engineering or other equivalent qualifications approved in that behalf by the Central Government, and for an Engine Driver's Certificate unless he satisfies the Board that he is literate.
- (5) (a) No person shall be admitted as a candidate at any examination for a Manager's or an Overman's Certificate, which is not restricted to mines having opencast working only, unless he has obtained at least a Sirdar's Certificate, which is not restricted to mines having opencast working only and a Gas Testing Certificate; and
- (b) no person shall be admitted as a candidate at an examination for Manager's Certificate or Overman's Certificate restricted to mines having opencast working only, unless he has obtained at least a Sirdar's Certificate:

Provided that the Board may, subject to the conditions specified in bye-laws, exempt any person from the stipulations of the above sub-regulation.

**15. Practical experience of candidates for Manager's Certificate examination.-** (1) No person shall be admitted as a candidate at any examination for a First or Second Class Manager's Certificate other than an exchange Certificate to which the provisions of regulation 21 apply, unless the Board is satisfied that he has had practical experience in coal mine as prescribed under sub-regulation (2) for a period of not less than six and five years respectively:

Provided that a candidate-

- (a) who has received a diploma in mining or mining engineering or other equivalent qualification approved in that behalf by the Central Government, such period of experience shall be reduced to five and four years respectively; and
- (b) who has passed a degree in mining engineering or other equivalent qualification approved in that behalf by the Central Government, such period shall be reduced to two years for First Class Manager's Certificate;

Provided further that the experience referred to in this sub-regulation shall be the experience obtained after acquiring the relevant academic qualification.

(2) The Board may specify, subject to the conditions laid down in bye-laws, the nature and other details of the practical experience required for Manager's Certificate.

**16. Practical experience of candidates for Surveyor's Certificate examination.-** No person shall be admitted as a candidate at any examination for a Surveyor's Certificate unless he has satisfied the Board that he has had not less than two years' practical experience of surveying of a type the Board may specify, subject to the conditions laid down in bye-laws.

Provided that such period shall be reduced to six months in the case of a candidate who has attended classes in theoretical and practical surveying at any educational institution approved by the Board subject to the conditions laid down in bye-laws.

**17. Practical experience of candidate for Sirdar's Certificate examination.-** (1) No person shall be admitted as a candidate at any examination for a Sirdar's Certificate unless the Board is satisfied that he has had practical experience and training in a coal mine for a period of not less than three years:

Provided that such period shall be reduced to a period of one year in the case of a candidate who has received a diploma or certificate in scientific and mining training after a course of at least two years at an educational institution, or who has taken a degree in scientific and mining subject at a university, approved in that behalf by the Board subject to the conditions laid down in bye-laws.

(2) The Board may specify, subject to the conditions laid down in bye-laws, the nature and other details of the practical experience required for Sirdar's Certificate.

**18. Practical experience of candidate for Engine Driver's Certificate.**— No person shall be admitted as a candidate at any examination for an Engine Driver's Certificate unless the Board is satisfied that he has had practical experience of driving a winding engine or as an assistant to a qualified winding engine driver for a period of at least one year.

**19. Number of attempts at examination.**— No person shall be admitted for examination for a particular certificate beyond seven attempts from the date of coming into force of these regulations.

**20. Fees for grant of Certificates.**— (1) Fees to be paid in respect of every application for the grant of a certificate shall be prescribed by the Board, subject to the conditions laid down in bye-laws.

(2) The fee once paid shall not be refundable except where the candidate has died before the examination for grant of a certificate or where fee has been erroneously paid.

**21. Exchange Certificate.**— (1) The Board may grant to any person, holding a Manager's Certificate, Surveyor's Certificate, Engine Driver's Certificate, Foreman's Certificate or Mate's Certificate granted under any law for the regulation of mines in force in any other country or under the Metalliferous Mines Regulations, 1961 or its amended version made under the Act, a corresponding certificate of a similar class under these regulations, if he possesses such qualification and experience and passes such examination as the Board may stipulate, subject to the conditions specified in bye-laws.

Provided that the Board may, subject to the conditions laid down in bye-laws, exempt any person from appearing at the examination or part thereof for the grant of an Exchange Certificate.

(2) Every application for the grant of an Exchange Certificate under sub-regulation (1) shall be accompanied by,-

- (i) a medical certificate obtained not more than one year prior to the date of his application, from a qualified medical practitioner not below the rank of a Civil Assistant Surgeon or from a Certifying Surgeon or from a medical practitioner holding at least a degree in Bachelor of Medicines and Bachelor of Surgery (M.B.B.S.) and registered with Medical Council of India, certifying the candidate to be free from deafness, defective vision or any other infirmity, mental or physical, likely to interfere with the efficiency of his work; and
- (ii) a certificate from some person of good repute as to the general good conduct and sobriety of the candidate:

Provided that in the case of a Manager's Certificate, the candidate shall possess practical training in India in the mines, for a period of not less than six months in such manner as may be specified by the Board subject to the conditions laid down in bye-laws.

(3) Fees on the scale laid down in regulation 20 shall be paid in respect of every examination under this regulation.

**22. Duplicate Certificate.**— If any person proves to the satisfaction of the Board that he has, without any fault on his part, lost or been deprived of a certificate granted to him under these regulations, the Board may upon realisation of the fee prescribed under sub-regulation (1) of regulation 20 and subject to the conditions laid down in bye-laws, cause a copy of the certificate to be delivered to him and the word "DUPLICATE" shall be stamped across every such copy.

**23. Certificate to be delivered to the manager.**— (1) When the holder of an Overman's Certificate, Sirdar's Certificate, Engine Driver's Certificate and Gas Testing Certificate is employed in a mine in a capacity which requires the possession of the said certificate, he shall deliver such certificate to the manager of the mine in which he is for the time being employed.

(2) The manager shall deliver to such person a receipt for the same, and shall retain the certificate in the office at the mine so long as the holder thereof is so employed, and shall return it to the holder on his ceasing to be so employed.

**24. Suspension or cancellation of Manager's Certificate, Surveyor's Certificate, Overman's Certificate, Sirdar's Certificate, Engine Driver's Certificate or Gas Testing Certificate.**— (1) If on the basis of a report of the Inspector, the Regional Inspector is of the opinion that the holder of a Manager's Certificate, Surveyor's Certificate, Overman's Certificate, Sirdar's Certificate, Engine Driver's Certificate or Gas Testing Certificate is incompetent or is guilty of negligence or misconduct in the performance of his duties under the Act or under these regulations, he shall bring the matter to the notice of the Board.

(2) The Board may, on the report of the Regional Inspector under sub-regulation (1), authorise an Inspector, not below the rank of the Inspector whose report formed the basis of the said opinion, to hold an enquiry in accordance with the procedure laid down in bye-laws, to determine whether or not such a person (hereinafter referred to as the delinquent) is fit to continue to hold such certificate.

Provided that the Board shall, before the enquiry, furnish to the delinquent a statement of the case on which the enquiry is instituted.

(3) The Inspector who conducted the enquiry shall, within fifteen days from the date of conclusion of his enquiry, send a report to the Board together with his findings, the notes of evidence recorded during the enquiry and other relevant records.

(4) Copies of the notes of evidence and the findings of the Inspector who conducted the enquiry shall also be sent to the delinquent who may submit his written representation to the Board within thirty days from the date of dispatch of such copies.

(5) The Board may, after considering the evidence and other records and the written representation, if any, submitted by the delinquent, either cause further enquiry to be made in the case and thereupon or otherwise, either exonerate the delinquent of the charges against him or suspend or cancel the certificate, as it deems fit.

(6) An appeal shall lie against any order of the Board under this regulation before the Central Government within thirty days of such order.

(7) Where a certificate is suspended or cancelled under this regulation suitable endorsement may be made on such certificate or a duplicate thereof issued under regulation 22.

**25. Validity of certificate for managers and officials, etc.-** (1) No person shall act as a manager or an official or a winding engineman in a mine after attaining the age of sixty years unless he has obtained, within the preceding one year, a medical certificate of fitness certifying him fit to carry out the duties prescribed for him in the Act and in these regulations and orders made thereunder:

Provided that if the Chief Inspector or the Regional Inspector is of the opinion that a person as aforesaid, though less than sixty years of age, is medically unfit to carry on the duties assigned to him in the Act and in these regulations and orders made thereunder, the Chief Inspector or the Regional Inspector may, by an order in writing, require such person to obtain a medical certificate of fitness within such period, not exceeding three months, as he may specify therein; and no such person shall continue to act in any capacity as aforesaid after the period so specified unless he has obtained a medical certificate of fitness.

(2) The medical certificate of fitness as aforesaid shall be obtained from such authority and in such form and manner as the Board may specify subject to the conditions laid down in bye-laws.

(3) Notwithstanding anything contained in sub-regulation (1), no person shall act as manager or an official or a winding engineman in a mine after attaining the age of seventy years.

## CHAPTER IV

### INSPECTORS AND MINE OFFICIALS

**26. Qualifications of Inspectors.-** (1) No person shall be appointed as Chief Inspector unless he holds a degree in mining engineering of an educational institution approved by the Central Government and also a First Class Manager's Certificate granted under regulation 11.

(2) No person shall be appointed as an Inspector unless he holds a degree in mining engineering of an educational institution approved by the Central Government and also a First Class Manager's Certificate granted under regulation 11:

Provided that –

- (i) in relation to electrical machinery installed in mines, a person holding a degree in electrical engineering of an educational institution approved by the Central Government may be so appointed;

- (ii) in relation to other machinery or mechanical appliances installed in mines, a person holding a degree in mechanical engineering of an educational institution approved by the Central Government may be so appointed, and
- (iii) in relation to the provisions of the Act and of the rules and regulations which relate to matters concerning the health and welfare of persons, a person holding a degree in Bachelor of Medicines and Bachelor of Surgery (M.B.B.S.) or such other qualification as may be prescribed, of an educational institution approved by the Central Government or a person holding such other qualifications as the Central Government may approve in this behalf, may be so appointed.

**27. Qualification and appointment of manager.**— (1) No mine shall be opened, worked or re-opened unless there is a manager of the mine, being a person duly appointed and having such qualifications as required under this regulation.

(2) No person shall act or be employed as a manager unless he has attained 23 years of age and is paid by, and is directly answerable to the owner or agent of the mine.

(3) Subject to the provisions of sub-regulation (4), no person shall act or continue to act, or be appointed, as manager of a mine or mines the average output of which corresponds to the figures given in column (i) of the table below unless he holds the corresponding qualifications given in column (ii) thereof:

(i)	(ii)
For belowground mines:	
(a) In excess of 2,500 tonnes per month	A First Class Manager's Certificate not restricted to opencast mines only.
(b) Not exceeding 2,500 tonnes per month.	A First Class Manager's Certificate or Second Class Manager's Certificate not restricted to opencast mines only.
For opencast mines:	
(c) In excess of 20,000 cubic metre per months of material handled	A First Class Manager's Certificate.
(d) Not exceeding 20,000 cubic metre material handled per month	A First Class Manager's Certificate or Second Class Manager's Certificate:

Provided that in respect of a mine having both opencast and underground workings, a person holding First Class Manager's Certificate not restricted to opencast mines shall only be appointed as the manager of the mine irrespective of production:

Provided further that where special conditions exist, the Chief Inspector may, by an order in writing, permit appointment of manager in a mine in variance with the above.

(4) Where under the provisions of sub-regulation (3) a person holding a First Class Manager's Certificate or Second Class Manager's Certificate has been appointed as manager, a person holding lower qualifications shall not, except with the previous permission in writing of the Chief Inspector and subject to such conditions as he may specify therein, be so appointed during the succeeding twelve months, notwithstanding any reduction in the average output of the mine.

(5) No person shall act, or be appointed, as manager of more than one mine except with the previous permission in writing of the Chief Inspector and subject to such conditions as he may specify therein:

Provided that no such permission shall have effect for a period exceeding twelve months, unless renewed:

Provided further that the Chief Inspector may at any time, by an order in writing, vary or revoke any such permission if the circumstances under which the permission was granted, have altered or the Chief Inspector finds that the manager has not been able to exercise effective supervision in the mines under his charge.

(6) Where by reason of absence or for any other reason, the manager is unable to exercise daily personal supervision or is unable to perform his duties under the Act or these regulations, or orders made thereunder, the owner, agent or manager shall authorise in writing a person whom he considers competent, to act as manager of the mine:

Provided that –

- (i) such person holds a Manager's Certificate;
- (ii) no such authorisation shall have effect for a period in excess of thirty days, except with the previous consent in writing of the Chief Inspector and subject to such conditions as he may specify therein;
- (iii) the owner, agent or manager, as the case may be, shall forthwith send by registered post, speed post or fax to the Regional Inspector a written notice intimating that such an authorisation has been made, and stating the reason for the authorisation, the qualifications and experience of the person authorised, and the date of the commencement and ending of the authorisation; and
- (iv) the Chief Inspector or the Regional Inspector may, except in the case of a person possessing the qualifications specified in sub-regulation (3), by an order in writing, revoke any authority so granted.

(7) The persons so authorised to act as manager under sub-regulation (6) shall, during the period of such authorisation, have the same responsibilities, discharge the same duties, and be subject to the same liabilities as the manager.

(8) No manager shall vacate his office without giving due notice in writing to the owner or agent at least thirty days before the day on which he wishes to vacate his office:

Provided that the owner or agent may permit the manager to vacate his office after giving a shorter notice.

(9) No owner or agent shall transfer, discharge or dismiss a manager unless the manager has been relieved by a duly qualified person as specified under sub-regulation (3).

(10) Nothing in sub-regulation (6) shall confer on the owner, agent or manager the right to authorise any person not duly qualified to manage the mine under sub-regulation (3) to act as the manager except in case of illness or other cause over which the manager has no control, or except with the previous written permission of the Chief Inspector and subject to such conditions as he may specify therein:

Provided that the Chief Inspector shall not permit any such authorisation for a period exceeding sixty days from the date on which the mine is worked without a manager duly qualified under sub-regulation (3).

(11) The owner or agent shall provide suitable residential accommodation for the manager and the assistant manager within a distance of five kilometers from all mine openings, and every manager, and assistant manager shall reside in the accommodation so provided:

Provided that where special difficulties exist which render compliance with these provisions not reasonably practicable, the Chief Inspector may, by an order in writing and subject to such conditions as he may specify therein, grant exemption from the same.

(12) No manager shall be entrusted by the owner or agent with any work, nor shall he himself perform any work, which may necessitate his frequent or prolonged absence from the mine.

(13) If any doubt arises as to any matter under sub-regulation (11) or sub-regulation (12), it shall be referred to the Chief Inspector for decision.

(14) Except as hereinafter provided in sub-regulation (5), no manager shall act as manager or in any other capacity in another mine.

**28. Charge report of managers.-** When there is a change of manager of any mine, the outgoing manager shall hand over to the incoming manager, a charge report in a format as may be specified by the Chief Inspector, by a general or special order and the charge report shall be signed by both the outgoing and incoming managers and a copy of the charge report shall be sent to the Regional Inspector.

**29. Qualification and appointment of safety officer.**- In every belowground mine the average monthly output of which exceeds 5,000 tonnes or in every opencast mine the average monthly material handled of which exceeds 20,000 cubic metre, the manager shall be assisted in the work of promoting safe practices in the mine by a safety officer who shall be a person holding the following qualifications, namely:-

- (a) in the case of a belowground mine having an average monthly output in excess of 15,000 tonnes, a First Class Manager's Certificate not restricted to opencast mines only;
- (b) in case of a mine having opencast workings with an average monthly material handled in excess of 50,000 cubic metre, a First Class Manager's Certificate;
- (c) in case of a belowground mine having an average monthly output in excess of 10,000 tonnes, but not exceeding 15,000 tonnes, a First Class Manager's Certificate or Second Class Manager's Certificate not restricted to opencast mines only;
- (d) in case of a mine with opencast workings having an average monthly material handled in excess of 20,000 cubic metre but not exceeding 50,000 cubic metre, a First Class Manager's Certificate or Second Class Manager's Certificate;
- (e) in the case of a belowground mine having an average monthly output in excess of 5,000 tonnes but not exceeding 10,000 tonnes, holder of a First Class Manager's Certificate or Second Class Manager's Certificate not restricted to opencast mines only, or a degree or diploma in Mining or Mining Engineering approved by the Central Government:

Provided that where special conditions exist, the Chief Inspector may by an order in writing and subject to such conditions as he may specify therein, permit or require the appointment of a safety officer in variation of these provisions:

Provided further that where the Chief Inspector is of the opinion that, due to the large size of a mine, or due to other conditions existing at a mine, it is not possible for the safety officer to attend to his duties by himself, he may, by an order in writing and for reasons to be recorded therein, require the appointment of such number of persons holding such qualifications as he may specify in the order, to assist the safety officer.

**30. Appointment of assistant manager.**- In every mine, the manager shall be assisted by assistant managers on the scale as may be specified by the Board.

Provided that in specific cases, the Chief Inspector may relax the requirement of the appointment of assistant managers.

**31. Qualification and appointment of ventilation officer.**- In every belowground mine consisting of gassy seams of first degree, the average output of which exceeds 5,000 tonnes or of second or third degree the average output of which exceeds 2,500 tonnes, the manager shall be assisted in the work of supervising the maintenance of ventilation system of the mine in accordance with the provisions of these regulations by a ventilation officer who shall be a person holding the following qualifications, namely:-

- (a) in the case of a mine consisting of gassy seams of first degree and having an average output in excess of 15,000 tonnes or a mine consisting of gassy seams of second or third degree and having an average output in excess of 10,000 tonnes, a Manager's Certificate not restricted to open cast mines only; and
- (b) in every other case, a Manager's Certificate not restricted to opencast mines only or a Degree or Diploma in Mining or Mining Engineering recognised by the Central Government:

Provided that where special conditions exist, the Chief Inspector may, by an order in writing and subject to such conditions as he may specify therein, permit or require the appointment of a ventilation officer in variance of these provisions or require the appointment of such number of persons to assist the ventilation officer, as may be specified in the order:

Provided further that in the case of a mine consisting of gassy seams of first degree and having an average output less than 15,000 tonnes, the Chief Inspector may, considering the nature and extent of workings therein, permit, by an order in writing and subject to such conditions as he may specify therein, combine the post of ventilation officer with that of safety officer appointed under regulation 29.

**Explanation.-** For the purposes of this regulation the expression “average output” means the average per month of the total output during the preceding financial year from the belowground working of all seams:

Provided that where the mine consists of gassy seams of different degrees, the aforementioned average output shall be deemed to be from the seam or seams of the highest degree of gassiness.

**32. Appointment of engineers.**—(1) At every mine where machinery is used, an engineer holding a degree or diploma in mechanical engineering, electrical engineering, mining machinery or equivalent qualification as may be recognised by the Central Government, shall be appointed to hold general charge of such machinery, and to be responsible for its installation, maintenance and safe working, who shall be subordinate to manager:

Provided that where electrical energy exceeding 650 volts is used and the installed capacity of all electrical equipment is 1.5 MVA and above, an engineer holding a degree or diploma in electrical engineering or equivalent qualification as may be recognised by the Central Government, shall be appointed to hold charge of all the electrical equipment installed at the mine in addition to that specified above:

Provided further that in case of opencast mines worked by heavy earth moving machinery or in any mechanised mine having belowground workings, in which the aggregate horse power of all the machinery used exceeds 1500, a person holding a degree or diploma in mechanical engineering, mining machinery or equivalent qualification as may be recognised by the Central Government, shall also be appointed to hold charge of all the mechanical equipment installed at the mine in addition to that specified above:

Provided also that nothing in this sub-regulation shall be deemed to prohibit the employment of two or more engineers at one mine so long as the jurisdiction and sphere of responsibility of every such engineer is defined by the manager in writing.

(2) Notwithstanding anything contained in sub-regulation (1), the Chief Inspector may, by an order in writing, specify any qualification in addition to those referred to in that sub-regulation in respect of a mine or class of mines, if having regard to the conditions existing in such mine or class of mines, he is satisfied that it is necessary to do so in the interests of safety.

(3) No person shall act, or be appointed, as engineer of more than one mine except with the previous permission in writing of the Chief Inspector and subject to such conditions as he may specify therein:

Provided that no such permission shall have effect for a period exceeding twelve months, unless renewed:

Provided further that the Chief Inspector may at any time, by an order in writing, vary or revoke any such permission, if the circumstances under which the permission was granted, have altered or the Chief Inspector finds that the engineer has not been able to exercise effective supervision in the mines under his charge.

(4) Where by reason of temporary absence by any cause, the engineer, appointed under sub-regulation (1) is unable to perform his duties, the manager shall authorise in writing a person whom he considers competent to act in his place:

Provided that –

- (a) notice of every such authorisation shall be sent to the Regional Inspector forthwith;
- (b) no such authorisation shall have effect for a period in excess of thirty days except with the previous written consent of the Regional Inspector and subject to such conditions as he may specify therein; and
- (c) the Regional Inspector may by an order in writing, revoke any authority so granted.

**33. Appointment and qualifications of senior officials.**—(1) At every mine, one or more overman shall be appointed to hold charge of the different districts of the mine on each working shift unless otherwise specified by the Regional Inspector.

(2) The district assigned to an overman under sub-regulation (1) shall not be of such a size, nor shall any additional duties other than his duties under these regulations be such, as are likely to prevent him from carrying out in a thorough manner, the duties assigned to him under these regulations.

(3) For the purposes of this regulation, every person employed as an official subordinate to the manager and superior to the Sirdar shall hold either a Manager's Certificate or an Overman's Certificate.

**34. Appointment of surveyors.**— (1) At every mine, one or more persons holding a Surveyor's Certificate shall be appointed to be the surveyor for carrying out the surveys and levellings and for preparing the plans and sections required under the Act or the regulations, or orders made thereunder.

Provided that in case of mines having opencast workings only, nothing in this sub-regulation shall prohibit the appoint of one or more persons holding a Surveyor's Certificate restricted to opencast mines only for carrying out the surveys and levellings and for preparing the plans and sections required under the Act or the regulations, or orders made thereunder.

(2) No person shall be appointed as a surveyor of more than one mine or in any other capacity in the same mine, without the previous permission in writing of the Chief Inspector and subject to such conditions as may be specified therein.

(3) The number of surveyors required to be appointed shall be on the scale as may be specified by the Board:

Provided that in specific cases, the Chief Inspector may relax the requirement of the appointment of surveyors.

(4) If a mine has more than one surveyor, each shall carry the duties and the responsibilities of the surveyor for the part or section of the mine to be assigned in writing by the owner, agent or manager:

Provided that the owner, agent or manager shall appoint one of the surveyors to be responsible for the preparation and maintenance of the plans required to be prepared and maintained under these regulations who shall also be responsible for co-ordination and overall supervision of survey work in the mine.

**35. Appointment of officials and competent persons.**— (1) The owner, agent or manager shall appoint such number of competent persons, including officials and technicians as is sufficient to secure, during each of the working shifts –

- (i) adequate inspection of the mine and equipment thereof;
- (ii) a thorough supervision of all operations in the mine;
- (iii) the installation, running and maintenance, in safe working order, of all machinery in the mine; and
- (iv) the enforcement of the requirements of the Act and rules and regulations framed thereunder.

(2) Without prejudice to the requirement of sub-regulation (1), where the mine is worked on more than one shift, the owner, agent or the manager shall arrange that during the afternoon shift and the night shift, the mine is under the general supervision of at least an assistant manager, and of an experienced overman in other cases.

(3) It shall be the responsibility of the manager to see that the persons so appointed are competent to perform the duties assigned to them:

Provided that no person shall be so appointed unless he is paid by the owner or agent and is answerable to the manager:

Provided further that the Chief Inspector under special circumstances may vary the requirements of this sub-regulation by an order in writing.

(4) Copies of all appointments made under sub-regulation (1) shall be entered in a bound-paged book kept for the purpose where a list of all such competent persons shall be maintained.

(5) Without prejudice to the requirements of sub-regulation (3), every manager on taking over charge of a mine, shall satisfy himself that all persons already appointed under sub-regulation (1) are competent to perform the duties assigned to them; and if he finds them competent, he shall either countersign their authorisations or issue fresh ones.

**36. General management.**— (1) The owner, agent and manager shall provide for the safety and proper discipline of persons employed in the mine.

(2) Except in a case of emergency, no person who is not an official or competent persons shall give, otherwise than through the manager, instructions to a person employed in a mine, who is responsible to the manager.

## CHAPTER V

### DUTIES AND RESPONSIBILITIES OF MINE MANAGEMENT, CONTRACTORS, MANUFACTURERS, OFFICIALS, COMPETENT PERSONS AND WORKMEN

**37. Duties and responsibilities of owner.**— (1) In taking preventive and protective measures, the owner shall arrange for regular assessment of the risk and dealing with it in the following order of priority:-

- (a) eliminate the risk;
- (b) control the risk at source;
- (c) minimize the risk that include the design of safe work systems; and
- (d) in so far as the risk remains, provide for the use of personal protective equipment, having regard to what is reasonable, practicable and feasible, and to good practice and the exercise of due diligence.

(2) Owners shall take all necessary measures to eliminate or minimize the risks to safety and health of persons employed in mines under their control and shall-

- (a) ensure that the mine is designed, constructed and provided with electrical, mechanical and other equipment, including a communication system, to provide conditions for safe operation and a healthy working environment;
- (b) ensure that the machine is commissioned, operated, maintained and de-commissioned in such a way that workers can perform the work assigned to them without endangering their safety and health or that of other persons;
- (c) take steps to maintain the stability of the ground in which persons have access in the context of their work;
- (d) where practicable, provide from every underground workplace, two exits each of which is connected to separate means of egress to the surface;
- (e) ensure the monitoring, assessment and regular inspection of the working environment to identify the various hazards to which the workers may be exposed and to assess their level of exposure;
- (f) ensure adequate ventilation for all underground working to which access is permitted;
- (g) in respect of zones susceptible to particular hazards, draw up and implement an operating plan and procedures to ensure a safe system of work and the protection of workers;
- (h) take measures and precautions appropriate to the nature of a mine operation to prevent, detect and combat the start and spread of fires, explosions and inundations;
- (i) ensure that, when there is serious danger to the safety and health of workers, operations are stopped and workers are evacuated to a safe location;
- (j) ensure that corrective actions are taken immediately, when manager or other officials report non-compliance with safety and health regulations or code of practice by any person.

(3) The owner shall ensure preparation of an emergency response plan specific to each mine for reasonably foreseeable industrial and natural disasters.

(4) Where workers are exposed to physical, chemical or biological hazards, the owner shall-

- (a) inform the workers, in a comprehensible manner, of the hazards associated with their work, the health risks involved and relevant preventive and protective measures;
- (b) take appropriate measures to eliminate or minimize the risks resulting from exposure to those hazards;
- (c) where adequate protection against risks of accident or injury to health including exposure to adverse conditions is not possible to be ensured by other means, provide and maintain at no cost to the worker, suitable protective equipment, clothing as necessary and other facilities as defined by these regulations;
- (d) provide workers who have suffered from an injury or illness at the workplace with first aid, appropriate transportation from the workplace and access to appropriate medical facilities.

(5) The owner shall ensure that-

- (a) adequate training and re-training programs and comprehensible instructions are provided for workers, at no cost to them, on safety and health matters as well as on the work assigned;
- (b) adequate supervision and control are provided in each shift to secure the safe operation of the mine;
- (c) a system is established so that the names of all persons who are employed belowground can be accurately known at any time, as well as their probable location;
- (d) all accidents and dangerous occurrences are investigated and appropriate remedial actions are taken;
- (e) the reporting of information and notices specified under regulation 8 is made to the Regional Inspector and to the Chief Inspector on accidents and dangerous occurrences.

(6) The owner shall ensure regular health surveillance of workers exposed to occupational health hazards specific to mining operations.

**38. General responsibilities of supplier, manufacturer and designer.**— A person who designs, manufactures, imports, provides or transfers machinery, equipment or substances for use in coal mines, shall -

- (a) ensure that the machinery, equipment or substances do not entail dangers for the safety and health of those using them correctly;
- (b) make available-
  - (i) information concerning their requirement for the correct installation, maintenance and use of machinery and equipment and the correct storage and use of substances;
  - (ii) information concerning the hazards of machinery and equipment, the dangerous properties of hazardous substances and physical agents or products; and
  - (iii) information on how to eliminate or control risks arising from the identified hazards associated with the products.

**39. Responsibilities of contractor.**— (1) A contractor deployed in a mine for any work shall-

- (a) establish effective ongoing communication and co-ordination between appropriate levels of supervisors, officials and senior officials of the mine prior to commencing work, which shall include provisions for identifying hazards and the measures to eliminate and control risks ;
- (b) ensure arrangements for reporting work related injuries and diseases, ill health and incidents among his workers while performing work in the mine;
- (c) provide relevant workplace safety and health hazards awareness and training to their workers prior to commencing and as work progresses as necessary; and
- (d) ensure compliance of the provisions of the Act, and the rules and regulations framed thereunder.

(2) When deploying contractors, the owner, agent and manager shall ensure that:

- (a) the same safety and training requirements apply to the contractors and their workers as to the workers of the establishment;
- (b) where required, only such contractors are deployed that have been duly registered or hold licenses; and
- (c) the contract specify safety and health requirements as well as sanctions and penalties in case of non-compliance and such contract shall include the right for mine officials to stop the work whenever a risk of serious injury is apparent and to suspend operations until the necessary remedies have been put in place.

**40. Duties of person employed in mines.**— (1) Every person shall strictly adhere to the provisions of the Act and of the rules and regulations made thereunder and to any order or direction issued by the manager or an official with a view to the safety or convenience of persons not being inconsistent with the Act, rules and these regulations; nor shall he neglect or refuse to obey such orders or directions.

(2) No person shall interfere with, impede or obstruct any person in the discharge of his duties, nor shall he offer or render any service, or use any threat, to any other person with a view to preventing him from complying with the provisions of the Act and of the rules and regulations made thereunder or from performing his duties faithfully.

(3) Every person shall, immediately before proceeding to work and immediately after terminating work at the end of his shift, have his name recorded in the register maintained under sub-section (4) of section 48 of the Act:

Provided that in case of workings belowground, the person shall get his name recorded every time he proceeds belowground or returns to the surface:

Provided further that electronic punching or registry system as approved by the Chief Inspector may also be provided and used for the purpose of identification, marking attendance and recording the name of the person and a hard (printed) copy of such record shall be kept forthwith for the purpose of record in the aforesaid register or in any other format specified by the Chief Inspector.

(4) Every person employed in a mine shall—

- (a) take reasonable care for their own safety and health and that of other persons who may be affected by their acts and omissions at work including the proper care and use of protective clothing, facilities and equipment placed at their disposal;
- (b) report forthwith to an official, any situation which he believes may pose a risk to his safety or health or that of other persons, and which he may not be able to properly deal with himself; and
- (c) co-operate with the employer to permit compliance with the duties and responsibilities placed on the employer.

(5) No person shall, except with the authority of an official, remove or pass through any fence, barrier or gate, or remove or pass any danger signal.

(6) Subject to any directions that may be given by an official, no person shall, except for some justifiable purpose, go into any part of the mine other than that part in which he works, or travels to or from his working place by any roadway other than the proper traveling roadway.

(7) No person shall sleep while on duty.

(8) Subject to the provisions of the Act and of these regulations and orders made thereunder, no person shall remain in a mine beyond the period over which his shift extends.

**41. Duties of competent person.**— Every competent person shall be subject to orders of superior officials, and shall not—

- (a) depute another person to perform his work without the sanction of his superior official;
- (b) absent himself without having previously obtained permission from such official for the term of his absence or without having been relieved by a duly competent person; and
- (c) without permission from such official, perform during his shift any duties other than those for which he has been appointed.

**42. Duties of officials.**— (1) Every official shall carry out the duties assigned to him by the manager or assistant manager in accordance with the provisions of the Act and of these regulations and orders made thereunder.

(2) Every official shall, to the best of his power, see that persons under his charge understand and carry out their respective duties properly.

**43. Duties and responsibilities of manager.**— (1) In every mine, daily personal supervision shall be exercised by the manager:

Provided that in case of working belowground, he shall visit and examine the working on at least four days in every week to ensure safety in every respect:

Provided further that at least one visit in every fortnight shall be made during the night shift:

Provided also that where owing to any unavoidable cause he is unable to carry out the aforesaid duties or inspections, he shall record the reasons for the same in the book kept under sub-regulation (2).

(2) The manager shall maintain, in a bound paged book kept for the purpose, a diary; and shall record therein the result of each of his inspections and also the action taken by him to rectify the defects noticed, if any.

(3) The manager shall make arrangements for all overmen and other officials to meet him or the assistant manager once in every working day for the purpose of conferring on them matters connected with their duties.

(4) The manager shall ensure sufficient supply of proper materials and appliances for the safety of the mine and the persons employed therein; and if he be not the owner or agent of the mine, shall report in writing to the owner or agent, when anything is required for the aforesaid purpose that is not within the scope of his authority to order, and a copy of every such report shall be recorded in a bound-paged book kept for the purpose.

(5) On receipt of a requisition under sub-regulation (4), the owner or agent shall promptly arrange to supply the said materials and appliances, and shall within three days of receipt of the requisition, intimate to the manager in writing the action taken to meet the requisition.

(6) The manager shall assign to every competent person his particular duties and take all possible steps to ensure that every such person understands and carries out the provisions contained in the Act and the rules or regulations made thereunder in a proper manner.

(7) The manager shall provide every overman with a tracing, upto the date of the last survey, showing the workings of the district belowground assigned to him and such tracing shall, where any work of reduction or extraction of pillars is being carried out, show clearly the reference of the permission and the manner in which such reduction or extraction is to be carried out:

Provided that in case of opencast mines, such tracing shall also show the sections of the working under his charge.

(8) The manager shall examine all reports, registers and other records required to be made or kept in pursuance of the provisions of the Act or of the regulations or orders made thereunder, and shall countersign the same with date:

Provided that the manager may, by an order in writing, delegate this duty to an assistant manager except in cases where a specific provision is made requiring the manager to countersign a report or register.

(9) The manager shall give attention to, and cause to be carefully investigated any specific representation or complaint that may be made to him in writing by an employee of the mine as to any matter affecting the safety or health of persons in or about the mine.

(10) When there occurs in a mine any accident resulting in serious bodily injury or loss of life to any person or any dangerous occurrence, as specified under clause (b) of sub-regulation (1) of regulation 8, the manager shall, as soon as possible, inspect the site of the accident or the dangerous occurrence, as the case may be, and shall also, either himself or through an assistant manager, have an inquiry made into the cause and circumstances attending the same and the result of every such enquiry along with a plan and sections and, wherever practicable, a photograph or photographs of the site of the accident or dangerous occurrence showing details, shall be recorded in a bound paged book kept for the purpose and a copy thereof shall be furnished to the Chief Inspector and Regional Inspector within fifteen days of the accident.

(11) The manager shall perform such other duties as have been prescribed in that behalf under the provisions of the Act, the regulations or orders made thereunder.

(12) The manager may suspend or take such disciplinary action against any employee for contravention of any of the provisions of the Act or the regulations and orders made thereunder.

#### **44. Duties of safety officer.—** (1) The duties of the safety officer shall be—

- (a) to visit surface and underground parts of the mine with a view to meet the workers on the spot, to talk to them on matters of safety and invite suggestions thereon;
- (b) to take charge of the newly recruited staff and show them around the mine pointing out the safe and unsafe acts during the course of their work in the mine;

- (c) to investigate all types of accidents and incidents in the mine including minor accidents and analyse the same with a view to pinpoint the nature and common causes of accidents in the mine;
  - (d) to maintain detailed statistics about mine accidents and to analyse the same with a view to pinpoint the nature and common causes of the accidents in the mine;
  - (e) to study and apprise the manager of all possible sources of danger such as inundation, fire, coal dust and others;
  - (f) to hold safety classes and give safety talks and lectures to the members of the supervisory staff;
  - (g) to organise safety weeks and other safety education and propaganda programmes in mine;
  - (h) to see that all concerned mine employees are fully conversant with various standing orders (such as those relating to stoppage of mine mechanical ventilators and to the occurrence of a fire or other emergency in the mine), codes of practices and support plan;
  - (i) to provide assistance in the formulation of programme for training at the mine level, including vocational training, training in gas testing, and training in first aid, etc;
  - (j) to report to the manager as a result of his visits to the various parts of mine, as to whether the provisions of the Act, and the rules and regulations made thereunder are being complied with in the mine;
  - (k) to promote safe practices generally and to lend active support to all measures intended for furthering the cause of safety in the mine and follow up measures for compliance to the recommendations of the Safety Committee and Workman's Inspectors;
  - (l) to assist the manager in any other matter relating to safety in the mine.
- (2) The safety officer shall ensure that an appropriate emergency plan as required under these regulations is put in place and the requirements of the same are implemented.
- (3) Except in an emergency, no duties other than those specified above shall be assigned to the safety officer.
- (4) The safety officer shall maintain in a bound paged book a detailed record of the work performed by him every day.

**45. Duties and responsibilities of assistant manager.-** (1) The assistant manager shall carry out the duties assigned to him by the manager, and shall see that in the part of the mine assigned to him by the manager, all work is carried out in accordance with the provisions of the Act and of the regulations and orders made thereunder.

- (2) The assistant manager shall, subject to the orders of the manager, visit and examine the workings under his charge, or part thereof, on every working day.
- (3) The assistant manager shall, from time to time, carefully examine every travellable part of the mine or part thereof placed under his charge, whether frequented by work persons or not.
- (4) In the absence of the manager, the assistant manager shall have the same responsibility, discharge the same duties and be subject to the same liabilities as the manager, but not so as to exempt the manager therefrom.
- (5) The assistant manager shall, in a bound paged book kept for the purpose, record the result of each of his inspections and also the action taken by him to rectify the defects noticed, if any.

**46. Duties of ventilation officer.-** (1) The ventilation officer shall-

- (a) ensure the observance of all regulations and orders concerning ventilation, spontaneous heating, fire, gas and coal dust including dust suppression and shall advise the manager, if any alteration is required in the ventilation system to ensure adequacy of ventilation in compliance with these regulations or orders;
- (b) advise the manager on day to day problems of ventilation, gas, coal dust, spontaneous heating and fire;

- (c) maintain close liaison with the assistant managers and other officials, and assist them in their day-to-day ventilation problems;
- (d) carry out ventilation surveys of the mine and undertake any other special work relating thereto as may be directed by the manager from time to time;
- (e) take such steps as are necessary to ensure compliance with the ventilation standards required in terms of these regulations or otherwise;
- (f) check the speed of main mechanical ventilator, amperage drawn by its electric motor, and fan drift water gauge at least once in a day and he shall investigate any unusual change in the water gauge and report to the manager;
- (g) determine the efficiency of the main mechanical ventilator once at least in every three months and get the fan blades and the fan drift cleaned when necessary;
- (h) ensure that copies of standing orders in the event of stoppage of the main mechanical ventilator are posted at conspicuous places at the mine, and also ensure that the persons concerned understand the instructions contained therein;
- (i) ensure the correct siting and installation of auxiliary and booster fans belowground;
- (j) examine at frequent intervals all ventilation appliances like doors, brattices, air crossings, regulators, stoppings, booster and auxiliary fans, ventilation ductings and other devices of ventilation control in the mine and report any defect in the same to the manager;
- (k) take necessary steps to stop any leakage through any of the devices and ensure that the ventilation appliances are maintained in good order;
- (l) ensure that sufficient quantity of good air is coursed into all working places and reaches all workings belowground, and for this purpose, shall -
  - (i) see that the ventilation stoppings, brattices, etc., are constructed as per specifications and are kept extended sufficiently;
  - (ii) see that measurements of air quantity, temperature and humidity are regularly taken as specified and bring up-to-date the entries on the check boards provided at each air measurement station;
  - (iii) determine the Ventilation Efficiency Quotient (VEQ);
  - (iv) see that mine air samples are properly collected at the appointed time and place, and analysed within forty-eight hours of taking thereof; and
  - (v) make observations for inflammable and any other harmful gases;
- (m) maintain separate tracing of the ventilation, rescue, stone dusting and the dust sampling plans and bring them up-to-date;
- (n) bring to the notice of surveyor any changes in the ventilation system or ventilation appliances and shall ensure that all old markings on the ventilation and rescue plans are corrected and new ventilation circuits are shown forthwith;
- (o) regularly check the barometer provided at the mine and report any unusual change in barometric pressure to the manager for appropriate actions;
- (p) take care of the instruments and apparatus used in the mines for environmental monitoring and ensure that all such instruments are maintained in good order and calibrated at specified intervals;
- (q) regularly visit returns of working districts and old workings including fire stoppings, if necessary, for symptoms of spontaneous heating and fire and report to the manager forthwith any such symptoms observed by him and shall himself take such steps as may be immediately necessary for the safety of the workers;
- (r) check the fire fighting measures and take necessary steps by regular rehearsals to ensure that all fire fighting equipments are maintained in working order and the concerned staff are fit and conversant with their duties in the event of a fire in the mine;

- (s) take necessary steps for proper cleaning, treatment and suppression of coal dust in the mine and see that the arrangements for wet-cutting at the faces and water spraying at and within ninety meters of the working places are properly installed and function satisfactorily;
- (t) ensure that the stone dust barriers are correctly sited, properly constructed and maintained in accordance with the statutory requirements or otherwise; and bring the entries on the check boards up-to-date from time to time;
- (u) ensure that samples of mine roadway dust and of airborne dust (if required by the manager) are regularly taken in the specified manner;
- (v) collect air samples from sealed off areas, exhaust gases from diesel vehicles and from such other places as may be required by the manager;
- (w) ensure that all records and reports relating to ventilation, spontaneous heating, fire, gas and coal dust are kept up-to-date and entries are made regularly in the check boards for ventilation and stone dust barriers:

Provided that nothing contained above shall exempt the manager, assistant manager, surveyor, overman, sirdar or any other competent person concerned, from any corresponding duties and responsibilities specified for them in these regulations or any orders made thereunder; and

- (x) assist the manager in any matter relating to the ventilation of the mine.

(2) No duties other than those specified above shall be assigned to the ventilation officer except in an emergency.

(3) The ventilation officer shall maintain, in a bound paged book, a detailed record of the work performed by him every day.

**47. Duties and responsibilities of overman.**— (1) The overman shall subject to the orders of superior officials, have responsibility, charge and control of such part of the mine, and shall carry out such duties, as may be assigned to him by the manager.

(2) The overman shall, -

- (a) while on duty, carry a tracing of the workings of such district and shall keep the tracing up-to-date;
- (b) in his district, make the inspections and reports required by these regulations;
- (c) ensure that the subordinate officials and competent persons in his district carry out their respective duties in a proper manner;
- (d) ensure that mining operations in the part of the mine assigned to him under sub-regulation (1) are carried out as per the code of practices framed under these regulations.

(3) The overman shall, to the best of his power, enforce in his district the provisions of the Act, of these regulations and orders made thereunder, and shall, subject to the control of manager and the assistant manager, if any, give such directions as may be necessary to ensure compliance with those provisions, and to secure the safety of the district and the safety and proper discipline of the persons employed therein.

(4) The overman shall see that sufficient supplies of timber, support materials, brattice, tools and tackles, appliances, and other necessaries required for the safe working of his district are kept at convenient places therein.

(5) The overman shall –

- (a) ensure that every air-crossing, stopping, door, brattice and other ventilation device is maintained in good order;
- (b) ensure that the ventilation is effective in his district, and when brattices or air pipes or ducts are required to be used for the ventilation of the working places, he shall see that they are kept sufficiently advanced so that an adequate amount of air reaches every such working place;
- (c) have power to send out of the mine any person under his charge who infringes or attempts to infringe any provision of the Act or of the regulations or orders made thereunder, or fails to carry out any direction given with regard to safety, and shall report such matter in writing to the manager;

- (d) ensure that all tracks and tramlines are properly laid, graded, ballasted or otherwise packed;
  - (e) see that the manholes on the haulage roadways are kept safe, clear of any obstruction, and properly white-washed;
  - (f) ensure that the stop-blocks, runway switches and other safety devices are fixed and used as required under the regulations, drag or back-stays are provided and regularly used behind tubs ascending inclines and that a sufficient supply of suitable sprags is provided where tubs are loaded on a gradient or lowered down a gradient by hand;
  - (g) stop the use forthwith if he finds any of the ropes, chains, signals, brakes, jig wheels and post or other apparatus in use in his district to be in an unsafe condition;
  - (h) ensure that, except for the purposes of inspection, examination and repair every person other than an official or a haulage attendant travels by the travelling roadway;
  - (i) give prompt attention to the removal of any danger observed or reported to him, and shall see that dangerous places are adequately fenced off;
  - (j) see that approved safety lamps are used belowground.
- (6) In case of opencast workings, the overman shall ensure that-
- (a) sides of benches are kept properly dressed;
  - (b) stability of benches is not endangered;
  - (c) haul roads are kept maintained;
  - (d) stability of overburden dumps is not endangered;
  - (e) there is no over-crowding of men and machinery at the working faces;
  - (f) adequate lighting is provided at the area under his control; and
  - (g) adequate precautions as laid down in these regulations are taken before blasting operations is conducted;
  - (h) all machinery and plant are operated in safe and secured manner.
- (7) The overman shall –
- (a) devote the whole of his time to his duties and visit each working place in his district as often as may be necessary or possible;
  - (b) not, except for justifiable cause, leave the district in his charge until he has finished the inspections required under these regulations and any other duties that he is required to perform, or until relieved by a duly appointed substitute;
  - (c) if the mine is working in a continuous succession of shifts, confer with the official succeeding him and give him such information as may be necessary for the safety of his district and of persons employed therein;
  - (d) at the end of his shift, record in a bound paged book kept for the purpose a general report in the specified format on the performance of all his duties during the shift, including anything concerning the proper working of the mine and the safety and discipline of persons employed in his district.

**48. Duties and responsibilities of sirdar.—**(1) The sirdar or other competent person appointed under regulation 129 shall, subject to orders of superior officials, have responsibility, charge and control of the district of the mine assigned to him by the manager or assistant manager.

- (2) The sirdar shall -
- (a) take reasonable means to ensure proper observance of the requirements of the Act and of the regulations, and orders made thereunder by persons under his charge and shall, as soon as practicable, report any contravention thereof to his superior official;
  - (b) make such inspection and reports as are required by these regulations, and in making such examination, he shall pay particular attention to edges of the goaf, if any, for checking supports and for presence of gas;

- (c) except in the case of a mine working in a continuous succession of shifts, on completion of the first inspection of the district, proceed to the station specified under regulation 129 and instruct all persons as to their places of work and as to any special precautions necessary to be observed by them;
  - (d) if he finds any person in a place other than the one assigned to him, he may order such person out of the mine, and shall forthwith report the matter to his superior official;
  - (e) ensure that no inexperienced person is employed on any work except under the supervision of an experienced person.
  - (f) see that the roof and sides of all traveling roadways and working places in his district are made and kept secure;
  - (g) where the height of any working place in the district in his charge measured from floor to roof exceeds three meters, see that a suitable wooden bunton or pole by which all parts of the roof may be effectively tested by a person standing on the floor and a ladder of suitable length are kept at convenient places in the district;
  - (h) report to his superior official any deficiency in timber, support materials, appliances and other necessaries required for the safe working of the district;
  - (i) Where either of the two ways affording means of egress from the district to the surface is not ordinarily used for travelling, travel, once at least in every seven days, the whole of such roadway in order to make himself thoroughly acquainted with the same; and
  - (j) see that no support is withdrawn except by means of a safety prop-withdrawer.
- (3) If sirdar observes any dangerous place during the course of his inspections or if any danger at a place where work persons are employed is reported to him, he shall, if the danger is not possible to be removed forthwith, withdraw all persons from such place and shall not leave the place until the danger has been removed in his presence or all approaches to the place have been fenced off so as to prevent persons from inadvertently entering such place.
- (4) The sirdar shall -
- (a) take care that any dangerous operation is carried out with due precautions, and in such cases shall be present throughout whenever any work of clearing falls of ground and setting of supports therein is being carried out;
  - (b) cause the entrance to every place which is not in actual use or in course of working or extension, to be fenced across the whole width, so as to prevent persons from inadvertently entering such place;
  - (c) if he finds any accumulation of inflammable or noxious gases, take such precautions as specified in regulation 166 and shall not remove such accumulation until he has received instructions in that behalf from his superior official;
  - (d) on receipt of information of an accident to any person in his district, proceed at once to the place of accident, inspect the place and, if required, supervise the rescue operations, and shall report or send notice of the accident to the manager or assistant manager;
  - (e) devote the whole of his time to his duties, and shall not leave the mine until the end of the shift or until relieved by a duly appointed substitute;
  - (f) if the mine is worked by a continuous succession of shifts, before leaving his district, confer with the sirdar or other competent person succeeding him, and shall acquaint him with all matters requiring his personal attention and give him such other information as may be necessary for the safety of his district and of the persons employed therein;
  - (g) see that mining operations in the district of the mine assigned to him under sub-regulation (1) are carried out as per the code of practices framed under these regulations.
- (5) In case of opencast workings, the sirdar shall ensure that-
- (a) sides of benches are kept properly dressed;
  - (b) stability of benches is not endangered;

- (c) haul roads are kept maintained;
- (d) stability of overburden dumps is not endangered; and
- (e) dust control measures are implemented.

**49. Duties and responsibilities of shotfirer.**— The shotfirer shall –

- (a) carry out his duties in accordance with the provisions of these regulations and of any orders made thereunder with respect to the transport and use of explosives;
- (b) be responsible for the observance by his assistants, if any, of such provisions and of any direction with a view to safety which may be given to them by a superior official;
- (c) not hand over any explosives to any unauthorised person;
- (d) ensure that clay, sand or other suitable stemming material is available in sufficient quantities at convenient places;
- (e) be present when shots are being charged and stemmed; and shall himself fire the shots;
- (f) be responsible, when a shot has misfired, for seeing that the place is adequately fenced and that the provisions of regulation 204 are strictly observed.

**50. Duties of support man.**— The support man shall -

- (a) carry out the orders of the manager or assistant manager, overman, sirdar or other competent person with respect to the securing of roof and sides and the other working places;
- (b) ensure placement of supports are strictly in accordance to the support plan;
- (c) at once report to the sirdar or other competent person any shortage of support materials in his district;
- (d) in case of use of timber, be responsible to see that woodcuttings are not left in any working belowground.

**51. Duties of attendant of main mechanical ventilator.**— The person in charge of the main mechanical ventilator shall –

- (a) keep the ventilator running at the speed fixed by the manager;
- (b) examine the machinery and observe the pressure-recording or water gauge and the speed-indicator at intervals of not more than one hour, and shall enter the readings of the indicator in a bound paged book kept for the purpose at the fan-house;
- (c) immediately report to his superior official any stoppage of, damage to, or defect or derangement in the machinery, or any unusual variation in the water-gauge or other indicators and shall also immediately report to him any unusual circumstances in regard to mine ventilation which may come to his notice;
- (d) not leave his place until relieved by a duly appointed substitute where the ventilator is continuously operated.

**52. Duties of lamp room in-charge.**— The person in-charge of a safety lamp-room shall-

- (a) be responsible for ensuring that all lamps in the safety lamp- room including safety lamps are properly maintained as per manufacturers specifications and in accordance with the provisions of these regulations;
- (b) see that the safety lamp-room is kept in a neat and tidy condition, and that all damaged and defective gauges, glasses and other parts of safety lamp are not kept or stored in such room;
- (c) see that fire extinguishers or other means of dealing with fires provided in the safety- lamp rooms are in good condition and readily available for use;
- (d) see that all records required by the regulations for the issue, return and maintenance of safety lamps are properly maintained;
- (e) see that every person going below ground is provided with a lamp having adequate charge to sustain at least whole of the shift;

- (f) carry out such other duties relating to the maintenance, issue and return of safety lamps as may be specified by the manager or the assistant manager.

**53. Duties and responsibilities of surveyor.—**(1) The surveyor shall –

- (a) make such accurate surveys and levellings, and prepare such plans and sections and tracings thereof, as the manager may direct or as may be required by the Act or by the regulations or orders made thereunder, and shall sign the plans, sections and tracings and date his signature;
  - (b) be responsible for the accuracy of any plan and section, or tracings thereof that has been prepared and signed by him.
- (2) The surveyor shall record in a bound paged book kept for the purpose –
- (a) the full facts when working of the mine have approached to about 120 meters from the mine boundary, or from disused or waterlogged workings;
  - (b) any doubts which may arise or exist concerning the accuracy of the plans and sections prepared under these regulations;
  - (c) any other matter relating to the preparation of the plans and sections that he may like to bring to the notice of the manager,

and every entry in the book shall be signed and dated by the surveyor and countersigned and dated by the manager:

Provided that where in any mine two or more surveyors are employed, each of the surveyors shall make the entries aforesaid in respect of the workings in his jurisdiction or of the plans and sections in his charge.

(3) Nothing in sub-regulation (2) shall absolve the owner, agent or manager of his responsibility under the provisions of the Act and under these regulations or orders made thereunder.

**54. Duties and responsibilities of engineer—**The engineer or other competent persons appointed for the purpose shall—

- (a) subject to the orders of the manager and other superior official, hold general charge of all machinery at the mine; and shall be responsible for the proper installation, maintenance and safe working of such machinery;
- (b) when any machinery is shifted or newly installed, ensure that it is given a trial run before it is put into use, and shall be present during every such trial run;
- (c) be present throughout whenever any work of installing, changing or recapping of any winding rope, or of installing, changing or annealing any suspension gear, is being carried on;
- (d) ensure that the provisions of the Act and of these regulations and orders made thereunder relating to the installation, maintenance, operation or examination of machinery are properly carried out by himself and by subordinate officials, competent persons or work persons as the case may be, appointed for the purpose;
- (e) if mechanics, electricians or other subordinate officials or competent persons are appointed for the purpose, examine all reports, registers and other records relating to the installation, maintenance, operation or examination of machinery required to be made or kept in pursuance of the Act, these regulations or orders made thereunder, and shall countersign the same and date his signature.

**55. Duties of winding engineman.—**(1) A winding engineman shall—

- (a) at the beginning of his shift, examine the engine, brakes and all appliances in his charge and satisfy himself that they are in good working order;
- (b) during his shift, keep the winding engine and apparatus connected therewith properly cleaned and oiled and shall ensure that the engine room is clean and free of inflammable material;
- (c) immediately report in writing to the engineer or other competent person appointed for the purpose any defect which he has noticed in the engine, brake, indicator, drum, rope or other appliances under his charge;

- (d) not allow any unauthorised person to enter the engine room or in any way to interfere with the engine;
- (e) thoroughly acquaint himself with, and carefully attend to, the prescribed code of signals and shall not start the engine until he has received the proper signal to do so:

Provided that if the signal is indistinct, he shall not start the engine until it has been repeated and he clearly understands it;

- (f) avoid jerk in starting, running and stopping the engine, and shall cause the cage or other means of conveyance to be brought gently to rest at any stopping place;
- (g) while persons are being lowered or raised in the shaft, the winding engineman shall not drive the engine at a speed higher than that fixed by the manager for man-riding purposes and approved by the Regional Inspector;
- (h) not unclutch the drum of his engine until he has assured himself immediately beforehand by testing the brake of the drum against the full power of the engine to see that the brake is in proper condition to hold the load suspended from the said drum:

Provided that when the drum is unclutched, he shall use the brake only for the purpose of maintaining such drum stationery, and shall not lower men or materials from an unclutched drum;

- (i) on no pretext leave the handle or brake whilst the engine is in motion, or while persons are riding a cage or other means of conveyance in the shaft; and
- (j) not leave the engine whilst persons are at work in the shaft, and whenever he has occasion to leave the engine, he shall cut off the power and secure the drums with brake;

(2) The winding engineman of a winding engine by which persons are lowered or raised in a shaft, shall not leave the engine at the end of his shift unless all the persons have come out of the shaft or unless relieved by a duly appointed substitute.

**56. Duties of banksman and onsetter.—**(1) Every banksman or onsetter shall-

- (a) subject to the orders of a superior official, have full control of the top or bottom of shaft or the inset, as the case may be, and shall report to such official any person who, without authority, gives a signal or disobeys instructions;
- (b) thoroughly acquaint himself with, and carefully attend to, the prescribed code of signals, and shall properly transmit the signals by the means provided:

Provided that the banksman or onsetter shall not act on any signal, the correctness of which he is in doubt, except a signal which he believes to be “to stop” and shall not allow any unauthorised person to give signals;

- (c) immediately report to his superior official any defect in the signalling installation;
- (d) devote the whole of his time to his duties, and shall not leave his post during the period of his duty. Where persons are raised or lowered in the shaft, he shall not leave his post at the end of his shift unless all the persons have come out of the shaft or unless relieved by a duly appointed substitute;
- (e) not allow more than the authorised number of persons to enter the cage or other means of conveyance at any one time;
- (f) not, unless specially authorised in writing by the manager in that behalf, allow any person when riding in a cage or other means of conveyance, to take with him any bulky materials other than tools and instruments:

Provided that nothing in this clause shall be deemed to prohibit the carrying, in a cage or other means of conveyance, of explosives by a shotfirer or other competent person;

- (g) after any stoppage of winding for repairs or for any other cause for a period exceeding two hours, not allow any person to ride in the cage or other means of conveyance unless it has been run at least one complete trip up and down the working portion of the shaft;
- (h) not allow any person to ride on the top or edge of any cage or other means of conveyance except when engaged in examination, repair or any other work in the shaft;

- (i) after persons have entered the cage, see that the cage gates on both sides are in position and closed, before signaling for the cage to be lowered or raised;
  - (j) not allow any unauthorised person to handle tubs in or out of the cage;
  - (k) while tubs are being lowered or raised, see that the catches are holding the tubs properly before signaling the cage or other means of conveyance away and if he notices any defect in the tub-catches, he shall immediately inform his superior official;
  - (l) at any entrance into a shaft or inset which is provided with gates or fences not worked by the cage or other means of conveyance, not begin to remove the gate or fence until the cage or other means of conveyance has stopped at the entrance, and shall close the gate before he has signalled the cage or other means of conveyance away, and he shall not permit any unauthorised person to open or interfere with the gate;
  - (m) see that all fences and gates provided at the top of the shaft or at any inset are in position;
  - (n) not permit any unauthorised person to remove a fence or gate and if he notices any defect in such fence or gate, immediately inform his superior official;
  - (o) keep the top of the shaft or the inset and the floor of every cage free from loose materials;
  - (p) when long timber, pipes, rails or other materials projecting over the top of a cage or other means of conveyance are lowered or raised, ensure that the projecting ends are securely fastened to the rope, chains or bow;
  - (q) when he suspects that the cages are not working smoothly in the shaft or when he hears anything unusual happening in the shaft while the winding engine is working, immediately give signal to the winding engineman to stop the engine.
- (2) The banksman shall-
- (a) at the beginning of his shift, see that the keps are in proper working order;
  - (b) when he is informed of any danger in the shaft, not allow any person to descend except for the purpose of examination or repair and during the time that such examination or repair is going on, be on duty and listen for signals;
  - (c) not permit any person descending the shaft to carry any intoxicating drink or drug, or allow any intoxicated person to descend.
- (3) The banksman shall not leave his place of work unless duly relieved by his successor.

**57. Duties of haulage engineman, attendant, etc.-** (1) At the beginning of his shift, the haulage engineman shall examine the engine, its brake and all appliances in his charge, and shall satisfy himself that they are in good working order.

(2) The haulage engineman shall, during his shift keep the haulage engine and apparatus connected therewith properly cleaned and oiled, and the engine-room clean and free of inflammable material.

(3) The haulage engineman shall report immediately to the engineer or other competent person appointed for the purpose any defect which he has noticed in the engine, brake, drum, rope or other appliances under his charge.

(4) Whenever the haulage engineman has occasion to leave the engine, he shall cut off the power and secure the engine with the brake.

(5) The haulage engineman and signaller shall not allow any unauthorised person to enter the engine-room or in any way to interfere with the engine or signal, as the case may be.

(6) Every haulage engineman and signaller shall thoroughly acquaint himself with, and carefully attend to, the prescribed code of signals.

(7) The haulage engineman shall not start the engine until he has received the proper signal to do so and if the signal is indistinct, shall not start the engine until it has been repeated and he clearly understands it.

(8) The person in charge at the top of any haulage plane or incline shall ensure that the stop-blocks are blocking the way, before allowing any tub to be brought on to the top landing and shall cause the tubs to be securely coupled up to each other and to the rope or chain, before the stop block is opened. In case any

alternative safety appliance is provided, he shall cause the same to be brought into use on every such occasion.

(9) The person who is responsible for the attachment to the haulage rope, of any tub or set of tubs at any stopping place on any haulage plane or incline, shall ensure that no person remains in a position of danger at or near such stopping place while the rope is in motion.

(10) The person in charge of any tubs or set of tubs, which it is intended to send up any haulage plane or incline on which drags or back-stays are required to be used, shall securely fix the drag or back-stay or cause it to be so fixed, before such tub or set of tubs is set in motion.

(11) The person in charge at the top or bottom of the incline shall ensure that no unauthorised person rides on any tub.

(12) Before a train of side-tipping tubs is set in motion, the person in charge shall ensure that the safety catches of all such tubs are properly secured.

**58. Duties of locomotive driver.**— The locomotive driver shall—

- (a) before commencing work in his shift, ensure that the audible signal, lights and the brakes of the locomotive are in proper working order;
- (b) not work the locomotive unless the locomotive is fitted with sufficient headlights;
- (c) immediately report to the engineer or other competent person appointed for the purpose any defect which he has noticed in the locomotive or any part or fitting thereof;
- (d) not set the locomotive in motion until audible warning has been given by him to persons whose safety may be endangered and also give the audible warning when the locomotive is approaching a level crossing or any place where any person is at work or where the driver's sight is intercepted;
- (e) not leave a locomotive unattended away from the place where it is housed, unless he has ensured that it cannot be set in motion by any unauthorised person;
- (f) ensure that no unauthorised person drives, handles or rides on a locomotive;
- (g) ensure that when tubs or wagons are being pushed in front of the locomotive, the shunter shall accompany the leading wagon.

**59. Duties of cutting and loading machine driver and mechanic or fitter.**— (1) When a machine is required to work on a gradient exceeding 1 in 5, an effective contrivance to prevent the machine running back shall be provided and used.

(2) No cutting or loading machine shall be flitted or otherwise moved with the cutting or loading tool in motion, except in the actual process of cutting or loading, and if the cutting or loading tool, as the case may be, is not possible to be locked out of gear securely, it shall be removed before flitting is started.

(3) No person shall make any repair or adjustment to a cutting or loading machine or shall put in or take out a pick, until he has made such arrangements as will prevent the mechanism being inadvertently put into motion while such operation is being performed.

(4) No person shall open or replace the cover of any electrical part of a cutting or loading machine, except under the supervision and in the presence of an engineer, electrician or other competent person appointed for the purpose.

(5) The cutting or loading machine driver shall not leave the machine unless he has completely cut off the power and has assured himself that the moving parts of the machine shall not be inadvertently set in motion.

**60. Duties of magazine in-charge.**— The magazine in-charge shall—

- (a) subject to the orders of superior officials, be responsible for the proper receipt, storage and issue of explosives in and from the magazine;
- (b) maintain such records of the explosives received, stored and issued under clause (a), as are required under the provisions of the Act, the Explosives Act, 1884 (4 of 1884) and the rules, regulations or orders made thereunder;

- (c) not issue explosives to any person other than a competent person and when explosives are returned to the magazine, shall re-issue such explosives before issuing fresh stock;
- (d) record in a bound paged book kept for the purpose, the names of various competent persons and the quantity and nature of explosives issued to each of them; and similarly record the quantity and nature of explosives returned to the magazine by each such person;
- (e) securely lock each canister before issuing it to the competent person and also check whether the canister is returned to the magazine in locked condition and shall not issue explosive in any canister which is not in proper repair or which is not possible to be securely locked;
- (f) not allow any unauthorised person to enter the magazine;
- (g) not issue any explosive for which the stipulated shelf life has expired; and
- (h) if he discovers any shortage of explosives in the magazine, forthwith inform the manager in writing.

**61. Duties of register keeper and attendance clerk, etc.-** (1) Every person appointed to keep register or other records required to be kept by or under the Act or under these regulations, or orders made thereunder, or to make entries therein, shall make the necessary entries in ink or by other means specified by the Chief Inspector with reasonable dispatch.

(2) During the whole time that persons are at work, the attendance clerk shall remain on duty at attendance cabin which shall be provided near the workplaces, or in case of working belowground, near the outlet used by the work persons to enter and leave such workings.

(3) No person who is not an employee of the mine or is not entitled to enter the mine under the Act or under the regulations, or orders made thereunder, or is not so authorised by the manager, shall enter the mine.

(4) It shall be the duty of the attendance clerk to ensure that no such person enters the mine and if any such person forcibly enters the mine, the attendance clerk shall immediately report the matter in writing to the manager.

(5) If after the commencement of a shift, any official or a competent person has not got his attendance recorded in the register maintained under sub-section (4) of section 48 of the Act, the attendance clerk concerned shall, within two hours after the commencement of the shift, report the fact in writing or by other means prescribed by the Chief Inspector, to the manager or the assistant manager or other official in-charge of the shift.

**62. Duties of operators of heavy earth moving machineries, excluding trucks, tippers and dumpers.-** Every person authorised to operate heavy earth moving machineries such as dragline, shovel or excavator shall –

- (a) inspect the machine assigned to him in the beginning of his shift and test the various systems, sub-systems and protective devices, as stipulated in this respect by the engineer in consultation with the manufacturer or supplier;
- (b) not take out the machine for work nor shall he operate the machine unless he is satisfied that it is mechanically sound and in efficient working order;
- (c) maintain a record of every inspection made under clause (a) in a bound paged book kept for the purpose and shall sign every entry made therein;
- (d) keep the cabin or engine room and all window glasses clean;
- (e) keep the walkways, hand-rails, ladder-ways free of loose tools, lubricants or other material that might fall or cause a tripping hazard;
- (f) not allow any unauthorised person to ride on the machine;
- (g) not move or operate the machine when persons are in such proximity as to be endangered;
- (h) not swing the bucket over the passing haulage units or over the cabin of units being loaded;
- (i) lower the bucket to ground, switch-off the power supply to the machine or stop the prime mover and lock the cabin door before leaving the machine;

- (j) strictly adhere to the codes of practices prepared under regulation 110 while operating the machinery;
- (k) enter the condition of the machine at the end of his shift in the register or book maintained under clause (c) for necessary information of his successor.

**63. Duties of truck, tipper and dumper operator.—** (1) Every person authorised to operate trucks, tippers and dumpers in a mine shall—

- (a) inspect the machine assigned to him in the beginning of his shift and test the various systems, sub-systems and protective devices;
- (b) not take out the machine for work nor shall he work the machine unless he is satisfied that it is mechanically sound and in efficient working order;
- (c) maintain a record of every inspection made under clause (a) in a bound paged book kept for the purpose and shall sign every entry made therein;
- (d) not drive the machine under his charge too fast, shall avoid distractions, and drive defensively, not attempt to overtake another vehicle unless he can see clearly far enough ahead to be sure that he can pass it safely and sound the audible warning signal before overtaking;
- (e) when approaching a stripping or loading equipment, sound the audible warning signal and not attempt to pass the stripping equipment until he has received proper audible signal in reply;
- (f) before crossing a road or railway line, reduce his speed, look in both directions along the road or railway line and proceed across the road or line only if it is safe to do so;
- (g) sound the audible warning signal while approaching a blind corner or any other points from where persons may walk in front unexpectedly;
- (h) not operate the truck, tipper or dumper in reverse unless he has a clear view of the area behind and give an audible warning signal before reversing a truck, tipper or dumper;
- (i) be sure of clearance before driving through areas such as tunnels, archway and plant structures;
- (j) strictly adhere to the transport rules made under regulation 109 while operating the truck, tipper or dumper;
- (k) enter the condition of the truck, tipper or dumper at the end of his shift in the register or book maintained under clause (c) for necessary information of his successor.

(2) The driver shall ensure that the vehicle is not overloaded and that the material is not loaded in a truck, tipper or dumper so as to project horizontally beyond the sides of its body and that any material projecting beyond the front or rear is indicated by a red flag during day and by red light after day light hours.

(3) The driver shall not allow any unauthorised person to ride on the vehicle.

## CHAPTER VI

### PLANS AND SECTIONS

**64. General requirements about mine plans.—** (1) Every plan or section prepared or submitted in accordance with the provisions of these regulations shall—

- (a) specify the name of the mine and of the owner and the purpose for which the plan is prepared;
- (b) show the true north, or the magnetic meridian and the date of the latter;
- (c) specify a scale of the plan at least 25 centimeters long and suitably subdivided;
- (d) unless otherwise provided, be on a scale having a representative factor of 2000:1 or 1000:1;

Provided that the Chief Inspector may, by an order in writing and subject to such conditions as he may specify therein, permit or require the plans to be prepared on any other suitable scale;

- (e) be properly inked in on durable paper, tracing cloth or on polyester film and be kept in good condition;

- (f) have an abstract of all statutory restrictions in respect of any specified working with a reference.
- (2) The conventions shown in the Schedule shall be used in preparing all plans and sections required by these regulations.
- (3) The plans and sections required by these regulations shall be accurate within such limits of error as the Chief Inspector may specify by a general or special order.
- (4) The plans and sections required by these regulations shall be maintained corrected up-to-date which is not earlier than three months:

Provided that where any mine or seam or section is proposed to be abandoned, closed or the working thereof to be discontinued or rendered inaccessible, the plan and section shall be brought up-to-date before such abandonment, closure or at the time of discontinuance, as the case may be, unless such abandonment, closure or discontinuance has been caused by circumstances beyond the control of the owner, agent or manager, in which case the fact that the plan or section is not up-to-date shall be recorded on it.

(5) All the reference stations at surface and the reference points of underground surveys shall be shown in their correct position relative to the survey of India national grid within the limits of error of survey and plotting, as specified under sub-regulation (3).

(6) Plans and sections required to be maintained under these regulations shall be kept available for inspection in the office at the mine, and shall not be removed therefrom except by or with the approval in writing of the Regional Inspector, unless a true copy thereof has been kept therein.

(7) The Chief Inspector may, subject to the conditions as he may specify in the order, permit preparation of plans or sections in variance with the provisions of this regulation.

**65. Type of plans.—** (1) The owner, agent or manager of every mine shall keep the following plans and sections:

- (a) a surface plan showing every surface feature within the boundaries, such as telephone, telegraph or power transmission line, watermain, tram-line, railway, road, river, watercourse, reservoir, tank, bore-hole, shaft and incline opening, opencast working, subsidence and building on the surface;
- (b) an underground plan showing-
  - (i) the position of the workings of the mine belowground;
  - (ii) every bore-hole and shaft with depth, incline opening, cross-measure drift, goaf, fire-stopping or seal, water-dam (with dimensions and other particulars of construction), pumping station and haulage roadway;
  - (iii) every important surface feature within the boundaries, such as railway, road, river, stream, water-course, tank, reservoir, opencast working and building which is within 200 meters of any part of the workings measured on the horizontal plane;
  - (iv) the general direction and rate of dip of the strata;
  - (v) such sections of the seam as may be necessary to show any substantial variation in the thickness or character thereof and showing the working section, and such section of the strata sunk or driven through in the mine or proved by boring as may be available;
  - (vi) the position of every roll, washout, dyke and every fault with the amount and direction of its throw and hade;
  - (vii) an abstract of all statutory restrictions in respect of any specified working with reference to the order imposing the same, and,

whenever this plan is brought up-to-date, the then position of the workings shall be shown by dotted line drawn through the ends of the working and such dotted line shall be marked with the date of the last survey;

- (c) where a seam has an average inclination of more than thirty degrees from the horizontal, one or more vertical mine section or sections, as may be required by Regional Inspector, showing a vertical projection of the mine working:

Provided that in case of a mine having opencast workings, vertical mine sections showing vertical projections of mine workings at suitable intervals not exceeding 100 m, in both, longitudinal as well as transverse directions, shall be prepared and maintained irrespective of the inclination of coal seam;

- (d) a ventilation plan, and section where necessary, showing the system of ventilation in the mine, and in particular –
- (i) the general direction of air-current;
  - (ii) every point where the quantity of air is measured;
  - (iii) every air-crossing, ventilation door, stopping and every other principal device for the regulation and distribution of air;
  - (iv) every fire-stopping and its serial number;
  - (v) every room used for storing inflammable material;
  - (vi) the position of fire-fighting equipment;
  - (vii) every water-dam with dimensions and other particulars of construction;
  - (viii) every pumping, telephone and ambulance station;
  - (ix) every haulage and travelling roadway;
  - (x) every auxiliary or booster fan;
  - (xi) every stone dust barrier;
- (e) a joint survey plan showing the details required under clause (b) of this sub-regulation and sub-regulations (6) and (7), signed by the surveyor and the manager of the mine and also of adjoining mines having working within 60 meters of the common boundary or where the boundary is in dispute, within 60 meters of the boundary claimed by the owner of the mine concerned signifying the correctness of the common boundary, or the disputed boundaries, as the case may be, and of the position of the working in relation to one another;
- (f) a geological plan of the area of leasehold, on a suitable scale; and
- (g) a water-danger plan and section showing-
- (i) nullah, river, lake, water pond, water coarse, drainage or any other water bodies on surface or belowground existing upto 200 meters of the boundary of the mine;
  - (ii) the position of the working belowground and every borehole and shaft (with depth), drive, cross-cut, staple pit, excavation and air passage connected therewith;
  - (iii) the position of every dyke, fault and other geological disturbance with the amount and direction of its throw as well as hade;
  - (iv) levels taken in workings belowground at easily identifiable points sufficient in number to allow the construction of sections along all drives, main headings and haulage roadways;
  - (v) every source of water such as river, stream, water-course, reservoir, water-logged opencast working on the surface, and also the outline of all water-logged workings belowground lying within 60 meters of any part of the workings measured in any direction;
  - (vi) every reservoir, dam or other structure, either above or belowground, constructed to withstand a pressure of water or to control inrush of water, along with reference to its design and other details of construction; and
  - (vii) the highest flood level of the area.

- (2) Separate plans and sections for the working of every seam or of every separate section of every seam shall be kept in respect of clauses (b), (c), (d) and (e) of sub-regulation (1):

Provided that in respect of plans maintained under clause (b) of sub-regulation (1), combined plans of all seams or sections, which are lying within nine meters of each other and which are worked at the mine shall also be kept; and in the combined plans, workings in different seams or sections shall be shown in different colours.

(3) The plans maintained under clauses (a), (b), (d), (e), (f) and (g) of sub-regulation (1) shall also show surface contour lines drawn at vertical intervals not exceeding five meters (or ten meters in the case of a mine where there are no working belowground or in cases of mines situated in hilly terrain, such other interval as the Regional Inspector may permit by an order in writing and subject to such conditions as he may specify) over the whole area lying within 200 meters of any part of the working.

(4) The plans maintained under clause (b) of sub-regulation (1) shall also show spot levels on the floor of the working –

- (a) along haulage roadways, at every roadway junction, except in roadways where tramping is done by manual means where the spot levels may be shown at points not more than 150 meters apart; and
- (b) in the case of headings which have been discontinued either temporarily or permanently, also at the end of such headings:

Provided that where two drifts in stone or two galleries in coal pass over one another, this shall be clearly indicated on the plans, with appropriate noting, if necessary;

(5) A permanent bench-mark shall be established on the surface, and all levels taken above and belowground shall be referred to a plane in relation to such bench-mark and the particulars of the bench-mark, together with its height above Mean Sea Level shall be shown on the plans required to be maintained under these regulations.

(6) The plans maintained under clauses (a) and (b) of sub-regulation (1) shall also show the settled boundary of the mine, or where the boundary is in dispute, the boundaries claimed by the owner of the mine and by the owner of the mine adjacent to the disputed boundary:

Provided that where it is not possible to show the complete boundary of leasehold on the same plan, an additional key plan on any other suitable scale showing such boundaries and the outline of the workings shall also be maintained.

(7) The plans maintained under clause (b) of sub-regulation (1) shall also show the workings, and all features as specified in that clause, both above and belowground of all adjacent mines as are situated within 60 meters, measured on any plane, of the boundary claimed by the owner of the mine.

(8) The owner, agent and manager of every mine shall as soon as its working extend to within 60 meters of the settled boundary with an adjacent mine (or where the boundary is in dispute within 60 meters of the boundary claimed by the owner of the adjacent mine) inform the owner, agent or manager of such mine of the fact of such extension and shall also give all reasonable facilities to the surveyors of its adjacent mines to carry out the surveys and levellings required to be made under this sub-regulation.

(9) The Regional Inspector may, by an order in writing–

- (i) require such additional details to be shown on the plans and sections maintained under these regulations, or the preparation and maintenance of such other plans and sections showing such details and on such scale and within such time as he may specify in the order; and,
- (ii) require the owner, agent or manager to submit to him within such time such plans and sections, or tracings thereof, as he may specify in the order.

(10) The owner, agent or manager shall, at any time if required by the Regional Inspector, show on any plan or section the then position of the workings of the mine.

**66. Plans and sections to be submitted after abandonment, closure or discontinuance.**—(1) Where any mine or seam or section thereof is abandoned, closed or the working thereof has been discontinued over a period exceeding sixty days, the person who was the owner of the mine at the time of abandonment, closure or discontinuance shall, within thirty days after the abandonment or closure, or within ninety days after the discontinuance of the workings, as the case may be, submit to the Chief Inspector two true copies of the up-to-date plan and section of the workings of the mine or seam or section maintained under clauses (a), (b),

(c), (e) and (g) of sub-regulation (1) of regulation 65, which shall show the bearing and distance of at least one of the shafts or openings of the mine from a tri-junction or revenue pillar or from any other prominent and permanent surface feature, the position of all water-dams built belowground (with their dimensions and other particulars of construction) and also the spot levels at the ends of the workings:

Provided that if a change of ownership occurs after the abandonment, closure or discontinuance and before the expiry of thirty days of the abandonment or closure or ninety days of the discontinuance of the workings, as the case may be, such plans and sections shall be submitted forthwith.

(2) The original or a certified true copy of the plan and section submitted under sub-regulation (1) shall be kept in the office at the mine.

(3) The Chief Inspector may, on such conditions as he thinks fit to impose, and on payment of the cost of preparing copies as determined by him, supply copies of a plan or section submitted to him under sub-regulation (1) or such parts thereof as he thinks fit -

- (a) to any person having a *bonafide* interest in the mine, seam or section;
- (b) to the owner, agent or manager of an adjacent mine.

**67. Survey instruments and materials.**— (1) The owner or agent shall provide adequate number of accurate and reliable survey instruments and materials for the proper carrying out of all survey and levelling work and for the preparation of the plans and sections required under these regulations; and no other instrument shall be used in connection with any such survey or levelling work.

(2) The survey instruments so provided under sub-regulation (1) shall be checked, maintained and calibrated at regular intervals as specified by the manufacturer, to maintain their accuracy level.

**68. List of plans, sections and instruments and their storage.**— (1) All plans and sections, and tracings or copies thereof, kept at the mine shall be serially numbered.

(2) Suitable arrangements shall be made at every mine for the proper storage and maintenance of every plan and section and of all instruments and materials so as to provide for flat storage of every plan and section maintained under these regulations:

Provided that where special conditions exist the Chief Inspector may, by an order in writing, permit storage and maintenance of plans and section in any other form subject to such conditions as he may specify in the order.

(3) Every field book and other notes used in the preparation of plans and sections required under these regulations shall be duly indexed and kept in the office at the mine.

(4) A list of all plans and sections maintained under these regulations, or any orders made thereunder, and tracings or copies thereof; of all survey instruments provided under regulation 67 with their respective type, specifications and identification numbers; and of all field books and other notes kept under sub-regulation (3), shall be kept in a bound-paged book kept for the purpose, and updated whenever necessary.

(5) Every entry in the book maintained under sub-regulation (4) shall be signed and dated by the surveyor, and countersigned and dated by the manager.

**69. Preparation of plans by surveyors.**— (1) Every plan and section, and tracing thereof, prepared under these regulations shall be prepared by or under the personal supervision of the surveyor.

(2) Every plan or section, or any part thereof, prepared by or under the supervision of a surveyor shall carry thereon a certificate by him to the effect that the plan or section or part thereof is correct; and shall be signed and dated by the surveyor and countersigned and dated by the manager on every occasion that the plan or section is brought up-to-date.

(3) Every tracing of a plan or section or of any part thereof shall bear a reference to the original plan or section from which it was copied and shall be certified thereon by the surveyor with date to be a true copy of the original plan or section.

(4) If the surveyor fails or omits to show any part of the workings or allows the plans or sections to be inaccurate, he shall be guilty of a breach of these regulations:

Provided that nothing in this sub-regulation shall, exempt the owner, agent or manager of their responsibility to ensure that every plan or section prepared, kept or submitted under these regulations or by any order made thereunder is correct and maintained up-to-date as required thereunder.

**70. Plans to be checked on change of ownership or on reopening, etc.—** (1) When there is a change in ownership of a mine, or where a mine or part thereof is re-opened, or where in any mine or part thereof it is intended to start any extraction or reduction of pillars, the owner, agent and manager shall ensure that the plans and sections of the mine or part are accurate:

Provided that if any doubt arises as to the accuracy of the plans and sections in any respect, he shall have accurate plans and sections prepared afresh before any drivage or other work of development or of extraction or reduction of pillars is commenced.

(2) If the Regional Inspector is of the opinion that any plan or section prepared, kept or submitted under these regulations is inaccurate, he may, by an order in writing, require a fresh survey made and a new plan or section prepared within such time as he may specify therein.

(3) If the plan or section required to be prepared under sub-regulation (2) is not prepared within the time specified in the order, or to the satisfaction of the Regional Inspector, or the plan or section is not prepared or updated as required under these regulations, he may get the plan or section prepared by any other agency and the cost thereof, as certified by the Chief Inspector, shall be defrayed by the owner of the mine and be recoverable from him as an arrear of land revenue.

## CHAPTER VII

### MEANS OF ACCESS AND EGRESS

**71. Outlets from a mine.—** (1) Except for the duration of shaft sinking or the drivage of other means of access and egress from the mine together with the necessary development work, no person shall be employed, or be permitted to enter or remain for the purpose of employment, in any working belowground, unless the working is provided with at least two shafts, inclines or other outlets to surface—

- (a) with which every seam or section for the time being at work has a communication so as to afford separate means of ingress and egress to the persons employed therein;
- (b) which do not have their surface openings in the same building; and
- (c) which are under the sole control of the manager:

Provided that the Chief Inspector may, by an order in writing and subject to such conditions as he may specify therein, permit the employment belowground of persons even in a case where the two shafts, inclines or outlets are not under the control of the same manager.

(2) The Chief Inspector may, by an order in writing and subject to such conditions as he may specify therein, permit the employment belowground of restricted number of persons even in a case where places in the working of the mine do not contain two means of egress from each working place.

(3) Suitable arrangements shall be made for persons to descend and ascend by each of such means of access and egress; and

- (a) where shaft is more than 30 meters in depth, such arrangements shall be by mechanical means so installed and maintained as to be constantly available for use; and
- (b) where the incline is more than one kilometer in length (one way) or the travel by persons is arduous, a suitable man-riding system approved in writing by the Chief Inspector shall be provided for persons to access and egress from the workings of the mine:

Provided that in case of any doubt as to whether any such arrangement referred to in clause (a) or clause (b) is suitable or not, it shall be referred to the Chief Inspector for decision.

(4) Both the means of egress and the equipment used therein for the transport of persons shall be kept constantly in a safe condition to facilitate ease of traveling, including clearances for hand carried stretchers.

(5) Where in any shaft, ladders are used as a means of ingress or egress of persons employed in a mine, every such ladder shall –

- (i) be of strong construction;

two means of egress from the mine, and any equipment used within them for transporting people, must have sufficient space to allow mine rescue personnel to carry an injured person on a stretcher without obstruction

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- (ii) be securely fixed in the shaft at an inclination of not more than 80 degrees from the horizontal;
- (iii) be made continuous or without perceptible overlapping or break except at platforms which shall be provided at intervals of not more than nine meters;
- (iv) project at least one meter above the mouth of the shaft, and above every platform, except where strong hold-fasts or hand-rails are provided;
- (v) have rungs equally spaced and at a sufficient distance from the wall or any timber to ensure proper foothold; and
- (vi) be maintained in good repair.

(6) Such shafts, inclines or outlets shall not be less than 13.5 meters distant from one another at any point, and each shall be connected with the other by means of a walkable passage, not less than 1.8 meters high and 1.5 meters wide, through the workings belowground that are being served by such shafts, inclines or outlets.

(7) Whenever the connection between two outlets which are required to be maintained under sub-regulation (1) has been obstructed or found dangerous, only such persons as are necessary to clear the obstruction or to repair the dangerous part of the connection or to make a new second outlet, as the case may be, shall be employed belowground until such time as the connection has been re-established or a new second outlet has been provided.

(8) The foregoing provisions of this regulation with respect to shafts, inclines and outlets shall not apply -

- (a) to any working for the purpose of making a connection between two or more shafts, inclines or outlets; and
- (b) to any working for the sole purpose of searching for or proving minerals:

Provided that nothing in this sub-regulation shall be deemed to authorise the driving of roadways for the development of a seam before a second outlet has been made in accordance with the said provisions.

(9) In both the means of access and egress in the mine, an effective two way communication facilities with broadcasting system of telecommunication shall be provided to ensure that persons from belowground may be able to directly communicate to surface without any obstruction or loss of message and communication link.

(10) The system of communication and telecommunication so provided under sub-regulation (9) shall be of wired, wireless or any other type, as approved by the Chief Inspector.

**72. Working shafts.—** (1) All entrances to the mine shaft shall be adequately illuminated throughout working hours.

(2) Every shaft in use or in course of being sunk and every incline or other outlet shall be made and kept secure.

(3) Every shaft in the course of being sunk shall be provided with a permanent lining of metal, concrete or masonry, which shall at no time, be more than six meters from the bottom of the shaft:

Provided that where iron or steel rings with a substantial lagging are used below the permanent lagging and are kept close to the bottom of the shaft, this distance may be increased to not more than twenty meters:

Provided further that in the case of a shaft where special conditions exist which make compliance with the provisions of this sub-regulation not necessary, the Regional Inspector may, by an order in writing and subject to such conditions as he may specify therein, grant exemption from the operation thereof.

(4) Surface and seepage water shall be channeled in such a way as to prevent it from falling freely into the shaft.

(5) The top, all insets and the bottom of every working shaft and the sump thereof shall be kept clear and free from loose materials, tools and debris.

**73. Fencings and gates at outlets.—** (1) Every entrance to a mine from the surface, and the top and all entrances between the top and bottom, including the sump, if any, of every working, ventilating or pumping

shaft, shall be kept securely fenced so designed and constructed as to prevent any person accidentally falling down the shaft or coming into contact with a moving part of the hoisting equipment provided in the shaft.

(2) Every walkable entrance from the surface to the workings belowground shall be provided with a substantial gate which shall be kept closed and locked when there are no persons belowground:

Provided that where such entrance is not used as a means of ingress or egress in or out of the mine, it shall be permanently closed so as to effectively prevent persons from entering therein.

**74. Outlets from mine parts.**— Every part of a mine shall, where practicable, be provided with at least two ways of affording means of egress to the surface:

Provided that if any doubt arises as to whether the provision of two such ways is practicable or not, it shall be referred to the Chief Inspector for decision.

**75. Periodic examination of shaft, incline and other outlets.**— (1) Every shaft, incline and other outlet provided as required by regulation 71 shall be examined, once at least in every seven days, by an overman or other competent person and a report of every such examination shall immediately thereafter be recorded in a bound paged book kept for the purpose and shall be signed and dated by the person making the examination.

(2) Every mechanised outlet shall be examined at least once in every seven days by an engineer or electrical supervisor or foreman or any other competent person duly authorised in writing by the engineer and a report of every such examination shall immediately be recorded in a bound paged book kept for the purpose and signed and dated by the person making the examination.

(3) The bound paged book so maintained under sub-regulations (1) and (2) by the electrical supervisor or foreman or any other competent person shall also be checked and countersigned by the engineer and manager.

(4) If at the time of such examination or at any other time, the shaft, incline or other outlet is found to be not safe, it shall not be used for any purpose, except as a natural airway, until it has been made safe in all respects and a report of every such action taken shall be recorded in the book kept under sub-regulation (1).



## CHAPTER VIII

### WINDING IN SHAFTS

**76. Appointment of winding engineman.**— (1) No person shall be appointed as a winding engineman unless he holds an Engine Driver's Certificate:

Provided that this sub-regulation shall not apply to the driver of an electrical winding engine upto thirty horsepower or a steam or compressed air winding engine which has cylinders not exceeding eighteen centimeters in diameter and which is not used for raising or lowering of persons.

Provided further that, after coming into force of these regulations, a First or Second Class Engine Driver's Certificate granted under regulation 12 of the Coal Mines Regulations, 1957, shall, each be also deemed to have been granted as an Engine Driver's Certificate under regulation 11 of these regulations.

(2) Where special difficulties exist which make compliance with the provisions of sub-regulation (1) not reasonably practicable, the Chief Inspector may, by an order in writing and subject to such conditions as he may specify therein, relax the said provisions.

(3) No person, other than a winding engineman appointed under sub-regulation (1) shall operate any winding engine:

Provided that in an emergency any other competent person may be permitted to operate the winding engine.

(4) The name of the winding engineman on duty, together with the period of his shift shall be posted in the winding engine room:

Provided that where the Regional Inspector is of the opinion that the duties of any winding engineman are unduly arduous, he may by an order in writing require the period of his shift to be reduced to such period, not less than five hours, as he may specify.

**77. New winding installations.**—(1) When it is intended to bring into use any new winding installation for lowering and raising of persons, the owner, agent or manager shall, not less than sixty days before such use, give notice of such intention to the Chief Inspector and Regional Inspector in such form as may be specified by the Chief Inspector which shall contain detailed specifications of the installation.

(2) A winding engine which is shifted from one site to the other within the same mine or from one mine to other, shall be considered as a new installation for the purpose of this regulation.

(3) If the Chief Inspector, by an order in writing so requires, such additions or alterations shall be made to the installations, as he may specify in the order.

**78. Construction and installation of winding equipment.**—(1) Every part of a winding installation, including headgear shall be of sound construction and adequate strength, and shall be maintained in safe working order and in case of any doubt in that respect, it shall be referred to the Chief Inspector for decision.

(2) The engine shall be firmly connected to a rigid foundation and shall be so designed, constructed and maintained that with the power provided, the raising and lowering of persons or materials can be carried out with ease, regularity and safety.

(3) Unless otherwise permitted in writing by the Chief Inspector and subject to such conditions as he may specify therein, every engine for winding shall be so situated in relation to the headgear that the winding rope shall not, in the extreme position, subtend in either direction an angle more than one and a half degrees with the plane of the sheave or pulley used in connection with the rope.

(4) The diameter of the drums or sheaves of the winding engine, and of the pulleys and sheaves used in connection with the winding shall, unless otherwise permitted in writing by the Chief Inspector and subject to such conditions as he may specify therein, be not less than eighty times the diameter of the rope in the case of winding installations installed before the 25<sup>th</sup> day of October, 1955 and not less than one hundred times the diameter of the rope in other cases:

Provided that the Chief Inspector may, by an order in writing, require that in the case of any specified winding installation installed before the said date, the diameter of the said drums, pulleys or sheaves shall not be less than such size, as he may specify in the order:

Provided further that where special difficulties exist which make compliance with the provisions of this regulation not reasonably practicable, the Chief Inspector may, by an order in writing and subject to such conditions as he may specify therein, relax the said provisions.

(5) The grooves of sheaves or pulleys used in winding installation shall be suited to the diameter of the rope.

(6) Every pulley or sheave used in connection with winding shall, while in motion, rotate in a vertical plane, and shall be maintained in such a condition that slipping is reduced to a minimum.

**79. Fittings of winding engines.**—(1) At every shaft, including a shaft in the course of being sunk, where winding is effected by means of an engine, the provisions of sub-regulation (2) to sub-regulation (8) regarding winding engines shall apply.

(2) There shall be on the drum such flanges, and also if the drum is conical or spiral such other appliances, as may be sufficient to prevent the rope from slipping or coiling unevenly.

(3) Except in friction winder, the end of the rope shall be securely fixed in such a manner that the rope is not unduly strained.

(4) There shall be at least two turns of the rope on the drum when the cage or other means of conveyance is at its lowest working point in the shaft.

(5) (a) There shall be provided one or more brakes on the drum or the drum-shaft, which—

- (i) if there are two cages or other means of conveyance shall hold such cages or other means of conveyance when the maximum torque is applied in either direction; and
- (ii) if there is only one cage or other means of conveyance shall hold the loaded cage or other means of conveyance in midshaft when the maximum torque is applied downwards.

- (b) At least one of the brakes shall be so designed that the brake remains at the 'on' position except when operated.
  - (c) Where the brake or brakes are power-operated, at least one of them shall be arranged to be applied automatically at all times if the power supply fails.
  - (d) The brake on the drum shall be used only for the purpose of keeping such drum stationary and not for lowering the cage or other means of conveyance, except in cases where the engine is to be worked at a very low speed as when examining the winding rope or the shaft.
- (6) Where the winding engine is worked by steam or compressed air, a screw stop-valve shall not be used as controlling valve of the engine.

(7) Every engine shall be equipped with a reliable depth-indicator (in addition to any mark on the rope) showing to the winding engineman the position of the cage or other means of conveyance in the shaft, and an automatic device that will ring a bell in the engine room when the ascending cage or other means of conveyance is at a distance of not less than two revolutions of the drum from the top of the shaft.

(8) The depth-indicator referred to in sub-regulation (7) shall be tested after every adjustment or replacement of the winding rope.

**80. Shaft fittings.** – (1) At every winding shaft, other than a shaft in the course of being sunk to which the provisions of regulation 84 shall apply, the provisions of sub-regulation (2) to sub-regulation (11) shall have effect.

- (2) (a) Two independent and efficient means shall be provided and maintained for interchanging separate, distinct and definite signals between the top of the shaft and-
- (i) the bottom or other permanent landing of the shaft; and
  - (ii) every inset for the time being in use,
- and one of such system shall be by electrical means.

(b) There shall also be provided and maintained efficient means for transmitting signals from the top of the shaft to the winding engineman and all signals shall be transmitted by mechanical or electrical means;

(3) In signaling, the following code of signals shall be used and strictly observed:

ONE RAP	:	STOP	when engine in motion
ONE RAP	:	RAISE	when engine at rest.
TWO RAPS	:	LOWER	
THREE RAPS	:	MEN	ready to ascend or descend
THREE RAPS	:	IN REPLY	men may enter the cage or other means of conveyance:

Provided that any other signals shall be in addition to, and shall not interfere with, the foregoing.

(4) A printed copy of the code of signals, including additional signals, if any, shall be posted prominently at the top of the shaft and at every such inset and landing and also in the winding engine room.

(5) No person other than the banksman or onsetter shall give any signals unless he is an official of the mine or is authorised in writing by the manager to give signals.

(6) Any defect in the signaling system shall be immediately reported to an official who shall take action to have the defects rectified.

(7) In addition to the system of signaling provided in this regulation, another effective means of two way communication or telecommunication system shall also be provided so that the winding engine driver, banksman, onsetter, persons travelling inside the cage or any other person can contact and communicate with each other without any difficulty and hindrance.

(8) (a) The shaft shall be provided with sufficient number of guides to ensure smooth and safe travel of the cage or other means of conveyance.

- (b) Where rope guides are used, the cheese-weights or bottom clamps shall be kept so exposed as to permit regular examination.
- (9) Above the topmost landing, 'dogs' or other devices for holding the cage or other means of conveyance in the event of an overwind shall be provided, or the guides, runners or receivers shall be sprung.
- (10) (a) Except in friction winders, at the top of every shaft where cages are used, suitable keps shall be provided and so arranged as to fall into the 'on' position when the operating lever is released.
  - (b) At every inset where keps or folding platforms are provided, arrangements shall be made to lock the keps or platforms securely in the 'off' position; and when in the 'off' position such keps or platforms shall leave the shaft clear for the passage of the cage.
  - (c) In every such case, a proper automatic indicator to show the position of the keps or platforms, as the case may be, shall be provided in such a position as to be easily seen by the banksman.
- (11) (a) Protective roofing, sufficient to prevent danger from anything falling in the shaft, shall be provided and maintained at the bottom of the shaft.
- (b) The gap, both vertical and horizontal, between the protective roofing and the top of cage, when the cage is at the bottom of the shaft, shall not exceed 15 centimeters.

**81. Man winding.**— (1) At every shaft, other than a shaft in the course of being sunk, where a winding engine is used for the purpose of lowering or raising persons, the provisions of sub-regulation (2) to sub-regulation (17) shall apply.

(2) In respect of every part of the winding installation, including pulleys or sheaves, cages, chains, distribution plates and detaching hooks, the following particulars shall be recorded in a bound paged book kept for the purpose, namely: -

- (a) name of the manufacturer and the year of manufacture;
- (b) specifications and dimensions;
- (c) reference to every certificate supplied with the part;
- (d) date of installation of each part; and
- (e) any other detail that may be necessary or required by the Regional Inspector.

(3) All entries in the book shall be made and signed by the engineer or other competent person, and shall be countersigned and dated by the manager.

(4) Whenever any part or article is replaced or any repaired part or article is used in any winding installation, the fact of such replacement or repair shall be recorded in the book kept under sub-regulation (2).

- (5) (a) A single linked chain shall not be used, except for the short coupling chain attached to a cage or other means of conveyance and such single-linked chain shall be attached to the safety hook through a distribution plate or other approved appliance.
- (b) Where safety-chains are used, their length shall be such that if the king-bolt breaks, the shock to the cage or other means of conveyance is as slight as possible.

(6) Where drum-clutches are provided, the following provisions shall have effect, namely:-

- (a) the operating gear of the clutch of the drum shall be provided with locking gear to prevent inadvertent withdrawal of the clutch;
- (b) every engine used for the lowering or raising of persons shall have suitable interlocking device so fitted that it is not possible —
  - (i) to unclutch any drum unless the brakes of such drum are applied; or
  - (ii) to release the brakes until the drum clutch is fully engaged and securely locked;
- (c) unless the cage or other means of conveyance attached to the drum is resting at the bottom of the shaft, the drum shall not be unclutched unless the winding engineman has assured himself immediately beforehand that the brake is fully applied.

(7) Except in friction winders, there shall be provided between the rope and the cage or other means of conveyance, a detaching hook.

(8) The space between such detaching hook, measured from the centre of the hole for attaching it to the rope shackle, and the detaching-bell or plate when the cage or other means of conveyance is at its normal position at the top of the shaft, shall be not less than 1.8 meters where a geared engine is used, and not less than 3.6 meters where a direct acting engine is used.

(9) In every shaft, the engine shall be fitted with an automatically recording speed indicator.

(10) (a) In every shaft, there shall be provided an effective automatic contrivance to prevent overspeeding and overwinding, hereinafter called the ‘Automatic Contrivance’, which shall prevent the descending cage from being landed at the pit bottom or other permanent landing at a speed exceeding 1.5 meters per second and also control the movement of the ascending cage in such a manner as to prevent danger to persons riding therein.

(b) The Chief Inspector may, by an order in writing, specify the maximum speed of winding in any shaft.

(c) Test of every Automatic Contrivance and every brake shall be made by the engineer or other competent persons appointed for the purpose, in the following manner, namely:-

(i) once at least in every seven days, by raising each cage or other means of conveyance, in turn, to pass the last control point above the topmost landing;

(ii) once at least in every three months, by attempting to land the descending cage at excessive speed and for the purpose of this test, the setting of the Automatic Contrivance may be altered so that a pre-determined point in the shaft is regarded as the landing;

(iii) the results of every such test shall be recorded in a bound paged book kept for the purpose, and shall be signed and dated by the person making the test.

(d) Unless the Automatic Contrivance is in full and fixed engagement with the winding engine, it shall be fully engaged, either automatically or by the winding engineman, whenever persons are to be lowered or raised; and an automatic indicator to show that this has been done shall be provided in such a position as to be easily seen by the banksman.

(e) The banksman shall not allow any person to enter a cage or other means of conveyance until the indicator shows that the Automatic Contrivance has been fully engaged.

(11) In addition to the Automatic Contrivance provided to prevent overwinding, a point shall be fixed and marked on the indicator of the engine in such a way as to show when the cage or other means of conveyance is at a distance of not less than twice the circumference of the drum from the completion of the wind; and if such cage or other means of conveyance contains persons, the winding engineman shall not, as soon as it has reached the point aforesaid, raise it for the remaining distance at a speed exceeding 1.2 meters per second.

(12) Where the only means of egress in a mine is by apparatus worked by steam or electricity, precautions shall be taken to ensure that the two winding engines do not fail simultaneously and in particular, in the case of electric winding engines, the engines shall be capable of being connected to two separate power supplies.

(13) Unless otherwise directed by the Chief Inspector by an order in writing, the provisions of the sub-regulation (12) shall be deemed to have been complied if an emergency winding gear is maintained.

(14) (a) Every cage or other means of conveyance in which persons ride, shall be –

(i) covered completely at the top;

(ii) closed in at the two sides in a manner sufficient to prevent persons or things from projecting beyond the sides;

(iii) provided with a rigid hand-bar fixed in a position where it can be easily reached by all persons in the cage or other means of conveyance;

(iv) provided with suitable gates or other rigid fences such that the gap between the floor of cage or other means of conveyance and the lowest part of the gate or fence does not

exceed 15 centimeters and that between any two members of the gate or fence does not exceed 25 centimeters. Gates or fences shall not open outwards and they shall be so fitted and maintained that they cannot be accidentally opened; and

- (v) provided with an effective means of communication or telecommunication system having provisions of audio and visual, data and digital display including a broadcasting system.
- (b) The floor of every cage or other means of conveyance shall be strongly constructed and so maintained as to prevent any part of the body of a person riding in the cage or other means of conveyance from projecting beyond the floor.

(15) Not more than such number of persons as may be authorised by the manager shall be allowed to ride in the same cage or same deck of a cage or other means of conveyance at one time providing approximately 0.20 square metre of floor area per person and a notice specifying the number shall be posted at the top and bottom of every shaft and at every inset.

- (16) (a) No person shall, when ascending or descending a shaft, take with him any bulky material other than tools and instruments, except when engaged in repairing the shaft or with the written authority of the manager.
- (b) Except as provided in clause (a), no person shall ride in a cage while materials or tubs are being raised or lowered in any of the cages or other means of conveyance.

(17) The Chief Inspector may, subject to such conditions as he may specify, relax the requirements of this regulation if the circumstances in any mine or part thereof are such as to render compliance with such requirements not reasonably practicable.

**82. Multi-decks.**— Where a cage has two or more decks which are used simultaneously, each floor at a landing shall be connected by an effective signalling device with the main floor of the landing; and only the banksman or the onsetter or an official, as the case may be, at such main floor shall give the action signal after he has satisfied himself that all cage gates are closed.

**83. Winding of material.**— (1) Every cage used for the raising or lowering of tubs shall be provided with catches or other effective contrivances to prevent the tubs falling out and the cage shall not be set in motion unless the catches or other effective contrivances are in position.

(2) The floor of every cage shall be kept clean; and no skip, bucket or tub shall be filled up to such height that any of the contents can fall out.

(3) Before long timber, pipes, rails, or other material projecting over the top of the cage or other means of conveyance are lowered or raised, the projecting ends shall be securely fastened to the rope, chain or bow.

**84. Winding in sinking shafts.**— (1) At every shaft in the course of being sunk, where a winding engine is used, the provisions of sub-regulation (2) to sub-regulation (11) shall apply.

(2) If the shaft exceeds 45 meters in depth, there shall be provided for each bucket or other means of conveyance a detaching-hook.

(3) Between the centre of the hole for attaching the detaching-hook to the rope shackle and the detaching bell or plate, when the bucket or other means of conveyance is at the top landing, there shall be a clear over-run space of not less than 3.6 metres.

(4) Where the shaft exceeds 150 meters in depth ,—

- (a) the bucket or other means of conveyance, when used for lowering or raising persons, shall be provided with sufficient cover overhead for protection from things falling down the shaft; and
- (b) there shall be provided for each bucket or other means of conveyance, a sufficient number of guides which shall be kept extended to within 22.5 metres of the shaft bottom at all times when sinking is in progress:

Provided that the Regional Inspector may, by an order in writing, require the guides to be provided in a shaft less than 150 meters in depth.

(5) (a) There shall be provided and maintained—

- (i) two separate means of interchanging distinct and definite signals between the bottom and the top of the shaft; and

- (ii) efficient means for transmitting such signals from the top of the shaft to the winding engineman.
- (b) The signaling appliances shall be examined by a competent person once at least in every twenty-four hours and the result of every such examination shall be recorded in a bound paged book kept for the purpose and shall be signed and dated by the person making the examination.
- (c) Except with the permission in writing of the Chief Inspector and subject to such conditions as he may specify therein, the following code of signals shall be used and observed in signaling-

ONE RAP	STOP	when engine in motion
ONE RAP	TAKE UP SLACK	when engine at rest.
ONE RAP	RAISE SLOWLY	
TWO RAPS	LOWER	
THREE RAPS	TAKE UP SLACK	when men are riding:

Provided that, any other signals shall be in addition to, and shall not interfere with the foregoing.

- (d) A printed copy of the code of signals, including additional signals, if any, shall be posted prominently at the top of the shaft and also in the winding engine room.
  - (e) Except while riding in a bucket or other means of conveyance, no person other than the person authorised in writing by the manager, shall give any signal.
- (6) Every bucket or other means of conveyance in which persons or materials are conveyed, shall be of strong construction and so maintained as to prevent persons or materials from falling.

- (7) (a) At the top of the shaft or at the landing where the bucket or other means of conveyance is normally landed, suitable covering with door shall be provided:

Provided that, except as may be required for the passage of the bucket or other means of conveyance, the covering and doors shall always be kept closed.

- (b) Where the shaft exceeds 45 meters in depth, the persons working at the bottom of the shaft shall also be protected by an adequate protective covering, extending over the whole area of the shaft which shall be provided with a door for the passage of the bucket or other means of conveyance, to be kept lowered to within 22.5 metres of the bottom of the shaft at all times when sinking is in progress:

Provided that where special circumstances exist, the Chief Inspector may, by an order in writing and subject to such conditions, as he may specify therein, grant an exemption from the provisions of this clause.

- (8) Not more than such number of persons as may be authorised by the manager shall be allowed to ride in the bucket or other means of conveyance at one time; and a notice specifying such number shall be posted prominently at the top of the shaft.

- (9) When tools, implements or other materials are lowered or raised, the banksman or an authorised person, as the case may be, shall see that -

- (i) the bucket is properly loaded;
- (ii) materials are not loaded above the rim;
- (iii) long timber, pipes, rails, tools or other material with ends projecting over the rim are securely fastened to the rope, chains or bow; and
- (iv) the bucket, before being sent away, is steadied, and the bottom and sides thereof are free from adhering material.

- (10) Where guides are provided, the bucket or other means of conveyance shall be raised slowly from the bottom of the shaft, until the rider is picked up.

- (11) While persons are at work on any scaffold or platform in the shaft, the following precautions shall be strictly observed, namely:-

- (i) the scaffold or platform shall be secured to the sides of the shaft in order to prevent it from swinging;
- (ii) the opening for the passage of the bucket or other means of conveyance, shall be so protected as effectively to prevent anything falling through it;
- (iii) the scaffold or platform shall not be lowered or raised except under the order of the authorised person or other competent person.

**85. Winding ropes, etc.-** (1) (a) No rope, bar, link, chain or other attachment to a cage or other means of conveyance shall be used unless it is of good quality and manufacture, is free from any visible defect and is of adequate calculated strength:

Provided that the Chief Inspector may, by an order in writing prohibit the use of any rope or type of ropes where, in his opinion such use is unsafe.

- (b) The attachment between the rope and the cage or other means of conveyance shall be of such type and be maintained in such manner as to obviate accidental disconnection.
- (c) In case of a doubt, as to the fitness of any rope, bar, link, chain or other attachment used or intended for use, it shall be referred to the Chief Inspector for decision.
- (2) (a) Except in a sinking shaft less than 30 meters in depth, every winding rope shall be made of cold drawn steel wire, and the gauge of the wires used in the construction of such rope shall be suited to the diameter of the drums, pulleys and sheaves of the winding installation.
- (b) In any shaft, including a shaft in course of being sunk, where persons are lowered or raised and where guides are not provided, no rope other than a rope of non-spinning type shall be used.
- (c) No rope which has been spliced shall be used for winding purposes.
- (d) Subject to such exemption as may be granted by the Chief Inspector in writing and any conditions as he may specify therein, no rope, the breaking load of which at any one point therein is less than ten times the maximum static load on it when the cage or other means of conveyance attached to the end of the rope is at the lowest working point, shall be used.
- (e) At every mine where a shaft is used for lowering or raising persons, at least one spare winding rope suitable for use in such shaft, shall be kept in store.
- (3) (a) For every rope in use or intended for use, a certificate showing its breaking load, quality, construction and diameter (obtained from the manufacturer or supplier) and a history of its use, including a record of diameters of the drums, sheaves and pulleys used in conjunction with the rope, shall be kept in a bound paged book kept for the purpose.
- (b) All entries made in the book referred to in clause (a) shall be signed by the engineer or other competent person, and shall be countersigned and dated by the manager.
- (c) If in the case of a rope a test certificate as to the amount of its breaking load is not available, it shall not be used unless a portion thereof, not less than three meters in length has been cut off from the end of the rope attached to the capstan and tested in a laboratory, institution or test house approved by the Central Government for the purpose.
- (4) (a) No winding rope which has been in use for more than three and half years shall be used for winding purposes:

Provided that where the Regional Inspector is satisfied that due to sparing use, any such rope is in good condition even after the expiry of the said period, he may, by an order in writing and subject to such conditions as he may specify therein, allow the use of such rope for a longer period.

(b) Every application for permission to use a rope after the period of three and a half years aforesaid shall be accompanied by a copy of the entries, in respect of the rope, in the book kept for the purpose under sub-regulation (3), and also by a certificate as to the strength of the rope.

(c) The certificate referred to in clause (b) shall relate to a piece of the rope cut off not more than three months prior to the date of the application.

(d) If the Regional Inspector is of the opinion that any rope has become unsafe for use in a shaft before the expiry of the period of three and a half years aforesaid, he may, by an order in writing, prohibit the use of such rope for winding purposes. An appeal against any such order may be preferred to the Chief Inspector.

(5) (a) No mode or type of capping shall be used, which fails to withstand a load of at least ten times the maximum static load thereon.

(b) The cappel of a round rope shall not be attached to the rope by rivets passing through the rope.

(c) No bent back wire type cappel shall be used with winding rope.

(d) Where white metal is used in the capping of ropes, the tapered portion of the socket shall not be less than six and a half times the diameter of the rope for the size up to 26 millimeter and seven and one third times in case of ropes of diameters higher than 26 millimeter.

(e) If white metal is used in the capping of ropes,-

(i) its melting point shall not exceed 300 degrees centigrade, and its temperature when poured into the socket shall not exceed 363 degrees centigrade;

(ii) in the length of rope which is to lie within the tapered part of the socket, the fibre core, if any, shall be cut and the wires shall be untwisted and thoroughly cleaned;

(iii) the socket shall be heated to a temperature of about 100 degrees centigrade before the white metal is poured into it.

(6) Except in friction winder,-

(a) every rope shall be recapped once at least in every six months, or if necessary, at shorter intervals and also after every overwind; and

(b) before every recapping, a length, including the capping, of at least two meters shall be cut off the rope, and every piece of rope so cut-off shall be opened and its internal condition examined.

(7) The recapping of rope shall be carried out under the supervision of the engineer or other competent person, who shall record the date and other particulars thereof (including the length of the rope remaining after recapping) in a bound paged book kept for the purpose and shall sign and date the same.

**86. Suspension gear.**—(1) All parts of the suspension gears shall be of a type as approved by the Chief Inspector.

(2) All parts of suspension gear in regular use shall unless otherwise permitted by the Chief Inspector, be renewed after a period of service of not more than six years, and at shorter intervals, if necessary.

(3) The factor of safety shall not be less than ten for components of suspension gears and threaded joints shall be avoided:

Provided that wherever it is not practicable to avoid a threaded joint, a factor of safety not less than fifteen shall be ensured.

(4) (a) All cage chains in general use and all other parts of suspension gear between the rope and the cage or other means of conveyance, including the detaching-hook, shall be taken apart, cleaned and carefully examined as to wear and tear (where necessary by gauging) and for rust and cracks, once at least in every six months, or if necessary, at shorter intervals; and various parts shall be annealed or given other proper heat treatment, in a proper furnace where the temperature can be controlled, before being refitted:

Provided that in the case of such chains or gear manufactured from a steel which is not liable to deterioration necessitating annealing or heat treatment, the Chief Inspector may by an order in writing and subject to such conditions as he may specify therein, grant exemption from the carrying out of this operation:

Provided further that detaching hooks used in sinking shafts shall be taken apart, cleaned and carefully examined once at least in every week and the shear pin replaced by a new one every time such examination is carried out.

- (b) Every detaching bell or plate used in connection with a safety-hook shall be examined, and the opening therein checked by calipers or gauges, once at least in every thirty days.
  - (c) The operations and examinations required under this sub-regulation shall be carried out by or under the supervision of an engineer or other competent person, who shall record the date and other particulars thereof in a bound paged book kept for the purpose, and shall sign and date the same.
- (5) Non-destructive testing shall also be adopted for testing of vital components of machinery, such as drum shafts, brake tie rods and suspension gears at regular intervals and any harmful crack or flaw detected as a result of such tests shall be immediately reported to the Regional Inspector and use of such machinery or its components shall be discontinued forthwith.

**87. Precautions after recapping, etc.-** (1) After every installation or recapping of a rope and every renewal or refitting of any suspension gear, the engineer or other competent person shall, after the cages or other means of conveyance fully loaded with materials have made five trips up and down the working portion of the shaft, examine the cappel and other parts of the suspension gear to see that they are in proper working order.

(2) A report of every examination made under sub-regulation (1) shall be recorded in the bound paged book kept for the purpose, and shall be signed and dated by the person making the examination.

**88. Examination of winding equipment.—** (1) It shall be the duty of the engineer or other competent person to examine –

- (a) once at least in every twenty-four hours, –
  - (i) the attachment of the winding rope to the drum, the depth indicator, every part of the suspension gear in the shaft, including cages or other means of conveyance and their gates, and every external part of the winding apparatus, upon the proper working of which the safety of persons depends; and
  - (ii) the brakes of the winding engines;
- (b) once at least in every seven days, –
  - (i) each winding rope by passing the rope at a speed not exceeding one meter per second; and
  - (ii) the external parts of the winding engine, the guides and the signaling arrangements fitted in a shaft;
- (c) once at least in every thirty days, every winding rope, by passing the rope at a speed not exceeding 0.5 meter per second, and for the purpose of this examination, the rope shall be cleaned of any encrusted dirt and grease at all places particularly liable to deterioration and at other places, not more than thirty meters apart throughout the length; and any reduction in the circumference of the rope and the superficial condition of the wires as to wear, corrosion, brittleness and fracture at every such place shall be noted; and
- (d) once at least in every twelve months, the winding engine as to the condition of its internal parts.

(2) A report of every such examination under sub-regulation (1) shall be recorded in a bound paged book kept for the purpose, and shall be signed and dated by the person who made the examination.

(3) If on any examination made under sub-regulation(1), there is discovered any weakness or defect by which the safety of persons may be endangered, such weakness or defect shall be immediately reported in writing to the engineer or other competent person and to the manager and the winding installation shall not be used until such weakness or defect is remedied.

**89. Gates and fences.—** (1) At the top of every shaft and at every inset which is in use, there shall be provided suitable gates or fences which shall effectively close the openings into the shaft at all times when a cage or other means of conveyance is not at the top or the inset. Every such gate at the top of a shaft shall be self-operating.

(2) (a) At every landing where it is necessary for persons to pass from one side of the shaft to the other, an adequate bypass shall be provided for enabling them to do so without entering or crossing the shaft and every bypass so provided shall be not less than 1.8 metres high and 1.2 metres wide, which shall be kept clear of all obstructions.

- (b) No person shall enter or cross, or be permitted to enter or cross the exposed space at the bottom of any working shaft except for the purpose of entering or leaving a cage or other means of conveyance or for undertaking an examination, repair or any other work therein; and no person shall be allowed to work in any such space unless the cages or other means of conveyance, if any, have been stopped and adequate precautions have been taken for the protection of such person.

**90. Duties of persons riding or working in shafts.**— (1) No person shall get on or off a cage or other means of conveyance after the same has been signaled to be set in motion or leave it until it has reached the appointed stopping place; nor shall any person ride on the top or edge of any cage or other means of conveyance except when engaged in an examination, repair or any other work in the shaft.

(2) Every person, when at or about the top or bottom of a shaft or any inset, shall obey the lawful orders and directions of the banksman or onsetter, as the case may be.

(3) (a) No person shall carry out any examination, repair or other work in any shaft while winding operations are being carried on; and no winding shall be carried on or permitted while persons are engaged in such examination, repair or work, except where winding is necessary for the same.

(b) The person in immediate charge of any examination, repair or work in any shaft shall warn the banksman and the winding engineman that such examination, repair or work is about to be undertaken.

(c) Every person while engaged in any examination, repair or other work in a shaft shall be accompanied by at least one other person; and all such persons shall be provided with safety belts of a type approved by the Chief Inspector and effectively protected against the risk of falling.

(d) Every person engaged in carrying out an examination, repair or other work in a shaft shall be protected by a suitable covering from objects falling from above and every such person shall also be provided with a protective hat and shall wear the same when so engaged.

**91. General precautions.**— (1) No unauthorised person shall enter or be allowed, in a winding engine room.

(2) No adolescent shall descend or ascend a shaft in a cage or other means of conveyance unless accompanied by one or more adult males.

## CHAPTER IX

### HAULAGE

**92. Haulage roadways.**— (1) The provisions of sub-regulation (2) to sub-regulation (20) shall apply with respect to every length of road or roadway in a mine where materials are transported in tubs by means of gravity or mechanical power.

(2) Every such roadway shall-

- (a) be of adequate dimensions and, as far as practicable, shall be straight and of regular gradient; and  
 (b) have tracks properly laid with rails of adequate section.

(3) (a) Pulleys, sheaves and rollers that alter the direction of a rope shall be securely fixed.

(b) No person shall guide or adjust a moving rope on to a drum, pulley, sheave or roller except with a lever or other proper appliance.

(4) Where haulage is effected by one or more ropes, there shall be provided and maintained -

- (a) at the top of every inclined plane, at least one stop-block or other effective contrivance to arrest tubs from running or moving out of control; and  
 (b) at least one run away switch or other effective contrivance below the first stop-block or other effective contrivance at a distance greater than the length of a set or train of tubs:

Provided that such distance shall not exceed the length of a set or train of tubs by more than 10 meters:

the use of skill to create or bring about something, especially with a consequent effect of artificiality

Provided further that where the Regional Inspector, by an order in writing so requires, the stop-block and the run away switch or other effective contrivance aforesaid shall be so inter-coupled that they do not remain simultaneously ineffective.

- (c) an attachment, behind an ascending tub or set or train of tubs, a back-stay, drag or other suitable contrivance for preventing the tub, set or train of tubs running back:

Provided that where an endless rope or chain is used, the provisions of this clause shall be deemed to be satisfied if suitable automatic catches or other effective contrivances are provided at suitable intervals along the track to prevent the ascending tubs running back:

Provided further that the Regional Inspector may, by an order in writing and subject to such conditions as he may specify therein, grant exemption from the operation of this clause on grounds that compliance with the provisions thereof are not reasonably practicable;

- (d) safety hooks, jazz-rails or other suitable contrivances to prevent runaway in the forward direction;
- (e) tub re-railers at intervals of not more than 250 meters:

Provided that where a tub is re-railed manually, it shall either be detached from the rope or ropes or the haulage engine which works the ropes shall be stopped; and

- (f) on every haulage roadway exceeding thirty metres in length, effective means of transmitting signals by mechanical or electrical means, from every stopping place on the roadway to the place at which the machinery working the rope is operated:

Provided that the Regional Inspector may, by an order in writing, require means of transmitting signals in the reverse direction also;

- (g) if any doubt arises as to whether any means of transmitting signals under clause (f) is effective or not, it shall be referred to the Chief Inspector for decision.

- (5) The following code of signals shall be used and strictly observed, namely: –

ONE RAP	STOP	when in motion
TWO RAPS	LOWER	or haul in slowly
THREE RAPS	START	when at rest
FOUR RAPS	RAISE	or haul out slowly:

Provided that any other signals shall be in addition to, and shall not interfere with the foregoing.

- (6) A printed copy of the code of signals under sub-regulation (5) including additional signals, if any, shall be posted prominently at the place in which the machinery that works the rope is operated and at all regular stopping places along the roadway.

- (7) No person other than a competent person or an official shall give any signal.

- (8) Where in any mine belowground, a system of haulage roadways (and conveyors, if any) extends to a distance of more than 300 meters from the shaft or the entrance to the mine, efficient telephonic communication shall be provided and maintained between the end of every such system and the bottom and top of the shaft or the entrance to the mine, as the case may be:

Provided that where travelling is unduly arduous, the Regional Inspector may, by an order in writing, require the provision and maintenance of telephonic communication in any other case also.

- (9) Where telephones or electrical signals are provided,-
- (a) adequate precautions shall be taken to prevent signal and telephone wires coming into contact with other cables and electrical apparatus;
- (b) signal wires shall be supported on insulators, and shall not be energised at more than thirty volts;
- (c) contact makers shall be so constructed as to prevent accidental closing of the circuit; and
- (d) in every gassy seam of the second or third degree, all signaling or telephonic communication circuits shall be constructed, installed, protected, operated and maintained in such a manner as to be intrinsically safe.

(10) At places where telephone receivers are installed or where signals and safety contrivances are regularly operated, every person using the telephone or operating any such signal or safety contrivance shall be afforded adequate protection against tubs moving out of control.

(11) Where any person is allowed to work or pass while the haulage is in motion, manholes for refuge shall be provided at intervals of not more than ten metres:

Provided that where the gradient is less than one in six, such manholes may be provided at intervals of not more than twenty metres.

(12) Manholes shall be not less than 1.8 metres in height and 1.2 metres in depth, and not less than 0.75 metres but not more than one meter in width:

Provided that where the roadway is less than 1.8 metres in height, the manholes may be made to the full height of the roadway:

Provided further that the Regional Inspector may, by an order in writing and subject to such conditions as he may specify therein, permit the use as manholes of cross-roadways other than haulage roadways, of dimensions larger than those aforesaid.

(13) Where there are serious practical difficulties in providing manholes of the interval and the dimension specified in sub-regulations (11) and (12), the Regional Inspector may, by an order in writing and subject to such conditions as he may specify therein, permit manholes to be at greater intervals or of other dimensions.

(14) Every manhole shall be kept clean and clear of obstruction, and white washed both inside and for a distance of not less than 0.3 meter around the aperture.

(15) As far as practicable, all manholes shall be provided on one side of the haulage roadway.

(16) Except where haulage is effected by means of an endless rope or chain, whenever the haulage rope is in motion, every person on the haulage roadway shall take shelter in a manhole.

(17) The manager shall, by an order in writing, in respect of every haulage road or roadway, fix the maximum number of loaded or empty tubs to be coupled together to run as a set or train and a notice specifying the number of tubs so fixed shall be posted prominently at the top and at all regular stopping places of the haulage road or roadway.

(18) At all places where tubs are coupled or uncoupled, there shall be a clear space of not less than one meter –

(a) between, the tubs and one side of the roadway; and

(b) where there are two or more tracks also between the adjacent tracks.

(19) When any roadway or face is in direct line with a haulage track and persons may be exposed to danger from runaway tubs, a strong buffer or other effective contrivance to prevent such danger shall be provided and maintained.

(20) A stop-block or other effective contrivance shall be provided near the entrance of every tramming roadway branching off the main haulage road or roadway, and on every track which slopes towards a shaft.

**93. Travelling roadways.**— (1) Except when an exemption in writing has been granted by the Regional Inspector and subject to the conditions as he may specify therein, travelling roadways in the intake airways separate from haulage roadways on which haulage is effected by mechanical means or gravity, shall be provided for persons to travel to and from their working places.

(2) Every travelling roadway shall –

(a) be not less than 1.8 meters high for the entire stretch;

(b) where the inclination exceeds 30 degrees from the horizontal, be provided with suitable steps or ladders;

(c) where the inclination exceeds 45 degrees from the horizontal, be provided, in addition to steps or ladders, with hand rails or ropes so as to ensure safe travel;

- (d) where the inclination exceeds 60 degrees from the horizontal, be provided, in addition to the steps or ladders and rails or ropes, with suitable platforms at intervals not exceeding 10 meters measured along the slope;
- (e) be provided with effective means of telecommunication facilities at suitable places; and
- (f) be provided with adequate number of digital display boards and communication ports through which any important message or information can be easily transmitted or broadcasted to persons working belowground or passing thereby.

(3) Except for purposes of inspection, examination or repair, every person other than an official or a haulage attendant shall travel by the travelling roadway.

(4) Where persons using a travelling roadway have to cross a conveyor or a haulage worked by mechanical means or gravity, a suitable cross-over or cross-under bridge or other suitable device approved in writing by the Regional Inspector shall be provided.

(5) Where a conveyor roadway is required to be used as a travelling roadway, suitable guards or fencing of substantial construction shall be provided throughout such length of the conveyor roadway, which is intended to be used as travelling roadway.

(6) In case the travelling distance from the incline or adit mouth or pit bottom exceeds one kilometer or the travelling is arduous, the owner, agent and manager shall provide suitable man-riding arrangement as approved by the Chief Inspector, within one year from the date of coming into force of these regulations.

(7) No haulage shall be used for the general conveyance of persons except with the permission in writing of the Chief Inspector and subject to such conditions as he may specify therein.

**94. Tubs and their movement.**— (1) On every tub there shall be provided and maintained at each coupling end a strong buffer projecting beyond the end and so arranged that when two such tubs are in tandem, the gap between the innermost ends shall not be less than 20 centimeters.

(2) On every side-tipping tub in use, safety-catches shall be provided to prevent accidental tipping and no tub or set or train of tubs shall be set in motion unless all the safety catches are properly secured.

(3) The attachment between a rope or locomotive and a tub or set or train of tubs and the attachment between any two tubs in a set or train, shall be of a type approved in writing by the Chief Inspector by a general or special order and so maintained as to obviate accidental disconnection.

(4) The state of every buffer and drawbar of every tub in use and of every safety-catch, coupling-chain and other attachment shall be examined once at least in every fourteen days, by a competent person appointed for the purpose and a report of every such examination shall be recorded in a bound paged book kept for the purpose, which shall be signed and dated by the person who made the examination.

(5) Each component of coupling shall have factor of safety of not less than seven in relation to maximum static load which shall be ensured by testing at an interval not exceeding three years and record thereof shall be maintained.

(6)) When tubs are about to be moved, persons likely to be endangered shall be warned.

(7) Two or more tubs shall not be moved by hand in close succession but shall be coupled and moved together:

Provided that two tubs shall be deemed to be in close succession when the distance between them at any time is less than 10 meters.

(8) No person shall cause or permit a tub to run uncontrolled except with the written permission of the manager:

Provided that the Regional Inspector may, by an order in writing, prohibit the uncontrolled movement of tubs at any place if he is of the opinion that such movement is likely to cause danger.

(9) No person while taking a tub down a gradient exceeding one in twenty, shall go in front of the tub; and in every case where conditions are such that a person is not in a position to control the tub from behind, he shall not take the tub down unless sprags or other suitable contrivances are used to control it.

(10) Where required for use, a sufficient number of sprags of suitable material and dimensions shall be provided.

(11) Every tub while standing on a track having a gradient of more than one in twenty shall unless held effectively by brakes or securely coupled to a haulage rope or locomotive, be effectively blocked, chained or otherwise secured.

(12) Except where haulage is effected by means of an endless rope, the coupling and uncoupling of tubs shall, as far as practicable, be done only when the tub or set of the tubs, and the rope if connected to the set, is not in motion.

(13) As far as practicable, tubs shall not be coupled or uncoupled on a gradient.

(14) No person shall ride on any tub or haulage rope.

**95. Brakes of haulage engines.**— Every haulage engine shall be provided with an effective brake.

**96. Haulage ropes.**— (1) No rope shall be used for purposes of haulage if it has any serious visible defect over any length or its factor of safety is less than eight.

(2) Every rope which is capped shall be recapped once at least in every six months, and if necessary, at shorter intervals, under the supervision of a competent person.

(3) No rope which has been spliced shall be used in direct haulages.

(4) For every haulage rope in use, a record of size, construction, quality, name of supplier and dates of installation and of recapping shall be kept in a bound paged book kept for the purpose, and all entries therein shall be made by the competent person who shall sign the same and date his signature.

**97. Roadway conveyors.**— (1) Every roadway conveyor shall be so installed that —

- (a) between the conveyor and one side of the roadway, there is a travelling space free from obstruction not less than one meter wide;
- (b) the conveyor or any part thereof does not scrape against wooden props or supports;
- (c) the anchoring of the return station of the conveyor is independent of the face or roadway support;
- (d) in case a number of belt conveyors are used in series, safety fittings such as sequential control and sequential interlock shall be provided; and
- (e) it can be stopped from any place along the entire length of the conveyor by providing pull cord switches or any other suitable system.

(2) Where the inclination of the conveyor is such as to give rise to danger from sliding objects or material, suitable device shall be used to provide adequate protection against such danger.

(3) On every length of roadway in which a conveyor is installed for transporting loads over a distance exceeding 30 meters, there shall be provided and maintained effective means of transmitting signals from every point on the length of the roadway to the place at which the machinery working the conveyor is operated:

Provided that the Regional Inspector may, by an order in writing, require means of transmitting signals in the reverse direction also.

(4) The conveyor operator and the cabin or place from where the conveyor is operated shall be provided with an effective means of telecommunication along with broadcasting facilities through which the operator can communicate to any person present in the conveyor roadway at any place of the installation and such system of telecommunication shall have facilities of both way communications.

(5) Audio-visual pre-start warning alarm shall also be provided in the entire length of the roadway conveyor so as to warn persons of imminent dangers due to starting of the belt conveyor.

(6) The manager shall formulate a code of practice for safe installation, operation, maintenance and use of belt conveyor belowground including extension of belt conveyor and shifting it from one place in the mine to another and submit the same to the Regional Inspector at least thirty days before the commencement of the installation of the belt conveyor belowground; and the Regional Inspector may, at any time by an order in writing, require such modifications in the code of practice as he may think fit in the interest of safety.

(7) In case the belt conveyor is intended for the purpose of man-riding, the manager shall formulate a separate code of practice for safe installation, operation, maintenance and use of the belt conveyor for the

said purpose in a specified location in the mine and shall submit the same to the Chief Inspector at least ninety days before the commencement of the installation of the said belt conveyor seeking permission for the said use:

Provided that no such system shall be put in use except with the permission in writing and in accordance with such conditions as the Chief Inspector may specify therein.

(8) The Chief Inspector may at any time by an order in writing modify or revoke the permission granted under the proviso to sub-regulation (7) as he may think fit in the interest of safety of persons using the same.

(9) The manager and engineer shall both be responsible for implementation of the code of practice.

(10) Adequate arrangement shall be provided in the belt conveyor to ensure that it gets automatically stopped,-

- (a) in case of excessive friction between the belt and the drum, roller, scrapper, deflectors, guides or any other obstruction caused either due to spillage or otherwise;
- (b) in case of breakage of the belt; and
- (c) in case of fire or heating in the belt conveyor or in the vicinity thereof.

**98. Examination of haulage engines.**— (1) It shall be the duty of a competent person to examine carefully-

- (a) once at least in every twenty-four hours, every haulage engine, brake-wheel, rope and other appliance in use; and
- (b) once at least in every seven days, every track where the haulage is effected by means of mechanical power or gravity, and every safety contrivance fitted thereon.

(2) A report of every such examination under sub-regulation (1) shall be recorded in a bound paged book kept for the purpose, and shall be signed and dated by the person who made the examination.

**99. Examination of haulage and travelling roadways.**— It shall be the duty of the overman or other competent person to examine carefully, once at least in every seven days, the state of all haulage and travelling roads and roadways, including roadways leading to all the outlets of the mine which are in use and a report of every such examination shall be recorded in a bound paged book kept for the purpose, and shall be signed and dated by the person who made the examination.

**100. Locomotives.**— (1) No locomotive shall be used belowground otherwise than in accordance with the permission in writing of the Chief Inspector and subject to such conditions as he may specify therein.

(2) No locomotive shall be used where the gradient of the track exceeds one in fifteen.

(3) No person other than the driver shall ride on any locomotive unless authorised in writing to do so by the manager.

(4) Except during shunting operations, the locomotive shall lead the tubs or set or train of tubs.

**101. Roads for trucks and dumpers.**— The design, construction, dimensions and layout of haul roads (including ramps) and of parapet walls or embankments or berms, to be provided along the edge of any road that exists above the level of surrounding area or of any spoil or coal dump, shall be as per the standards and parameters specified in a general order in writing, by the Chief Inspector.

**102. Movement of wagons.**— (1) The movement of railway wagons shall be carried on under the supervision of a competent person.

(2) Before wagons are moved, persons likely to be endangered shall be warned by the competent person appointed under sub-regulation (1).

(3) No person shall move or attempt to move a wagon by pushing at the buffer, or by pulling from in front.

(4) Where two or more wagons are moved simultaneously, the wagons shall be coupled together which shall be moved only by pushing from the sides or from behind the last wagon:

Provided that the number of such wagons shall not exceed the number which can be effectively controlled.

(5) No locomotive or wagon shall be moved when the natural light is insufficient, unless the approaching end is distinguished by a suitable light or is accompanied by a person carrying a lamp.

(6) No person, other than the competent person referred to in sub-regulation (1), shall pass immediately in front of wagons moving under bins or screens, nor between moving wagons and the under-structure of the bins or screens.

(7) No person shall be upon the buffer of a locomotive or wagon in motion unless there is a secure hand-hold, or stand thereon and unless there is also a secure footplate.

(8) No person shall pass over the coupling between any two wagons while the wagons are moving.

(9) No person shall cross a line of rails by crawling or passing underneath a train or wagon, nor shall a person sit or sleep underneath a wagon.

(10) Wherever railway wagons are specially placed so as to afford a thoroughfare, such thoroughfare shall be not less than five meters in width.

(11) No material shall be placed or dumped within 1.2 meters from either side of a track of rails.

(12) All space between the rails at switches and crossings in which the foot of a person is liable to be caught shall be kept filled with concrete, tar, asphalt, or wooden blocks.

**103. Fencings and gates.**—(1) Where any haulage road, tramline, rail line or haul road passes over a public road, suitable gates shall be provided to prevent danger to public from a moving tub, set or train of tubs, locomotive or machinery and every such gate shall be fitted with a danger signal, and when the natural light is insufficient, also with warning lamps.

(2) Where occupied buildings are situated within 15 meters of any haulage road, tramline, rail line or haul road, a substantial fence shall be provided and maintained between such buildings and the haulage road, tramline, rail line or haul road.

## CHAPTER X

### MINE WORKING

**104. Safety management plan.**—(1) The owner, agent and manager of every mine shall-

- (a) identify the hazards to health and safety of the persons employed at the mine to which they may be exposed while at work;
- (b) assess the risks to health and safety to which employees may be exposed while they are at work;
- (c) record the significant hazards identified and risks assessed;
- (d) make those records available for inspection by the employees; and
- (e) follow an appropriate process for identification of the hazards and assessment of risks.

(2) The owner, agent and manager of every mine, after consulting the safety committee of the mine and Internal Safety Organisation, shall determine all measures necessary to-

- (a) eliminate any recorded risk;
- (b) control the risk at source;
- (c) minimise the risk; and
- (d) in so far as the risk remains,
  - (i) provide for personal protective equipment; and
  - (ii) institute a program to monitor the risk to which employees may be exposed.

(3) Based on the identified hazards and risks, the owner, agent and manager of every mine shall prepare an auditable document called “Safety Management Plan”, that forms part of the overall management and includes organisational structure, planning, activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining a safety and health policy of a company.

(4) It shall be the duty of the owner, agent and manager to implement the measures determined necessary and contained in the Safety Management Plan for achieving the objectives set out in sub-regulation (2) in the order in which the measures are listed in the said sub-regulation.

(5) The Safety Management Plan shall contain—

- (a) defined mine safety and health policy of the company;
- (b) a plan to implement the policy;
- (c) how the mine or mines intend to develop capabilities to achieve the policy;
- (d) principal hazard management plans;
- (e) standard operating procedures;
- (f) ways to measure, monitor and evaluate performance of the safety management plan and to correct matters that do not conform with the safety management plan;
- (g) a plan to regularly review and continually improve the safety management plan;
- (h) a plan to review the safety management plan if significant changes occur; and
- (i) details of involvement of mine workers in its development and application.

(6) The owner, agent and manager of every mine shall periodically review the hazards identified and risks assessed, to determine whether further elimination, control and minimisation of risk is possible and consult with the safety committee on review.

(7) The owner, agent or manager of every mine shall submit a copy of the Safety Management Plan to the Regional Inspector who may, at any time by an order in writing, require such modifications in the plan as he may specify therein.

(8) The owner, agent and manager of every mine shall be responsible for effective implementation of the Safety Management Plan.

**105. Manual opencast working.**— In manual opencast workings, the following precautions shall be observed, namely: -

(1) In alluvial soil, morum, gravel, clay, debris or other similar ground,—

- (a) the sides shall be sloped at an angle of safety not exceeding 45 degrees from the horizontal or such other angle as the Regional Inspector may permit by an order in writing and subject to such conditions as he may specify therein; or
- (b) the sides shall be kept benched and the height of any bench shall not exceed 1.5 meters and the breadth thereof shall not be less than the height:

Provided that the Regional Inspector may, by an order in writing and subject to such conditions as he may specify therein, exempt from the operation of this clause in any working in the case of which special difficulties exist, which, in his opinion, make compliance with the provisions thereof not reasonably practicable.

(2) Where any pillar is left ‘in situ’ for the purpose of measurement, its height shall not exceed 2.5 meters; and where the height of such pillar exceeds 1.25 meters, the base of the pillar shall not be less than 1.5 meters in diameter.

(3) In coal, the sides shall either be kept sloped at an angle of safety not exceeding 45 degree from the horizontal, or the sides shall be kept benched and the height of any bench shall not exceed three meters and the breadth thereof shall not be less than the height:

Provided that the Chief Inspector may, by an order in writing and subject to such conditions as he may specify therein, exempt, from the operations of this sub-regulation, any working, in the case of which special difficulties exist which in his opinion make compliance with the provisions thereof not reasonably practicable.

(4) In an excavation in any hard and compact ground or in prospecting trenches or pits, the sides shall be adequately benched, sloped or secured so as to prevent danger from fall of sides:

Provided that the height of the bench shall not exceed six meters.

(5) No tree, loose stone or debris shall be allowed to remain within a distance of three meters from the edge or side of the excavation.

(6) No person shall undercut any face or side or cause or permit such undercutting as to cause any overhanging.

**106. Mechanised opencast working.-** (1) In all mechanised opencast workings, the precautions specified in sub-regulation (2) to sub-regulation (6) shall be observed.

(2) Before starting a mechanised opencast working, the owner and agent of the mine shall ensure that the mine, including its method of working, ultimate pit slope, dump slope and monitoring of slope stability, has been planned, designed and worked as determined by a scientific study and a copy of the report of such study has been kept available in the office of the mine:

Provided that in case of mines where such a study has not been made, it shall be the responsibility of the owner and agent to get the said study made within one year from the date of coming into force of these regulations.

(3) The owner, agent and manager of every mechanised opencast mines shall ensure that the recommendations made in the report of scientific study referred to in sub-regulation (2) are complied with.

(4) The height of the benches in overburden consisting of alluvial soil, morum, gravel, clay, debris or other similar ground shall not exceed 3 meters and the width thereof shall not be less than three times the height of the bench.

(5) The height of benches in coal and overburden of rock formation other than that mentioned in sub-regulation (4) shall not be more than the digging height or reach of the excavation machine in use for digging, excavation or removal, and the width thereof shall not be less than -

- (a) the width of the widest machine plying on the bench plus two meters; or
- (b) if dumpers ply on the bench, three times the width of the dumper; or
- (c) the height of the bench,

whichever is more.

(6) Notwithstanding anything contained in sub-regulations (2), (4) and (5), the Chief Inspector may, by an order in writing and subject to such conditions as he may specify therein, require or permit the height and width of benches in variance with aforesaid.

**107. Reclamation.-** All excavations made by opencast mining shall be suitably reclaimed by back filling or by any other means.

**108. Spoil-banks and dumps.-** (1) While removing overburden, the top soil shall be stacked at a separate place, so that, the same is used to cover the reclaimed area.

(2) The slope of a spoil bank shall be determined by the natural angle of repose of the material being deposited but, in any case, shall not exceed 37.5 degrees from the horizontal:

Provided that where in any mine, a steeper slope of spoil bank has been recommended as a result of a scientific study by any scientific agency or institution, having expertise in slope stability, the Regional Inspector may, by an order in writing and subject to such conditions as he may specify therein, permit a steeper slope of the spoil bank.

(3) Loose overburden and other such materials from opencast workings or other rejects from washeries or from other sources shall be dumped in such a manner that there is no possibility of dumped material sliding.

(4) Any spoil bank exceeding 30 metre in height shall be benched so that no bench exceeds 30 metre in height and the overall slope shall not exceed 1 vertical to 1.5 horizontal.

(5) The toe of a spoil-bank shall not be extended to any point within 100m of a mine opening, railway or other public works, public road or building or other permanent structure not belonging to the owner.

(6) A suitable fence shall be erected between any railway or public works or road or building or structure not belonging to the owner and the toe of an active spoil bank so as to prevent unauthorised persons from approaching the spoil-bank.

(7) No person shall approach or be permitted to approach the toe of an active spoil bank where he may be endangered from material sliding or rolling down the face.

(8) Adequate precautions shall be taken to prevent failure of slopes of the spoil banks or dumps.

**109. Transport rules.-** (1) The manager of every mine shall frame and enforce a code of transport rules with due regard to the size and capacity of the transportation machinery in use and prevailing local conditions and a copy of the same shall be submitted to the Regional Inspector, who may, at any time, by an order in writing require such modifications in the transport rules, as he may specify therein:

Provided that in mines where such machinery are already in use, the aforesaid transport rules shall be framed and enforced within ninety days from the date of coming into force of these regulations.

(2) The manager shall hand over copies of the transport rules to all operators, drivers and officials concerned and shall also post such copies at all conspicuous places in the mine in languages comprehensible by the workers.

(3) The Manager and such officials shall each be responsible for securing effective compliance with the provisions of the transport rules, and no mine or part of a mine shall be worked in contravention thereof.

**110. Codes of practice.-** (1) The manager of every mine shall, before introducing any machinery or new operation connected with his mine, frame and enforce "code of practice", not being inconsistent with the Act or these regulations, for each such machinery or operation, as the case may be.

(2) The codes of practice shall be framed with due regard to the type, size and capacity of the machinery or operation in use and prevailing local conditions and a copy of the same shall be submitted to the Regional Inspector, who may at any time, by an order in writing, require such modifications in the codes as he may specify therein:

Provided that in mines where such machinery are already in use or operations in practice, the said codes of practice shall be framed and enforced within ninety days from the date of coming into force of these regulations.

(3) The codes of practices, *inter alia*, shall provide for—

- (a) safe operating procedures for the machinery or operation to which it relates to;
- (b) examination and testing of the machinery before first use after erection, installation, re-installation, modification, alteration, maintenance or repair;
- (c) schedule and nature of examination and testing of the machine, including its sub-assemblies, so as to ensure its safe operation;
- (d) the manner in which the records of examination shall be kept.

(4) The owner, agent or manager of every mine shall hand over copies of such code of practices to concerned officials and persons and ensure effective enforcement thereof.

(5) A copy of the codes of practice framed under sub-regulation (3) shall always be kept in the office of the mine and also at respective places of such operation or machinery.

**111. Development work.-** (1) The dimensions of pillars and galleries, and the shape of pillars, formed in any seam or section shall be such as to ensure stability during the formation and extraction of pillars, and during the period between such formation and extraction.

(2) Save with the previous permission in writing of the Regional Inspector and subject to such conditions as he may specify therein, no gallery in a seam or section shall exceed three meters in height or 4.8 meters in width at any place.

(3) The pillars formed in any seam or section shall normally be rectangular in shape.

(4) The distance between the centres of any two adjacent pillars left in a seam or section shall not be less than that specified in the table below as corresponding to the depth of the seam or section from the surface at that point and the width of the galleries in the working in question.

Table

Depth of seam from surface	Where the width of the galleries does not exceed 3.0 meters	Where the width of the galleries does not exceed 3.6 meters	Where the width of the galleries does not exceed 4.2 meters	Where the width of the galleries does not exceed 4.8 meters
The distance between centres of adjacent pillars shall not be less than				
(1)	(2)	(3)	(4)	(5)
	Meters	Meters	Meters	Meters
Not exceeding 60 meters	12.0	15.0	18.0	19.5
Exceeding 60 but not exceeding 90 meters	13.5	16.5	19.5	21.0
Exceeding 90 but not exceeding 150 meters	16.5	19.5	22.5	25.5
Exceeding 150 but not exceeding 240 meters	22.5	25.5	30.5	34.5
Exceeding 240 but not exceeding 360 meters	28.5	34.5	39.5	45.0
Exceeding 360 meters	39.0	42.0	45.0	48.0

(5) The Chief Inspector may by an order in writing and subject to such conditions as he may specify therein, exempt a mine or part thereof to form pillars in variance to that specified in the sub-regulations (3) and (4).

(6) Nothing in sub-regulation (2), (3), (4) and (5) shall apply to workings in a mine made before 7<sup>th</sup> September, 1926 and the following provisions shall apply to all workings made prior to said date, except during the extraction or reduction of pillars,-

- (a) if the distance between the centers of adjacent pillars is smaller than that specified in the table under sub-regulation (4), the pillars shall not be further reduced; or
- (b) if the distance between the centers of adjacent pillar is not smaller than that specified in the table under sub-regulation (4), the pillars shall not be so reduced as to render such distance smaller than –
  - (i) the distance so specified; or
  - (ii) any distance required in this behalf by the Chief Inspector; and
- (c) the height and width of the galleries shall not be further increased without the permission in writing of the Regional Inspector and subject to such conditions as he may specify therein.

(7) In the case of all workings, where in the opinion of the Regional Inspector the dimensions of pillars or galleries are such as to render that crushing of pillars or the premature collapse of any part of the workings is likely to occur either before or during the extraction of pillars, he may, by an order in writing, require such modification of the dimensions aforesaid in respect of any future working as he may specify.

**112. Depillaring operations.**— (1) No extraction or reduction of pillars shall be commenced, conducted or carried out except with the previous permission in writing of the Regional Inspector and in accordance with such conditions as he may specify therein.

(2) An application, for permission under sub-regulation (1) shall be accompanied by two copies of an up-to-date plan of the area where pillars are proposed to be reduced or extracted, showing the proposed extent of extraction or reduction of pillars, the manner in which such extraction or reduction is to be carried out, the thickness and depth of the seam, the nature of the roof, and the rate and direction of dip.

(3) The extraction or reduction of pillars shall be conducted in such a way as to prevent, as far as possible, the extension of a collapse or subsidence of the goaf over pillars which have not been extracted.

(4) Save as otherwise provided under sub-regulation (5), no pillars shall be reduced or split in such a manner as to reduce the dimensions of the resultant pillars below those required by regulation 111 or by any order made thereunder, nor shall any gallery be so heightened as to exceed three meters.

(5) During the extraction of pillars, no splitting or reduction of pillars or heightening of galleries shall be effected for a distance greater than the length of two pillars ahead of the pillar that is being extracted or reduced:

Provided that where pillar extraction is about to begin in a district, such splitting or reduction of pillars or the heightening of galleries shall be restricted to a maximum of four pillars.

(6) The width of the split-galleries shall not exceed the width specified for galleries under sub-regulation (4) of regulation 111.

(7) The Regional Inspector may, by an order in writing and stating the reasons therefor, relax or restrict the provisions of sub-regulation (4) or sub-regulation (5) in respect of any specified workings to such extent and on such conditions as he may specify therein.

(8) Where the method of extraction is to remove all the coal or as much of the coal as practicable, and to allow the roof to cave in, the operations shall be conducted in such a way to leave as small an area of uncollapsed roof as possible with due regard to danger from an air blast or weighting on pillars, and suitable means shall be adopted to bring down the goaf at regular intervals wherever possible.

(9) Where the voids formed as a result of extraction are stowed with sand or other materials, the owner, agent or manager shall, on or before the 10<sup>th</sup> day of every month submit to the Regional Inspector a statement giving the quantity of coal raised and the quantity of sand or other material stowed in every district during the preceding month.

**113. Extraction of Coal by method other than bord and pillar system.**— (1) No development or extraction of coal by a system other than bord and pillar system shall be commenced, conducted or carried out except with the previous permission in writing of the Chief Inspector and in accordance with such conditions as he may specify therein.

(2) An application for permission under sub-regulation (1), shall be made accompanied by two copies of an upto date plan of the area where such development or extraction is proposed, showing details such as the manner and proposed extent of development or extraction.

**114. Saving.**— (1) Nothing in regulation 111 or regulation 112 shall prevent the driving of any gallery through any pillar or the enlargement of any gallery beyond the limits specified by or under these regulations, where in the opinion of the manager such work is necessary for haulage, ventilation, drainage or any other purpose necessary for the proper working of the mine, if fourteen days' previous notice in writing of the intention to commence such work has been given to the Regional Inspector.

(2) Every notice under sub-regulation (1) shall be accompanied by an offset plan showing details of the operation.

(3) If in the opinion of the Regional Inspector such work under sub-regulation (1) is likely to endanger the stability of the workings, he may, by an order in writing, require the completion, before commencing such drivage or enlargement, of such protective works as he may specify therein.

**115. Roads and working places.**— (1) The roof and sides of all working places and travelling roadways, including airways and travelling roadways to second outlets, shall be made and kept secure.

(2) Necessary arrangements shall be made to prevent premature collapse of workings; and adequate steps shall be taken to isolate, control or remedy any such collapse which may occur.

(3) Whenever crush of pillars or any symptom of an impending collapse other than ordinarily caused by pillar extraction is detected, the manager shall inform the Regional Inspector forthwith.

**116. Powers of Inspectors.**— (1) If in any mine or part thereof, it appears to the Regional Inspector that the provisions of regulations 105, 106, 111, 112 and 115 or of any order issued under any of these regulations have not been complied with, he may give notice in writing to the owner, agent or manager requiring him to take such protective measures, within such time, as he may specify in the notice.

(2) In case of non-compliance with the requirements of the notice issued under sub-regulation (1), the Regional Inspector may, by an order in writing, prohibit the extraction of coal in the part or parts of the mine in which protective measures are required to be taken, until the requirements specified in the notice are complied with.

**117. Pointing out of contraventions during inspections.**—(1) If the Chief Inspector or an Inspector, during his inspection of any mine, finds or comes to know about contravention of any of the provision of the Act or the regulations, rules, bye-laws or orders made thereunder, he shall enter such contravention in an interleaved, paged and bound register maintained in a Form as may be specified by the Chief Inspector for the purpose, and shall also point out such contravention to the owner, agent or manager, if present on the spot.

(2) The Chief Inspector or the Inspector making the entry of the contraventions in the register referred to in sub-regulation (1) shall duly sign such entries with date, and take a carbon copy of the entries for his record:

Provided that the Chief Inspector or the Inspector need not enter such contravention which require confirmation after a survey or further examination, and he may subsequently intimate the owner, agent or manager, specifying the contravention, if confirmed, and also any other contraventions which were, by inadvertence, not entered in the said register:

Provided further that an entry made in the register or the absence of an entry therein, as also a communication in pursuance with the first proviso or absence thereof, shall not in any way limit the duties or obligations of a person under the Act or the regulations, rules, bye-laws or orders made thereunder.

(3) When an entry is made in the register,—

- (a) the owner, agent and manager shall each be deemed to know what is contained in that entry; and
- (b) a copy thereof shall be displayed within one day of the date of such entry on the notice board of the mine for not less than fifteen days.

(4) The owner, agent or manager of the mine shall return one copy, within a period not exceeding fifteen days from the date of the entry, to the Chief Inspector or the Inspector who made the entry with remarks thereon showing the action taken to remedy the contravention and the date on which such action was taken.

(5) The register shall—

- (a) be kept available for inspection in the office of the mine for a period of at least three years after the date of making of the last entry in it; and
- (b) not be removed therefrom before the expiry of the said period, except by or with the previous approval in writing of the Regional Inspector.

**118. Multi-section and contiguous working.**—(1) No work in a higher seam or section shall be done over an area in a lower seam or section which may collapse.

(2) No working shall be made in more than one section in any seam, nor shall workings be made in any two seams lying within nine meters of each other, without the prior permission in writing of the Chief Inspector and subject to such conditions as he may specify therein.

(3) Every application for permission under sub-regulation (2) shall be accompanied by two copies of a plan showing the proposed layout of the workings, section of the seam or seams, the depth of the seams from the surface, the rate and direction of dip, the proposed dimensions of pillars and galleries in each seam or section, and the thickness of the parting between the seams or sections.

(4) Where two or more such seams or sections are worked in a mine, the pillars in one seam or section shall, as far as practicable, be vertically above or below the pillars in the other seam or section unless the strata are inclined at an angle of more than 30 degrees from the horizontal.

(5) The parting left between any two seams or sections shall not be less than three meters in thickness at any place:

Provided that the Chief Inspector may, by an order in writing and subject to such conditions as he may specify therein, permit or require a smaller or greater thickness of parting, as the case may be.

**119. Working under railways and roads, etc.**—(1) No working shall be made and no work of extraction or reduction of pillars shall be conducted at, or extended to, any point within 45 meters of any railway, or of any public works in respect of which this regulation is applicable by reason of any general or special order of the Central Government, or of any public road or building, or of other permanent structure not

belonging to the owner of the mine, without the prior permission in writing of the Chief Inspector and subject to such conditions as he may specify therein.

(2) Every application for permission under sub-regulation (1) shall specify the position of the working of the mine in relation to the railway or public road or works or building or structure concerned, the manner in which it is proposed to carry out the intended operations, and the limits to which it is proposed to carry out the said operations; and shall be accompanied by two copies of a plan showing the existing and the intended mining operations in so far as they affect the railway or public road or works or building or structure concerned.

(3) Every copy of the application for permission referred to in sub-regulation (2) shall also be sent in the case of a railway, to the railway administration concerned; and in the case of any public works as aforesaid, to such authority as the Central Government may direct by general or special order.

(4) Notwithstanding anything contained in these regulations, the stability of such railway, road, works, building or structure shall not be endangered until it has been dismantled, diverted or vacated, as the case may be.

(5) Where the stability of such railway, road, works, buildings or structure has been endangered due to any mining operations, the Chief Inspector may, by an order in writing, require the owner to construct in the mine belowground or on the surface such protective works within such time as he may specify in the order.

**120. Protective work before a mine is closed.**— (1) The Chief Inspector may, by an order in writing, require the owner of any mine to which regulation 5 applies, to construct in the mine belowground or on the surface such protective works within such time as he may specify therein.

(2) If the owner fails to construct such protective works within the time specified in the order referred to in sub-regulation (1), the Chief Inspector may get the work executed by any other agency, and the cost thereof, as certified by the Chief Inspector, shall be defrayed by the owner of the mine and recoverable from him as an arrear of land revenue.

(3) Until the protective work have been constructed to the satisfaction of the Chief Inspector, the means of entering the mine at not less than two entrances shall be kept intact and in working order.

**121. Working near mine boundaries in belowground mines.**— (1) The owner, agent or manager of every belowground mine shall have fixed boundaries of the mine and notwithstanding anything contained in sub-regulation (2), these shall not be changed except with the express permission of the Chief Inspector in writing and subject to such conditions as he may specify therein.

(2) No working shall be made within a distance equal to half the distance as specified in column (5) of table under sub-regulation (4) of regulation 111, corresponding to the depth of the seam being worked, of the boundary of any mine and in case of a disputed boundary no working shall be made within the said distance of the boundary claimed by the owner of an adjacent mine until such time as a binding agreement has been reached as to the correct boundary or the question has been finally determined by a court of law:

Provided that, where work is done in more than one seam, the barrier kept at the boundary shall, as far as practicable, be vertically coincident and of the same dimensions:

Provided further that, where the working of any seam, for any reason, are extended or get extended within any shorter distance than what is laid down herein above, the Chief Inspector may, by an order in writing, require the owner to construct such protective works within such time as he may specify in the order.

(3) Notwithstanding anything contained in sub-regulation (2), the Chief Inspector may, by an order in writing and subject to such conditions as he may specify therein, permit or require to extend or restrict the working of any mine or part thereof in variance with the provisions of this regulation.

**122. Working near mine boundaries in opencast mines.**— (1) The owner, agent or manager of every opencast mine shall have fixed boundaries of the mine and notwithstanding anything contained in sub-regulation (2), the boundary shall not be changed except with the previous permission of the Chief Inspector in writing and subject to such conditions as he may specify therein:

Provided that if any mine consists of two or more separate excavations and if, in the opinion of the Chief Inspector, they are not sufficiently near to one another to permit daily personal supervision being

exercised by one manager, the Chief Inspector may, by an order in writing, require the mine to be split into two or more separate mines.

(2) No working shall be made within a distance of 7.5 meters of the boundary of any mine and, in case of a disputed boundary, no working shall be made within a distance of 7.5 meters of the boundary claimed by the owner of an adjacent mine until such time a binding agreement has been reached as to the correct boundary or the question has been finally determined by a court of law:

Provided that, where the workings of any mine, for any reason, are extended or get extended within any shorter distance than what is laid down herein above, the Chief Inspector may, by an order in writing, require the owner to construct such protective works within such time as he may specify in the order.

(3) Notwithstanding anything contained in sub-regulation (2), the Chief Inspector may, by an order in writing and subject to such conditions as he may specify therein, permit or require to extend or restrict the working of any mine or part thereof in variance with the provisions of this regulation.

**123. Strata Control and Monitoring Plan.**— (1) (a) The owner, agent and manager of every mine shall prepare, formulate and implement a Strata Control and Monitoring Plan (SCAMP) based on scientific study considering the geotechnical data, information and the method of development and extraction of coal or the excavation required therefrom, which also includes a support plan to secure the roof and sides of belowground workplaces, and shall be subject to revision with change in condition, for all workings belowground.

(b) The owner, agent and manager shall submit a copy of the Strata Control and Monitoring Plan (SCAMP) to the Regional Inspector who may, at any time by an order in writing, require such modification as he may specify therein.

(2) The owner, agent and manager of every mine having workings below ground shall, before commencing any operation, frame, in consonance with the Strata Control and Monitoring Plan framed under sub-regulation (1) and with due regard to the engineering classification of strata, local geological conditions, system of work, mechanisation, and past experience, and enforce the support plan specifying in relation to each working place the type and specifications of supports and their intervals:

Provided that in respect of a mine where development operations are already in progress, the support plan shall be framed and enforced within thirty days of the date of coming into force of these regulations.

(3) The manager shall, at least thirty days before the commencement of any operation, submit a copy of the support plan framed under sub-regulation (2) to the Regional Inspector who may at any time, by an order in writing, require such modification in the plan as he may specify therein.

(4) The Manager shall hand over copies of the support plan framed under sub-regulation (1) and (2), in English as well as in a local language understood by majority of the persons employed in the mine, together with illustrative sketches, to all supervisory officials concerned including the assistant manager and shall also post such copies at all conspicuous places in the mine.

(5) The manager and such supervising officials shall be responsible for securing effective compliance with the provisions of the support plan framed under sub-regulation (1) and (2), and no mine or part of a mine shall be worked in contravention thereof.

(6) The support plan shall include *inter alia*, system of, monitoring of the support performance, measurement of strata behaviour, re-setting of supports, provision of temporary support, replacement of old supports, withdrawal of supports and clearing of falls of ground.

(7) The support plan shall also include the implementation strategy of the plan, training and inspection and supervision policies.

(8) The owner, agent or manager shall formulate and implement a code of standing orders specifying –  
(a) the system and the organisation for procurement and supply of supports of suitable material, of adequate strength and in sufficient quantity where these are required to be readily available for use;  
(b) the method of handling including dismantling and assembling where necessary and transportation of the supports from the surface to the face and from the face line to their new site;

- (c) the system and the organisation for maintenance and checking of supports, dressing the roof and sides, erecting, examining and re-tightening of supports and re-erecting dislodged supports, including the use of appropriate tools;
- (d) the panel of competent persons for engagement as substitutes in the event of a regular supportsman or dresser absenting from duty; and
- (e) the manner of making all concerned persons such as loaders, dressers, supportsmen, shortfirers, sirdars, overmen and assistant managers including persons empanelled for engagement as substitute supportsman or dresser fully conversant with the support plan and the codes of standing orders under this sub-regulation and under regulation 129 and the nature of work to be performed by each in that behalf.

**124. Setting of support.**— (1) Every prop shall be set securely on a sound foundation and shall be kept tight against the roof.

(2) Where a prop is set on sand or, other loose material, a flat base-piece not less than 5 centimeter in thickness, 25 centimeters in width and 75 centimeters in length shall be used.

(3) The lid used over a prop shall have a width not less than the diameter of the prop, a thickness not less than 8 centimeters and a length not less than 50 centimeters.

(4) Every bar set for supporting the roof of a roadway shall be set securely on props or on cogs or shall be securely fixed on the sides of the roadway in holes at least 50 centimeter deep made in the sides of the roadway and shall be made and kept tight against roof and where lagging is necessary the number of laggings shall not be less than one for every meter length of the bar and the laggings shall be made and kept tight against the roof.

(5) Every cog used as a support shall be well built and set on the natural floor or on a secure foundation, and shall be made and kept tight maintaining maximum possible contact against the roof.

(6) In case of timber for erection of a cog, it shall be sufficient to joggle two opposite sides, provided that only four sides sawn sleepers shall be used for goaf edge supports in depillaring panels.

(7) The cogging members shall be not less than 1.2 meters in length.

(8) Before erecting cogs in a depillaring area, props shall be erected at the corners of each cog.

(9) In inclined seams, the supporting props and cogs shall be so set as to ensure maximum support having regard to the inclination of the seam or roadway and probable strata movement and where necessary such supports shall be reinforced to prevent displacement.

(10) Every ledge and every prominent crack or slip in the roof shall be kept supported with at least a pair of cogs and or cross-bars suitably lagged.

(11) Overhanging sides shall be dressed down:

Provided that where this is not practicable, stay props or other suitable means of support shall be erected at intervals not exceeding one meter.

(12) Where sand or other material is stowed or a pack is formed for the purpose of support, it shall be packed or made as tight against the roof as practicable over its whole area.

(13) Roof and sides and support shall be tested as often as necessary; and except where it is no longer necessary for the purpose of support, any support loosened, broken or dislodged by or removed in any operation shall be tightened, replaced or reset with the least possible delay and particularly before persons are allowed to pass or resume work after an interruption.

(14) Where floor coal or roof coal is taken, shorter props shall be replaced with longer props.

(15) In every place wherein roof coal is taken or a fall of roof or sides has occurred, no work of cleaning the dislodged coal or the fall or any part thereof shall be undertaken nor shall any person be allowed to pass, until the newly exposed roof and sides in the vicinity thereof have been examined and made safe, if necessary, by temporary supports.

(16) Notwithstanding anything contained in sub-regulation (9), (13), (14) or sub-regulation (15), only such minimum number of persons may be engaged under the supervision of a sirdar or overman as may be necessary for securing the roof and sides thereat.

- (17) Where roof bolts are used for support, the bolts shall be securely fixed in place.
- (18) Powered supports, hydraulic chocks or link-bars shall be advanced as soon as practicable after a web of coal has been taken off the face so as to ensure that the area of unsupported newly exposed roof is kept to a minimum.
- (19) Powered supports, hydraulic chocks, props and friction props shall be set securely and checked from time to time.
- (20) When any defect is detected in any powered support or hydraulic chock, the same shall be attended to as soon as possible and any defective hydraulic or friction prop shall be replaced immediately.
- (21) Where, by reason of any irregularity in the roof, floor or sides or due to any other reasons, any powered support or hydraulic chock becomes ineffective, conventional supports in sufficient number shall be used.

**125. Withdrawal of supports.-** (1) Whenever supports are to be withdrawn, the withdrawal shall be done in such manner as the manager may by orders specify.

- (2) The orders referred to in sub-regulation (1) shall cover -
- (a) the supply and use of appropriate tools and safety contrivances;
  - (b) the setting of extra supports to control the collapse of roof from which supports are being withdrawn;
  - (c) the sequence of withdrawal of supports; withdrawal of a cog to precede withdrawal of its corner props;
  - (d) safe positioning of the persons engaged in the operation and all other persons present nearby;
  - (e) training of competent persons who are entrusted with the operations; and
  - (f) supervision during withdrawal of supports.
- (3) In every mine where powered supports are used, it shall be the duty of the owner, agent and manager to prepare a plan for the installation of powered supports and a plan for their withdrawal and transport.
- (4) The plan referred under sub-regulation (3), shall be reviewed and approved, with or without any necessary amendment by the Regional Inspector before implementation.

**126. Provision of roof canopies or cabs.-** (1) Electrical, battery, or diesel-powered, self-propelled machinery including side discharge loaders, load haul dumpers, coal haulers and shuttle cars used belowground in coal mines shall be provided with substantially constructed roof canopies or cabs which shall give adequate protection against falling of ground from the roof or sides.

(2) The cabin or seat of the operator provided in such machine shall be ergonomically designed and shall be such that the operator has clear line of sight in front as well as at rear of the machine without involving any constraint or strain.

**127. Steep working.-** (1) In the workings having an inclination of 30 degrees or more from the horizontal, adequate precaution shall be taken to prevent danger to persons from falling or rolling of timber, tools or other appliances or material.

(2) No person shall work or be permitted to work at any place having an inclination of 45 degrees or more from the horizontal, where he is likely to slip or overbalance, unless he is secured by a safety belt or life line or is otherwise safeguarded.

**128. Fencings and gates.-** (1) The top of every opencast working shall be kept securely fenced.

(2) Where an excavation which has been formed as a result of any mining operation, extends within a distance of 15 meters from a public road or any building, substantial fencing shall be erected and maintained around the excavation.

(3) Where as a result of mining operations, a subsidence of the surface has taken place or is likely to take place and persons are likely to be endangered thereby, the owner, agent or manager shall keep the entire surface area securely and effectively fenced.

(4) Every entrance to a shaft, staple pit, sump, goaf or other dangerous place shall be provided with an efficient fence, barrier or gate, so designed and constructed as to effectively prevent any person from entering or falling therein.

(5) Where a shaft or staple pit or a gallery having an inclination of more than 30 degrees from the horizontal leads directly into a working place or travelling roadway, such place or roadway and any working place situated on its dip side, shall be securely guarded or otherwise protected as to prevent danger to persons from falling materials.

(6) Every entrance from a roadway into a mine or a part thereof which, for the time being is neither being worked nor being used for any purpose, by reason of any cause whatsoever, shall be provided with fence, barrier or gate so designed and constructed as to prevent any person from inadvertently entering that part of the mine.

(7) Shafts and opencast workings temporarily or permanently out of use and any place in or about an excavation which is dangerous shall be completely filled in or kept securely fenced:

Provided that if in the opinion of the Regional Inspector, any disused trench, pit or other excavation is dangerous, he may by an order in writing, require the same to be filled in to the level of the adjacent ground.

(8) Before a mine is abandoned or the workings thereof discontinued, the owner, agent or manager shall cause the top or entrance of every shaft, incline or other opening into the mine to be fenced by a structure of a permanent character sufficient effectively to prevent persons falling into or entering the same.

**129. Examination by sirdars.**— (1) Every place in a mine whether belowground or in opencast workings, including travelling roadways and landings, where work is carried on or where persons are stationed or required to pass shall be placed under the charge of a sirdar or other competent person.

(2) The mine or district assigned to a sirdar or other competent person shall not be of such a size, nor shall any additional duties other than his duties under these regulations be such as to be likely to prevent him from carrying out in a through manner the duties prescribed for him under these regulations, and if any doubt arises as to the foregoing, it shall be referred to the Chief Inspector for decision.

(3) At the entrance to every mine or district, one or more stations shall be fixed by the manager, and except in the case of a mine working in a continuous succession of shifts, no person other than the persons making the examination under sub-regulation (4) or an official shall pass beyond any such station until all the roadways and working places to which persons are required to have access, have been examined by the competent person in charge of the mine or district and found to be satisfactorily ventilated and in safe condition.

(4) Every station referred to in sub-regulation (3) shall be legibly marked 'STATION' and shall be of such a size as to accommodate all the persons employed in the district in any one shift.

(5) The sirdar or other competent person accompanied by such assistants as may be required shall, within two hours before the commencement of work in a shift, inspect every part of the mine or district assigned to him, in which persons have to work or pass during the shift and all roadways and working places where work is temporarily stopped and shall ascertain the condition thereof as regards ventilation, sanitation, presence of gases, the state of the roof and sides, presence of spontaneous heating and other fire risks, and generally so far as the safety of the persons is concerned, and similar inspection shall be made once at least in every four hours during which the shift continues, of all the roadways and other places to which persons engaged in the mine or district are required to have access.

(6) The examination under sub-regulation (5) shall be made with an approved flame safety lamp or any other approved apparatus made for the purpose and in case of a fiery seam, also with an apparatus for detecting carbon monoxide gas approved by the Chief Inspector.

(7) In case of opencast workings, the sirdar shall pay attention to overhangs, undercuts, presence of loose stone, materials or trees, etc., within 3 meters of the edges, foot paths for traveling and carrying loads, fencing on top of the quarry and disused part or abandoned quarries, fencing along footpaths and benches where required, use of personal protective equipment and condition of dumps.

(8) The sirdar or other competent person shall, at the completion of his shift, record without delay the result of his inspections in a bound paged book in the format specified for the purpose and every such report shall be an accurate report of the inspections and shall include the following, namely :-

- (a) the details referred to in sub-regulation (5) and (7);
- (b) the number of persons working under his charge;
- (c) such instructions for the purposes of securing the safety of the persons as he may have given during his shift; and
- (d) the date and time of the inspections, the signature of the sirdar or other competent person, and the date and time when the report was written.

(9) In the case of a shaft in the course of being sunk, the competent person shall –

- (a) have entire charge of the shaft bottom and shall, in his shift, remain in the shaft while persons are at work at the bottom of the shaft;
- (b) be the last person to ascend the shaft at the end of the shift and if his shift is succeeded immediately by another shift, he shall not leave the bottom of the shaft until after the descent of his reliever of the succeeding shift; and
- (c) after each round of shots, and at the beginning of every shift, and after every cessation of work in the shaft for a period exceeding two hours, shall examine the sides of the shaft and remove all loose pieces before persons are allowed to descend.

**130. Avoidance of dangers.**— (1) If at any time it is found by a competent person in charge of a mine or district, that by reason of any cause whatsoever, the mine or district is dangerous, he shall immediately withdraw all persons from the mine or district; and the mine or district shall be fenced off so as to prevent persons inadvertently entering therein.

(2) The competent person shall also immediately inform the manager or assistant manager about the danger, and shall record the fact in the bound paged book kept for the purpose.

(3) The manager shall make, or cause to be made by a competent person, a careful examination of the mine or district; and no person shall, except in so far as is necessary for enquiring into the cause of the danger or for the removal thereof or for exploration, be re-admitted into the mine or district until the mine or district is reported to be safe.

(4) A report of every such examination under sub-regulation (3) shall be recorded without delay in a bound paged book kept for the purpose and shall be signed and dated by the person who made the examination.

(5) If the work of removing the danger is suspended before the danger is removed, the mine or district shall be securely fenced off effectively to prevent persons entering therein during the period of suspension.

(6) Notwithstanding anything contained in these regulations –

- (a) where the danger arises from the presence of inflammable or noxious gas, the provisions of regulation 166 shall apply; and
- (b) where in any part of a mine the appearance of smoke or other sign indicates that a fire or spontaneous heating has or may have broken out, the provisions of regulation 138 shall apply.

**131. Working at height.**— (1) No person shall work or travel on any ledge or footpath less than 1.5 meters wide, from where he is likely to fall more than 1.8 meters, unless he is protected by guard rails, fence or safety belt or rope suitably fixed and sufficiently strong to prevent him from falling.

(2) When a plant, machinery, workshop or any other shed or structure is under construction, repair or renovation, and persons are allowed to work at heights, proper walkway, stairs or ladderway with hand rails, guards or stages and platforms with fencing shall be provided to avoid danger or risk of persons falling from height.

(3) Every person permitted to work at height shall be provided with safety belt, of the type and standard suitable for the nature of work to be performed by him and approved by the Chief Inspector.

(4) Where it is required to work at heights involving danger or risk of falling, proper stage or working platform of adequate and suitable design and strength shall be provided.

(5) The stage or working platform referred to in sub-regulation (4) shall have proper approach way to and from the stage or platform for the persons to ascend or descend, as well as the fencing to prevent such falls.

(6) A safety net of adequate strength and design shall also be provided immediately below every working place so that the danger or risk of injuries to persons falling from working at heights is completely eliminated.

(7) A code of safe practices shall be framed by the manager and implemented under the supervision and control of a competent person and official especially authorised for the purpose by the engineer and manager, to ensure such safety precautions while executing such work in the mine.

(8) No untrained and inexperienced person or contractor shall be engaged for execution of any such work in the mine which involves working at heights and the dangers associated therewith.

(9) A system of check list and issuing of work permit shall be maintained by the agent and manager where any such work in the mine which involves working at heights and the dangers associated therewith is undertaken.

**132. General precautions.-** (1) No person shall cut or remove coal from or in the vicinity of any place unless it is his authorised working place.

(2) Every person shall-

- (a) carefully examine his working place before commencing work and also at intervals during the shift; and
- (b) if any dangerous condition is observed, cease all work at that place and shall either take immediate steps to remove such danger or inform an official or the competent person in charge of the mine or district.

(3) Where several persons are working together and one of them is in-charge, the examination required under sub-regulation (2) shall be made by the person in-charge.

(4) Every person cutting coal and every person operating a coal-cutting machine or any other cutting or loading machine in any place shall ensure that the dimensions of that place do not exceed the dimensions specified in that behalf by these regulations.

(5) No person shall carry or be permitted to carry any load along a road or footpath having an inclination of 30 degrees or more from the horizontal.

(6) Every road or footpath, along which loads are carried by human agency, shall comply with the following requirements, namely: –

- (i) its breadth shall not be less than one meter; and
- (ii) at every place where the inclination exceeds 15 degrees from the horizontal, level steps shall be provided such that the vertical height of every step does not exceed 0.18 meter and the distance from the edge to the back is not less than 0.35 meter.

**Explanation.-** For the purposes of this sub-regulation, gang-planks used for loading purposes shall not be deemed to be part of a footpath, provided that every gang-plank shall be so inclined or constructed as to give a secure foot-hold.

(7) No person shall be employed to lift, carry or move a load so heavy as is likely to cause bodily injury or injury to health of that person and in case of any doubt as to whether risk of bodily injury or injury to health is involved, it shall be referred to the Chief Inspector for decision.

(8) Every person shall ensure that tools, wood, stones, or other articles are not put down or allowed to remain, in or near a shaft or dip gallery where work is going on, in such position as may result in their falling into the shaft or gallery.

(9) No person shall work or be permitted to work alone in any remote part of a mine where, if any accident occurred he would not soon be discovered or assisted.

(10) No inexperienced person shall be employed in the mine for any work whereby he or other persons can be seriously endangered except under the supervision and guidance of an experienced person.

**CHAPTER XI****PRECAUTIONS AGAINST DANGERS FROM FIRE, DUST, GAS AND WATER**

**133. Classification of coal seams according to their degree of gassiness.**—(1) All the coal seams shall be classified into different degrees of gassiness by the Chief Inspector or an Inspector assisted by such assistants and after such investigation as he may consider necessary.

(2) If in a gassy seam the percentage of inflammable gas in the general body of air or the rate of emission of such gas increases so as to bring that seam into a higher degree of gassiness, the owner, agent or manager shall within twenty-four hours from his knowledge of such increase, inform the Regional Inspector and also observe all the precautions required to be taken under these regulations in respect of a gassy seam of that degree, and the Regional Inspector shall, within thirty days of the receipt of such information, verify and investigate the degree of gassiness and classify the seam into the appropriate degree of gassiness:

Provided that if it is not practicable to observe all the precautions required to be taken under this regulation within twenty-four hours as stipulated in this sub-regulation, the Regional Inspector, on a request in writing by the owner, agent or manager, may defer the observance of the required precautions, subject to such conditions as he may specify, for a period not exceeding sixty days.

(3) If in a gassy seam the percentage of inflammable gas in the general body of air or the rate of emission of inflammable gas decreases so as to bring that seam to a lower degree of gassiness, the owner, agent or manager may inform the Regional Inspector of the same.

(4) The Regional Inspector shall within thirty days from the receipt of the information referred to in sub-regulation (3), verify and investigate the degree of gassiness and classify the same into appropriate degree of gassiness, and till such time as the Regional Inspector so classifies all the precautions required to be observed previously shall be observed.

(5) Notwithstanding anything contained in sub-regulations (2) to (4), the Regional Inspector may at any time make investigations and reclassify a gassy seam into the appropriate degree of gassiness.

(6) The owner, agent or manager shall at least once in every thirty days examine the rate of emission of inflammable gas in cubic meters per tonne of coal raised and the percentage of inflammable gas in the general body of air as laid down in regulation 169 and the result of every such examination shall be recorded in a bound paged book kept for the purpose.

(7) Every instrument, apparatus and the system used for detection and measuring of the inflammable gas shall be of a type and standard approved in writing by the Chief Inspector.

(8) Every instrument, apparatus and the system used for detection and measuring of the inflammable gas and analysis of gas samples, shall be calibrated at specified interval by an approved or accredited agency or laboratory notified by the Chief Inspector by a special or general order in writing from time to time.

**134. General precautions against fire.**—(1) No oil, grease, canvas or other inflammable material shall be stored in any mine except in a fire-proof receptacle.

(2) Greasy or oily waste in workings belowground shall be regularly removed to the surface.

(3) In case of opencast workings or workshops, greasy and oily wastes shall be disposed off regularly in a safe manner.

(4) No person shall place or throw, or cause or permit to be placed or thrown, any naked light or lamp on or near any timber, wooden structure or other combustible material.

(5) Adequate and sufficient arrangements shall be made in every mine for early detection, control and extinguishing any fire.

(6) The owner, agent and manager of every mine shall take measures and precautions appropriate to the nature of a mine operation to prevent, detect and combat the start and spread of mine fires.

(7) The owner, agent and manager of every mine shall ensure that operations are stopped and workers are evacuated to a safe location, when there is serious danger due to fire, threatening the safety and health of workers.

**135. Surface precautions against fire.**— (1) All surface structures and supports within a horizontal distance of 10 meters from all entrances to a mine shall be of fireproof material:

Provided that this sub-regulation shall not apply to temporary structures, supports and coverings at the top of a shaft which is in the course of being sunk and to the small lid of a shaft-covering operated by the rope capel.

(2) Shale or other carbonaceous material shall not be heaped or dumped, and dead leaves or dry vegetation shall not be allowed to accumulate or remain, and combustible materials other than materials required for use within a period of twenty-four hours, and inflammable materials shall not be stored within a distance of 15 meters from any entrance to a mine which is not effectively sealed off from the workings belowground:

Provided that nothing in this sub-regulation shall prevent the dumping of coal raised from the mine, near the entrance of the mine.

(3) In opencast working and in any ground broken by extraction of coal, all wild or herbaceous plants shall be removed and all dead leaves and dry vegetation cleared as often as may be necessary, to prevent an outbreak of fire.

(4) No person shall deposit any heated material or ashes on any outcrop of coal seam or in any opencast working or on any ground broken by extraction of coal.

(5) No person shall light a fire or permit a fire to be lighted in any opencast working or within a distance of 15 meters from any entrance to a mine, except by the permission in writing of the manager and only for a special purpose specified therein and all such permissions shall be recorded in a bound paged book kept for the purpose:

Provided that this sub-regulation shall not apply to boilers other than vertical boilers.

(6) A competent person shall, once at least in every seven days, inspect the top of all entrances to a mine, all opencast workings and any ground broken by extraction of coal in order to ascertain whether the precautions laid down under the regulation have been complied with, and for the presence of any fire that may have broken out or any indications thereof.

(7) A record of every inspection made under sub-regulation (6) shall be maintained in a bound paged book kept for the purpose, duly signed and dated by the person making the inspection.

**136. Underground precautions against fire.**— (1) No timber or other combustible material shall be used in the construction of, or in connection with, any shaft lining or room housing of any machinery or apparatus belowground.

(2) Wood cuttings shall not be left in any working belowground, but shall be removed to the surface at the end of every shift.

(3) No person shall light a fire or permit a fire to be lighted in any workings belowground :

Provided that –

(a) in the case of a gassy seam of the first or second degree, flame or electric welding or repairing apparatus may be used belowground if permitted by an order in writing of the manager and every such order shall specify the person who shall be in-charge of the apparatus; and it shall be the duty of such person to bring the apparatus back to the surface when no longer required belowground; and

(b) in the case of a gassy seam of third degree, a flame or electric welding or repairing apparatus may be used belowground if prior permission in writing has been obtained from the Regional Inspector and subject to such conditions as he may specify therein.

(4) No person shall leave a portable light or lamp belowground unless he has placed it in-charge of some other person remaining therein.

(5) At the end of a shift, unless the mine is worked by a continuous succession of shifts, after all persons have left the mine, all lights shall be extinguished and all power cut off.

(6) Provision shall be made to prevent an outbreak of fire belowground or the spread of fire from any part of the mine or from any adjoining mine, and adequate steps shall be taken to control or isolate any such fire or heating that may occur.

(7) All unused workings connected to the surface through a walkable entrance which is not permanently closed, shall once at least in every thirty days be inspected by a competent person for signs of illicit distillation of liquor and a report of every such inspection shall be recorded in a bound paged book kept for the purpose, duly signed and dated by the person making the inspection.

**137. Precaution against spontaneous heating.**— The following precautions shall be taken against the danger of spontaneous heating :-

(1) The seam or section shall be worked in panels having independent ventilation in such a manner that it is possible to isolate one from another easily when necessary.

(2) Where the seam or section has already been developed without complying with the provisions of sub-regulation (1), artificial panels shall be created by construction of stoppings.

(3) In determining the size of the panel under sub-regulations (1) and (2), due consideration shall be given to enable complete extraction of the pillars therein, within the incubation period of the coal seam.

(4) No coal, shale or other carbonaceous material shall be left or stacked belowground.

(5) Where removal of fallen coal out of the mine is not practicable, the area shall be effectively sealed off.

(6) Except where otherwise permitted by the Chief Inspector by an order in writing and subject to such conditions as he may specify therein, no extraction of pillars in any seam or section shall be commenced until fire dams or stoppings have been provided in all entrance to the panel.

(7) In the fire dams or stoppings built in entrances which are to be kept open for ventilation or haulage, suitable doors or openings may be left and bricks and other suitable materials shall be kept readily available in the vicinity.

(8) Shale or other carbonaceous material shall not be used in the construction of fire dams or stoppings.

(9) A panel shall be isolated by adequate stoppings as soon as it has been goaved out.

(10) All the isolation stoppings erected to seal off the goaves or to isolate old, abandoned or disused workings or to isolate area affected by fire or spontaneous heating shall be plastered with cement and white washed.

(11) Sufficient material for dealing with fire shall be kept ready at suitable places belowground for transport and use, and a sufficient number of persons shall be trained in the use of such material.

(12) In order to detect spontaneous heating in early stages, the air in the return airway of every depillaring district and, of every goaf which has not been isolated, shall be -

(a) tested for percentage of carbon monoxide once at least in every seven days with an automatic detector of a type approved by the Chief Inspector; and

(b) completely analysed once at least in every thirty days with a view to determining the ratio CO-formed/O<sub>2</sub>-absorbed:

Provided that if successive tests show any steady increase in the CO-formed/O<sub>2</sub> absorbed ratio, suitable measures shall be taken to determine the site of the heating and to deal with it.

(13) The result of every test referred to in sub-regulation (12) shall be recorded in a bound paged book kept for the purpose and shall be signed and dated by the person carrying out the test.

(14) Every depillaring district shall be inspected on every idle day and a report of every such inspection shall be recorded in a bound paged book kept for the purpose, and shall be signed and dated by the person making the inspection.

(15) All unused workings including unused workings which have not been sealed off, and isolation stoppings built around goaved out areas shall be inspected once at least in every seven days, by a competent

person for any fire risk and a report of every such inspection shall be recorded in a bound paged book kept for the purpose, and shall be signed and dated by the person making the inspection.

(16) Where at any mine or part, special conditions exist which make compliance with any of the provisions of this regulation not necessary or reasonably practicable, the Regional Inspector may, by an order in writing and subject to such conditions as he may specify therein, grant a relaxation from the provision.

(17) Where coal is stacked on surface, suitable arrangement shall be made for spraying of water or any other fire resistant or suppressant materials on the coal stack at regular intervals so as to prevent spontaneous heating.

(18) Hydraulic fluid which is not fire resistant shall not be used belowground.

(19) Precautions shall be taken to minimise the possibility of hydraulic fluids or oils coming in contact with hot surface, electrical apparatus or cables.

(20) Combustible oils or material shall not be used for filling in electrical equipment.

(21) Notwithstanding anything contained in the sub-regulations (18), (19) and (20), the Regional Inspector may by an order in writing, exempt from use of fire resistant hydraulic fluid in degree-I gassy mine subject to such conditions as he may specify therein.

**138. Precautions after a fire has broken out.**—(1) On the appearance in any part of a mine, of smoke or other signs indicating that a fire or spontaneous heating has or may have broken out, effective steps shall be taken, without delay, to deal with the fire or heating and all persons other than those whose presence in the mine is deemed necessary for dealing with the fire or heating shall be immediately withdrawn from the mine.

(2) No person, other than those required for dealing with or sealing off the fire or heating referred to in sub-regulation (1), shall be admitted in the mine until the fire or heating has been extinguished or effectively sealed off and an examination has been made by the manager or by the assistant manager and the mine has been declared to be safe and a report of every such examination shall be recorded in a bound paged book kept for the purpose and shall be signed and dated by the person making the examination:

Provided that the Regional Inspector may, by an order in writing and subject to such conditions as he may specify therein, permit the employment in the mine of persons other than those required to deal with the fire or heating.

(3) The examination required under sub-regulation (2), shall be made with an approved flame safety lamp and other means of detecting carbon monoxide gas approved by the Chief Inspector.

(4) During the whole time that any work of dealing with or sealing off a fire or heating is in progress –

(a) a competent person shall be present on the spot throughout;

(b) adequate precautions shall be taken to prevent danger to persons from any noxious, asphyxiating or inflammable gases, flame, steam and ejected or rolling down hot material, explosion of water gas, and falling into crevices or pot holes, that may occur in the area on fire;

(c) there shall be kept available, at or near all places belowground:

(i) adequate number of self-rescuers and at least two smoke helmets or other suitable apparatus, approved by the Chief Inspector, for use in emergency;

(ii) an apparatus for detecting carbon monoxide gas approved by the Chief Inspector; and

(iii) a flame safety lamp or other means of detecting carbon dioxide gas and oxygen deficiency, approved by the Chief Inspector.

(5) The manager of every mine shall prepare and establish a detailed scheme for-

(a) the provision and maintenance of suitable fire-fighting arrangements;

(b) the prevention, detection, dealing and control of any heating or fire;

(c) the examination and maintenance of the protective measures taken to control or isolate a fire or heating;

(d) ensuring safety of persons engaged in the said operations,

and the scheme shall be suitably modified and kept updated as the situation warrants.

**139. Equipment for fire-fighting.**—(1) In every mine,—

- (a) unless expressly exempted in writing by the Regional Inspector, adequate quantity of water at sufficient pressure shall be provided to all working places belowground and all other places of fire risk such as coal stocks, spoil heaps containing carbonaceous material and exposed coal surfaces liable to heating, for the purpose of efficient fire fighting;
- (b) fire stations with suitable supply of fire-fighting equipment shall be established and kept maintained at convenient points, both on surface and belowground;
- (c) sufficient supply of sand or incombustible material and suitable portable fire extinguishers in sufficient quantity or automatically operated fire suppression devices shall be provided at—
  - (i) every entrance to a mine or district and at every landing and shaft bottom in use;
  - (ii) every place where timber, grease, oil or other inflammable material is stored;
  - (iii) every engine room, diesel engine maintenance workshop, filling station and storage battery charging station;
  - (iv) on every track-mounted and trackless locomotive, self propelled manriding car and personnel carrier;
  - (v) each permanent and temporary electrical installation;
  - (vi) at locations where welding, cutting or soldering with arc or flame is being done;
  - (vii) every machinery, plant and installations; and
  - (viii) such other special places of fire risk as may be specified by the manager;
- (d) every heavy earth moving machinery used in opencast workings shall be provided with automatically operated fire detection and suppression device or system:

Provided that in case of trucks and dumpers of less than 35 tonne capacity used in opencast mines, it may be sufficient if semi-automatic type fire suppression system has been provided;

- (e) specially designed water foam spray, deluge systems or dry chemicals shall be installed above each belt drive, belt take up, electrical control, gear reducing unit and other strategic locations on the conveyor belt system;
- (f) adequate number of suitable fire extinguishers or automatically operated fire suppression devices shall be provided on continuous mining machines, other face cutting machines, loading machines, roof bolting machines and other hauling machines.
- (2) Soda-acid type extinguishers or water shall not be used for fighting oil or electrical fires.
- (3) Foam type extinguishers shall not be used for fighting electrical fires.
- (4) Fire-extinguishers containing chemicals which are liable when operated, to give off poisonous or noxious gases shall not be provided or used belowground:

Provided that nothing in sub-regulations (2), (3) or (4) shall prohibit the use belowground of fire-extinguishers giving off carbon dioxide when operated.

(5) All types of fire fighting and fire suppression systems including automatic fire detection and suppression systems to be used in machinery and plant including heavy earth moving machineries, materials and chemicals to be used in fire sealing, fighting or suppression systems in mines both on surface as well as belowground shall be of such type, standard and make, as approved by the Chief Inspector by a general or special order.

(6) A competent person shall, once at least in every month, examine all the equipment, material and arrangements provided for fire-fighting and shall discharge and re-fill the fire-extinguishers as often as may be necessary to ensure that these are in proper working order and any deficiency found during any such examination or otherwise shall be immediately remedied.

(7) A report of every examination made under sub-regulation (6) shall be made in a bound-paged book kept for the purpose, duly signed and dated by the person making the examination.

**140. Organisation for fire fighting.**—(1) The owner, agent and manager of every mine shall establish a proper organisation for fire fighting in the mine by installing fire stations at surface and also on every main

haulage roadway belowground at suitable places in the intake airway near the main shaft with adequate fire fighting equipment kept in every such fire station.

(2) Sufficient number of plans shall be prepared showing the fire fighting equipment including the water mains, taps, fire-stations, pumping stations, ventilation system and escape route alongwith containing such other information as may be useful for the purpose of fighting fires, and up-to-date copies of these plans shall be kept available at suitable places both on the surface and belowground.

(3) Adequate number of persons, including all operators of plants, machinery and heavy earth moving machineries, shall be trained in the use of fire-extinguishers and in fire fighting and such persons shall be made familiar with the position of all fire fighting equipment provided in the mine in general and near their places of work in particular.

(4) The manager of every mine shall, with the approval of the Regional Inspector, frame standing orders containing the procedures that may be adopted in giving warnings of fire, timely withdrawal of personnel from the mine and for the conduct of fire fighting operation.

**141. Apparatus for testing for carbon monoxide.**— In every belowground mine there shall be kept at the mine constantly available for use suitable apparatus approved by the Chief Inspector for detecting carbon monoxide gas.

**142. Precautions when a fire exists.**— (1) No person shall be employed in any seam,—

- (a) where a fire or spontaneous heating exists in a lower seam whether such fire has been sealed off by means of fire stoppings or not; or
- (b) where the seam has a common ventilation system with another seam on fire; or
- (c) where the outlets or openings of the seam are within 60 meters of an active fire or spontaneous heating in a higher seam or on the surface in any ash heap or spoil heap or in any other heap or place or any other fire or spontaneous heating which cannot be controlled immediately or where broken ground connected with the seam exists within 60 meters of such fire or spontaneous heating; or
- (d) where the parting, with an overlying seam on fire or in which spontaneous heating has taken place, or with surface containing an active fire or spontaneous heating in any spoil heap or ash heap or in any other heap or place, or with any other fire or spontaneous heating which cannot be controlled immediately, consist of less than 10 meters of hard rock,

except with the previous permission in writing of the Chief Inspector and subject to such conditions as he may specify therein.

(2) In any working mine, in which a fire is known or believed to exist, —

- (a) adequate precautions shall be taken to prevent the passage of air, from any part of the mine or from the surface, into the fire area through any broken strata; and
- (b) no work other than the operations required under clause (a) shall be done in any part of the mine which is not effectively sealed off from any such goaf or broken strata.

(3) In every coal seam, arrangements shall be made once at least every thirty days to ascertain the atmospheric condition behind the stoppings built to seal off the area of old workings, or such goaf, or a fire or spontaneous heating, unless such stoppings are capable of resisting force of an explosion.

(4) Every stopping erected to isolate or control a fire or spontaneous heating belowground or to seal off goaf or an area of old workings shall be numbered, and shall be of adequate strength and so maintained as to prevent any leakage of air or gas through it:

Provided that where water is likely to accumulate behind any such stopping there shall be provided in the stopping a suitable pipe or other device to drain away the water without permitting any leakage such as air or gas, etc.

(5) Every stopping erected in accordance with the provision of sub-regulation (4) and the pillars containing such stoppings, shall be plastered with fire resistant or fire retardant sealant of adequate thickness using high pressure guns so as to completely fill up the cracks, cavities, crevices, joints, slips, fractures and cleats present in the working in order to completely seal off such area, which shall be kept maintained as leak proof.

(6) Where in any mine or part thereof the provisions of sub-regulations (4) or (5) have not been complied with or where in the opinion of the Regional Inspector the steps so taken are inadequate, he may give notice in writing to the owner, agent or manager requiring him to take such protective measures, within such time, as he may specify therein:

Provided that in case of non-compliance with the requirements of the notice under this sub-regulation, the Regional Inspector may, by an order in writing, prohibit until the requirements of the notice have been complied with to his satisfaction, the employment in the mine or part, of any person whose employment is not, in his opinion, necessary for the purpose of complying with the requirements aforesaid.

(7) A competent person shall, once at least in every seven days, inspect all stoppings erected for isolation or control of fire or spontaneous heating belowground to ascertain the general condition of every stopping by checking it for leakage and presence of gas, and the temperature and humidity of the atmosphere outside the stopping.

(8) The competent person shall after carrying out the inspection under sub-regulation (7), place his signature, with date, on a check-board provided for the purpose at a suitable position on the stopping, which shall be maintained for a period of not less than three months, and a report of every such inspection shall also be recorded in a bound paged book kept for the purpose duly signed and dated by the person making the inspection:

Provided that any serious defect revealed by such examination shall without delay be brought to the notice of the manager:

Provided further that the Regional Inspector may, by an order in writing, require the inspection of stoppings to be made at such shorter intervals as he may specify therein.

**143. Precaution against dust.—**(1) The owner, agent or manager of every mine shall take such steps as may be necessary for minimising of emissions of dust and for the suppression of dust which enters the air at any workplace belowground or on surface and for ensuring that the exposure of workers to respirable dust is limited to an extent that is reasonably practicable but in any case not exceeding the limits that are harmful to the health of persons.

(2) For the purposes of this regulation, a place shall not be deemed to be in a harmless state for person to work or pass or remain therein if the eight hours time-weighted average concentration of airborne respirable dust in milligrams per cubic meter of air sampled by dust sampler of a type approved by and determined in accordance with the procedure as specified by the Chief Inspector by a general or special order, exceeds two, where working is being made wholly in a coal seam or where free respirable silica present is less than five per cent. and the value arrived at by dividing the figures of ten with the percentage of free respirable silica present in other cases.

(3) The owner, agent or manager of every mine shall, within three months of the coming into force of these regulations and once at least in every month thereafter or whenever the Regional Inspector so requires by an order in writing, cause the air at every work place where airborne dust is generated, to be sampled and the concentration of respirable dust therein determined:

Provided that, such measurements shall also be made immediately upon the commissioning of any plant, equipment or machinery or upon the introduction of any new work practice or upon any alteration therein that is likely to bring about any substantial change in the level of airborne respirable dust.

(4) The samples drawn under sub-regulation (3) shall as far as practicable, be representative of the levels of dust exposure of work-persons and for this purpose, the sampler shall be positioned on the return side of the point of dust generation and within one meter of the normal working position of but not behind the operator or other worker whose exposure is deemed to be maximum in his working group.

(5) Based on the results of static or personal sampling, the representative dust exposure profiles for different categories of workers shall be estimated by portal to portal monitoring of selected workers whose exposure is deemed to be representative of their working groups.

(6) Samples shall be taken by a person who has been specially trained for the purpose in the sampling equipment and accessories that have been checked to ensure correct maintenance and efficient operation thereof and examined, treated and calibrated on a date which is not earlier than one year.

(7) Respirable dust content of the samples and in case of samples collected from a working other than the working being made wholly in a coal seam, quartz content shall be determined at a laboratory approved in writing by the Chief Inspector in that behalf.

(8) All result of measurements of airborne respirable dust and all other relevant particulars shall be systematically recorded within fourteen days of the date of collection of samples, in a bound paged book kept for the purpose and every entry in the book aforesaid shall be countersigned and dated by the manager within twenty-four hours.

(9) When the dust monitoring results have established that the permissible limit of dust concentrations are exceeded at any place, immediate steps shall be taken to minimise the emission of dust and to notify the Regional Inspector.

(10) If the average concentration of respirable dust in a series of five samples taken in seven successive normal working shifts during the subsequent month exceeds one and a half times the permissible limit, the relevant operation or operations causing excessive dust shall cease.

(11) The operation or operations shall not be resumed or allowed to be carried on until improvements have been made in the prevention and suppression of dust and fresh sampling carried out immediately on resumption of the said operation or operations has established that such improvements have reduced the dust concentration below the permissible limit:

Provided that if the dust prevention and suppression device of any machinery or equipment fails to operate efficiently, the operation of the said machinery or equipment shall likewise cease and shall not be resumed until the defect therein has been rectified:

Provided further that, purely as a contingency measure or as a secondary means of protection in a work situation wherein it is technically not feasible to reduce the respirable dust concentration below the permissible limit or during the time period necessary to install and commission any device or to institute any new work practice for dust prevention or suppression, compliance with the permissible limit of dust may be achieved by remote operation or by job rotation and failing which by the use of suitable dust respirator.

(12) The owner, agent or manager of every mine where need of dust respirators might arise, shall provide dust respirators in sufficient number and at no cost to the concerned work persons for their use; for the dust respirators to be regularly cleaned, disinfected and maintained in efficient working order, and for the proper fitting of and for thorough training of the concerned workers in the need for and correct use of respirators.

(13) To prevent the liberation and accumulation of dust and the propagation of airborne dust, the following provisions shall have effect, namely:-

- (a) dust shall be suppressed as close as possible to its source of formation;
- (b) during any operation of drilling or boring in stone on surface or belowground, -
  - (i) the production of dust shall be reduced by using bits which are sharp and of proper shape, by keeping suitable pressure on the bits and by keeping the holes clear of the cuttings;
  - (ii) except in naturally wet ground, a jet of water shall be directed on to the cutting edge to wet the cuttings or other equally efficient device, approved by the Chief Inspector, shall be provided and kept in operation throughout the drilling or boring operation to prevent the atmosphere being charged with dust and where pneumatic drilling is performed, water shall be turned on before turning on compressed air to the drill:

Provided that where drilling is done by hand, it shall be sufficient if holes are kept constantly moist during such drilling;

- (c) every roadway on surface or belowground, where mobile mining machinery ply, shall be regularly wetted or shall be effectively treated with some other equally efficient agent to reduce dust being raised in the atmosphere to a minimum;
- (d) no plant for the screening or sorting of coal and as far as practicable, no heap of cinder, cement, sand, mortar or other dry and fine material shall be placed within 80 meters of the top of down-cast shaft or intake airway nor shall any such material be so handled as to make it air-borne and drawn into such shaft or such airway;

- (e) in every working belowground, –
- (i) no machinery or equipment which is likely to emit dust in excess of permissible limit shall be operated unless it is equipped with a suitable dust-prevention and suppression device, which shall be properly interlocked with the operating lever or switch, and unless such device is operating efficiently ;
  - (ii) the design, arrangement, materials and condition of picks on every mechanical coal cutter shall be such as to reduce the formation of dust to minimum and no mechanical coal cutter shall be operated unless suitable water sprays or jets of water are directed on the cutting edges thereof so as to damp the cuttings as they are formed;
  - (iii) every working face and the floor, roof and sides of every roadway or airway within 60 meters thereof shall be, unless naturally wet throughout, regularly washed down to prevent accumulation of dust and shall be kept thoroughly wet during the work shifts;
  - (iv) a current of air sufficient to clear away the dust emitted by any machinery or operation and to dilute the dust concentration below the “permissible limit”, shall be maintained by means of general ventilation and if necessary, by local ventilation, so however that, as far as practicable, the velocity of air in any roadway or workplace shall not be such as to raise dust in the atmosphere;
  - (v) after blasting, no person shall enter working places unless sufficient time has elapsed for dust, smoke and fumes to be cleared by a current of air and the broken material shall not be moved unless it has been thoroughly made wet with water;
  - (vi) vehicles, tubs and conveyors used for transport of coal shall be maintained in good condition so as to minimise spillage or leakage and chutes, spiral conveyors, bins, tipplers, conveyor discharge points and skip loading and unloading installations shall be so controlled as to reduce the formation of dust to the minimum; and such material shall also be kept thoroughly wet with water unless it is already wet or other effective means of dust suppression are used; and
  - (vii) unless, owing to special difficulties, exempted in writing by Regional Inspector in that behalf and subject to such conditions as he might specify therein, water in pipes in sufficient quantity and under adequate pressure and independent of any pumping system, shall be provided and maintained so as to get maximum efficiency in allaying of dust;
- (f) no process of crushing, breaking, disintegrating, dressing, sorting, grinding, screening or sieving of coal or any operation incidental thereto, shall be carried out at any mine unless sufficient watering or other appropriate and effective dust control measures, such as, but not limited to isolation, enclosure, exhaust ventilation and dust collection are designed, provided, maintained and used;
- (g) the exhausted air, belowground, which contains dust in excess of the permissible limit shall be efficiently diluted and if necessary filtered so as to reduce the concentration of respirable dust therein below ten per cent. of the permissible limit before being re-circulated into working places;
- (h) every device used for the prevention and suppression of dust produced by any machinery, equipment or process as also for the filtering of the exhausted air and every dust respirator shall be inspected once at least in every seven days and shall be thoroughly examined and tested at least once in every month and the results of every such inspection, examination and test shall be recorded in the register maintained under sub-regulation (8).
- (14) The manager of every mine where airborne dust is generated shall formulate and implement a scheme specifying –
- (a) the location, frequency, timing, duration and pattern of sampling;
  - (b) the instruments and accessories to be used for sampling;
  - (c) the laboratory at which respirable dust content of samples and quartz content shall be determined;
  - (d) the format in which the results of measurements of dust concentration and other particulars are to be recorded;

- (e) the organisation for dust monitoring and for the examination and maintenance of dust prevention and suppression measures and dust respirators; and
  - (f) the manner of making all persons concerned with the implementation of the dust control measures fully conversant with the nature of work to be performed by each in that behalf.
- (15) The Regional Inspector may, where special conditions exist, permit or require by an order in writing and subject to such conditions as he may specify therein, any variation in the foregoing provisions or in the manager's scheme made under sub-regulation (14).
- (16) If any doubt arises as to any matter referred to in this regulation, it shall be referred to the Chief Inspector for decision.

**144. Execution of measures for dust control.**— (1) There shall be maintained at every mine having workings belowground a dust plan on a scale having representative factor of not less than 2000 : 1, clearly showing by distinctive colors, code letters or numbers, the separate areas which—

- (a) are naturally wet;
- (b) require treatment with water indicating the system of water pipe lines laid down for the purpose;
- (c) require treatment with incombustible dust at such intervals of twenty-four hours, seven days, fourteen days, thirty days, three months or other specified period, as the case may be.

The intervals referred to in clause (c) shall be based on the results of analysis of routine mine dust samples collected from the areas concerned.

(2) The areas referred to in sub-regulation (1) shall be clearly demarcated in the workings belowground by means of suitable notice boards or by other suitable means.

(3) Every part of a mine which is not naturally wet throughout or which is not isolated by explosion-proof stoppings shall be treated:

- (a) with fine incombustible dust in such manner and at such intervals as will ensure that the dust on the floor, roof and sides and any support or structure shall always consist of a mixture containing not less than 75 per cent. of incombustible matter in case of coal seams containing less than 30 per cent. volatile matter (on dry ash free basis) and 85 per cent. of incombustible matter in case of coal seam containing more than 30 per cent. of such volatile matter; or
  - (b) with water in such manner and at such intervals as will ensure that the dust on the floor, roof and sides and on any support or structure is always combined with not less than 30 per cent. by weight of water in intimate mixture; or
  - (c) in such manner as the Regional Inspector may approve by an order in writing.
- (4) The incombustible dust used for the purpose of sub-regulation (3) shall be—
- (a) such that it does not contain more than 5 per cent. of free silica;
  - (b) of such fineness and character, that it is readily dispersible into the air and that, when used in places which are not directly wetted by water from the strata, it does not cake but it is dispersed into the air, when blown upon with mouth or by a suitable appliance; and
  - (c) as far as practicable light in colour.

(5) No incombustible dust shall continue to be used if it is found by tests which shall be carried out once at least in every three months, not to comply with the foregoing requirements:

Provided that when the supply of incombustible dust used in a mine is not from a regular source, these tests shall be carried out whenever a fresh supply of incombustible dust is received.

(6) Where any place or part of the mine is to be treated with incombustible dust,—

- (a) before treating with incombustible dust, all coal dust shall be cleaned, as far as practicable from the roof, sides, floor, props, cogs, bars, brattice cloth or any other objects or structure or place on which coal dust may deposit, and all dust so collected shall be removed to the surface within a period of twenty-four hours;

- (b) incombustible dust shall be spread on the objects, structure and places aforesaid in adequate quantity and at such intervals as may be necessary to ensure compliance with the provisions of this sub-regulation;
- (c) the cleaning of coal dust and spreading of incombustible dust shall be carried out in the direction of the flow of the air;
- (d) a sufficient supply of incombustible dust shall be kept readily available at suitable places in the mine, and any deficiency in the supply of dust underground shall immediately be brought to the notice of the manager; and
- (e) incombustible dust stocked at different places and kept on pans or on dust barriers in the mine shall be changed whenever it is no longer readily dispersible or whenever it becomes coated with coal dust, such dust shall be removed.

(7) A daily record of the areas cleaned of coal dust and of the areas treated with incombustible dust or with water and the amount of incombustible dust used shall be maintained in a bound paged book kept of the purpose and every entry in such book shall be signed and dated by the dust in-charge, and countersigned and dated by the manager or the ventilation officer.

(8) The dust control measures shall be carried out under the supervision of a competent person holding a manager's or overman's certificate or a degree or diploma in mining or mining engineering from a university or institution approved by the Central Government, who may be designated as the "Dust In-charge".

(9) No duties with respect to sampling of dust under regulation 145 shall be entrusted to the Dust In-charge, nor any other duties shall be entrusted to such person except with the previous permission in writing of the Regional Inspector:

Provided that in the case of a mine having an average monthly output of less than 5000 tonnes, the Dust In-charge referred to in this regulation can act as the Sampling In-charge referred to in regulation 145.

(10) The Dust In-charge shall also ensure that—

- (a) every part of the mine which, under these regulations, requires treatment with water, is thoroughly drenched or sprayed with water immediately before firing shots and also at intervals during the working hours so as to strictly comply with the provisions of clause (b) of sub-regulation (3);
- (b) every part of the mine which, under these regulations can be treated with incombustible dust, is so treated as to strictly comply with the provisions of clause (a) of sub-regulation (3);
- (c) the arrangements for treating with water or incombustible dust as aforesaid are maintained in good order.

**145. Check on measures for dust control.**—(1) For the purposes of ensuring adequate treatment of coal dust as required under regulations 143 and 144, systematic samples of mine dust shall be collected, tested and analysed at intervals and in the manner specified in this regulation.

(2) Every return airway as lies within two hundred meters of the last working face and every haulage, tramping or conveyor roadway which is not naturally wet throughout, shall be divided into zones not longer than one hundred and fifty meters each:

Provided that where in a mine some parts are being treated with water and others with incombustible dust, the zones shall be so formed that in each zone only one system of treating coal dust is being followed.

(3) Every zone formed under sub-regulation (2) shall be divided into three equal sections, each not exceeding 50 meters in length.

(4) Every zone formed under sub-regulation (2) shall be given a distinct number and every section formed under sub-regulation (3), the code letters a, b or c in a systematic manner.

(5) The zones and sections, with their numbers and code-letters, shall be clearly marked on a plan prepared on a scale having a representative factor of not less than 2000:1 hereinafter called the "sampling plan", clearly showing the areas of the mine that are naturally wet throughout.

(6) Every zone and section shall also be distinctly demarcated in the workings below ground by means of suitable notice boards or by other suitable means.

(7) Representative samples of dust shall be collected once in every thirty days from every zone, and for this purpose samples may be collected from different sections such as a, b or c in rotation such that, during every such period of thirty days, all samples are collected from the section a or section b or section c.

(8) Representative samples referred to in sub-regulation (7) shall be collected in a systematic manner irrespective of the cleaning and treating operations but shall in no case be collected within a period of twenty-four hours of cleaning and treating of any zone, section or part thereof.

(9) If the representative sample of mine dust from any particular zone shows that the provisions of sub-regulation (3) regulation of 144 have not been complied with, immediate steps shall be taken to clean and treat whole of the zone so as to comply with the provisions of the said regulation.

(10) In every travelling roadway, and in every airway other than those specified in sub-regulation (2), samples shall be taken in such a systematic manner and at such intervals not exceeding three months, to maintain proper check on the efficiency of the treatment thereof in terms of sub-regulation (5) of regulation 144.

(11) Samples of dust shall be collected from roof, sides and floor, and shall comprise of dust collected to a depth not exceeding five millimeters on the roof and sides, and to a depth not exceeding 10 millimeters on the floor.

(12) Where a zone is treated with incombustible dust, the samples shall be collected by a method of strip sampling, the strips being as near as possible of equal width of not less than 10 centimeters, and at uniform intervals not exceeding five meters.

(13) Where a zone is treated with water, the samples shall be collected by a method of "spot sampling" such that a spot-collection of dust is made for every meter of the length sampled, as nearly as possible at regularly spaced intervals along a zigzag path.

(14) In collecting the samples, the strips shall be extended into or spot collections made from any cross galleries up to the air-stoppings, if any.

(15) Each sample shall be well-mixed and then reduced in bulk (by quartering) to a weight of not less than 30 grams and each sample so reduced shall be packed in a moisture-proof container which shall be suitably labeled or marked.

(16) The sampling operations shall be carried out under the supervision of a competent person holding a manager's or overman's certificate or degree or diploma in mining or mining engineering from a university or institution approved for the purpose, who shall be designated as the "Sampling Incharge" and no other duties shall be entrusted to this person except with the previous permission in writing of the Regional Inspector.

(17) Within seven days of taking of each sample, it shall be sent for analysis and the result of such analysis, immediately on its receipt, shall be recorded in a bound-paged book kept for the purpose and every entry in this book shall be signed and dated by the sampling incharge and be countersigned and dated by the manager.

**Explanation.-** A place in a mine is considered naturally wet throughout, if it is moist enough to keep the coal dust present, at any time, on the roof, sides and floor and other objects at that place so that it is always combined with not less than 30 per cent. by weight of water in intimate mixture.

**146. Stone dust barriers.-** (1) In every gassy seam of the second or third degree or in the development workings in a gassy seam of the first degree in which there is likelihood of occurrence of inflammable gas in dangerous quantities, additional precautions shall be taken by providing stone dust barriers to prevent an ignition or explosion from extending from one part of the mine to the other.

(2) Every stone dust barrier shall be of such a type as may be approved by the Chief Inspector by a general or special order in writing and shall be maintained in such manner as may be specified in the said order :

Provided that the Chief Inspector may permit in any mine or part thereof alternative precautionary measures to be taken in lieu of stone dust barriers.

(3) If any dispute arises as to whether stone dust barriers or other alternative precautionary measures are required to be provided in any part of a gassy seam of the first degree, under sub-regulation (1), the question shall be referred to the Chief Inspector who shall decide the same.

**147. Precautions against eruption of gas.**— Where any working is extended to within 30 meters of any goaf or disused workings containing or likely to contain an accumulation of inflammable or noxious gases, there shall be maintained at least one bore-hole not less than 1.5 meters deep in advance of the working and the operation of drilling the bore hole shall be carried out under the supervision of a competent person, and no lamp or light other than an approved safety lamp or torch shall be used in any such working.

**148. Recovery and exploratory work.**— (1) After an explosion of inflammable gas or coal dust has occurred in a mine, only such persons as are authorised by the manager or by the principal official present at the surface, shall be allowed to enter the mine.

(2) Where it is intended or proposed to reopen a mine or part thereof, which has been isolated, sealed off or flooded with water to deal with a fire or spontaneous heating, the owner, agent or manager shall not less than thirty days before the commencement of such work, give notice in writing of such intention or proposal to the Regional Inspector and the Chief Inspector.

(3) Where it is intended to carry out any exploratory work in a mine or part belowground likely to contain irrespirable atmosphere,-

- (a) all work shall be done under rescue cover only;
- (b) no party of less than three persons shall be allowed to proceed to carry out such work; and
- (c) every such party shall carry a suitable apparatus approved by the Chief Inspector for detecting carbon monoxide gas and also an approved flame safety lamp.

**149. Danger from surface water.**— (1) Where any mine or part thereof is so situated that there is any danger of inrush of surface water into the mine or part, adequate protection against such inrush shall be provided and maintained, and whether such protection is adequate or not may be determined by the Chief Inspector, whose decision shall be final.

(2) Except with the previous permission of the Chief Inspector in writing and subject to such conditions as he may specify therein and subject to the provisions of sub-regulation (1), every entrance into a mine shall be so designed, constructed and maintained that its lowest point (which means the point at which a body of rising water on surface can enter the mine) shall be not less than 1.5 meters above the highest flood level at that point.

(3) Every year, during the rains constant watch shall be kept on the flood levels on the surface of the mine and if at any time the levels cross the highest levels earlier recorded, such levels shall be marked by permanent posts along the edges of water and the new highest levels thus observed shall be recorded with the date as the highest flood level on the plans by an actual survey:

Provided that the highest flood level shall not be plotted on plans by interpolations.

(4) If there are water dams or reservoirs built across rivers and water courses on the upstream side of the mine, arrangements shall be made for communication between appropriate authorities for the purpose of ascertaining the quantity and timing of water released from the dams which is likely to endanger safety of the mine and arrangement for similar communication shall be made when water level rises on the upstream side which is likely to endanger any mine.

(5) In every mine which is likely to be endangered by surface water, the highest flood levels and danger levels at least 1.2 meters or as required by the Regional Inspector, below the highest flood level, shall be permanently marked at appropriate places on the surface and whenever water rises towards the danger level at any place, all persons shall be withdrawn from the mine sufficiently in advance and for this purpose adequate arrangements of quick communication to all parts of the mine by effective systems shall be provided and maintained.

(6) No working shall be made in any mine vertically below-

- (a) any part of any river, canal, lake, tank or other surface reservoir; or
- (b) any spot lying within a horizontal distance of 15 meters from either bank of a river or canal or from the boundary of a lake, tank or other surface reservoir,

except with the previous permission in writing of the Chief Inspector and subject to such conditions as he may specify therein.

(7) Every application for permission under sub-regulation (6) shall be accompanied by two copies of a plan and section showing the existing position of the workings of the mine, the proposed layout of workings, the depth of the workings from the surface, the position and depth of any goaves in every seam in the neighborhood, all faults, dykes and other geological disturbances and such other particulars as may affect the safety of the mine or of the persons employed therein.

**Explanation.**— Where sand or alluvium are lying in the course of a river, canal, lake, tank or reservoir, the depth from the surface shall be reckoned from the surface of hard ground underlying such sand or alluvium.

(8) All workings made under sub-regulation (6) shall be clearly demarcated belowground.

(9) A competent person shall, once at least in every fourteen days during the rainy season and once at least in every thirty days during other periods of the year, examine every protective measure provided under sub-regulations (1), (2), (3), (4) and (5), whether in use or not, for their stability, and a report of every such examination shall be recorded in a bound paged book kept for the purpose, which shall be signed and dated by the person making the examination and countersigned and dated by the manager.

(10) The protective measures and workings shall also be inspected, once at least in every quarter by the manager personally.

**150. Danger from underground inundation.**— (1) Proper provision shall be made in every mine to prevent eruption of water or other liquid matter or any material that is likely to flow when wet from the workings of the same mine or of an adjoining mine and to prevent accidents while drilling bore-holes for probe or release of a body of water or other liquid matter or any material that is likely to flow when wet.

(2) Where work is being done in –

- (i) any seam or section below another seam or section; or
- (ii) any place in a seam or section, which is at a lower level than any other place in a lower seam or section; or
- (iii) any place in a seam approaching a fault passing through an upper seam or section, which contains or may contain an accumulation of water or other liquid matter or any material that is likely to flow when wet; or
- (iv) any water-bearing strata,

all useful information including the position, extent and depth of the above mentioned features shall be acquired and kept recorded and a scheme of working designed to prevent eruption of water or other liquid matter or any material that is likely to flow when wet shall be prepared and put into operation.

(3) Without prejudice to the requirement of sub-regulation (1) and sub-regulation (2), no working which has approached within a distance of 60 meters of any other working (not being a working which has been physically examined and found to be free from accumulation of water or other liquid matter or any material that is likely to flow when wet), whether in the same mine or in an adjoining mine, shall be extended further except with the prior permission in writing of the Chief Inspector and subject to such conditions as he may specify therein.

For the purposes of this sub-regulation, the distance between the said workings shall mean the shortest distance between the workings of the same seam or between any two seams or sections, as the case may be, measured in any direction whether horizontal, vertical or inclined.

(4) Every application for permission to extend any working referred to in sub-regulation (3) shall be accompanied by two copies of the plan and section showing-

- (a) the outlines of all such disused or abandoned workings in relation to the working approaching them and also the depth of such disused or abandoned workings from the surface;
- (b) the outlines, the layout and the method of the proposed working for which permission is sought;
- (c) the faults, dykes and other geological disturbances in relation to workings specified in clause (a) or (b); and

(d) any other information that is available with the management and other particulars or information that may be required by the Chief Inspector.

(5) When permission is granted to extend any working referred to in sub-regulation (3) or sub-regulation (6), it shall be extended strictly in accordance with the plan and the method approved under, and the conditions specified in such permission; and there shall be no variation therefrom unless such variation is again approved by the Chief Inspector.

(6) Whenever seepage of water which is not normal to the seam is noticed at any place in any working or if there be any such suspicion or doubt, such working shall immediately be stopped and the Chief Inspector and the Regional Inspector shall forthwith be informed of such seepage and such working shall not be extended further except with the prior permission in writing of the Chief Inspector and subject to such conditions as he may specify therein.

(7) The height and width of any working referred to in sub-regulation (3) or sub-regulation (6) shall not exceed 2.4 meters and there shall be maintained at least one bore-hole near the centre of the working face, and sufficient flank bore-holes on each side and where necessary, bore-holes above and below the working at intervals of not more than five meters.

(8) All such bore-holes referred under sub-regulation (7) shall be drilled sufficiently close to each other to ensure that the advancing face will not accidentally hole through into a working containing water or liquid matter or any material that is likely to flow when wet and shall be constantly maintained at sufficient distance in advance of the working and such distance shall in no case be less than three meters.

(9) The precautions under this regulation shall be carried out under the direct supervision of an official, having Manager's Certificate or Overman's Certificate specially authorised for the purpose.

(10) A record showing the exact height and width of such workings, the number of bore-holes driven, the length of each bore-hole, the places at which and the direction in which each bore-hole was driven, shall be maintained by the official referred to in sub-regulation (9) in a bound paged book kept for the purpose and the entries made therein shall be signed and dated by such competent person and shall be countersigned and dated by the manager every day.

(11) A plan and section of the working referred to in sub-regulation (10), showing the particulars referred therein shall be prepared and maintained and they shall be brought up to date at least once in every fifteen days.

(12) Unless specific relaxation is granted by the Chief Inspector in writing, the provisions of sub-regulations (7), (8) and (9), shall be strictly complied with while extending any working referred to in sub-regulation (3) or sub-regulation (6), whether or not the permission granted to extend such workings requires compliance with all or any of the provisions of sub-regulations (7), (8) or sub-regulation (9).

(13) If the Chief Inspector is satisfied that the conditions in any mine or part thereof are such as to render compliance with all or any of the provisions specified in sub-regulations (7), (8) or sub-regulation (9), unnecessary or impracticable, he may, by an order in writing and subject to such conditions as may be specified therein, relax, vary or dispense with all or any of the conditions and requirements contained in those sub-regulations, and, if he is of the opinion that the conditions at any mine or part thereof are such as to require additional precautions to be taken, he may by an order in writing require that such additional precautions besides those specified in those sub-regulations shall be taken.

**151. Intentional flooding.**—(1) When the owner, agent or manager intends or proposes, by introducing water from the surface or from any other part of the mine or from an adjacent mine, to flood any part of the workings of his mine, he shall give, in writing, not less than fourteen days notice of such intention or proposal to the Chief Inspector and the Regional Inspector and to the management of all adjoining mines and of such other mines as might be affected by such flooding:

Provided that the Regional Inspector may, by an order in writing and subject to such conditions as he may specify therein, permit such operations to be commenced on any day prior to the expiry of the said notice period of fourteen days:

Provided further that the Regional Inspector may, by an order in writing, either prohibit any such operation or require that such operation shall not be commenced until such precautions as he may specify therein, have been taken to his satisfaction.

(2) If the operations in respect of which notice is given under sub-regulation (1) are not commenced within sixty days from the expiry of the said notice period of fourteen days, the notice shall be deemed to have lapsed and the provision of the sub-regulation (1) shall apply as if no such notice had been given.

**152. Construction of reservoir, water dam, etc.—**(1) Where in any mine, it is intended to construct a reservoir, dam or other structure to withstand a pressure of water or other material which will flow when wet, or to control an inrush of water, the owner, agent or manager shall give in writing not less than fourteen days notice of such intention to the Regional Inspector, which shall be accompanied by two copies of plans and sections showing the design and other details of the proposed construction:

Provided that where the safety of the mine or of the persons employed therein is seriously threatened, the provisions of this regulation shall be deemed to have been complied with if the said notice is given to the Regional Inspector as soon as the work of construction is commenced.

(2) The Regional Inspector may, by an order in writing, require such modification or alteration to be made in the design of any such reservoir, dam or structure, as he may specify therein.

## CHAPTER XII

### VENTILATION

**153. Standard of ventilation.—**(1) It shall be the duty of the owner, agent or manager of every mine to take such steps as are necessary to constantly provide in all parts of the mine belowground which are not sealed off, adequate ventilation to clear away smoke, steam and dust, to dilute gases that are inflammable or noxious so as to render them harmless, to provide air containing sufficient oxygen and to prevent such excessive rise of temperature or humidity which may be harmful to the health of persons.

(2) For the purposes of securing adequate ventilation as specified in sub-regulation (1), the owner, agent and manager shall ensure that—

- (a) in every ventilating district, not less than six cubic meters per minute of air per person employed in the district on the largest shift or not less than 2.5 cubic meters per minute of air per tonne of daily output, whichever is larger, passes along the last ventilation connection in the district which means the in-bye most gallery in the district along which the air passes;
- (b) at every place in the mine where persons are required to work or pass, the air does not contain less than 19 per cent. of oxygen or more than 0.5 per cent. of carbon dioxide or any noxious gas in quantity likely to affect the health of any person;
- (c) the percentage of inflammable gas does not exceed 0.75 in the general body of the return air of any ventilating district and 1.25 in any place in the mine;
- (d) the wet bulb temperature in any working place does not exceed 33.5 degrees centigrade, and where the wet bulb temperature exceeds 30.5 degrees centigrade, arrangements are made to ventilate the same with a current of air moving at a speed of not less than one meter per second; and
- (e) for ensuring compliance with the provisions of clauses (b), (c) and (d) of this sub-regulation, air samples and temperature readings shall be taken at least once in every thirty days and the results shall be recorded in a bound paged book kept for the purpose:

Provided that at any mine or part, where special conditions exist, the Chief Inspector may, by an order in writing and subject to such conditions as he may specify therein, approve a ventilation scheme in variance with the aforesaid provisions.

(3) In every mine, ventilation as specified in sub-regulation (2) shall be produced by a suitable mechanical ventilator.

(4) If with respect to any mine or part thereof the Regional Inspector is of the opinion that the ventilation is not adequate, he may by an order in writing, require the installation and maintenance of such mechanical ventilator as is capable of producing adequate ventilation in the mine or part.

**154. Main mechanical ventilator, its drive and fittings.—**(1) Every main mechanical ventilator in a mine shall be capable of producing adequate ventilation in the mine or part thereof, and shall be installed on the surface at a distance of not less than 10 meters from the opening of the shaft or incline at any point.

Provided that the provisions of this sub-regulation in so far as they require the installation of the main mechanical ventilator at a distance of not less than ten metres from the opening of the shaft or incline, shall not apply to a mechanical ventilator installed on the surface before the 24<sup>th</sup> day of October, 1957.

(2) If electricity is used for driving the mechanical ventilator, electrical energy shall be supplied to the drive motor of the ventilator through a separate circuit from the main distribution point of the mine.

(3) In every belowground working, two different sources of power to the mechanical ventilator shall be provided.

(4) There shall be provided and maintained at every main mechanical ventilator, a recording instrument to continuously register the pressure developed.

(5) Every main mechanical ventilator shall be so designed, installed and maintained that the current of air can be reversed when necessary.

(6) At every shaft or incline ordinarily used for lowering or raising of persons or materials where a mechanical ventilator is installed, there shall be provided a properly constructed air lock.

**155. Restriction on installation of mechanical ventilator belowground.**— (1) In every fiery seam or gassy seam of the second or third degree, the following provisions shall have effect in relation to the installation belowground of booster fans, namely:—

- (a) no booster fan shall be installed belowground in the mine unless the manager is satisfied, as a result of a survey of the ventilation of every part of the mine liable to be affected, that such installation is necessary or expedient for the proper ventilation of the mine and that it should be installed; and
- (b) seven days' prior notice of every such installation under clause (a), together with particulars of the survey aforesaid, shall be sent to the Regional Inspector.

**Explanation.**— For the purposes of this regulation, it is clarified that the shifting of a booster fan from one place to another shall be deemed to be an installation of a booster fan.

(2) The Regional Inspector may at any time, by an order in writing, require the use of any booster fan installed belowground in the mine to be discontinued.

**156. Installation and maintenance of mechanical ventilator.**— (1) In every belowground coal mine where a booster or auxiliary fan is electrically driven, the drive motor, unless it is so constructed, installed, operated and maintained as to prevent the risk of open sparking, shall not be placed in a return airway.

(2) The installation and maintenance of every mechanical ventilator and booster fan shall be supervised and controlled by a competent person appointed for the purpose.

(3) A competent person appointed for maintenance of mechanical ventilator and booster fan shall once at least in every seven days, examine every mechanical ventilator and booster fan in use and shall record the results of such examination in a bound paged book kept for the purpose and any serious defect revealed by such examination shall without delay be brought to the notice of the manager.

(4) Except in an emergency, no person shall start, stop, restart, remove or in any way alter, repair or interfere with any ventilator or booster fan, except by or on the written authority of the manager or other official authorised in writing in this behalf.

(5) The written authority referred to under sub-regulation (4) shall clearly specify the conditions under which a ventilator or booster fan shall be started, stopped or restarted, the period for which it can be stopped and the procedure for removal, repair, alterations or interference with such fans.

(6) Particulars of every alteration and every stoppage, including any stoppage beyond control, together with the duration thereof shall be recorded by the competent person appointed under this regulation, in a bound paged book kept for the purpose:

Provided that whenever a mechanical ventilator or a booster fan has been stopped for any reason whatsoever, the competent person shall immediately record the time of stoppage in the aforesaid book and send it to the manager or the person authorised in this behalf for his appraisal and the manager, or the person authorised, as the case may be, shall sign the entry with date in the bound paged book in respect of the stoppage.

Provided further that when the stoppage of mechanical ventilator or a booster fan has been brought to the notice of the official other than the manager or person authorised in this behalf, the said official shall immediately inform the fact in writing to the manager or in his absence, to any person authorised in this behalf or the official superior to the manager, about such stoppage and the manager or such person or superior official, as the case may be, shall acknowledge in writing the receipt of such information sent to him and shall, without prejudice to the standing order under regulation 157, take such action as may be expedient for the safety of persons employed in the mine and the details of every action thus taken by him shall be recorded in the aforesaid book.

(7) The manager or the person authorised or the senior official, referred to in the sub-regulation (6), on being informed or coming to know of the stoppage of a mechanical ventilator or a booster fan, shall decide about disconnecting electric supply to the mine and the extent of such disconnection and the details of such disconnection shall be entered in the bound paged book kept for the purpose:

Provided that in the case of stoppage of the mechanical ventilator or the booster fan, the electrical supply or the other source of drive to any auxiliary fan, if installed, shall be disconnected immediately by an arrangement of sequence control, or other effective arrangement.

(8) (a) In every mine in which a mechanical ventilator is in use, the quantity of air shall, once at least in every fourteen days, be measured-

- (i) in every main intake and return airway of every seam or section, as near as practicable to the entrance to the mine;
- (ii) in every split, as near as practicable to the point at which the split commences;
- (iii) in every ventilating district, as near as practicable to the point where the air is sub-divided at the end of a split and also where it enters the first working place; and
- (iv) any other point that the Regional Inspector may, by an order in writing, specify,

(b) The measurements referred to in clause (a) shall be entered in a bound paged book kept for the purpose:

Provided that in a non-fiery seam or a gassy seam of the first degree it shall be sufficient to take the air measurement once in every thirty days.

(9) The measurements referred to in sub-regulation (8) shall also be taken and recorded whenever the system of ventilation is so altered as to substantially affect or likely to affect the ventilation of the mine.

(10) Every such ventilator or fan shall be in charge of a competent person appointed for the purpose, who shall not be entrusted with any other additional duties which may interfere with his duties as in-charge of ventilator or fan, as the case may be.

**157. Standing orders.**— (1) The manager of every mine in which a mechanical ventilator other than an auxiliary fan is installed shall submit, within a period of thirty days of the installation to the Regional Inspector, standing orders specifying the action that shall be taken with respect to the withdrawal of persons from the mine or part thereof in the event of a stoppage of the ventilator.

(2) The Regional Inspector may, by an order in writing, approve the standing orders referred to in sub-regulation (1), either in the form submitted to him or with such additions and alterations as he may think fit and the standing orders so approved shall be enforced at the mine.

(3) A copy of the standing orders in English and other local language understood by majority of the persons employed in the mine shall be displayed at conspicuous places in the mine, both above and belowground.

**158. Splits and airways.**— (1) For the purposes of ventilation, every mine shall be divided into such number of districts or splits as to ensure that separate current of fresh air is made available in every such district or split.

(2) The intake air shall be so arranged as to travel away from all stagnant water.

(3) In every ventilating district there shall be provided two independent intake airways one of which shall be used as a travelling roadway:

Provided that if the Regional Inspector is satisfied that compliance with this regulation is not reasonably practicable, he may, by an order in writing and subject to such conditions as he may specify therein, grant exemption from the provisions thereof.

(4) Every connection between a main intake airway and a main return airway shall, until it is no more required and has been sealed off, be provided with at least two doors so spaced that whenever one door is opened, the other door can be kept closed and steps shall be taken to ensure that at least one of the doors is always closed.

Provided that any such connection which is no more required shall be effectively sealed.

**159. Brattices, doors, stoppings and air-crossings.**—(1) There shall be provided and maintained in every mine, such number of air-crossings, stoppings, doors, brattices and other devices as may be adequate to ensure compliance with the provisions of regulation 153.

(2) In case of any doubt as to the adequacy of such ventilation devices, it shall be referred to the Chief Inspector for decision.

(3) The space between the frame of every ventilation door and the roof and sides of the roadway shall be built up with masonry or concrete, not less than 25 centimeters in thickness.

(4) Every ventilation door shall be self-closing and whenever opened, it shall be closed as soon as possible, and shall not be propped or fixed so as to remain open.

(5) If the ventilation door is required to be frequently kept open for the passage of men or material, there shall be throughout every working shift, a door attendant at the door.

(6) If a door is not in use, it shall be taken off its hinges and placed in such position that it shall not cause any obstruction to the air current.

(7) Every stopping between the main intake and main return airways shall be constructed of masonry or brickwork or of concrete without reinforcement, not less than 25 centimeters in thickness, and if constructed of properly reinforced concrete, not less than 15 centimeter thickness or such greater thickness as may be required by the Regional Inspector, and shall be faced with a sufficient thickness of lime or cement plaster to prevent leakage of air.

(8) In case of a mine having problems of fires or spontaneous heating along with the working of coal seams of degree two or degree three gassiness, the Chief Inspector may by an order in writing and subject to such conditions as he may specify therein, require construction of explosion proof ventilation stoppings between the main intake and the main return airways and at such other places as may be specified by him.

(9) Every stopping in use shall be kept accessible for inspection.

(10) The partitions and walls of every air-crossing shall be not less than 25 centimeters in thickness if constructed of masonry or of concrete not properly reinforced, and not less than 15 centimeters in thickness if constructed of properly reinforced concrete.

(11) Every air-crossing, ventilation stopping, door or brattice shall be maintained in efficient working order and good repair.

(12) A competent person shall, once at least in every fourteen days, examine every airway, air crossing, ventilation stopping and door in use, and shall record the result thereof in a bound paged book kept for the purpose, and shall sign the same and date his signature.

**160. Velocity of air current.**—The velocity of air current measured in meters per minute at the place shown in column (2) shall be not less than that shown in column (3) for the different seams shown in column (1) of the Table given below:-

## TABLE

Degree of gassiness	Place where velocity of air is to be measured	Velocity of air
(1)	(2)	(3)
First, second or third degree	Immediate outbye ventilation connection from the face.	30
First or second degree	(i) 4.5 meters from any face whether working or discontinued on the intake side of the brattice or partition. (ii) 7.5 meters outbye of the discharge end of an air pipe. (iii) At the maximum span of a longwall face.	30 15 60
Third degree	(i) 4.5 meters from any face whether working or discontinued on the intake side of the brattice or partition. (ii) 7.5 meters outbye of the discharge end of an air pipe. (iii) At the maximum span of a longwall face:	45 25 75

Provided that if in the opinion of the Chief Inspector or the Regional Inspector the compliance with the above provision is not practicable or not necessary, he may, by an order in writing and subject to such conditions as may be specified therein exempt partially or totally any mine from the provisions of this regulation.

**161. Auxiliary fans.-** (1) Every auxiliary fan:

- (a) shall be installed, located and worked in such a manner that-
    - (i) a sufficient quantity of air shall, at all times, reach it so as to ensure that it does not re-circulate air; and
    - (ii) there is no risk of air, which it circulates, being contaminated by any substantial quantity of inflammable or noxious gases or dust;
  - (b) shall, whether driven electrically or otherwise, be efficiently connected with earth so as to avoid the accumulation of an electrostatic charge; and
  - (c) shall have an air-duct for conducting the air to or from the face or blind end, which shall be so maintained as to minimise any leakage of air and to ensure an adequate supply of air to within 3.0 meters of the face or blind end.
- (2) No auxiliary fan shall be started, stopped, removed, replaced or in any way altered or interfered with, except by or on the authority of an official.
- (3) No person shall enter or remain in any place which is dependent for its ventilation on an auxiliary fan, unless such fan is operating efficiently:

Provided that whenever the ventilation of any such place has been interrupted, whether by the stoppage of the fan or otherwise, no person shall so enter or remain therein, except for the purpose of restoring the ventilation, unless the place has been examined by a competent person and declared safe.

- (4) In every belowground working, conditions for installation of two or more auxiliary fans in the same ventilating district or split shall be specified by the Chief Inspector in a general order.

**162. Precautions against fire in ventilation appliances.-** (1) Every mechanical ventilator on the surface shall be installed in a suitable fire proof housing.

- (2) In the case of every fan other than an auxiliary fan installed belowground, the coal or other carbonaceous material exposed in the sides, roof and floor shall be covered with masonry or other fire

resistant sealant as protection against fire, for a distance of not less than 5 meters in every direction from the fan.

(3) The covering of every shaft sealed off or covered for ventilation purposes, every fan drift, duct or casing and every part of a mechanical ventilator or fan within such drift, duct or casing, and every air-crossing and ventilation door shall be constructed of fire-proof material:

Provided that this regulation shall not apply to the small lid of a shaft-covering operated by the rope capel.

**163. Ventilation plans to be brought up-to-date.**— The manager shall ensure that as soon as any alteration is made in the ventilation of a mine involving the erection or removal of an air-crossing or stopping or the alteration in the position or installation of a ventilator or fan belowground, the erection, removal, alteration or installation, as the case may be, is notified to the surveyor who shall forthwith make necessary alterations on the ventilation plan maintained under regulation 65.

**164. Obstructions, interruptions and alterations.**— (1) No material or debris shall be allowed to accumulate in any level, drive, crosscut, roadway or any other part of the workings belowground so as to impede the ventilation.

(2) Every roadway and working belowground which is not adequately ventilated shall be fenced or barricaded so as to effectively prevent persons entering the same.

(3) If any person becomes aware of any obstruction in, or interference with or deficiency of ventilation in any mine or part thereof, he shall,—

- (a) if it falls within his power to remedy such obstruction, interference or deficiency, immediately take steps to do so; or
- (b) cease all work at that place, and shall forthwith inform his superior official of such obstruction, interference or deficiency.

(4) Whenever there is any interruption of ventilation by the stoppage of any mechanical ventilator, including an auxiliary fan installed belowground, the official in charge of the mine or part shall immediately take precautionary measures including withdrawal of men, if necessary, against dangers that may arise out of non-compliance with the provisions of regulation 153, to restore the ventilation in the mine or part thereof.

(5) No person shall alter the general system of ventilation in any mine or part except with the written authority of the manager:

Provided that in case of an emergency, an official of the mine may carry out such alteration as he may deem necessary for the safety of persons, but he shall as soon as possible inform his superior official and the manager about the same in writing.

**165. Precautions against gas during de-watering and re-opening.**— (1) No disused mine or shaft shall be de-watered except under the constant supervision of a competent person and during such de-watering, approved safety lamps or torches shall be exclusively used, and there shall also be kept burning at every place where persons are at work, at least one approved flame safety lamp.

(2) The first inspection of a mine or part which is re-opened after discontinuance of mining operations for a period exceeding seven days and of any part of a mine after being de-watered, shall be made by a competent person with an approved flame safety lamp or other approved apparatus for determining presence of inflammable or noxious gases and deficiency of oxygen and during such inspection, no additional light or lamp other than an approved electric torch or lamp shall be used.

(3) The result of every such inspection shall be recorded in a bound paged book kept for the purpose, and shall be signed and dated by the persons making the inspection, and countersigned and dated by the manager.

**166. Precautions against inflammable and noxious gases.**— (1) For the purpose of this regulation, inflammable gas shall be deemed to have been found or detected when it is indicated—

- (i) by a methane detector to be 0.1 per cent. or more in case of mine having degree one gassy seams;
- (ii) by a methane detector to be 0.5 per cent. or more in case of mine having degree two seams;

- (iii) by the lowered flame of a flame safety lamp or, where methane detectors are used, they indicate one and a quarter per cent. or more of inflammable gas in case of mine having degree three gassy seams.
- (2) When any person detects the presence of inflammable gas, he shall not brush or waft it out, but shall immediately withdraw from the place and shall inform his superior official about the same.
- (3) Where in any place in a mine, inflammable or noxious gas is detected,-
  - (a) all persons shall be withdrawn from the place;
  - (b) the place shall be immediately fenced off so as to prevent persons inadvertently entering the same,

and the competent person in charge shall, without delay, take steps to remove the gas by improving the ventilation.

(4) During the removal of such gas under sub-regulation (3), all persons, except those necessary for such removal, shall be withdrawn from the return side of the ventilating district in which the gas has been detected unless the quantity of gas is, in the opinion of the competent person, so small that such withdrawal is not necessary:

Provided that where the danger arises from the presence of inflammable gas, no naked light shall be used in the ventilating district in which the gas is detected.

(5) No person shall be re-admitted into the place where the gas was detected until a competent person has examined the place and has reported that the place is free from gas.

(6) Every examination referred to in sub-regulation (5) shall be made with a flame safety lamp or a suitable detector approved by the Chief Inspector and, in the case of noxious gas, also with suitable means of detecting carbon monoxide gas approved by the Chief Inspector.

(7) Particulars of every occurrence referred to in sub-regulation (2) and of every examination made under sub-regulation (5), together with a statement as to where and when the gas was found and when it was removed, and in case of inflammable gas, the percentage thereof shall be recorded in a bound paged book kept for the purpose; and every such entry shall be signed and dated by the competent person making the report and countersigned and dated by the manager.

**167. Inspection of unused working for gas.**— (1) In any fiery seam or gassy seam of the second or third degree or where the Regional Inspector may require by an order in writing, all unused working which have not been sealed off, shall, once at least in every seven days be inspected by a competent person for the presence of inflammable or noxious gas.

(2) A report of every inspection referred to in sub-regulation (1) shall be recorded in a bound paged book kept for the purpose and shall be signed and dated by the person who made the inspection.

**168. Safety lamps to be used in belowground mines.**— No lamp or light other than an approved safety lamp or torch or other installation permitted under the Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010 shall be used or permitted to be used belowground in any mine:

Provided that the Chief Inspector may, by an order in writing and subject to such conditions as he may specify therein, exempt any mine or part thereof from the operation of this regulation on the ground that on account of its special character the use of safety lamps is not necessary therein.

#### **169. Determination of percentage of inflammable gas and of environmental conditions.**

(1) Where electric energy is used in any ventilating district, determination shall be made of the percentage of inflammable gas present in the general body of air and the following provisions shall apply in respect of such determination, namely:-

- (a) the determination shall be made by a competent person either by means of an apparatus of a type approved for the purpose by the Chief Inspector, or by analysis of samples of air:

Provided that if determinations are made by the analysis of air, the samples shall be analysed within three days of the taking thereof:

Provided further that no apparatus as aforesaid shall be used unless it has been calibrated by its manufacturer or other approved agency within such period of time as specified from time to time by the Chief Inspector;

- (b) the determination shall be made or samples of air taken at suitable point fixed by the manager, on the intake side of the first working place and on the return side of the last working place in the district:

Provided that where the Regional Inspector is of the opinion that the location of any such point is unsuitable, he may, by an order in writing, require the manager to fix some other point or points in substitution thereof;

- (c) the determination shall be made or samples of air taken, as the case may be, once at least in every seven days, so however that –

- (i) if any determination shows the percentage of inflammable gas to exceed 0.8, determination shall be made or samples of air taken at intervals not exceeding twenty-four hours for so long as such content exceeds that percentage and for the seven next following days, unless the Regional Inspector otherwise permits by an order in writing and subject to such conditions as he may specify therein; and

- (ii) if the determination made during the thirty days immediately preceding any day have shown the percentage of inflammable gas to be below 0.6, it shall be sufficient to make such determination or take such samples, once in every thirty days for so long as such content does not exceed that percentage:

Provided that when any alteration is made in the system of ventilation so as to substantially affect or likely to affect the ventilation of the mine, such determination shall be made within period of twenty-four hours of such alteration;

- (d) particulars of every such determination under this regulation shall be recorded in a bound paged book kept for the purpose; and

- (e) if any determination in any ventilating district shows the percentage of inflammable gas to exceed one and a quarter, the supply of electric energy shall be cut off immediately from all cables and apparatus in the district, and a written report thereof submitted to the Regional Inspector forthwith.

- (2) If the Regional Inspector so requires by an order in writing in respect of any mine having workings belowground, determination shall, once at least in every thirty days, be made of temperature, humidity and such other environmental conditions at such points as the Regional Inspector may specify in the order.

**170. Monitoring devices.-** (1) The Chief Inspector may, if he considers necessary for the safety of persons, require by an order in writing that in any mine or any class of mines belowground, approved environmental monitoring devices to continuously record information regarding environmental conditions, to be installed belowground within such time and subject to such conditions as he may specify therein.

(2) The Chief Inspector may, if he considers necessary for the safety of persons, require by a general or special order in writing analysis of mine air samples by gas chromatography or other equivalent technique.

**171. General precautions in gassy mines.—** (1) In every gassy mine, the precautionary measures as specified in sub-regulations (2) to (7) shall apply.

(2) No working or gallery shall be extended to a distance of more than 3 meters from the nearest ventilation connection unless the current of air is coursed up to a point within 3 meters of the face by means of fire resistant pipes, tubes, brattices or other material.

(3) No narrow main or advance gallery shall be driven more than three meters ahead of the widened gallery.

(4) Every stopping between the main intake and the main return airway shall be substantially built and every air-crossing shall be so constructed and maintained as to withstand the force of an explosion.

(5) The main air current shall be so split and coursed that an air current which ventilates a goaved out area, whether packed or unpacked, or any disused workings shall not, except with the prior permission in writing of the Regional Inspector and subject to such conditions as he may specify therein, ventilate any workings where coal is being extracted.

(6) No major alteration shall be made in the system of ventilation except with the prior permission in writing of the Regional Inspector and subject to such conditions as he may specify therein:

Provided that where the safety of the mine or of the persons employed therein is seriously threatened, the provisions of this sub-regulation shall be deemed to have been complied with, if information of such alteration is sent to the Regional Inspector forthwith.

(7) Except in an emergency, when a major alteration is made in the system of ventilation, only such persons as are engaged in making the alteration shall be present belowground.

**172. Contrabands.**— (1) No person shall have in his possession belowground in a mine any cigar, cigarette, biri, or other smoking apparatus, or any match or mobile phone or other apparatus of any kind capable of producing a light, flame or spark:

Provided that nothing in this sub-regulation shall be deemed to prohibit the use belowground of any apparatus for the purpose of shot firing or of relighting safety lamps, of a type approved by the Chief Inspector.

(2) For the purpose of ascertaining whether any person proceeding belowground into a mine has in his possession any article referred to in sub-regulation (1), a competent person other than the banksman, if any, shall be appointed to search every such person immediately before he enters the mine.

(3) The competent person referred to in sub-regulation (2) shall be on duty throughout the shift, and no duties other than those under this regulation and sub-regulation (2) of regulation 179 shall be entrusted to him.

(4) The competent person so appointed shall make a thorough search for the articles referred to in sub-regulation (1) and in particular shall—

- (a) search or turn out all pockets;
- (b) pass his hand over all clothing; and
- (c) examine any article in possession of the person searched.

Such search shall be made every time a person proceeds belowground notwithstanding that he has been so searched previously also.

(5) If the competent person suspects that the person searched is concealing any article as aforesaid, he shall detain him, and as soon as possible refer the matter to the manager or assistant manager.

(6) No person being suspected under sub-regulation (5) shall be allowed to enter the mine until the manager or other superior official is satisfied that the person has no such article in his possession.

(7) Any person who refused to allow himself to be so searched or who on being searched is found to have in his possession any of the article aforesaid, shall be guilty of an offence against this regulation.

**173. Underground relighting stations.**— (1) In every mine, lamp stations for relighting safety lamps may be fixed by the manager at suitable places belowground and every such station shall be legibly marked RELIGHTING STATION, which shall be situated in a main intake airway, and shall be placed in charge of a competent person.

(2) No person shall be appointed as a competent person under this regulation unless he holds a Gas Testing Certificate.

## CHAPTER XIII

### LIGHTING AND SAFETY LAMPS

**174. Whitewashing.**— The roof and sides of the following places belowground in a mine shall be kept effectively whitewashed, namely:—

- (a) every shaft inset and shaft bottom or siding and every bye-pass which is in regular use;
- (b) the top and bottom of every haulage plane, every regular stopping place, siding, landing, pass-bye and junction, except within 100 meters of the face;
- (c) every travelling roadway;

- (d) every room and place containing any engine, motor or other apparatus; and
- (e) every first aid station belowground.

**175. General lighting.**—(1) Adequate general lighting arrangements shall be provided during working hours—

- (a) on the surface where the natural light is insufficient—
  - (i) in every engine house;
  - (ii) in the vicinity of every working shaft;
  - (iii) at every opencastworking;
  - (iv) at every shunting or marshalling yard;
  - (v) at every place where persons have to work; and
- (b) belowground –
  - (i) at every shaft inset and shaft bottom or landing or siding which is in regular use;
  - (ii) in every travelling roadway normally used by fifty or more persons during any shift;
  - (iii) at the top and bottom of every self-acting incline in regular use;
  - (iv) at every place on a haulage roadway, at which tubs are regularly coupled or uncoupled or attached to or detached from a haulage rope;
  - (v) at every place at which tubs are regularly filled mechanically;
  - (vi) at every room and place containing any engine, motor or other apparatus;
  - (vii) at every place where any pillar is under extraction; and
  - (viii) at every first aid station belowground:

Provided that the provisions of this sub-clause shall be deemed to have been complied with where electric lamps or lights are provided to every person at work;

- (2) The lighting provided in a mine shall, as far as possible, be so arranged as to prevent glare or eye strain.
- (3) Where electric energy is available at the mine, the lighting arrangement made under sub-regulation (1) shall be by electrical means.
- (4) Where electric lighting is used, an additional light or lamp having no connection with electric supply shall be kept continuously burning –

- (i) belowground, in every shaft inset and shaft bottom or landing in regular use and in every engine room;
- (ii) on the surface, after dark, at the top of every working shaft and in every engine room; and
- (iii) in travelling roadways and escape routes.

- (5) Every electrical lamp-fitting shall be so constructed as to protect it from accidental damage and adequate precaution shall be taken to prevent lamps being damaged from shot-firing.
- (6) Fluorescent or luminescent path finder or indicator shall be provided all along the travelling roadway and in the escape route in the mine.

**176. Electric lighting in gassy mines.**—(1) Subject to the provisions of Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010 relating to the use of electric energy in parts of mines in which inflammable gas is likely to occur in quantity sufficient to be indicative of danger, electric lighting from a source of supply external to the lighting unit may be used—

- (a) on any roadway or place ventilated by intake air; and
- (b) on any other roadway or place not within 270 meters of the nearest face.

(2) In every mine or part thereof to which regulation 168 applies, every electrical lighting apparatus shall be of a type approved by the Chief Inspector:

Provided that electric lighting from a source of electric power enclosed in the lighting unit, electric lights which are fittings or accessories to machinery or electrical plant including signalling apparatus, and any other means of lighting not specifically mentioned in the regulation, may be used in the mine if so permitted by the Chief Inspector by an order in writing and subject to such conditions as he may specify therein.

**177. Every person to carry a light.**—(1) The owner, agent or manager shall provide every person employed belowground with a light or lamp adequate to enable him to perform his duties in a proper and thorough manner and no such person shall proceed or remain belowground without such light or lamp.

Provided that on his return to the surface, every such person shall, unless otherwise directed by the manager by a general or special order in writing immediately return his lamp to the lamp room.

(2) The number of safety lamps at every mine shall be adequate to permit thorough cleaning and checking before they are issued and in case of any doubt as to the sufficiency or otherwise of the safety lamps provided at a mine, it shall be referred to the Chief Inspector for decision.

**178. Standard of lighting.**—(1) If any doubt arises as to whether any lamp or light is of adequate lighting performance or not, it shall be referred to the Chief Inspector for decision.

(2) The Chief Inspector may, from time to time, by a general or special order, specify –

- (a) the type of lamp to be provided to specified categories of persons employed in a mine; or
- (b) the standard of lighting to be provided in specified areas or places in a mine.

**179. Maintenance and examination of safety lamps.**—(1) For ensuring proper maintenance of safety lamps in use in the mines, the provisions of sub-regulations (2) to (7) shall apply.

(2) A competent person appointed for the purpose shall clean, trim, examine and lock securely all such lamps before they are issued for use, and no such lamp shall be issued for use unless it is in safe working order and securely locked.

(3) A competent person appointed for the purpose shall examine every safety lamp at the surface immediately before it is taken belowground for use and shall assure himself, as far as practicable from external observation that such lamp is in safe working order and securely locked:

Provided that the person so appointed shall not perform any other duties, other than those prescribed under sub-regulations (2) and (3) of regulation 172.

(4) A competent person appointed for the purpose shall examine every safety lamp on its being returned after use.

(5) If on an examination made under sub-regulation (4), any lamp is found to be damaged or misused, he shall record the nature of the damage or misuse in a bound paged book kept for the purpose and every such entry shall be countersigned and dated by the manager.

(6) The manager, assistant manager, or a competent person appointed for the purpose shall, once at least in every seven days, examine thoroughly every safety lamp in use, and shall record the results of examination of every such lamp in a bound paged book kept for the purpose.

(7) No person shall be appointed as a competent person under this regulation unless he holds a Manager's, Overman's or Gas testing Certificate.

Provided that, after coming into force of these regulations, a holder of Lamp Checker's Certificate granted under regulation 12 of the Coal Mines Regulations, 1957, shall also deemed to be a competent person under this regulation.

**180. Use of safety lamps.**—(1) Every safety lamp shall be numbered and so long as the lamp is in use the number thereof shall be maintained in a legible condition.

(2) A competent person appointed for the purpose shall maintain a correct record of the lamps issued from and returned to the lamp-room, and in the record so maintained, the number of the lamp issued to any person shall be entered against his name.

- (3) If any person returns to the lamp-room a lamp other than the one issued to him, he shall explain the cause and circumstances of the change.
- (4) No unauthorised person shall either himself take or give out any safety lamp from the lamp-room.
- (5) Every person who receives a lamp shall satisfy himself that it is complete and in good order and should he find any defect therein, he shall immediately return it to the lamp-room.
- (6) No person shall willfully damage or improperly use, or unlock or open, or attempt to unlock or open any safety lamp.
- (7) Should any person find that the safety lamp in his possession has become defective, he shall at once carefully extinguish the flame, if any, and report the fact to his superior official.

**181. Maintenance and repairs of safety lamps.**—(1) Every safety lamp shall be properly assembled and maintained in good order and if any such lamp is found to be defective or damaged, it shall not be used or issued for use until the defect or damage has been remedied.

- (2) If the wires of any gauge of a flame safety lamp are broken or burnt away, the gauge shall not be reconditioned for further use.
- (3) Damaged and defective gauges, glasses or other parts of a safety lamp shall not be kept or stored in the safety lamp-room.
- (4) No glass of a safety lamp and no bulb of an electric safety lamp shall be replaced except by a glass or bulb of such type as the Chief Inspector may, from time to time specify by a general or special order, and no other part of a safety lamp, other than a wick or battery, as the case may be, shall be replaced except by a part manufactured by the manufacturers of the lamp to approved specifications.

Provided that in the case of an imported safety lamp, a part manufactured indigenously may be used if it is of such design and make as is approved by the Chief Inspector.

- (5) No repaired part shall be used in a safety lamp:
- (6) In every flame safety lamp kept for the purpose of inspection or of testing for or detecting the presence of inflammable gas, no oil other than an oil of a type approved by the Chief Inspector shall be used.
- (7) No electric safety lamp shall be issued for use unless the covers of the battery and of the headpiece are properly assembled, securely locked and sealed, and the battery is properly charged.
- (8) No electric safety lamp shall be hung or held by the cable.

**182. Precautions to be taken in safety lamp-rooms.**—(1) No unauthorised person shall enter the safety lamp room.

- (2) No person shall smoke in the safety lamp-room.
- (3) Where petrol, benzol or any other highly volatile spirit is used in safety lamps, the following precautions shall be observed, namely:-
- (a) lamps shall be cleaned, refitted and refilled in a separate room;
  - (b) only such quantity of volatile spirit as is required for one working day shall be kept in any such room;
  - (c) internal relighters shall not be taken out of lamps and cleaned, repaired or refitted on the same table wherelamps are cleaned, refitted or refilled;
  - (d) adequate number of suitable fire extinguishers shall be provided and kept ready for use in every such room.

## CHAPTER XIV

### EXPLOSIVES AND SHOTFIRING

**183. Type of explosives to be used in mines.**—(1) No explosive shall be used in a mine except that which is provided by the owner, agent or manager which shall be of good quality and in good condition.

(2) No explosive, other than a fuse or a detonator shall be issued for use in a mine, or taken into or used in any part of a mine, unless it is in the form of a cartridge:

Provided that in case of opencast mine, site mixed slurry or emulsion explosives or ammonium nitrate fuel oil may be issued for use or taken into or used in non-cartridge form.

(3) Explosive cartridges shall be used in mine only in the form in which they are received.

(4) No liquid oxygen explosives shall be used in any mine.

**184. Storage of explosives.**— (1) No owner, agent or manager shall store, or knowingly allow any other person to store, within the premises of mine any explosive otherwise than in accordance with the provisions of the rules made under the Explosives Act, 1884 (4 of 1884).

(2) Explosives shall not be taken into or kept in any building except a magazine duly approved by the Licensing Authority under the provisions of the Explosives Act, 1884 (4 of 1884).

(3) Explosives shall not be stored belowground in a mine except with the approval in writing of the Chief Inspector and subject to such conditions as he may specify therein and such storage shall be done only in a magazine or magazines duly licensed in accordance with the provisions of rules made under the provisions of the Explosives Act, 1884 (4 of 1884).

(4) Every license granted by the Licensing Authority under the provisions of the Explosives Act, 1884 (4 of 1884) for the storage of explosives, or a true copy thereof, shall be kept at the office of the mine.

**185. Magazines, stores and premises to store explosives.**— (1) Every magazine, or store or premises, where explosives are stored shall be in charge of a competent person who shall be responsible for the proper receipt, storage and issue of explosives.

(2) Explosives shall not be issued from the magazine unless they are required for immediate use:

Provided that if any explosive is returned to the magazine or store or premises, they shall be re-issued before fresh stock is used.

(3) Explosives shall be issued only to competent persons upon written requisition signed by the shot-firer or by an official authorised for the purpose, and only against their signature or thumb impression, which shall be preserved by the person in charge of the magazine or store or premises.

(4) The person in charge of the magazine or store or premises shall maintain, in a bound paged book kept for the purpose, a clear and accurate record of explosives issued to each competent person and a similar record of explosives returned to the magazine or store or premises.

**186. Cases and containers for carrying explosives.**— (1) No explosive shall be issued from the magazine or taken into any mine except in a case or container of substantial construction which is securely locked:

Provided that cases or containers made of iron or steel shall be heavily galvanised and no case or container provided for carrying detonator shall be constructed of metal or other conductive material.

(2) No detonator shall be kept in a case or container which contains other explosives, materials or tools and two or more types of detonators shall not be kept in the same case or container:

Provided that nothing in this sub-regulation shall restrict the conveyance of primer cartridges fitted with detonators in the same case or container for use in a wet working or in a sinking shaft.

(3) No detonator shall be taken out from a case or container unless it is required for immediate use.

(4) Except as otherwise provided for in regulation 188, no case or container shall contain more than five kilograms of explosives, and no person shall have in his possession at one time in any place more than one such case or container :

Provided that the Chief Inspector may, by an order in writing and subject to such conditions as he may specify therein, permit the carrying of a larger quantity of explosives in a single case or container, or the use, at one time in one place, of more than one such case or container.

(5) Every case or container shall be numbered and as far as practicable, the case or container shall be issued to the same shot-firer or competent person, as the case may be, every day.

(6) The key of every case or container shall be retained by the shot-firer in his own possession throughout his shift.

**187. Transport of explosives.**— (1) While explosives are being carried on a ladder, every case or container shall be securely fastened to the person carrying it.

(2) No person other than a shot-firer shall carry any priming cartridge into a shaft which is in the course of being sunk and no such cartridge shall be so carried except in a thick felt bag or other container sufficient to protect it from shock.

**188. Transport of explosives in bulk.**— The conditions and other details for transport of explosives in bulk shall be specified by the Chief Inspector in a general order.

**189. Reserve Station.**— (1) No case or container containing explosives shall be left or kept in a mine except in a place appointed by the manager for the purpose and legibly marked “RESERVE STATION”.

(2) The conditions for site selection and other details for establishing a reserve station in a mine shall be specified by the Chief Inspector in a general order.

**190. Shot-firers.**— (1) The preparation of charges and the charging and stemming of holes shall be carried out by or under the personal supervision of a competent person, in these regulations referred to as a “shot-firer”, who shall fire the shots himself.

(2) No person shall be appointed to be a shot-firer unless he holds -

- (a) a Manager's Certificate or Overman's Certificate or a Sirdar's Certificate together with a gas-testing certificate in case of belowground mines; and
- (b) a Manager's Certificate, Overman's Certificate or a Sirdar's Certificate in the case of open cast working:

Provided that, after coming into force of these regulations, shot-firer holding a Shot-firer's Certificate granted under regulation 12 of the Coal Mines Regulations, 1957, shall also deemed to be a shot-firer under this regulation.

(3) The competent person appointed as shot-firer shall not be given any other duty nor any one performing any other duty shall be allowed to perform shot firng.

(4) No person whose wages depend on the amount of coal, rock or debris obtained by firing shots, shall be appointed to perform the duties of a shot-firer.

(5) The manger shall fix, from time to time, the maximum number of shots that a shot-firer may fire in any one shift and such number shall be based on:

- (a) the time normally require to prepare and fire a shot in accordance with the provisions of these regulations;
- (b) the time required for that shot-firer to move between places where shots are fired;
- (c) the assistance, if any, available to him in the performance of his said duties; and shall not in any case exceed,-
  - (i) in the case of a gassy seam of second or third degree or a fiery seam, forty, if a single shot exploder is used and eighty, if a multi-shot exploder is used;
  - (ii) in the case of other seams, fifty, if a single-shot exploder is used and hundred, if a multi-shot exploder is used;
  - (iii) in the case of opencast mines, sixty, if a single shot exploder is used or if blasting is done with ordinary detonators and one hundred and twenty, if a multi-shot exploder is used;

Provided that where special conditions exist, the Chief Inspector may by an order in writing and subject to such conditions as he may specify therein, permit number of shots to be fixed in variance with the aforesaid provisions.

(6) The number of detonators issued to, and in the possession of, a shot-firer during his shift shall not exceed the maximum number of shots that he is permitted to fire under sub-regulation (5).

**191. Shot-firing tools.**— Every shot-firer on duty shall be provided with-

- (a) a suitable shot-firing apparatus;

- (b) a suitable shot-firing cable;
  - (c) a suitable electric lamp or torch, a whistle and a stop watch;
  - (d) a tool, made entirely of wood, suitable for charging and stemming shot-holes;
  - (e) a scraper made of brass or wood suitable for cleaning out shot-holes;
  - (f) a pair of suitable crimpers for crimping detonators;
  - (g) where detonators are used, a pricker made of wood or of a non-ferrous metal for priming cartridges;
  - (h) a suitable tool for detecting cracks;
  - (i) a methanometer for detection of inflammable gas in case of solid blasting;
  - (j) a circuit tester for checking shot-firing circuits.
- (2) No tool or appliance other than that provided under sub-regulation (1) shall be used by a shot-firer.

**192. Drilling, charging, stemming and firing of shot-holes.**—(1) No drill shall be used for drilling a shot-hole unless it allows a clearance of at least 0.3 centimeters over the diameter of the cartridge of explosives, which it is intended to use.

- (2) No shot-hole shall be charged before it is thoroughly cleaned.
- (3) Before any shot-hole is charged, the direction of the hole shall, where practicable, be distinctly marked on the roof or other convenient place.
- (4) No detonator shall be inserted into a priming cartridge until immediately before it is to be used, however that in case of wet workings, priming cartridges may be prepared at the nearest convenient dry place and such primed cartridges shall be carried to the working place in a securely closed case or container.
- (5) Detonators once inserted into a priming cartridge shall not be taken out.
- (6) In belowground workings the explosive used in any shot-hole shall be of the same type.
- (7) In opencast mines, to use two types of explosives in any shot-hole, the manager shall frame and enforce standing orders for the safe use of explosives and a copy of the same shall be submitted to the Regional Inspector.
- (8) The shot-firer shall, to the best of his judgment, ensure that no shot-hole is over-charged or under-charged, having regard to the task to be performed.
- (9) Shots shall be fired electrically or by any other means or instruments or apparatus as approved by the Chief Inspector.
- (10) Every shot-hole shall be stemmed with sufficient and suitable non-inflammable stemming so as to prevent the shot from blowing out.
- (11) Only sand loosely filled in, or soft clay lightly pressed home, or a compact but not hard mixture of sand and clay or water shall be used as stemming and in no case, shall coal dust be used for the purpose of stemming.
- (12) In charging or stemming a shot-hole, no metallic tool, scraper or rod shall be used and no explosive shall be forcibly pressed into a hole of insufficient size.
- (13) No shot shall be fired except in a properly drilled, charged and stemmed shot-hole.
- (14) All surplus explosives shall be removed from the vicinity of a shot hole before connecting the shot firing cable to the shot holes.
- (15) As far as practicable, a shot shall be fired by the same shot-firer who charged it.
- (16) No shot-hole shall be charged except those which are to be fired in that round and all shot-holes which have been charged shall be fired in one round.
- (17) Where a large number of shots have to be fired, shot-firing shall, as far as practicable, be carried out between shifts.

(18) No person shall remove any stemming, or pull out any detonator lead, or remove any explosive from a shot-hole either before firing or after a misfire, or bore out a hole that has once been charged, or deepen or tamper with empty holes or sockets.

**193. Use of ammonium nitrate fuel oil.**— Conditions for use of ammonium nitrate fuel oil in a mine shall be specified by the Chief Inspector in a general order.

**194. Deep-hole blasting.**— Conditions for conduct of deep hole blasting in a mine shall be specified by the Chief Inspector in a general order.

**195. Electric shot-firing.**— (1) No shot shall be fired except by means of a suitable shot-firing apparatus of a type approved by the Chief Inspector and the number of shots fired at any one time by the apparatus shall not exceed the number for which it is designed.

(2) Every electrical shot-firing apparatus shall be so constructed and used that –

- (a) it can only be operated by a removable handle or plug;
- (b) the handle or plug shall not be placed in position until a shot is about to be fired and shall be removed as soon as a shot has been fired;
- (c) the firing circuit is made and broken either automatically or by means of a push-button switch.

(3) No shot-firing apparatus shall be used which is defective and every apparatus shall once at least in every three months, be tested by a competent person to ascertain whether it is in safe working order.

(4) If the apparatus fails to fire all the shots in a properly connected circuit, the shot-firer shall return the apparatus to the manager or assistant manager as soon as possible, and it shall not be used again unless it has been tested on the surface and found to be in safe working order.

(5) The result of every test made under sub-regulations (3) and (4) shall be recorded in a bound paged book kept for the purpose and shall be signed and dated by the competent person making the test.

(6) No current from a signalling, lighting or power circuit shall be used for firing shots.

(7) The shot-firer shall-

- (a) retain the key of the firing apparatus in his possession throughout his shift;
- (b) use a well-insulated cable of sufficient length to permit him to take proper shelter and in case of belowground working sufficient to take two right angle turns of pillar, and in no case, shall this cable be less than 50 meters in length;
- (c) before coupling the cable to the firing apparatus, couple up the cable himself to the detonator leads;
- (d) take care to prevent the cable from coming into contact with any power or lighting cable or other electrical apparatus;
- (e) take adequate precautions to protect electrical conductors and apparatus from injury;
- (f) himself couple the cable to the firing apparatus and before doing so, see that all persons in the vicinity have taken proper shelter as provided under regulation 196;
- (g) after firing the shots and before entering the place of firing, disconnect the cable from the firing apparatus.

(8) Where more than one shot are to be fired at the same time,-

- (a) care shall be taken that all connections are properly made;
- (b) all shots, if fired belowground, shall be connected in series;
- (c) the circuit shall be tested, either for electrical resistance or for continuity, before connecting it to the firing apparatus, which shall be made with an apparatus specifically designed for the purpose and only after all persons in the vicinity have taken proper shelter as provided under regulation 196;
- (d) the cable to the shot-firing apparatus shall be connected last;
- (e) detonators of the same electrical resistance shall only be used.

**196. Taking shelter before firing shots.**—(1) The shot-firer shall, before a shot is charged, stemmed or fired, see that all persons other than his assistants, if any, in the vicinity, have taken proper shelter, and he shall also take suitable steps to prevent any person approaching the shot and shall himself take adequate shelter, along with his assistants, if any, before firing the shots.

(2) In the case of an opencast working, the shot-firer shall not charge or fire a shot-

- (a) unless he has taken the precautions laid down in sub-regulation (1);
- (b) unless sufficient warning, by efficient signals or other means approved by the manager, is given over the entire area falling within a radius of 500 meters from the place of firing (hereinafter referred to as the danger zone) and also he has ensured that all persons within such area have taken proper shelter;
- (c) where any part of a public road or railway lies within the danger zone, unless two persons are posted, one each in either direction at the two extreme points of such road or railway which fall within the danger zone who have, by an efficient system of telephonic communication or hooter or loudspeakers or other means intimated clearance of traffic to the shot-firer and have also warned the passersby and whenever possible the vehicle also, if any, which have passed by such road or railway.

(3) In the case of an opencast working, where any permanent building or structure of permanent nature not belonging to the owner lies within the danger zone, the aggregate maximum charge per delay and per round shall not exceed the amount fixed by the Chief Inspector, by a permission in writing granted on the basis of a scientific study, and subject to such other conditions as he may specify therein.

(4) Notwithstanding anything contained in sub-regulation (3), the Chief Inspector may, by an order in writing and subject to such conditions as he may specify, exempt any mine or part thereof from the operation of the provisions of sub-regulation (3), on the ground that the observance of its provisions is not necessary or reasonably practicable on account of the special conditions existing thereat.

(5) Where the workings, either above or belowground, offer insufficient protection against flying fragments or missiles, adequate shelters or other protection shall be provided.

(6) When two working places belowground have approached within 9 meters of each other, the shot-firer shall not fire any shot in any one of the said workings unless all persons have been withdrawn from the other working place and the same has been so fenced off as to prevent persons inadvertently coming in direct line of the shot.

**197. Precautions against dry coal dust.**— No shots shall be fired at any place belowground unless the place itself and all accessible places, including roof and sides, within a distance of 18 meters have been treated in the manner specified in clause (b) of sub-regulation (3) of regulation 144 unless such places are naturally wet as specified in the said regulation.

**198. Conditions requiring use of permitted explosives.**—(1) Notwithstanding anything contained in these regulations, no shots shall be charged or fired in the belowground working if the explosive used is not a permitted explosive, except in—

- (a) a stone-drift, if it does not contain dry coal dust; or
- (b) a shaft which is in the course of being sunk.

(2) In a gassy seam of the second or third degree, no explosive other than the permitted sheathed explosives or other explosives equally safe or any device or apparatus for breaking coal approved by the Chief Inspector shall be used, while in a gassy seam of the first degree, in addition to the above, permitted explosives may also be used:

Provided that the Chief Inspector may by an order in writing and subject to such conditions as he may specify therein, permit, in any gassy seam of the first degree, the use of any explosives other than the permitted explosives.

(3) Notwithstanding anything contained in sub-regulation (1), if blasting is done in any stone drift or sinking shaft within five meters of any coal seam or in coal measure drifts or staple shaft from one seam to another only permitted explosives of such types as may be required by the Chief Inspector shall be used:

Provided that in case of special difficulties, the Chief Inspector may exempt any stone drift or sinking shaft from the provisions of this sub-regulation subject to such conditions as he may specify therein.

**199. Precautions in the use of permitted explosives.—** (1) No detonator shall be used, unless it is of a type approved by the Chief Inspector.

(2) Where more than one shots are charged for firing, the shots shall be fired simultaneously.

(3) The aggregate charge in any shot to be fired in coal shall not exceed such permissible maximum charge, as the Chief Inspector may, by a general or special order, specify for the kind of permitted explosives used.

**200. Approved shot-firing apparatus.—** No shot shall be fired in a mine except by means of a shot-firing apparatus of a type approved by the Chief Inspector and subject to such conditions as he may, from time to time, specify by a general or special order:

Provided that where special conditions exist, the Chief Inspector may, by an order in writing and subject to such conditions as he may specify therein, permit the use of any other shot-firing apparatus.

**201. Additional precautions in belowground mines.—** (1) If in a ventilating district, presence of inflammable gas is detected in any place, no shot-hole shall be charged, stemmed or fired in that place or in any other place situated on its return side till such place has been cleared of gas and declared safe.

(2) Immediately before charging a shot-hole or a round of shot-holes, and again before firing the shots the shot-firer shall carefully test for inflammable gas at all places within a radius of eighteen meters of the place of firing.

(3) No shot-hole shall be charged if any break is found therein, or if inflammable gas is found issuing therefrom.

(4) If after charging a shot-hole, inflammable gas is found in any place within the radius specified in sub-regulation (2), no shot shall be fired until the place has been cleared of gas and declared safe.

(5) No delay-action detonator shall be used, except with the previous permission in writing of the Chief Inspector and subject to such conditions as he may specify therein.

**202. Blasting in fire areas in opencast mines.—** Conditions for conduct of blasting in fire areas in opencast mines shall be specified by the Chief Inspector in a general order.

**203. Inspections after shot-firing.—** (1) After a shot has been fired, the shot-firer shall not enter or allow any other person to enter the place until the atmosphere in the area is free from dust, smoke or fumes:

Provided that the shot-firer shall before any other person enters the place, make a careful examination and with his assistants, if any, make the place safe.

(2) No other person shall enter the place, and where guards have been posted they shall not be withdrawn, until the examination has been made and the place has been declared safe in all respects.

(3) In the case of opencast working, after shots have been fired, an all-clear signal shall be given except in the case of a misfire.

**204. Misfires.—** (1) After firing the shots electrically, no person shall re-enter or be permitted to re-enter the place until five minutes after the source of electricity has been disconnected from the cable.

(2) In the event of a misfire, the entrance or entrances to the working place shall be fenced so as to prevent inadvertent access and no work other than that of locating or relieving the misfire shall be done therein until the misfire has been located and relieved.

(3) In opencast working, it shall be sufficient to mark the place of the misfire with a red flag.

(4) In the event of a misfire, a second charge shall not be placed in the same hole.

(5) If the misfire contains a detonator, the leads thereof shall be attached by a string to the shot-firing cable or some distinctive marker.

(6) Except where the misfire is due to faulty cable or a faulty connection, and the shot is fired as soon as practicable after the defect is remedied, another shot shall be fired in a relieving hole which shall be so placed and drilled in such a direction that at no point shall it be nearer than thirty centimeters from the misfired hole:

Provided that the new hole shall be bored in the presence of a shot-firer, preferably the same person who fired the shot.

(7) After a relieving shot has been fired, a careful search for cartridges and detonators, if any, shall be made in the presence of the shot-firer, amongst the material brought down by the shot:

Provided that in the case of working belowground if such cartridge or detonator is not recovered, the tubs into which the material is loaded shall be marked and further search made on the surface, and as far as possible, the search for the detonators and cartridges and the loading of any coal, stone or debris which may contain a detonator, shall be carried out without the aid of tools.

(8) If a misfired hole is not dislodged by a relieving shot, the procedure laid down in sub-regulations (6) and (7) shall be repeated.

(9) A misfired hole which cannot be dealt with in the manner so provided, shall be securely plugged with a wooden plug, and no person other than a shot-firer, an official or a person authorised for the purpose shall remove or attempt to remove any such plug.

(10) When a misfired shot is not found, or when a misfired shot is not relieved, the shot-firer shall, before leaving the mine,-

(a) give information of the failure to such shot-firer or official as may relieve or take over charge from him;

(b) record, in a bound paged book kept for the purpose, a report on every misfire, whether suspected, and whether the shot-hole is relieved or not relieved;

(c) sign the report and, to record in the said book the action taken for relieving the misfired shot-hole.

(11) The shot-firer of the next shift shall locate and blast the misfired hole, but if after a thorough examination of the place, the place where the misfire was reported to have occurred he is satisfied that no misfire has actually occurred, he may permit drilling in the place.

(12) In case of opencast mines, the owner, agent and manager of a mine shall draw up a plan which shall instruct all shot-firers the detailed procedure to be followed in the event of a misfired shot.

#### **205. Special precautions in stone drifts.—** In stone drifts,-

(a) after shots have been fired, all loose rock shall be removed from the face, and the area lying within a distance of 1.2 meters from the face shall be thoroughly cleaned or washed down with water and carefully examined for presence of misfires or sockets, and without taking such precautions, the next round of shots shall not be fired; and

(b) if any socket is found, it shall be dealt with in the manner provided in regulation 204.

#### **206. Duties of shot-firer at the end of his shift.—** Immediately after the end of his shift, the shot-firer-

(a) shall return all unused explosive to the magazine, or where a store or premises is provided under regulation 184, to such store or premises;

(b) shall record, in a bound paged book kept for the purpose, the quantity of explosive taken, used and returned, the places where shots were fired and the number of shots fired by him, and misfires, if any, which shall be signed and dated by him.

**207. General precautions regarding explosives.—** (1) No person, whilst handling explosives or engaged or assisting in the preparation of charges or in the charging of holes, shall smoke or carry or use a mobile phone or light other than an enclosed light, electric torch or lamp.

(2) No person shall take any mobile phone or light other than an electric torch or an enclosed electric lamp into any explosive magazine or store or premises.

(3) The owner, agent or manager shall take adequate steps to prevent pilferage of explosives during its storage, transport and use in the mine.

(4) No person shall have explosives in his possession except as provided for in these regulations or hide or keep explosives in a dwelling house.

(5) Any person finding any explosives in or about a mine shall deposit the same in the magazine or store or premises and every such occurrence shall be reported to the manager in writing.

(6) Shot-firers and their helpers shall-

(a) not use battery operated watches, mobile phone, synthetic clothes and socks;

(b) use only conductive type of foot-wears; and

(c) in case of leather shoes or boots, the sole shall also be of leather and without hobnails.

## CHAPTER XV

### MACHINERY, PLANT AND EQUIPMENT

**208. Use of certain machinery, equipment and devices in coal mines.**—(1) No internal combustion engine or steam boiler shall be used belowground in a mine except with the previous permission in writing of the Chief Inspector and subject to such conditions as he may specify therein.

(2) In every gassy seam of the second or third degree, only flame proof electrical apparatus and equipment shall be used belowground unless otherwise provided for under the provisions of the Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010:

Provided that the Central Government or the Chief Inspector or an Inspector authorised by the Central Government may, subject to such conditions as may be specified, permit the continuance of the use of non-flame proof apparatus or equipment for a specified period, not exceeding one year, in any mine of the first degree gassiness, which has subsequently been classified as second or third degree gassiness.

(3) The Chief Inspector may, from time to time by notification in the Official Gazette, specify appliances, equipment, machinery, or other material, that are or may be used in a mine, which shall be of such type, standard and make as approved by the Chief Inspector by a general or special order, and where any such appliance, equipment, machinery or other material had been specified by the Chief Inspector, any such appliance, equipment, machinery, or material, other than that approved by the Chief Inspector as aforesaid, shall not be used in any mine.

(4) Where in respect of any appliance, equipment, machinery or other material, the Chief Inspector has not made any notification under sub-regulation (3) and any such appliance, equipment, machinery or material is used in any mine, the Chief Inspector or Regional Inspector may, if he is of the opinion that the use of such appliance, equipment, machinery, or material is likely to endanger safety in the mine, by an order in writing, prohibit the use thereof until the same is approved by the Chief Inspector.

(5) The owner, agent or manager of a mine while acquiring any approved type of machinery, equipment, apparatus, device, lamp, light or materials shall ensure that they conform to approved specifications in all respects and shall also be responsible for maintaining them as per the approved standard.

(6) A copy of approval of every approved machinery, equipment and device being used shall be kept at the office of the mine.

(7) Where machinery is used for lifting, pulling, drilling, other than by hand held drill, dinting, ripping, cutting, loading, hauling or dumping, safe code of practices separately for each type of machinery with respect to the method of work, shall be framed by the person authorised for the purpose, containing codes for the control and guidance of persons employed for the erection, installation, operation, repairs, maintenance, dismantling and transportation of such machinery and ancillary equipment as well as for the prevention of accident and to provide for the safety, health, convenience and discipline of the persons so employed and the engineer authorised for the purpose shall be responsible for the implementation of above safe code of practices.

(8) Where surface transportation and handling machinery including coal handling plants, repair sheds or workshops are provided, safe code of practices for their erection, installation, operation, repairs, maintenance, dismantling and transportation of such machinery, plants and ancillary equipment as well as for the prevention of accident and to provide for the safety, health, convenience and discipline of the persons so employed shall be framed by the person authorised for the purpose, and the engineer authorised for the purpose shall be responsible for the implementation of above safe code of practices.

**209. General provisions for construction and maintenance of machinery.**—All parts and working gear, whether fixed or movable, including the anchoring and fixing appliances, of all machinery and apparatus used as or forming part of the equipment of a mine, and all foundations in or to which any such appliances are anchored or fixed shall be of good design, sound construction, suitable material, adequate strength and free from visible defect and shall be properly maintained.

**210. Apparatus under pressure.**—(1) All apparatus, used as or forming part of the equipment of a mine, which contains or produces air, gas or steam at a pressure greater than atmospheric pressure shall be so designed, constructed, installed and maintained as to obviate any risk of fire, bursting, explosion or collapse or the production of noxious gases.

(2) Every air receiver forming part of a compressing plant shall be fitted with a safety valve and an air gauge which shows pressure in excess of the atmospheric pressure.

(3) Before an air-receiver is cased in or put in commission, the engineer or other competent person shall subject it to a hydraulic test at a pressure at least one-and-a-half times the maximum permissible working pressure and a similar such test shall be made after every renewal or repair and in any case at intervals of not more than three years.

(4) The result of every such test under sub-regulation (3) shall be recorded in a bound paged book kept for the purpose duly signed and dated by the person carrying out the test.

(5) The supply of air for air-compressors shall be drawn from a source free from dust and fumes.

(6) All apparatus used as or forming part of the equipment in a mine which contains or produces hydraulic fluid or emulsion under pressure shall be so designed, constructed, installed and maintained as to obviate any risk of bursting and fire.

**211. Precautions regarding moving parts of machinery.**— (1) Every winch or wind-llass shall be provided and used with a stopper, pawl or other reliable holder.

(2) Every drums, fly-wheel and every other dangerous exposed part of any machinery used as, or forming part of the equipment of a mine shall be adequately fenced by suitable guards of substantial construction to prevent danger and such guards shall be kept in position while the parts of the machinery are in motion or in use, but they may be removed for carrying out any examination, adjustment or repair if adequate precautions are taken.

(3) It shall be the duty of the engineer in-charge, the supervisory officials and other authorised persons to keep all guarding properly maintained in good condition and in the correct position.

(4) No person shall, or shall be allowed to repair, adjust, clean or lubricate machinery in motion where there is risk of injury.

(5) No person shall, or shall be allowed to, shift or adjust a driving belt or rope while the machinery is in motion unless a proper mechanical appliance is provided and used for the purpose.

(6) No person in close proximity to moving machinery shall wear, or be permitted to wear, loose outer clothing.

(7) No unauthorised person shall enter any engine room or in any way interfere with the engine.

**212. Engine rooms and their exits.**— Every engine, motor, transformer and battery charging room, and every room in which highly inflammable materials are stored on the surface shall be kept clean, and be provided with at least two exits, which shall be properly maintained and kept free from obstruction.

**213. Working and examination of machinery.**— (1) No machinery shall be operated otherwise than by or under the constant supervision of a competent person.

(2) In a gassy seam of the second or third degree no person shall be appointed to supervise or operate any electrical machinery, apparatus or appliance other than a telephone or signaling device or an electric lamp or light, unless he holds a gas-testing certificate, who shall whilst on duty be provided with and carry an approved flame safety lamp or any other apparatus for determination of inflammable gas as approved by the Chief Inspector and check for presence of inflammable gas in the atmosphere.

(3) Every person in-charge of any machinery, apparatus or appliance shall, before commencing work, see that it is in proper working order and if he observes any defect therein, he shall immediately report the fact to the manager, engineer or other competent person.

(4) Every person in-charge of an air-receiver shall see that no extra weight is added to the safety valves and that the permissible pressure of air is not exceeded.

(5) A competent person or persons appointed for the purpose shall, once at least in every seven days, make a thorough inspection of all machinery and plant in use, and shall record the result thereof in a bound paged book kept for the purpose.

(6) In respect of electrical machinery and plant, the competent person shall be an engineer or electrician holding qualifications as specified in the Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010.

**214. Belowground face equipment, continuous mining and coal cutting machines.**—(1) All self propelled face equipment, including shuttle cars, which are used in belowground coal mines shall be equipped with substantially constructed canopies or cabs, located and installed in such a manner that when the operator is at the operating control of such equipment he shall be protected from falls of roof, face or side.

(2) Methane monitors shall be installed on all roof bolting machines and cutting machines, continuous miners, longwall face equipment, loading machines and other mechanised equipment used to extract or load coal.

(3) Roof bolting machines, continuous miners and coal loading equipments shall be equipped with adequate lighting to illuminate the workplace.

(4) All face equipment used to cut coal or drill holes for roof support shall be equipped with engineering controls such as water sprays, dust collector and air-scrubber system to control respirable coal mine dust.

(5) Where remote controlled devices are used in belowground coal mines and on coal faces to operate continuous mining machines or other such equipment, the owner, agent and manager shall ensure—

- (a) testing of the remote controlled devices to ensure they are all on separate frequencies and will not accidentally cause a machine not been intentionally operated to activate or move;
- (b) proper training of all operators on the use of the remote control device;
- (c) designing of a mining scheme for the use of remote control mining equipment which include the safe location for the machine operators and any other workers in the area to prevent crushing accidents while the machine is in movement, and from respirable dust and noise hazard.

**215. Cranes and lifting gears.**—(1) All machinery used to lift or transport equipment and materials, shall be designed, constructed and erected, inspected, maintained and operated as specified by the manufacturer.

(2) The rated capacity or legible load chart, where appropriate, of a crane, hoist, grab or winch shall be permanently marked on the structure at a clearly visible place and, in any case, such machinery shall not be operated at a capacity in excess of the rated limit.

(3) No person shall load any crane, grab or winch in excess of the safe working load except for the purpose of a test, which shall be carried out by an authorised person and only in a manner specified by the manufacturer.

(4) The rated capacity of a hoist shall not exceed the capacity of the structure supporting the hoist.

(5) The engineer or other competent persons shall regularly inspect and maintain all cranes and hoists to ensure that every component thereof is capable of carrying out its original designed function, who shall also maintain a record thereof, duly signed and dated by him.

(6) A crane or hoist shall not be used until any condition that may endanger safety of any person is remedied.

(7) All installations, modifications and repairs to load-bearing equipment shall be certified by a competent person or authorised organisation in accordance with the original design and safety standard.

(8) All cranes or hoists with a boom that is movable in the vertical plane shall—

- (a) have a device that can be clearly read by the operator, to indicate the boom angle if the rated capacity is affected; and
- (b) be fitted with an automatic load indicator showing the safe working load.

(9) All modifications that affect the rated capacity of a crane or hoist shall be assessed, and the rated capacity shall be adjusted by the original equipment manufacturer or a competent person or authorised organisation.

(10) There shall be a safe means of access and egress to the operator's position and to maintenance locations for all cranes and hoists.

- (11) If a normal means of egress is not always available to the operator, then an alternative safe means shall be provided to get from the operating position to a safe area in the event of a power failure or other emergency.
- (12) Effective audible and visual communications devices shall be installed on a crane or hoist.
- (13) The crane or hoist operator shall sound a warning signal when it is necessary to alert workers.
- (14) All controls on a crane or hoist shall be clearly identified and shall return to neutral when released, and an automatic braking system shall be activated.
- (15) The operator of a crane or hoist shall be protected against hazardous conditions such as airborne contaminants, falling or flying objects and excessive heat or cold.
- (16) The operator's seat on a crane or hoist shall be of an ergonomic design that allows the operator to operate the equipment safely.
- (17) All the hooks, hook guards or latches, wire ropes, chains and other attachments and fittings shall be maintained and inspected on a regular basis.
- (18) The operator of a crane or hoist shall perform a check at the start of each shift and test the limit switch and a report thereof shall be maintained.
- (19) Transport routes for cranes shall be clear of obstructions and transport routes for wheeled or tracked cranes shall, as far as practicable be level.
- (20) Training shall be given to crane operators to ensure proper and safe operation of the crane and rigging loads.

**216. Design, operation and maintenance of heavy earth moving machineries (HEMMs) including trucks, tippers and dumpers.-** (1) Every shovel, dragline, dozer and surface miner shall be so designed as to afford the operator clear and uninterrupted vision all around.

(2) Every heavy earth moving machineries, including trucks and tippers, used in mine shall be fitted with such safety features or devices as the Chief Inspector may, from time to time, specify by a general order in writing.

(3) Truck mounted drill machines designed for tube well drilling for sources of water shall not be used and only proper type of blast hole drill machine, especially designed for mining purpose, shall be used in the mine.

(4) Every heavy earth moving machinery shall be under the charge of a competent person, authorised in writing by the manager, herein called the 'Operator' or 'Driver'.

(5) All persons employed or to be employed to operate heavy earth moving machinery shall be trained and their competency shall be evaluated by a Board constituted by the management, who shall be persons who are not connected with imparting of training:

Provided that the training officer may be co-opted in the Board as observer.

(6) Only such fitters or mechanics possessing driver's or operator's license, shall be allowed to carry out test-run of heavy earth moving machineries.

(7) No person other than the operator or the manager or any person so authorised in writing by the manager shall be allowed to ride on a heavy earth moving machinery.

**217. General precautions.—** (1) All machinery and plant used in connection with working of a mine shall be of good design, sound construction, and suitable material, adequate strength, free from patent defect and properly maintained.

(2) The owner, agent and manager shall provide adequate training facilities and ensure proper training of persons employed for operation and maintenance of machinery and plant.

(3) No person except an engineer or other competent person under his supervision shall undertake any work on machinery and plant in which technical knowledge or experience is required.

## CHAPTER XVI

### EXTRACTION OF METHANE FROM WORKING COAL MINE OR ABANDONED COAL MINE

**218. Notice of Intention or proposal of exploration for methane.**—(1) Whenever there is any proposal or intention to explore for presence of methane, in any coal seam or coal measure strata of any working or abandoned coal mines or part thereof, with an objective to exploit the methane or any other gases for captive, domestic or industrial purposes, the owner, agent and manager of the mine shall, not less than six months prior to the date of start of such exploration work, give notice in writing in the Form and method as may be specified by the Chief Inspector for the purpose, to the Chief Inspector and also to the Regional Inspector:

Provided that in case of an abandoned mine, a notice of reopening shall also be submitted as specified under these regulations.

(2) The notice so required under sub-regulation (1) shall be submitted along with—

- (a) a pre-feasibility report prepared by an agency recognised for the purpose, having knowledge, experience and expertise in the required fields and subjects to explore such presence of methane;
- (b) a report on the manner of exploration work proposed to be undertaken and the details of organisation, agency and any other contractor by which all or the parts of the jobs are proposed to be carried out within such period as planned or proposed;
- (c) details of machinery, equipment, instruments and apparatus along with their specifications, parameters and all relevant information, that are proposed to be used in the exploration work;
- (d) persons and the category of persons including officials, competent persons, officers and staff with organisation structure and chart clearly specifying duties and responsibilities thereof;
- (e) plans and sections of the mine prepared adhering to general requirements under these regulations, clearly showing the coal seams, coal measure strata, target seams and strata or the places of the working or abandoned mines from where the methane is proposed to be extracted, their extent and all other details as required, present and future working from where coal is or shall be extracted; and
- (f) plans and sections of the area prepared adhering to general requirements under these regulations, showing details of exploration work that is proposed to be undertaken indicating the proposed layout of the area over which drilling or any other exploration work are to be undertaken.

(3) The Chief Inspector may by an order in writing and subject to such conditions as may be specified therein require any alteration, modification and additional requirements to be incorporated in the exploration plan or the project.

(4) No exploration plan or project as mentioned in sub-regulation (3) aforesaid shall be started or undertaken unless a written order or approval in that respect is obtained from the Chief Inspector.

(5) The date of starting of the execution of exploration plan or project shall be communicated forthwith to the Chief Inspector and to the Regional Inspector.

**219. Submission of the exploration or abandonment of the exploration report.**—(1) On completion of the exploration work in the mine or part thereof, a detailed exploration report complete in all respects shall be submitted to the Chief Inspector and a copy thereof to the Regional Inspector:

Provided that an interim report, if so required by the Chief Inspector, shall also be submitted from time to time.

(2) If during exploration, it is decided to abandon or discontinue further exploration in the area, mine or part thereof, a notice to that effect in the Form as may be specified by the Chief Inspector for the purpose, enclosing therewith the detailed exploration work carried thereon shall be submitted forthwith to the Chief Inspector and the Regional Inspector.

(3) The plans and sections prepared adhering to general requirements under these regulations, showing the details of all the boreholes drilled, abandoned or incomplete with details such as diameter, depth and

direction of every section of the borehole, extent of water, gas, etc., and any other information, shall be submitted along with the report mentioned under sub-regulation (2).

(4) All the boreholes drilled or excavation made therein during exploration shall be effectively sealed or plugged so as to prevent any leakage of gas therefrom or any other gas or liquid matter flowing there into unless otherwise is required to be used further.

(5) A record of all such boreholes giving details as mentioned in this regulation shall be maintained in a bound paged book kept for the purpose, duly signed and dated by the driller or drilling engineer, assistant manager and countersigned and dated by the manager.

**220. Notice of commencement of extraction of methane.-** (1) Whenever there is any proposal or intention to commence or start extraction of methane from any coal seam or coal measure strata of any working or abandoned mines or part thereof, with an objective to exploit the methane or any other gases for captive, domestic or industrial purposes, the owner, agent and manager of the mine shall, not less than thirty days prior to the date of start of such extraction work, give notice in writing in the Form and method as may be specified by the Chief Inspector for the purpose, to the Chief Inspector and also to the Regional Inspector.

(2) The notice so required under sub-regulation (1) shall be submitted along with a detailed project report prepared by an agency recognised for the purpose having knowledge, experience and expertise in the required fields and subjects incorporating the following, namely:-

- (a) the manner of extraction or exploitation work proposed to be undertaken and the details of organisation, agency and any other contractor by which all or the parts of the jobs are proposed to be carried out within such time period as planned or proposed;
- (b) details of machinery, equipment, instruments and apparatus along with their specifications, parameters and all relevant information, that are proposed to be used;
- (c) persons and the category of persons including officials, competent persons, officers and staff with organisation structure and chart clearly specifying duties and responsibilities thereof;
- (d) plans and sections of the mine prepared adhering to general requirements under these regulations, clearly showing the coal seams, coal measure strata, target seams and strata or the places of the working or abandoned mines from where the methane is proposed to be extracted, their extent and all other details as required, present and future working from where methane as well as coal is or shall be extracted; and
- (e) plans and sections of the area prepared adhering to general requirements under these regulations, showing details of exploration work that is already completed and also the remaining area over which drilling or any other exploration work are yet to be undertaken.

(3) The Chief Inspector may, by an order in writing and subject to such conditions as may be specified therein, require any alteration, modification and an additional requirement to be incorporated in the extraction plan or the project.

(4) No extraction plan or project as mentioned in this regulation shall be started or undertaken unless a written order or approval in that respect is obtained from the Chief Inspector.

**221. Notice of closure, abandonment or discontinuance of extraction of methane.-** (1) Whenever there is any proposal or intention to close or abandon or discontinue extraction of methane from any coal seam or coal measure strata of any working or abandoned mines or part thereof, the owner, agent and manager of the mine shall, not less than sixty days prior to the date of start of such closure, abandonment or discontinuance of extraction work, give notice in writing in the Form and method as may be specified by the Chief Inspector for the purpose, to the Chief Inspector and also to the Regional Inspector.

(2) The notice so required under sub-regulation (1) shall be submitted with the following information, namely:-

- (a) the reasons of closure, abandonment or discontinuance;
- (b) plans and sections of the mine or part thereof prepared adhering to general requirements under these regulations, clearly showing the coal seams, coal measure strata, target seams and strata or the places of the working or abandoned mines from where the methane has already been extracted,

- their extent and all other details as required under these regulations, present and future working from where methane as well as coal are likely to be extracted;
- (c) plans and sections of the area prepared adhering to general requirements under these regulations, showing details of extraction work that is already completed and the conditions of all the boreholes and the part of working abandoned or discontinued; and
  - (d) protective work like sealing or isolation of working or any other work already completed and all those work required to be done so as to make the area safe and secure in all respect.

(3) The Chief Inspector may, by an order in writing and subject to such conditions as may be specified therein, require any other work as required to be completed before closure, abandonment, or discontinuation of such working, by the owner of the mine.

(4) If owner and agent fails to complete the remaining work required to be done before closure or abandonment or discontinuance of the working in a mine or part thereof, the Chief Inspector may get such protective work done by any other agency and the charges so incurred shall be defrayed from the owner as an arrear of land revenue.

**222. Annual returns.**— (1) On or before 1<sup>st</sup> day of February in every year, the owner, agent or manager shall submit to the Chief Inspector and the Regional Inspector annual returns in respect of the preceding year in the Form and method as may be specified by the Chief Inspector for the purpose.

**223. Manner of extraction of methane.**— (1) Owner, agent and manager of every mine from where methane is extracted, shall prepare a standard manner of extraction of methane from the target seam or the coal measure strata and submit the same to the Chief Inspector for approval.

(2) If methane is proposed to be extracted from an abandoned or closed mine or part thereof, or from a discontinued working of a mine or part thereof or from an existing working of a mine or part thereof, the owner, agent and manager of such mine shall also prepare a standard manner of extraction of methane from such place and submit the same to the chief Inspector for approval.

(3) No extraction of methane from coal seam and the coal measure strata of a closed or abandoned or discontinued working of a coal mine or of a working mine or part thereof shall be done without permission in writing and subject to such conditions as may be specified therein is obtained from the Chief Inspector.

**224. Drill machine.**— (1) The drill machine and each of its accessories shall, as far as practicable, be of non-inflammable material and any inflammable material, if used, shall be shrouded with substantial metallic covering to render it non-inflammable.

- (2) Drill machine shall be provided with—
  - (a) an efficient head light capable of showing any obstruction in the working place ahead;
  - (b) an efficient portable fire extinguisher so placed as to be within easy reach of operator and also with an automatic type of fire detection and suppression system; and
  - (c) a seat for operator and a canopy over head shall be provided to protect the operator from falling objects.

(3) No drill machine shall be operated otherwise than by a competent person appointed in writing by the manager to be the operator of the drill machine:

Provided that for repairs or tests, the drill machine can be operated by a competent person, other than operator, authorized in writing by the manager.

(4) Drill machine shall not be used at any work place where there is, after allowing for swing of the machine, clear space not less than the following, namely:—

- (a) below the roof or its support 0.3 meter; and,
- (b) on the sides 0.6 meter.

(5) While drill machine is in operation, no person other than the person authorised in writing by the manager, shall be allowed to stay on the machine or in the vicinity thereof.

(6) Every work place in which drill machine is used shall be placed under the charge of a competent person or persons who shall once at least in every shift, examine every such work place with particular regards to—

- (i) clearance and whether free from any obstruction;
- (ii) the state of roof and sides;
- (iii) ventilation; and
- (iv) general safety

(7) The competent person making the examination under sub-regulation (6) shall record the results thereof in a bound paged book kept for the purpose duly signed by the competent person and countersigned by the manager.

**225. Drilling operation.-** In connection with methane exploration or extraction activities in a belowground mine or part thereof, the conditions and other details for the conduct of drilling operation shall be specified by the Chief Inspector, by a general or special order.

**226. Production drilling and extraction of methane from boreholes.-** (1) While drilling for exploration or extraction of methane through boreholes, all precautions and arrangements shall be made to ensure that no frictional or open spark occurs inside the borehole containing methane gas or likely to contain methane which may cause explosion or blow out in the borehole.

(2) Before commencement of degasification from a hole, necessary arrangements shall be made to control the release of the methane through the degasification hole.

(3) Arrangements shall be made and kept functional to ensure that there is no leakage of gas from the borehole.

(4) Automatic gas and leakage detectors fitted with audio-visual alarm shall be provided at the collar of the borehole to give warning in the event of any leakage of inflammable gas or any other noxious gas from the borehole into the atmosphere.

(5) In addition to the automatic detector mentioned in sub-regulation (4), a competent person shall check for the leakage of inflammable or noxious gases using hand-held gas detector at regular interval during the shift and a record thereof shall be maintained in a bound-paged book kept for the purpose, duly signed and dated by him and countersigned and dated by the assistant manager in-charge of the drilling operations and the manager.

**227. Ventilation plan for methane exploration or extraction belowground.-** (1) A ventilation plan as required under clause (d) of sub-regulation (1) of regulation 65 shall be maintained, showing in addition, the position of each exploration and production borehole and gas transportation pipe lines.

(2) Ventilation planning of the mine shall be done in consultation with the scientific body of repute, and quantity as well as quality of air reaching in each split and gallery through which gas transportation pipe line passes, shall be fixed.

(3) Air measurement stations shall be fixed at each split through which gas transportation pipe line passes in belowground working and air measurement at all such stations shall be taken in each shift and the record thereof maintained in a bound paged book kept for the purpose, duly signed by the ventilation officer and Assistant manager in-charge of the methane exploration or extraction operations and counter signed and dated by the manager of the mine.

(4) Whenever the normal ventilation of the mine is disturbed, all methane exploration or extraction activities shall be stopped forthwith and work shall not be resumed till the normal ventilation of the mine is restored.

(5) A coal barrier of not less than 150 meter in thickness shall be maintained in the same seam from old boreholes and present working of the mine from where exploration or extraction of methane is in progress.

(6) The ventilation plan and section required to be kept maintained under sub-regulation (1) shall be kept updated at specified intervals and shall be signed by the ventilation officer and assistant manager-in-charge of methane exploration or extraction operations, and countersigned and dated by the manager.

**228. Water and gas separation.-** Water separation and removal equipment shall be installed at each degasification hole, at lower points in the main gas pipe line.

**229. Welding, cutting or fusion, etc.-** In connection with methane exploration or extraction activities in a belowground mine or part thereof, a flame or electric welding, cutting or repairing apparatus may be used if prior permission in writing has been obtained from the Regional Inspector and subject to such conditions as he may specify therein.

**230. Methane gas transportation belowground.-** The conditions and other details for methane gas transportation belowground shall be specified by the Chief Inspector, by a general or special order.

**231. Sectionalisation of methane pipe lines.-** (1) The main gas pipelines shall be sectionalised so that in the event of rupture in the pipeline, the methane gas in the general body of the air gets diluted within the permissible limit.

(2) Sectionalisation shall be accomplished with automatic control valves which shall be of spring loaded type and pneumatic valves that fail close.

(3) The tracer tubing shall be connected to pneumatic valve on each degasification hole, which shall be activated (fail close) whenever pressure is lost in tracer tubing and also when the automatic control valves on the pipeline are actuated.

**232. Methane and other gas monitoring system in case of positive pressure in reservoir.-** (1) A proper automatic on line or continuous methane monitoring system fitted with audio visual alarm shall be installed along the gas pipelines.

(2) Methane monitors shall be placed at every five hundred meters interval along the main pipeline in the return air way or at closer interval if so required by the Regional Inspector.

(3) Methane monitors shall be inter-faced to the electrically actuated valves attached to the tracer tubing.

(4) Methane monitoring system shall be provided with uninterrupted power supply arrangement.

(5) All air that cross or passes the pipe-line shall be monitored by methane monitors.

(6) Calibration of each methane monitor and the system so installed shall be done quarterly and record of the same shall be maintained in a bound paged book kept for the purpose duly signed by the competent person and counter signed by assistant manager-in-charge of methane exploration or extraction operations and the manager.

(7) All gas monitors and automatic gas detecting system shall be of a type approved in writing by the Chief inspector and the repairs and calibrations of all such monitors and system shall be undertaken only at an approved laboratory.

**233. Communication.-** Proper means of efficient and effective telephonic communication system shall be installed and maintained in between surface and belowground working and at the strategic points all along gas transportation pipe lines in belowground ground as well as on surface, which shall be of type approved by the Chief Inspector.

**234. Inspection and examination of machinery and equipment for methane exploration and extraction.-** (1) All the installations, pipelines and safety system installed shall be examined daily by competent person authorised for the purpose and the results of all such examinations shall be recorded in bound paged book kept for the purpose duly signed by the competent person and countersigned by assistant manager-in-charge of methane exploration or extraction operations and manager.

(2) Suitable log book shall be maintained wherein shall be recorded the repair or maintenance job in the pipeline and other installations and the record of the same shall be kept in a bound paged book kept for the purpose duly signed by the competent person and countersigned by assistant manager-in-charge of methane exploration or extraction operations and manager.

**235. Responsibility of owner, agents, managers, engineers, competent persons and officials.-** The owner, agents, managers, engineers, competent persons and officials shall each be responsible for securing effective compliance with the provisions relating to exploration or extraction of methane from coal seam, working or abandoned coal mine or part thereof.

**236. General provisions.-** (1) Owner, agent and manager in consultation with the expert agencies, shall frame suitable code of safe practices and standard operating procedures for development, extraction, storage, transport and all other related operations, required for extraction of abandoned mine methane or coal mine methane as the case may be.

- (2) The code of safe practices and standard operating procedures shall be circulated to all the concerned persons and officials who shall ensure their compliance.
- (3) A copy of the code of safe practices and standard operating procedures so framed shall be sent to the Regional Inspector who may examine and modify the same if so require.
- (4) The work persons, staff and officials involved in exploration or recovery of coal mine methane or abandoned mine methane project and activities shall be adequately trained.
- (5) Work persons, staff and officials involved in exploration or recovery of coal mine methane or abandoned mine methane project and activities shall not be changed normally unless replaced with equally trained and competent persons, staff or officials.

## CHAPTER XVII

### MISCELLANEOUS

**237. Fences.-** (1) Every tank or reservoir or other dangerous place in or about a mine, which has been formed as a result of, or is used in connection with, mining operations, shall be kept securely fenced.

(2) Every fence erected on the surface shall, once at least in every seven days, be examined by a competent person and a report of every such inspection shall be recorded in a bound paged book kept for the purpose, duly signed and dated by the person who made the examination.

(3) Any fence, gate or barricade may be temporarily removed for the purpose of repairs or other operations, if adequate precautions are taken.

(4) If any doubt arises as to whether any fence, guard, barrier or gate provided under this regulation is adequate, proper or secure, or as to whether the precautions taken under sub-regulation (3) are adequate, it shall be referred to the Chief Inspector for decision.

**238. Notices.-** Where at any place smoking or unauthorised entry is prohibited, notices to that effect shall be posted at conspicuous places at every entrance to the place.

**239. General safety.-** No person shall negligently or willfully do anything likely to endanger life or limb in the mine, or negligently or willfully omit to do anything necessary for the safety of the mine or the persons employed therein.

**240. Use, supply and maintenance of protective footwear.-** (1) No person shall go into, or work, or be allowed to go into, or work in a mine, unless he wears a protective footwear of such type as may be approved by the Chief Inspector by a general or special order in writing.

(2) The protective footwear referred to in sub-regulation (1) shall be supplied free of charge, at intervals not exceeding six months, by the owner, agent or manager of a mine, who shall at all times maintain a sufficient stock of protective footwear in order to ensure immediate supply as and when need for the same arises.

(3) Where a footwear is provided otherwise than as specified in this regulation, the supply shall be made on payment of full cost.

(4) The owner, agent or manager of a mine shall provide at suitable places in the mine dubbing and revolving brushes or make other suitable alternative arrangements for the cleaning of protective footwear by the persons using them:

Provided that it shall be the responsibility of the person supplied with the protective footwear to arrange the repair of the same at his own cost.

**241. Use and supply of helmet.-** (1) No person shall go into, or work, or be allowed to go into, or work in a mine, other than the precincts of a mine occupied by an office building, canteen, crèche, rest shelter, first aid room or any other building of a similar type, unless he wears a helmet of such type as may be approved by the Chief Inspector by a general or special order in writing:

Provided that where the Chief Inspector is of the opinion that due to special circumstances, it is not necessary or reasonably practicable for any person or class of persons going into, or working in a mine to wear a helmet, he may, by a general or special order in writing and subject to such conditions specify therein, exempt such person or class of persons, from the operation of the provisions of this sub-regulation.

(2) The helmet referred to in sub-regulation (1) shall be supplied free of charge, at intervals not exceeding three years or such other intervals as the Chief Inspector may specify by a general or special order in writing by the owner, agent or manager of a mine, who shall at all times maintain a sufficient stock thereof in order to ensure immediate supply as and when need for the same arises:

Provided that when a helmet is accidentally damaged during legitimate use, the owner, agent or manager shall immediately replace the damaged helmet free of cost.

(3) Where a helmet is provided otherwise than as specified in this regulation, the supply shall be made on payment of full cost.

**242. Supply of other personal protective equipment.**—(1) Where it appears to the Regional Inspector or the Chief Inspector that any person or class of persons employed in a mine is exposed to undue hazard by reason of the nature of his employment, he may, by a general or special order in writing, require the owner, agent or manager of the mine to supply to such person or class of persons, free of charge, gloves, goggles, shin guards, respirator or such other protective equipment as may be specified in the order.

(2) The protective equipment provided under sub-regulation (1) shall be replaced free of charge by the owner, agent or manager whenever it is rendered unserviceable by legitimate use:

Provided that in any other event, the replacement shall be made on payment of full cost.

(3) If any dispute arises as to the life of any protective equipment, it shall be referred to the Chief Inspector for decision.

**243. Use, supply and maintenance of self-rescuer.**—(1) No person shall go into, work or be permitted to go into or work belowground in any mine unless he is provided with and carries with him a self-rescuer of such type as may be approved by the Chief Inspector by a general or special order in writing.

(2) If such a self-rescuer is accidentally damaged during use or goes out of order or becomes unserviceable or having exceeded its specified life, or has been used, the owner, agent or manager shall immediately replace such self-rescuer.

(3) The owner, agent or manager or every mine where self-rescuers are to be used, shall:-

- (a) at all times keep sufficient stock of self-rescuers so that they are readily available whenever needed;
- (b) provide, at the mine, adequate arrangements for cleaning, maintenance and inspection of self-rescuers;
- (c) ensure that every person who may be required to use self-rescuer under sub-regulation (1) undergoes a course of training in the use of self-rescuer, as may be specified by the Chief Inspector by a general or special order in writing.

**244. Obligation of persons provided with personal protective equipment.**— Whenever any person is supplied by the owner, agent or manager of a mine with any personal protective equipment, he shall use the same while doing the work for which he is supplied with such protective equipment.

**245. Information about sickness.**— Every official or competent person shall, in case of sickness or of lawful absence, give early and sufficient notice thereof to his superior official or the manager, as the case may be, so that a substitute may be arranged.

**246. Manpower distribution plan.**— During the first week of every month, a survey shall be made of the number of persons normally employed in every district and other places belowground in the mine and a sketch plan showing the results of such a manpower survey, signed and dated by the manager shall be kept in the office of the mine and a copy thereof shall be kept with the attendance clerk.

**247. Sirdars and overmen.**— (1) No person shall be appointed as a competent person under regulations 33, 75, 99, sub-regulations (14) and (15) of regulation 137, clause (a) of sub-regulation (4) of regulation 138, sub-regulation (6) of regulation 139, sub-regulations (7) and (8) of regulation 142, sub-regulation (9) of regulation 150, sub-regulation (12) of regulation 159, sub-regulation (3) of regulation 161, sub-regulation (2) of regulation 165, regulations 167, 169 and 195, unless he is the holder of either an Overman's Certificate or a Manager's Certificate.

(2) No person shall be appointed as a competent person under regulations 129, 130, sub-regulation (6) of regulation 135, sub-regulation (7) of regulation 136, regulation 147, sub-regulation (1) of regulation 165

and regulation 166 unless he is the holder of either a Manager's Certificate or Overman's Certificate or a Sirdar's Certificate together with a gas testing certificate:

Provided that, so much of this regulation as requires a person holding a Manager's Certificate or Overman's Certificate or a Sirdar's Certificate to hold gas testing certificate also shall not apply to, persons employed aboveground, or in opencast working, or competent person under sub-regulation (6) of regulation 135.

(3) In case of mines having opencast workings only, nothing in sub-regulations (1) and (2) shall prohibit the appointment under regulations 33, 129, 130, sub-regulation (6) of regulation 135, clause (a) of sub-regulation (4) of regulation 138, sub-regulation (6) of regulation 139 and regulation 195 of a person holding, as the case may be, a Sirdar's Certificate, Overman's Certificate or Manager's Certificate restricted to mines having opencast workings only.

(4) Notwithstanding anything contained in sub-regulation (2), the Chief Inspector may, where special conditions exist, permit or require appointment of any person, not necessarily holding either a Manager's Certificate or Overman's Certificate or a Sirdar's Certificate as a competent person under regulation 130, if such person possess otherwise a suitable qualification and experience for effective supervision of the working places.

**248. Officials to be literate.**— No person shall be appointed as an official of a mine unless he is literate and is conversant with the language of the district in which the mine is situated or with the language understood by a majority of the persons employed in the mine:

Provided that so much of this regulation as requires a person to be conversant with the language of the district or of the majority of persons, shall not apply to managers, assistant managers, engineers and surveyors.

**249. Writing of reports.**— (1) If any person required to make any report is unable to write, the competent person so authorised by the manager shall write the report on his behalf and in his presence, and he shall attach his thumb mark to it or sign on it after the report is read over to him by the competent person.

(2) The competent person writing the report shall certify that it has been read over to the person for whom it was written, and shall sign the certificate and date his signature.

**250. Payment of fees.**— Any fees payable under these regulations shall be paid by means of a crossed Indian Postal Order or Bank Draft or through electronic mode and any other means as specified from time to time by the Chief Inspector.

**251. Place of accident not to be disturbed.**— (1) Whenever an accident occurs in or about a mine causing loss of life or serious bodily injury to any person, the place of accident shall not be disturbed or altered before the arrival or without the consent of the Chief Inspector or the Inspector to whom notice of the accident is required to be given under sub-section (1) of section 23 of the Act unless such disturbance or alteration is necessary to prevent any further accident, to remove bodies of the deceased, or to rescue any person from danger, or unless discontinuance of work at the place of accident would seriously impede the working of the mine:

Provided that where the Chief Inspector or the said Inspector fails to inspect the place of accident within seventy-two hours of the time of the accident, work may be resumed at the place of accident.

(2) Before the place of accident involving a fatal or serious accident is disturbed or altered due to any reason whatsoever, a sketch of the site illustrating the accident and all relevant details shall be prepared in duplicate and such sketch shall be duly signed by the manager or assistant manager, safety officers, surveyor and the workmen's inspector or, where there is no workmen's inspector by a work person present at the place of accident, which shall also be supported by the photographs of the place of accident:

Provided that, if the place is disturbed or altered to prevent further accident or rescue persons from danger before the sketch could be prepared, the same shall be prepared immediately thereafter giving all relevant details as existed before the place was disturbed or altered.

(3) One of the authenticated sketches shall be delivered or sent to the concerned Inspector.

**252. Emergency response and evacuation plan.**— (1) The owner, agent and manager of every mine shall have a comprehensive programme in place to respond to any injury, illness or emergency that may occur at each mine including foreseeable industrial and natural disasters which shall include immediate

first-aid treatment, medical treatment, transportation and evacuation of injured persons procedures to respond to emergencies that arise at the mine and make arrangements for the rescue of persons incapacitated or trapped in coal mines.

(2) The plan referred to in sub-regulation (1) shall cover mine evacuations and include—

- (a) establishment of individual responsibilities for administering actions identified to implement an emergency response;
- (b) establishment of emergency communication systems, procedures and individual responsibilities for carrying out emergency communications;
- (c) a system in place to provide immediate notification to all persons affected by the emergency, including alarms in place which shall be capable of being seen and heard by everyone affected;
- (d) a procedure to allow for the safe, orderly and immediate withdrawal of persons from the mine or area of danger, including training on emergency escape routes and procedures;
- (e) procedures in place to be followed by workers who remain to perform critical operations before they evacuate, which include—
  - (i) the selection of only those personnel who have received special training to respond to critical operations and mine emergencies, including mine fires and explosions;
  - (ii) having procedures in place to ensure the locations that are safe for persons who would not be immediately withdrawn;
  - (iii) having the personnel equipped with the necessary gas-detection equipments and other equipments or tools necessary to respond to the critical operation at hand;
- (f) providing persons with particular risks with the equipment necessary for escape, such as self-contained self-breathing devices, etc.;
- (g) a response team that is trained and equipped and immediately available to respond to fires or other hazards that create mine emergencies;
- (h) procedures to account for all workers after the emergency evacuation is complete;
- (i) providing relevant information and training to all personnel, at all levels, including regular exercises in emergency prevention, preparedness and response procedures and periodic emergency drills;
- (j) mock rehearsals at regular intervals.

(3) The owner, agent and manager shall submit a copy of the emergency response and evacuation plan prepared by him to the regional inspector who may, by an order in writing approve such action plan, either in the form submitted to him or with such additions and alterations as he may think fit, and the action plan so approved shall be enforced at the mine.

(4) On receiving information of any emergency, the owner, agent and manager, and in his absence, the principal official present at the surface shall immediately put emergency action plan in operation.

**253. Taking samples from mine.**— Where for official purposes, an Inspector considers it necessary to take samples of any coal, rope or other material, the owner, agent or manager shall make over to him such samples in such quantities as he may require.

**254. Right of the workers' representative to inspect register maintained under sub-section (1) of section 48 of Act.**— The register maintained under sub-section (1) of section 48 of the Act shall be available for inspection to a workers' representative authorized by the persons employed in the mine on an application made by him in this behalf.

**255. Chief Inspector or authorized Inspector to exercise powers of Regional Inspector.**— Any power granted under these regulations to the Regional Inspector may be exercised by the Chief Inspector or any other Inspector authorised in writing in this behalf by the Chief Inspector.

**256. Plans, sections and records.**— Where special conditions exist, the Chief Inspector may permit preparation and maintenance of plans, sections and records required to be maintained under the provisions of these regulations, subject to the conditions as he may specify, in electronic form within the limits of error of survey and plotting, as specified under sub-regulation (3) of regulation 64.

**257. Publication of orders and instructions.**— Orders and instructions under these regulations shall be published in the Official Gazette and by other suitable means as may be specified by the Chief Inspector.

**258. Appeal to the Chief Inspector.**— (1) An appeal shall lie against an order made by the Regional Inspector under any of these regulations, to the Chief Inspector who may confirm, modify or cancel the order.

(2) Every appeal under sub-regulation (1) shall be preferred within fifteen days of the receipt of the order by the aggrieved person.

**259. Appeal to Committee.**— (1) An appeal against any order made by the Chief Inspector under any of these regulations or against any order passed under regulation 258 shall lie, within twenty days of the receipt of the order by the aggrieved person, to the Committee constituted under section 12 of the Act.

(2) Every order of the Chief Inspector, against which an appeal is preferred under sub-regulation (1) shall be complied with, pending the receipt at the mine of the decision of the Committee:

Provided that the Committee may, on an application by the appellant, suspend the operation of the order appealed against, pending the disposal of the appeal.

**260. Repeal and savings.**— (1) The Coal Mines Regulations, 1957 are hereby repealed.

(2) Notwithstanding the repeal referred to in sub-regulation (1), anything done or any action taken under the regulations so repealed including any order or certificate issued, authorisation or permit granted or renewed, any order or direction made thereunder shall be deemed to have been done or taken or issued or granted or renewed or made under the corresponding provisions of these regulations.

### SCHEDULE

[See sub-regulation (2) of regulation 64]

#### CONVENTIONS FOR PREPARING PLANS AND SECTIONS

NAME	SYMBOL	REMARK
BOUNDARY OF LEASE HOLD		In Red
UNDERGROUND COAL BARRIER		In Green
SHAFT		
ABANDONED SHAFT		
INCLINE		
ABANDONED INCLINE		

NAME	SYMBOL	REMARK
PILLARS AND GALLERIES		Workings shown by dotted lines are not surveyed and their extent is not correctly known
DRIFT	 <b>DRIFT</b>	In Burnt Sienna showing gradient in Black
QUARTERLY SURVEY LINE		
STAPLE SHAFT		In Red should state distance up and down to all insets
ABANDONED STAPLE SHAFT		In Red
FAULT		In Red showing the amount and direction of throw
DYKE OR OTHER INTRUSION		In Green
GOAF		
SUBSIDENCE		In Red
BENCH MARK		

NAME	SYMBOL	REMARK
SURFACE CONTOUR		In Burnt Sienna
UNDERGROUND SPOT LEVEL		In Blue
WATER DAM		In Red
DIRECTION OF AIR CURRENT		Intake in Blue Return Red
DOORS		In Red
BRICK/STONE OR CONCRETE VENTILATION STOPPING		In Red
FIRE DAM, SEAL OR STOPPING		In Red
EXPLOSION PROOF STOPPING		In Red
AIR CROSSING		
EXPLOSION PROOF AIR CROSSING		
REGULATOR		In Red
AUXILIARY FAN		In Red
TELEPHONE		In Red

NAME	SYMBOL	REMARK
UNDERGROUND FIRST-AID STATION		Thick cross in Red
ENGINE HOUSE OR ROOM		
BORE HOLE		Should show serial number & diameter
SURVEY LINES & STATIONS		In Red
SECTION OF SEAM		

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