

**Ministry of Labour and Employment
Director General of Mines Safety
Dhanbad**

The following draft Regulations, namely, the Metalliferous Mines Regulations, 2018 which the Central Government proposes to make, are hereby uploaded on DGMS website for the information of and comments/feedback/suggestions from all persons likely to be affected thereby to the following e-mail ids on or before 02nd November, 2018.

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CHAPTER-I
PRELIMINARY

1. Short title, commencement, application and extent.-

- (1) These regulations may be called the Metalliferous Mines Regulations, 2018.
- (2) They shall come into force on the date of their publications in the Official Gazette.
- (3) They shall apply to every mine other than a coal or an oil mine.
- (4) They shall extend to the whole of India.

2. Definitions.-

- (1) In these regulations, unless the context otherwise requires,-
 - (a) "abandoned working" mean such working as have been abandoned with no intention of working in future;
 - (b) "Act" means the Mines Act, 1952 (35 of 1952);
 - (c) "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;
 - (d) "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 a mine foreman and a mining mate;
 - (e) "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;
 - (f) "average employment" of any mine, means the average per day during the preceding calendar year, from first day of January to thirty first day of December, of the total employment in all excavations and specified ancillary facilities within the specified mine boundary (obtained by dividing the number of man days worked by the number of working days excluding the rest days and other non-working days);
 - (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 winze;
 - (i) "bellman" means a person appointed to superintend the raising and lowering of persons, tools, materials and to transmit signals at any inset, landing or shaft bottom;

- (j) "blaster" means a person possessing a Manager's, Foreman's, Mate's or Blaster's Certificate and appointed by the manager in writing to perform the duties of a blaster under these regulations;
- (k) "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;
- (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 Blaster;
- (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) "decline" means a passage from surface to belowground or from one part of belowground working to another part other than shaft;
- (p) "deep-hole drilling and blasting" means drill holes made more than three meters in depth and used for blasting in an opencast mining operation;
- (q) "designer" means an individual, association of individuals, company or institution who designs a metalliferous mine, method of mining or machinery, plant, equipment, appliance or substances for use in metalliferous mines;
- (r) "discontinued working" means such working in a mine as have been discontinued for some reasons and are inaccessible or rendered inaccessible but are likely to be worked again;
- (s) "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 purposes of these regulations shall be the District Magistrate authorised in this behalf by the Central Government;

- (t) "disused working" mean such working in a mine where work has been temporarily stopped, but which are accessible and include unused working;
- (u) "explosive" shall have the same meaning as is assigned to it in the Indian Explosives Act, 1884 (4 of 1884);
- (v) "face" means the moving front of any working place or the inbye end of any drive, level, crosscut, raise or winze;

- (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 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) "general body of air" means the general atmosphere in the working belowground 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 the ore or waste rock;
- (zb) "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;
- (zc) "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 fifty millimeters), dredging, hydraulicking, ripping, dozing, grading, excavating, loading or transporting minerals, waste or overburden;
- (zd) "inset" means a landing or platform in a shaft, and includes an excavation therefrom between the top and the bottom of the shaft;
- (ze) "intrinsically safe" shall have the same meaning as defined under Central Electricity Authority(measures relating to safety and electric supply) Regulation, 2010;
- (zf) "landing" means any floor or platform in a shaft, or winze, which is an authorised stopping place of the cage or other means of conveyance;
- (zg) "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;
- (zh) "manager" means a Manager appointed under regulation 29;

- (zi) "manufacturer" means an individual, association of individuals, company or institution who manufactures machinery, plant, equipment, appliance or substances for use in metalliferous mines;
- (zj) "material" includes rock, debris, stone, mineral, ore or any other material;
- (zk) "metalliferous mine" includes every mine other than a coal or an oil mine;
- (zl) "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 same shall collectively constitute a mine;
- (zm) "mine foreman" means a person possessing a Manager's or Foreman's Certificate, appointed by the Manager in writing, under the designation whatsoever, to perform the duties of supervision or control in a mine or part thereof, and is as such superior to a mining mate;
- (zn) "mining mate" means a person possessing a Manager's, Foreman's or Mate's Certificate and appointed by the Manager in writing, under any designation whatsoever, to perform the duties of a mining mate under these regulations;
- (zo) "misfire" means the failure to explode of an entire charge of explosives in a shot-hole or blast hole;
- (zp) "month" means a calendar month;
- (zq) "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 foreman, a mining mate, an engineer and a surveyor;
- (zr) "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;
- (zs) "pipeline" means a pipeline laid or being used in a mine for the purpose of pumping or supply of water, compressed air, sand stowing or filling of material other than sand stowing, nitrogen flushing or for any other purpose;
- (zt) "principal official" means the senior-most mine official in mining discipline on duty in the mine;
- (zu) "public road" means a road maintained for public use and under the jurisdiction of any government or local authority;
- (zv) "quarter" means a period of three months ending on the 31st March, 30th June, 30th September or 31st December;
- (zw) "railway" means a railway as defined in the Railways Act, 1989 (24 of 1989);
- (zx) "Regional Inspector" means the 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;

- (zy) "risk" means combination of the likelihood of a specific unwanted event and its potential consequences;
- (zz) "river" means any stream or current of water, whether seasonal or perennial, and includes its banks extending up to the highest known flood level;
- (zza) "roadway" means any passage or drivage or part thereof belowground which is maintained in connection with the working of a mine;
- (zzb) "Schedule" means a Schedule appended to these regulations;
- (zzc) "shaft" means a vertical or inclined way or opening leading from the surface to the workings belowground or from one part of workings belowground to another and includes an incline;
- (zzd) "signalman" means a person appointed to transmit signals;
- (zze) "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;
- (zzf) "supplier" means an individual, association of individuals, company or institution who supplies a technology, machinery, plant, equipment, appliance or substance for use in metalliferous mines;
- (zzg) "tub" includes a wagon, car, truck or any other vehicle moving on rails for conveying materials, but does not include a railway wagon;
- (zzh) "ventilation district" means such part of a mine belowground that 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;
- (zzi) "winze" or "raise" means a small shaft, either vertical or inclined, in the working belowground;
- (zzj) "working" means any excavation made or being made in a mine for search of or obtaining ore;
- (zzk) "working place" means any place in a mine to which any person has lawful access.
- (2) Words and expression 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 regulation 126, 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 67.
 - (b) a copy of Safety Management Plan prepared under regulation 112:

Provided that in respect of a mine which has already been opened, the plan referred to in clause (a) & (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 1st 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 to discontinue workings thereof for a period exceeding four months, 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 the District Magistrate, stating the reason for such abandonment, closure or discontinuance and the number of persons likely to be affected thereby, not less than thirty days before such abandonment, closure or discontinuance:

Provided that in case of a mine or part thereof to which regulation 163 applies, notice as aforesaid shall also be given whenever it is intended to abandon a district or part of the mine, or to discontinue thereof for a period exceeding four months:

Provided further that where on account of unforeseen circumstances or without previous intention a mine is abandoned, closed or discontinued beyond a period of four months before the said notice has been given, the notice shall be given forthwith.

- (2) Notwithstanding anything contained in sub-regulation (1), where it is intended to abandon, close or discontinue for more than four months any workings 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 thereof 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 part thereof has been abandoned, closed or the workings thereof has been discontinued over a period exceeding four months, 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 specified by the Chief Inspector for the purpose.

6. Notice of re-opening.-

- (1) When it is intended to reopen a mine after abandonment, closure or discontinuance for a period exceeding four months, 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 the District Magistrate notice in 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 reopening to the Chief Inspector, Regional Inspector and 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 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 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 these 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 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 names 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 aforesaid 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 such 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 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 eruption or inrush of water or other liquid matter;
- (viii) an instantaneous failure of pillar, part of a pillar or several pillars in working belowground;
- (ix) a rock-burst in working below ground;
- (x) a premature collapse of any part of the working;
- (xi) any accident due to explosives;
- (xii) 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;
- (xiii) an overwinding of cages or other means of conveyance while men or materials are being lowered or raised;
- (xiv) a breakage or fracture of any essential part of winding engine, crankshaft, coupling, bearing, gear, clutch, drum or drum shaft, or failure of emergency brake;
- (xv) a bursting of any equipment containing steam, compressed air or other substance at high pressure;
- (xvi) a breakage, fracture or failure of any essential part of any machine or apparatus whereby the safety of persons may be endangered;
- (xvii) a slide causing injury to any persons, damage to any machinery, or interruption of normal mining operations;
- (xviii) failure of dump or side in opencast working;
- (xix) a failure of any structure or installation whereby the safety of persons may be endangered; or
- (xx) 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-mails or by special messenger; and shall also, within twenty four hours of every such occurrence, give notice thereof in 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 of such notice is sent by e-mails, 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 outside 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 of such notice is sent by e-mails, 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 where any injury other than the serious injury become 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 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 person killed or injured, as above, the owner, agent or manager shall send particulars in the Forms 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 and Inspector of Mines (Medical), the District Magistrate, and to the Competent Authority for payment of compensation.

CHAPTER – III

EXAMINATION AND CERTIFICATE OF COMPETENCY AND OF FITNESS

10. Board of Mining Examinations.-

- (1) For the purposes of these regulations, there shall be constituted a Board of Mining Examinations, (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 metalliferous 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 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 reappointment to that office.
- (5) A member of the Board other than the Chairman shall receive such remunerations as the Central Government may fix.

- (6) An Inspector nominated in this behalf by the Chief Inspector shall act as Secretary to the Board (hereinafter referred to in this regulation 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 Boards 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 official address or usual place of residence of the member, and each such notice shall be accompanied by a list of items of business to be disposed of at that meeting.
- (c) Notwithstanding anything contained in clauses (a) and (b), in cases of urgency, an emergent meeting may be called for by 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, the 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 of 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 it 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, 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 the 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 powers 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 the 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. Certificates granted by the Board.-

- (1) The certificates specified in sub-regulation (2) shall be granted by the Board.
- (2) Certificates 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 metalliferous mine (hereinafter referred to as a First Class Manager's Certificate);
- (b) Manager's second class certificate of competency to manage a Metalliferous mine (hereinafter referred to as a Second Class Manager's Certificate);
- (c) Surveyor's certificate of competency to survey the working of a Metalliferous mine (hereinafter referred to as a Surveyor's Certificate);
- (d) Mine Foreman's certificate of competency to carry out inspections and duties as required under these regulations (hereinafter referred to as a Mine Foreman's Certificate);
- (e) Mining Mate's certificate of competency to carry out inspection and duties as required under these regulations (hereinafter referred to as a Mining Mate's Certificate);
- (f) Blaster's certificate of competency to fire shots in a metalliferous mines (hereinafter referred to as a Blaster's certificate);
- (g) Winding Engineman's certificate (hereinafter referred to as Engine-Driver's certificate) to drive a winding engine of any type or class; and
- (h) 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 Engine Driver's Certificate and 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) Certificates 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 certificates 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 applications.-

- (1) Applications 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 Mine Foreman's Certificate 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, Mine Foreman's Certificate, Mining Mate's Certificate or Blaster's Certificate unless he holds a valid first-aid certificate of the standard 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 issued by a municipal authority or office of registrar of Births and Deaths or 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 Medicine 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-
 - (a) (i) a Manager's Certificate, Surveyor's Certificate, Mine Foreman's Certificate, Mining Mate'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;

- (ii) a Blaster's Certificate or Engine Driver's Certificate unless he has passed the Secondary School Examination or its equivalent from a recognised Board:

Provided that nothing in this clause shall be deemed to debar a person, not satisfying the provisions thereof, from being admitted at an examination for any of these certificates for three years from the date of commencement of the Metalliferous Mines Regulations, 2018, including the date of such commencement, if he had been admitted at an examination for the said certificate earlier.

- (5) (a) No person shall be admitted as a candidate at any examination for a First Class Manager's or Second Class Manager's or Mine Foreman's Certificate which is not restricted to mines having opencast working only, unless he has obtained at least a Second Class Manager's or Mine Foreman's or Mining Mate's Certificate respectively 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 First Class Manager's or Second Class Manager's or Mine Foreman's Certificate restricted to mines having opencast working only, unless he has obtained at least a Second Class Manager's or Mine Foreman's or Mining Mate's Certificate respectively including certificate restricted to mines having opencast workings only:

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 examinations.-

- (1) No person shall be admitted as a candidate at any examination for a Manager's Certificate other than an exchange Certificate to which the provisions of regulation 23 apply, unless the Board is satisfied that he has had practical experience in Metalliferous mine as prescribed under sub-regulation (2) for a period of-
 - (a) not less than four years from the effective date of Mine Foreman's Certificate for Second Class Manager's Certificate and
 - (b) not less than one year from the effective date of Second Class Manager's Certificate for First Class Manager's Certificate;
- (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 examinations.-**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 a candidate-

- (a) who has received a diploma in mining or mining engineering or mine surveying or other equivalent qualification approved in that behalf by the Central Government, such period of experience shall be reduced to one year; 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 six months.

17. Practical experience of candidates for Mine Foreman's Certificate examinations.-

- (1) No person shall be admitted as a candidate at any examination for a Mine Foreman's Certificate, unless the Board is satisfied that he has had practical experience in metalliferous mine as prescribed under sub-regulation (2) for a period of not less than one year from the effective date of Mining Mate's Certificate.
- (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 Mine Foreman's Certificate.

18. Practical experience of candidates for Mining Mate's and Blaster's examinations.-

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

Provided that such period shall be reduced to a period of two years 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) No person shall be admitted as a candidate at any examination for a Blaster's Certificate unless the Board is satisfied that he has had practical experience and training in a metalliferous mine for a period of not less than two years, of which not less than six months shall be experience and training in connection with shot-firing:

Provided that the said period shall be reduced-

- (i) to one year (including not less than four months in shot-firing) in the case of a candidate who has received a diploma or certificate in mining subjects or other equivalent qualification after a course of at least two years duration approved in that behalf by the Central Government or who has received a degree in applied geology or in civil, mechanical or electrical engineering or other equivalent qualification approved in that behalf by the Central Government; and
- (ii) to six months (including not less than two months in shot-firing) in the case of a candidate who has received a diploma or degree in mining or mining engineering or other equivalent qualification approved in that behalf by the Central Government.

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

19. Approval of experience in coal mines.- In the case of a candidate, part of whose experience has been obtained in a coal mine, the period of practical experience in a Metalliferous mines as prescribed in regulation 15, 16, 17 and 18 may be reduced by the Board to such an extent and subject to such conditions as it may specify.

20. Practical experience of candidates for Engine Driver's Certificates.- 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.

21. 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.

22. 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.

23. Exchange Certificates.-

- (1) The Board may grant to any person, holding a Manager's Certificate, Surveyor's Certificate, Engine Driver's Certificate, Foreman's or Overman's Certificate, Mate's or Sirdar's Certificate or Blaster's or Shot-firer's Certificate granted under any law for the regulation of mines in force in any other country or under the Coal Mines Regulations, 2017 or its amended version made under the Act, a corresponding certificate of a similar class under these regulations, if he possesses such qualification, experience and passes such examination as the Board may stipulate, subject to the conditions specified in the bye-laws:

Provided that the Board may, subject to the conditions laid down in the 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 Medicine 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 efficient discharge 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 the bye-laws.

- (3) Fees on the scale laid down in regulation 22 shall be paid in respect of every examination under this regulation.

24. Duplicate Certificate.- If any person proves to the satisfaction of the Board that he has, without any fault on his part, lost a certificate granted to him under these regulations, the Board may, upon realisation of the fee prescribed under sub-regulation (1) of regulation 22 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.

25. Certificates to be delivered to the manager.-

- (1) When the holder of a Mine Foreman's Certificate, Mining Mate's Certificate, Blaster'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.

26. Suspension or cancellation of Manager's Certificate, Surveyor's Certificate, Mine Foreman's Certificate, Mining Mate's Certificate, Engine-Driver's Certificate, Blaster's Certificate or Gas testing Certificates.-

- (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, Mine Foreman's Certificate, Mining Mate's Certificate, Engine-Driver's Certificate, Blaster'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 being and 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 Boards 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 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 24.

27. Validity of certificate for managers and officials, etc.-

- (1) No person shall act as a manager or an official or a blaster 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 the regulations, and orders made thereunder, the Chief Inspector or the Regional Inspector may, by an order in writing, require such persons to obtain a medical certificate of fitness within such period, not exceeding three months, as he may specify therein; and no such persons 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 the bye-laws.
- (3) Notwithstanding anything contained in sub-regulation (1), no person shall act as a manager or an official or a blaster or a winding engineman in a mine after attaining the age of seventy years.

CHAPTER – IV

INSPECTORS AND MINE OFFICIALS

28. 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, rules and of the 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(MBBS) or such other qualifications 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.

29. Qualifications and appointment of manager.-

- (1) No mine shall be opened, worked or reopened 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) Except as hereinafter provided in sub-regulation (6), and 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 of which the average employment or the average monthly output in case of belowground mine or mines or the average monthly material handled in case of opencast mine or mines, as the case may be, 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)
<p>For belowground mines:</p> <p>(a) Average employment in excess of 150 persons working belowground or of 400 persons in all in the mine; or average output in excess of 1,250 tonnes.</p> <p>(b) Average employment in excess of 75 but not exceeding 150 persons working belowground or in excess of 150 but not exceeding 400 persons in all in the mine; or average output in excess of 625 but not exceeding 1,250 tonnes.</p> <p>(c) In any other case.</p>	<p>A First Class Manager's Certificate not restricted to opencast mines only.</p> <p>A First or Second Class Manager's Certificate not restricted to opencast mines only.</p> <p>A First or Second Class Manager's Certificate not restricted to opencast mines only or any other person authorised under sub-regulation (6).</p>
<p>For opencast mines:</p> <p>(a) Average employment in excess of 400 persons in all in the mine; or average monthly material handled in excess of 20,000 cubic meter.</p> <p>(b) Average employment in excess of 150 persons but not exceeding 400 persons in all in the mine; or average monthly material handled in excess of 6,500 but not exceeding 20,000 cubic meter.</p> <p>(c) In any other case.</p>	<p>A First Class Manager's Certificate.</p> <p>A First or Second Class Manager's Certificate.</p> <p>A First or Second Class Manager's Certificate or any other person authorized under sub-regulation (6).</p>

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 average output, material handled or employment:

Provided further that no person shall act or continue to act, or be appointed, as manager of a mine or mines where work is being carried on by a system of deep-hole blasting unless he holds a manager's certificate:

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

- (4) Where under the provisions of sub-regulation (3) a person holding a First 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 employment or average monthly output in case of belowground mine or average monthly material handled in case of opencast mine, as the case maybe.

- (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) The Chief Inspector may, by an order in writing, and subject to such conditions as he may specify therein, authorise any person whom he may consider competent to act as manager of any mine or mines for a specified period, notwithstanding that such person does not possess the qualifications prescribed in that behalf by sub-regulation (3); and may by a like order revoke any such authority at any time.

- (7) 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 or Foreman'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, e-mail 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.
- (8) The persons so authorised to act as manager under sub-regulation (7) 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.
- (9) 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.
- (10) 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).
- (11) Nothing in sub-regulation (7) 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).
- (12) 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.
- (13) 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.
- (14) If any doubt arises as to any matter under sub-regulation (12) or sub-regulation (13), it shall be referred to the Chief Inspector for decision.
- (15) Except as hereinafter provided in sub-regulation (5), no manager shall act as manager or in any other capacity in another mine.
- 30. Charge report of manager.-** 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 .

31. Qualifications and appointment of safety officer.-In every belowground mine the average monthly output of which exceeds 2,500 tonnes or in every opencast mine the average monthly material handled of which exceeds 20,000 cubic meters, 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 10,000 tonnes, a First Class Manager's Certificate not restricted to opencast mines only;
- (b) in case of a mine having opencast working with an average monthly material handled in excess of 50,000 cubic meters, a First Class Manager's Certificate;
- (c) in case of a belowground mine having an average monthly output in excess of 5,000 tonnes, but not exceeding 10,000 tonnes , a First or Second Class Manager's Certificate not restricted to opencast mines only ;
- (d) in case of a mine with opencast working having an average monthly material handled in excess of 20,000 cubic meters but not exceeding 50,000 cubic meters, a First or Second Class Manager's Certificate;
- (e) in the case of a belowground mine having an average monthly output in excess of 2,500 tonnes but not exceeding 5,000 tonnes, holder of a First 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.

32. 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.

33. Qualifications and appointment of ventilation officer.- In every below ground mine, the average monthly output of which exceeds 5,000 tonnes, the manager shall be assisted in the work of supervising the maintenance of the ventilation system of the mine in accordance with the provisions of these regulations by a ventilation officer who shall be a person holding

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 case of a mine having an average output less than 7,500 tonnes, the post of ventilation officer may be combined with that of safety officer appointed under regulation 31.

34. Appointment of engineer.-

- (1) At every mine where machinery is used, an engineer or other competent person not less than 23 years of age 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 no person unless he holds a degree or diploma in mechanical engineering or mining machinery or equivalent qualification approved for the purpose by the Central Government shall except with the previous permission in writing of the Chief Inspector and subject to such conditions as he may specify therein, be so appointed in an opencast mine worked by heavy earth moving machinery in which the aggregate HP of all machinery used exceed 750, or in any other mine in which the aggregate HP of all machinery used exceed 250:

Provided further 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 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) 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.

35. Appointment and qualifications of senior officials.-

- (1) At every mine, one or more mine foreman 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 a mine foreman 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 mining mate shall hold either a Manager's Certificate or a Mine Foreman's Certificate.

36. Appointment of surveyor.-

- (1) At every mine having workings belowground and at such other mines or classes of mines as may be specified from time to time by the Chief inspector, 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 appointment 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.

37. 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—
 - (a) adequate inspection of the mine and the equipment thereof;
 - (b) a thorough supervision of all operations in the mine;
 - (c) the installation, running and maintenance, in safe working order, of all machinery in the mine; and
 - (d) 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 mine foreman 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.

38. 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 a competent person 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, CONTRCATORS, MANUFACTURERS, OFFICIALS, COMPETENT PERSONS AND WORKMEN

39. 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; and
 - (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; and
 - (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; and
 - (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.

40. General responsibilities of supplier, manufacturer and designer.-A person who designs, manufactures, imports, provides or transfers machinery, equipment or substances for use in metalliferous 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.

41. Responsibilities of contractor.-

- (1) A contractor deployed in a mine for any work shall-
 - (a) establish effective ongoing communication and coordination 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 contracts 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.

42. 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 order 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.

43. 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.

44. 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.

45. 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 reason 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 mine foremen 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 rules or regulations made thereunder in a proper manner.
- (7) The manager shall provide every mine foremen with a tracing, up to 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 or blocks of mineral 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 and such tracing shall also show the sections of the workings under his charge.

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 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 copy thereof shall be furnished to the Chief Inspector and Regional Inspector within fifteen days of the accident or dangerous occurrence.
- (11) The manager shall perform such other duties as have been prescribed in that behalf under the provisions of the Act, rules, 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, rules, regulations or orders made thereunder.

46. 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, failure of slope, benches and dumps, 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 the 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; and
 - (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.

47. 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 travelable 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.

48. 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 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, 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 sitting 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 ducting 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 in 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 other working 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 and rescue 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 dust in the mine and see that the arrangements for wet-cutting at the faces and water spraying at and within 90m of the working places are properly installed and function satisfactorily;
- (t) ensure that the samples of airborne dust are regularly taken in the specified manner;
- (u) collect air samples from sealed off areas, exhaust gases from diesel vehicles and from such other places as may be required by the manager;
- (v) ensure that all records and reports relating to ventilation, spontaneous heating, fire, gas and dust are kept up-to-date and entries are made regularly in the check boards for ventilation:

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

- (w) 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.

49. Duties and responsibilities of mine foreman.-

- (1) The mine foreman or other competent person appointed under regulation 35 (1) 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 mine foreman shall-
 - (a) while on duty, carry a tracing of the working 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 mine foreman 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 the 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 mine foreman shall see that sufficient supplies of timber, support materials, brattice, tools and tackles, appliances, and other necessities required for the safe working of his district are kept at convenient places therein.
- (5) The mine foreman 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, that 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 purpose of inspection, examination and repairs 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.

- (6) In case of opencast working the mine foremen 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 area under his control;
 - (g) adequate precautions as laid down in these regulations are taken before blasting operations are conducted;
 - (h) all machinery and plant are operated in safe and secured manner; and
 - (i) dust control measures are implemented.
- (7) The mine foreman 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 had 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.

50. Duties and responsibilities of mining mates.-

- (1) The mining mate or other competent person appointed under regulation 132 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 mining mate 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 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 132 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 buntline 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 necessities 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 mining mate 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 mining mate shall-
- (a) take care that any dangerous operation is carried out with due precaution, 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, he shall take such precautions specified in the regulation 161 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 mining mate 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 mining mate 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.

51. Duties and responsibilities of blaster. – The blasters shall –

- (a) carry out his duties in accordance with the provisions of the 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 un-authorised 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; and

- (f) be responsible, when a shot has misfired, for seeing that the place is adequately fenced, and that the provisions of regulations 189 are strictly observed.

52. Duties of support man.-The support man shall-

- (a) carry out the orders of the manager, assistant manager, mine foreman, mining mate or other competent person with respect to the securing of hangwall, footwall and back(roof) and other working places;
- (b) ensure placement of supports are strictly in accordance to the support plan;
- (c) at once report to the mining mate 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.

53. 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; and
- (d) not leave his place until relieved by a duly appointed substitute where the ventilator is continuously operated.

54. Duties of lamp-room in-charge.-The person in charge of a lamp-room shall-

- (a) be responsible for ensuring that all lamps in the lamp-room including safety lamps are properly maintained as per manufacturer's specification and in accordance with the provisions of these regulations;
- (b) see that the lamp-room is kept in a neat and tidy condition, and that all damaged and defective gauges, glasses and other parts of safety lamps are not kept or stored in such room;
- (c) see that fire extinguishers or other means of dealing with fires provided in the lamp room 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 belowground is provided with a lamp having adequate charge to sustain at least whole of the shift; and
- (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.

55. 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; and
 - (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 75 meters from the mine boundary, or from disused or waterlogged working;
 - (b) any doubt which may arise or exist concerning the accuracy of the plans and sections prepared under these regulations; and
 - (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 working 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.

56. 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; and
- (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:

57. Duties of winding enginememen.-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 un-authorised 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 un-clutch 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 un-clutched, he shall use the brake only for the purpose of maintaining such drum stationary, and shall not lower men or materials from an un-clutched 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.

58. Duties of banksman, bellman and signalman.-

- (1) Every banksman, bellman and signalman shall, -
 - (a) subject to the orders of a superior official, have full control of the top or bottom of shaft or winze or landing or 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, bellman or signalman 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 un-authorized person to give signals;

- (c) immediately report to his superior official any defect in the signaling installation;
- (d) devote the whole of his time to his duties, and shall not leave his post during the period of his duty;
- (e) 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;
- (f) not allow more than the authorised number of persons to enter the cage or other means of conveyance at any one time;
- (g) 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 material 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 the explosives by a blaster or other competent person;

- (h) 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;
- (i) 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;

- (j) 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;
 - (k) not allow any un-authorised person to handle tubs in or out of the cage;
 - (l) 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;
 - (m) 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 un-authorised person to open or interfere with the gate;
 - (n) see that all fences and gates provided at the top of the shaft, winze, landing or at any inset are in position;
 - (o) not permit any un-authorised person to remove a fence or gate and if he notices any defect in such fence or gate, immediately inform his superior official;
 - (p) keep the top of the shaft or the inset and the floor of every cage free from loose material;
 - (q) when long timber, pipes, rails or other material 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;
 - (r) when he suspects that the cages are not working smoothly in the shaft or winze or when he hears anything unusual happening in the shaft or winze 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) Where the manager so directs by an order in writing, the banksman or bellman, as the case may be, shall also carry out the duties of a signalman.
- (4) The banksman shall not leave his place of work unless duly relieved by his successor.

59. Duties of haulage engineman, attendant and signalman, 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 signalman shall not allow any un-authorised 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 signalman 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; and 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 un-authorised 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.

60. Duties of locomotive driver and shunters.-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 un-authorised person;
- (f) ensure that no un-authorised 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.

61. Duties of cutting, loading machine driver and mechanic or fitter.-

- (1) When a machine is required to work on 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 fitted 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.
- (6) During loading, the machine operator shall not overload or project any material, on the truck, tipper or dumper beyond the side of its body.

62. 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 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 reissue 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 persons 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 un-authorised 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.

63. Duties of register keeper and attendance clerk, etc.-

- (1) Every person appointed to keep registers 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 workings 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 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.

64. Duties of operators of heavy earth moving machineries excluding trucks, tippers and dumpers.- Every person authorised to operate heavy earth moving machineries 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 un-authorised 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 118 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.

65. 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 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) 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 audio-visual 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 117 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 operator of trucks, tippers or dumpers 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 operator of trucks, tippers or dumpers shall not allow any un-authorised person to ride on the vehicle.
- (4) The operators of trucks, tippers or dumpers shall not operate the vehicle in fog or mist without taking adequate precautions as may be specified by the manager.

CHAPTER - VI

PLANS AND SECTIONS

66. 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 later;
 - (c) specify a scale of the plan at least twenty five centimeters long and suitably subdivided;
 - (d) unless otherwise provided, be on a scale having a representative factor of -
 - (i) 200 : 1, in case of mica mines and other mines having small scale working below ground;
 - (ii) 2,000 : 1, in case of mines having large open cast working and also in case of surface plans of large leasehold areas ; and
 - (iii) 1,000 : 1, in other cases:

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; and
 - (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 except in case of open-cast working in respect of which it shall suffice if the plans are maintained up-to-date within a period of twelve months:

Provided that where any mine or part 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.

67. Type of plans and sections.-

- (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, power transmission line, water main, 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 working of the mine belowground;
 - (ii) every bore-hole and shaft with depth, incline opening, drive, cross cut, winze, rise, excavation (stoped ground), fire-stopping or seal, water dam (with dimensions and other particulars of construction), pumping station, haulage roadway and every tunnel and air passage connected therewith;
 - (iii) every pillar or block of mineral left for the support of any structure on the surface; and underground magazines, if any;
 - (iv) every important surface feature within the boundaries, such as railway, road, river, stream, watercourse, tank, reservoir, opencast working and building which is within 200 meters of any part of the working measured on the horizontal plane;
 - (v) the general strike of the veins, lodes, reefs and mineral beds or deposits;
 - (vi) such sections of the veins, lodes, reefs and mineral beds or deposits as may be necessary to show any substantial variation in the thickness or character thereof and showing the working section, and such sections of the strata sunk or driven through in the mine or proved by boring as may be available;

- (vii) the position of every roll, washout, dyke, fault and other geological disturbance with the amount and direction of its throw and the hade;
- (viii) an abstract of all statutory restrictions in respect of any specified working with reference to the order imposing the same, whenever this plan is brought up-to-date, the then, position of the working 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:

Provided that the Chief Inspector may, be an order in writing and subject to such conditions as he may specify therein, approve any other method of showing the up-to-date position of the working of the mine.

- (c) a transverse section or sections of the working through the shaft or shafts and main adits indicating clearly the surface and the dips of the vein, lode, reef or mineral bed or deposit at different points; and such sections of the strata sunk or driven through in the mine or proved by boring, as may be available;
- (d) a vertical mine section or sections showing a vertical projection of the mine working, where a reef, vein, lode or mineral bed or deposit has an average dip of more than 30 degrees from the horizontal:

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 meters, in both, longitudinal as well as transverse directions, shall be prepared and maintained irrespective of the dips of the vein, lode, reef or mineral bed or deposit:

Provided further that, with the permission in writing of the Regional Inspector and subject to such conditions as he may specify therein, such sections may be prepared in relation to any other suitable plane;

- (e) 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-refuge chamber, if provided;
 - (v) every fire-stopping and its serial number.
 - (vi) every room used for storing inflammable material;
 - (vii) the position of fire-fighting equipment;
 - (viii) every water-dam with dimensions and other particulars of construction;

- (ix) every pumping, telephone and ambulance station, every underground magazine; and
- (x) every haulage and travelling roadway;
- (xi) every auxiliary or booster fan;
- (f) a joint survey plan showing the details required under clauses (a) and (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;
- (g) a geological plan and section of the area of leasehold, on a suitable scale;
- (h) 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, crosscut, winze, rise, 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 working belowground lying within 60 meters of any part of the working 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) Where different reefs, lodes, veins or mineral beds or deposits overlie or run parallel to one another, the working of each reef, lode, vein or mineral bed or deposit shall be shown on a separate plan or longitudinal section or sections; so however that if two reefs, lodes, veins or mineral beds or deposits are so situated in relation to each other than the parting between

working made therein is less than ten meters at any place, such working shall also be shown on a combined plan or longitudinal section, as the case may be in different colours.

- (3) Plans maintained under clauses (a), (b), (d), (e), (f), (g) and (h) 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 tramming 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 drivages in ore, pass over one another, these shall be clearly indicated on the plans, with appropriate noting, if necessary.

- (5) The plans maintained under clause (a) of sub-regulation (1) shall also show spot levels on the floor of every bench of open cast working and haul roads at intervals not exceeding fifty meters.
- (6) 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.
- (7) 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 owners of the mines 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 or any other suitable scale showing such boundaries and the outline of the working shall also be maintained.

- (8) The plans maintained under clause (b) of sub-regulation (1) shall also show the working, 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 owners of the mines.
- (9) 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.

- (10) 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.
- (11) 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 working of the mine.

68. Plans and sections to be submitted after abandonment, closure or discontinuance.—

- (1) Where any mine, or part of a mine to which regulation 163 applies, is abandoned, closed or the working thereof has been discontinued over a period exceeding four months, 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 90 days after the discontinuance of the working, as the case may be, submit to the Chief Inspector two true copies of the up-to-date plan and section of the working of the mine or part maintained under clauses (a), (b), (c), (f) and (h) of sub-regulation (1) of regulation 67 and every such copy 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 working:

Provided that if a change of ownership occurs after the abandonment, closure or discontinuance and before the expiry of thirty days of 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, the veins, lodes, reefs and mineral beds or deposits or section;
 - (b) to the owner, agent or manager of an adjacent mine.

69. Survey instruments and materials.-

- (1) The owner or agent shall provide adequate number of accurate and reliable survey instruments and materials for carrying out all survey and levelling work and for the preparation of the plans and sections required under these regulations; and no other instruments 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 to maintain their accuracy level.

70. 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 69 with their respective types 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.

71. 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. The certificate shall be signed and dated by him.

- (4) If the surveyor fails or omits to show any part of the working 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.

72. 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 reopened, or where in any mine or part thereof it is intended to start any extraction or reduction of pillars or blocks of minerals, 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 drive or other work of development or stoping operations or of extraction or reduction of pillars or blocks of minerals 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

73. 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 purpose of employment, in any working belowground, unless the working is provided with at least two shafts, declines or other outlets to surface:
 - (a) with which every lode, reef, vein or mineral bed or deposit, or section thereof, 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, declines 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 the shaft is vertical and more than 60 meters in depth, such arrangements shall be by mechanical means so installed and maintained as to be constantly available for use:

Provided that, if required by the Regional Inspector by an order in writing, a proper winding engine shall also be provided in a shaft more than 60 meters in depth even if it is not vertical.

- (b) where the incline or decline is more than one kilometer in length (one way) and 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 working of the mine:

Provided that in case of a 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 access and egress and the equipment used therein for the transport of persons shall be kept constantly in a safe condition to facilitate ease of travelling, 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 conform to the requirement as specified in regulation (79).
- (6) Such shafts, declines or outlets shall not be less than 15meters distance 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 working belowground that are being served by such shafts, declines 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, declines and outlets shall not apply -
 - (a) to a shaft which is being sunk or to an outlet which is being made;
 - (b) to any working for the purpose of making a connection between two or more shafts, declines or outlets; and
 - (c) to any working for the sole purpose of searching for or proving minerals: so long as not more than 20 persons are employed belowground at any one time in the whole of the working belowground in connection with a single shaft or outlet.

Provided that if the single outlet is an un-walkable shaft (other than a shaft in the course of being sunk) and exceeds 30 meters in depth, it shall be provided both with ladders and with other means of raising and lowering persons:

Provided further that nothing in this sub-regulation shall be deemed to authorise the driving of roadways for the development purposes 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:

Provided that in case of a mine or part thereof to which regulation 163 applies, the system of communication and telecommunication so provided shall be of wired, wireless or any other type, as approved by the Chief Inspector.

74. Working shafts and winzes.-

- (1) All entrances to the mine shaft shall be adequately illuminated throughout working hours.
- (2) Every shaft or winze in use or in course of being sunk and every decline or other outlet shall be made and kept secure.
- (3) Every shaft, and every winze or raise intended to be used for purposes of winding or haulage in the course of being sunk shall be provided with a permanent lining, either of timber, metal, concrete or masonry, which shall at no time, be more than six meters from the bottom of the shaft or winze:

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 bottom of every working shaft and the sump thereof shall be kept clear and free from loose materials, tools and debris.

75. 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 effectively to prevent persons from entering therein.

76. 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.

77. Periodic examination of shafts, decline and other outlets.-

- (1) Every shaft, decline and other outlets provided as required by regulation 73 shall be examined, once at least in every seven days, by a mine foreman 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 mechanized 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, decline 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)& (2).

78. Provision of ladderways.-

- (1) Every shaft or winze, including shaft or winze in the course of being sunk, which has an inclination exceeding 25 degrees from the horizontal, shall be provided with a ladderway from the top to the bottom:

Provided that in the case of a shaft or winze in the course of being sunk, the ladderway may be provided within such distance, not exceeding 20 meters, from the bottom as to secure it from danger during blasting operations and a chain or rope ladder shall be provided from this point to the bottom of the shaft or winze:

Provided further that where the Chief Inspector is of the opinion that compliance with the provisions of this sub-regulation is not reasonably practicable, he may, by an order in writing and subject to such conditions as he may specify therein, grant an exemption therefrom.

- (2) Every working place shall be provided with platforms or other means of keeping a foothold, and where necessary, with ladders from climbing.

79. Ladders.-

- (1) Every ladder used in a mine shall –
 - (a) be of strong construction;
 - (b) subject to the provision of sub-regulation (2), be securely fixed in the shaft, winze or stope at an inclination of not more than 80 degrees from the horizontal;

- (c) be made continuous or without perceptible overlapping or break except at a platform or collar;
 - (d) project at least one meter above the mouth of the shaft, winze, rise or stope, and above every platform, except where strong holdfasts or hand-rails are provided;
 - (e) have rungs equally spaced and at a sufficient distance from the wall or from any timber to ensure proper foothold; and
 - (f) be maintained in good repair.
- (2) Except in respect of the lowest 10 meters or a sinking shaft or winze, no ladder shall be placed at an inclination of more than 80 degrees from the horizontal:

Provided that the Regional Inspector may, by an order in writing and subject to such conditions as he may specify therein, permit a ladder to be fixed at a steeper inclination.

80. Provision of collars, etc.-

- (1) If a ladderway provided under sub-regulation (1) of regulation 81 exceeds 20 meters in depth and has an inclination of more than 30 degrees with the horizontal, platforms or collars shall be provided at intervals of not more than 15 meters along the underlie or slope of the shaft or winze.
- (2) Where the inclination is more than 60 degrees from the horizontal, the platforms or collars shall be provided at intervals of not more than 10 meters.
- (3) If a manhole is provided at any platform in any shaft or winze, it shall be placed behind the ladder leading up from the platform.
- (4) Every opening in a platform provided for the handling of timber or other materials shall be effectively closed from the rest of the platform.

81. Guarding of ladderways.-

- (1) Every ladderway in a shaft or winze used for winding or other purposes shall be in a separate compartment or shall be adequately guarded from other compartments.
- (2) Every ladderway below any place or travelling roadway where persons are stationed or pass, shall be provided with a suitable cover or substantial fence or guard.

82. Carrying of materials on ladderways.- No person shall carry or be permitted to carry a drill, tool, explosives or any loose material on a ladderway in a shaft or winze having an inclination of more than 45 degrees from the horizontal except so far as may be necessary for carrying out repairs:

Provided that nothing in this regulation shall prevent a person from carrying a drill, tool or explosives in a suitable sling or container secured to his person.

CHAPTER - VIII

WINDING IN SHAFTS

83. Appointment, etc., of winding enginemen.-

- (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 30 HP or of a steam or compressed air winding engine which has cylinders not exceeding 18 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 Metalliferous Mines Regulations, 1961, 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 a duly appointed assistant working under direct personal supervision of the winding engineman may be allowed to operate any winding engine except for man winding purpose:

Provided further 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.

84. 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 60 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 installation, as he may specify in the order.

85. 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 80 times the diameter of the rope in the case of winding installations installed before 11th day of March, 1961 and not less than 100 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, pulley 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.

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

87. Shaft fittings.-

- (1) At every winding shaft, other than a shaft in the course of being sunk to which the provisions of regulation 91 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 or winze and –
- (i) the bottom or other permanent landing of the shaft or winze; 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
- TWO RAPS :LOWER when engine at rest
- THREE RAPS :RAISE
- FOUR RAPS :MEN ready to ascend or descend
- FOUR 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:
- Provided further that the Chief Inspector may, by an order in writing and subject to such conditions as he may specify therein, permit the use of any code of signaling other than that specified above.
- (4) A printed copy of the code of signals, including additional signals, if any, shall be posted prominently at the top of the shaft or winze and at every such inset and landing and also in the winding engine room.
- (5) No person other than the banksman, bellman or signalmen shall give any signal 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, bellman or signalmen, persons travelling inside the cage or any other person can contact and communicate with each other without any difficulties and hindrance.

- (8) (a) Where the shaft or winze is vertical and exceeds 45 meters in depth, it shall be provided with sufficient number of guides to ensure smooth and safe travel of the cage or other means of conveyance:

Provided that in case of man-winding sufficient number of guides shall be provided to ensure smooth and safe travel of the cage or other means of conveyance, irrespective of depth.

- (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; and
- (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; and
- (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.

88. Man winding.-

- (1) At every shaft or winze, other than a shaft or winze 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 (18) 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; and
 - (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 minimum 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 a 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 or winze, 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 3.6 meters where a geared engine is used, and not less than 7.5 meters where a direct acting engine is used.
- (9) If the shaft or winze exceeds 300 meters in depth, there shall be a clear over-run space of not less than 7.5 meters below the lowest landing place. The sump below the lowest landing place shall be kept free from water or other liquid matter to such an extent that in case of an overwind, the persons riding in the cage or other means of conveyance will not be submerged.
- (10) In every shaft, the engine shall be fitted with an automatically recording speed indicator.

- (11) (a) In every shaft, there shall be provided an effective automatic contrivance to prevent over speeding and over winding, hereinafter called the 'Automatic Contrivance' which shall prevent the descending cage from being landed at the bottom of the shaft or winze 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 or winze;
- (c) Tests 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 pre-determined point in the shaft is regarded as the landing; and
 - (iii) the results of every such tests 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.
- (12) 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.
- (13) 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.
- (14) Unless otherwise directed by the Chief Inspector by an order in writing, the provisions of the sub-regulation (13) shall be deemed to have been complied if an emergency winding gear is maintained.

- (15) (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 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;
- (16) 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 meter 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.
- (17) (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.
- (18) 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.
- 89. 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 signaling device with the main floor of the landing; and only the banksman or the bellman or the signal man 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.

90. 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.

91. Winding in sinking shafts.-

- (1) At every shaft or winze 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 or winze is vertical and 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 meters.
- (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 meters 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 or winze; and
 - (ii) efficient means for transmitting such signals from the top of the shaft or winze 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, namely:-

ONE RAP : STOP

TWO RAPS : LOWER

THREE RAPS : Take up SLACK or RAISE

FOUR RAPS : Take up SLACK or RAISE when men are riding:

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

Provided further that the Chief Inspector may, by an order in writing and subject to such conditions as he may specify therein, permit the use of any code of signaling other than that specified above.

- (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 or winze has an inclination of 35 degrees or more from the horizontal and exceeds 45 meters in depth, measured along its plane, the persons working at the bottom of the shaft or winze shall also be protected by an adequate protective covering, extending over the whole area of the shaft or winze, which shall be provided with a door for the passage of the bucket or other means of conveyance, and at all times when sinking is in progress the cover or scaffold shall be kept lowered -
- (i) if the shaft or winze is vertical, to not more than 22.5 meters from the bottom; and
- (ii) in any other case, not more than 30 meters from the bottom:

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 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;
 - (ii) 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 or winze, 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.

92. Winding ropes, etc.-

- (1) At every shaft or winze, where rope is used for winding purposes, the provisions of sub-regulation (2) to sub-regulation (8) shall apply.
- (2) (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 rope, bar, link, chain or other attachment 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 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.

- (3) (a) Except in a sinking shaft or winze 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 or winze, including a shaft or winze 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) No winding rope shall be used or continued in use, if its safety factor (i.e. the ratio between breaking load on the rope at any point and the maximum static load on it when the cage or other means of conveyance is at the lowest working point) is or becomes –
- (i) less than 10 in the case of a shaft not exceeding 300 meters in depth;
 - (ii) less than 9 in the case of a shaft exceeding 300 meters but not exceeding 500 meters in depth;
 - (iii) less than 8 in the case of a shaft exceeding 500 meters but not exceeding 700 meters in depth;
 - (iv) less than 7 in the case of a shaft exceeding 700 meters but not exceeding 1000 meters in depth;
 - (v) less than 6 in the case of a shaft exceeding 1000 meters but not exceeding 1500 meters in depth; or
 - (vi) less than 5 in case of a shaft exceeding 1500 meters in depth.
- (e) At every mine where a shaft or winze or incline is used for lowering or raising persons, at least one spare winding rope suitable for use in such shaft, shall be kept in store.
- (4) (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 cappel and tested in a laboratory, institution or test house approved by the Central Government for the purpose.

- (5) (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 (4), 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 a 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.
- (6) (a) No mode or type of capping shall be used, which fails to withstand a load of at least 10 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 white metal socket shall withstand the breaking strength of the rope and the tapered portion of the socket shall not be less than six times and not greater than eight times the diameter of the rope and the angle of taper is between 3 degrees and 6 degrees.
- (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 fiber core, if any, shall be cut and the wires shall be untwisted and thoroughly cleaned; and
- (iii) the socket shall be heated to a temperature of about 100 degrees centigrade before the white metal is poured into it.
- (7) 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 over wind; 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.
- (8) 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.

93. 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 10 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 15 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 could 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 the 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.

94. 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.

95. 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 and countersigned and dated by the engineer.
- (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.

96. Gates and fences.-(1) At the top of every shaft or winze 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 or winze 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 or winze 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 meters high and 1.2 meters 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.

97. 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 signalled 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 bellman, 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 or bellman 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 Chief Inspectors 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.

98. General Precautions.-

- (1) No un-authorised 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

99. 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:

Provided further that where the Regional Inspector, by an order in writing so requires, the stop-block and the runaway 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 rope shall be stopped; and

- (f) on every haulage roadway exceeding thirty meters 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 signal 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 mine or part thereof to which regulation 163 applies, all signaling or telephonic communication circuit 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 10 meters:
- Provided that where the gradient is less than one in six, such manholes may be provided at intervals of not more than 20 meters.
- (12) Manholes shall be not less than 1.8 meters in height and 1.2 meters in depth, and not less than 0.75 meters but not more than one meter in width:
- Provided that where the roadway is less than 1.8 meters 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 of manholes or 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 meters 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.

100. 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 traveling 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.

101. 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.

102. Brakes of haulage engines.- Every haulage engine shall be provided with an effective brake.

103. 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.

104. Protection at loading chutes.-Every chute where tubes are loaded shall be provided with suitable gates for holding back the column of material.

105. 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 other suitable system.
- (2) Where the inclination of the conveyor is such as to give rise to danger from sliding objects or material, suitable devices 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 modification 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.

106. Examination of haulage engines and track etc.-

- (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.

107. Examination of haulage and travelling roadways. - It shall be the duty of the mine foreman 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.

108. 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.

109. 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

dump, shall be as per the standards and parameters specified in a general order in writing, by the Chief Inspector.

110. 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 persons 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 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 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.

111. 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

112. 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 all 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, shall determine all measures necessary to-
- (a) eliminate any recorded risk;
 - (b) control the risk at source;
 - (c) minimize 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 minimization of risk is possible 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".

113. 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 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) where 'float' or other similar deposit is worked by manual means on a sloping face, the face shall be benched and the sides shall be sloped at an angle of not more than 60 degrees from the horizontal and the height of any bench shall not exceed six meters and the breadth thereof shall not be less than the height:

Provided that where the ore-body consists of comparatively hard and compact rock, the Regional Inspector may, by an order in writing and subject to such conditions as he may specify therein, permit the height of the bench to be increased up to 7.5 meters while its width is not less than six meters:

Provided further that in case of a mine or part where special difficulties exist, the Chief Inspector may, by an order in writing and subject to such conditions as he may specify therein, relax the provisions of this sub-regulation.

- (4) In an excavation in any hard and compact ground or in prospecting trenches or pits, the sides shall be adequately benched, slopped 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.

114. Mechanised opencast working.-

- (1) In all mechanised opencast working, 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 aforesaid study made within one year from the date of coming into force of these regulations:

Provided further that in case of a mine, where the depth of excavation measured from its highest to its lowest point at any place and the height of the bench does not exceed 20 meters and 6 meters respectively or average monthly material handled does not exceed 20,000 cubic meters, such scientific study is not necessary unless otherwise directed by the Regional Inspector.

- (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 alluvium soil, morum, gravel, clay, debris, soft ore body or other similar ground shall not exceed three meters and the width thereof shall not be less than three times the height of the bench or three times the width of the dumper if dumpers ply on the bench or as determined by the scientific study, whichever is more.
- (5) the height of the benches in hard and compact ore body 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; or
 - (d) as determined by the scientific study whichever is more.
- (6) notwithstanding anything contained sub-regulation (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.

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

116. 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 or an angle in excess of natural angle of repose or as determined by the scientific study, whichever is less and such spoil bank shall not be retained by artificial means:

Provided that where in any mine, a steeper slope of a spoil bank in excess of 37.5 degrees or natural angle of repose 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 beneficiation plant 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 30m in height shall be benched so that no bench exceeds 30m in height and the overall slope shall not exceed 1 vertical to 1.5 horizontal:

Provided that, the Regional Inspector may, by an order in writing and subject to such conditions as he may specify therein, restrict height and overall slope of the spoil bank.

- (5) The toe of a spoil bank shall not extend to any point within a distance equal to height of the spoil bank from a mine opening, railway or other public works, public road or other permanent structure not belonging to the owner:

Provided that, the Regional Inspector may, by an order in writing and subject to such conditions as he may specify therein, may increase the distance in variance of the above.

- (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.

117. 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 of 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 language comprehensible by the workers.
- (3) The manager and such officials shall each be responsible for securing effective compliances with the provisions of the transport rules, and no mine or part of a mine shall be worked in contravention thereof.

118. 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 operation 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 (1) shall always be kept in the office of the mine and also at respective places of such operation or machinery.

119. Underground working.-In every mine worked by a system of working below ground, the following provisions shall have effect, namely –

- (1) Unless otherwise permitted by the Regional Inspector by an order in writing and subject to such condition as he may specify therein, the height of every main drive shall be not less than 1.8 meters.
- (2) The dimensions of pillars or blocks formed in any vein, load, reef or mineral bed or deposit shall be such as to ensure stability of the working during the development and stoping stages, and between such stages:

Provided that if the Chief Inspector is of the opinion that the aforesaid dimensions are such as to render premature collapse of any part of the workings, he may by an order in writing require such modifications of the dimensions in respect of any future workings, as he may specify.

- (3) No extraction or splitting or reduction of pillars or blocks of minerals shall be commenced, conducted or carried out except with the prior permission in writing of the Chief Inspector and in accordance with such conditions as he may specify therein.
- (4) An application for such permission referred in sub-regulation (3) shall be accompanied by an up-to-date plan of the area where the pillars or blocks of minerals are proposed to be extracted or reduced, showing the proposed extent of extraction or reduction, the manner in which such extraction or reduction is proposed to be carried out, the thickness and other characteristics of the mineral deposit, the rate and direction of general dip and of the pitch of the vein, the nature of hangwall and footwall, the stopping width, the depth of the workings, and such other particulars as the Chief Inspector may require and a copy of the application and the plan shall simultaneously be sent to the Regional Inspector.
- (5) The operations of extraction, splitting and reduction of pillars or blocks of mineral shall be commenced, conducted or carried out in such a manner as to prevent, as far as possible, the extension of a collapse in the stopped-out area over-riding the pillars or blocks of minerals that have not been extracted.

120. Saving.-

- (1) Nothing in regulation 119 shall prevent the splitting or reduction of any pillar or block of mineral bed or deposit 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 drive or enlargement, of such protective works as he may specify therein.

121. Roads and working places.-

- (1) The roof or back, hanging wall, foot wall and sides of every roadway and working place, including airways and travelling roadways to second outlets, shall be made and kept secure.
- (2) Necessary arrangements shall be made to prevent the 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 symptoms of an impending collapse other than an ordinary caused by extraction or reduction of pillar or block or mineral is detected, the manager shall inform the Regional Inspector forthwith.

122. Powers of Inspectors.-

- (1) If in any mine or part thereof, it appears to the Regional Inspector that the provisions of regulations 113,114,119 and 121 or of any order issued under any of these regulations have not been complied with, he may give notice in writing to 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 mineral 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.

123. Pointing out 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 inter leafed, 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 contraventions which require confirmation after a survey or other further examination, and he may subsequently intimate the owner, agent or manager, specifying the contraventions, 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 any entry therein, as also a communication in pursuance of 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.

124. Working under railways and roads, etc.-

- (1) No working shall be made and no work of stoping or extraction or reduction of pillars or blocks of minerals 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.

125. Protective works 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 in sub-regulation (1), the Chief Inspector may get the works 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 works 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.

126. Working near mine boundaries.-

- (1) The owner, agent or manager of every 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:

Provided that if any opencast 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.

- (4) 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.

127. 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 mineral or the excavation required therefrom, which also includes a support plan to secure the roof or back, hanging wall, foot wall, and sides, or either of them at 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 30 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, blasters, mates, foremen 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 132 and the nature of work to be performed by each in that behalf.

128. Setting of support. –

- (1) Every piece of timber used as a support shall be set securely and on a secure foundation; and whenever it becomes loose or broken, shall as soon as possible, be tightened or replaced.
- (2) Every crib-set or pigstye used as a support shall be well built on a secure foundation, and shall be made and kept tight.
- (3) Only rectangular pieces of material shall be used as members of a crib set or pigstye; so however that in case of timber it shall be sufficient to joggle two opposite sides to provide flat surfaces.
- (4) The sides of every pack used for the purpose of support shall be well built on secure foundation and the pack shall be filled with debris or other suitable incombustible material, if so required by the Regional Inspector as shall be made as tight as practicable over its whole area.
- (5) Where sand or other material is stowed for the purpose of support, it shall be packed tight.
- (6) Except where it is no longer necessary for purposes of support, any support dislodged by or removed for any operation shall be replaced with the least possible delay.

- (7) In every place wherein a fall of ground involving the displacement or breakage of supports has occurred, no work of clearing the fall or any part thereof shall be undertaken until the newly exposed roof or back, hanging wall, footwall or side has been examined and made safe, if necessary, by temporary supports.
- (8) Notwithstanding anything contained in sub-regulation (6), only such minimum number of persons may be engaged under the supervision of a mining mate or foreman as may be necessary for securing the roof and sides thereat.
- (9) Where roof bolts are used for support, the bolt shall be securely fixed in place.

129. Provision of roof canopies or cabs.-

- (1) Electrical, battery, or diesel-powered, self-propelled machinery including side discharge loaders, load haul dumpers, dump truck used belowground 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.

130. Steep working.-

- (1) In working having an inclination of 30 degrees or more from the horizontal, adequate precautions 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.

131. Fencing 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, winze, ore-pass, chute, sump, store 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, winze, rise, chute, ore-pass or stope 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 in to a mine or 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 working 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.

132. Examination by mining mates.-

- (1) Every place in a mine, whether belowground or in opencast working, 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 mining mate or other competent person.
- (2) The mine or district assigned to a mining mate 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 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 mining mate 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, the presence of gases, the state of the roof or backwall, hanging wall, footwall, presence of heating and other fire risks, and generally so far as the safety of the persons is concerned, and similar inspections as required under sub-regulation (5) 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), in case of a mine or part thereof to which regulation 163 applies, inspection shall be made with an approved flame safety lamp or any other approved apparatus made for the purpose; and that of a mine or part thereof to which regulation 141 (1) applies, an apparatus for detecting carbon monoxide gas approved by the Chief Inspector shall be used during every such inspection.
- (7) In case of opencast workings, the mining mate shall pay attention to overhangs, undercuts, presence of loose stone, materials or trees, etc., within 3 m 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 mining mate 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-regulations (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 mining mate 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, except in case of emergency, until after the descent of the competent person of the succeeding shaft; 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 with such assistance as is necessary, remove all loose pieces before persons are allowed to descend.

133. 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 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 163 shall apply; and
 - (b) where in any part of a mine the appearance of smoke or other sign indicates that a fire or heating has or may have broken out, the provisions of regulation 136 shall apply.

134. 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 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.

135. General precautions.-

- (1) No person shall work in any place other than 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) 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.
- (5) 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 0.20 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.

- (6) 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.
- (7) Every person shall ensure that tools, wood, stones, or other articles are not put down or allowed to remain, in or near a shaft, winze or opening into a stope where work is going on, in such position as may result in their falling into the shaft, winze, or stope, as the case may be.
- (8) 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.
- (9) 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.
- (10) No person shall cast any material down any chute, ore pass or stope or other place until he has assured himself that no person is in the way.
- (11) No person shall be appointed under sub-regulation (3) unless he is 21 years of age and has had not less than three years' experience in the working of a mine.

CHAPTER - XI

PRECAUTIONS AGAINST DANGERS FROM FIRE, DUST, GAS AND WATER

136. 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 or 'cheesa stick' or kai-piece' on or near any timber, wooden structure or other combustible material.
- (5) Where explosives are used in blasting any timber forming part of stulls, sets and chutes sufficient water shall be applied to the timber both before and after firing a shot.
- (6) All surface structures and supports within a horizontal distance of 10 meters from all entrances to a mine shall be of incombustible material:

Provided that this sub-regulation shall not apply to temporary structures, supports and coverings at the top of a shaft or winze which is in the course of being sunk and to the small lid of a shaft-covering operated by the rope cappel.

- (7) Dead leaves or dry vegetation shall not be allowed to accumulate or remain, and combustible materials other than material 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 working belowground.
- (8) No person shall light a fire or permit a fire to be lighted on the surface 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.

- (9) Except with the previous permission in writing of the Regional Inspector, and subject to such conditions as he may specify therein, no timber or other combustible material shall be used in the construction of, or in connection with, shaft lining or any room, housing, or any machinery or apparatus belowground.
- (10) Wood cuttings shall not be left in any working belowground, but shall be removed to the surface at the end of every shift.
- (11) No person shall light a fire or permit a fire to be lighted in any working belowground:

Provided that in the case of a mine to which regulation 163 does not apply, 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 duty of such person to bring the apparatus back to the surface when no longer required belowground:

Provided further that in the case of a mine, where the provisions of regulation 163 apply, 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.

- (12) No person shall leave a portable light or lamp belowground unless he has placed it in charge of some other person remaining therein.
- (13) 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:

Provided that nothing in this sub-regulation shall be deemed to prohibit the running of a mechanical ventilator or auxiliary fan belowground after the shift is over.

- (14) Provision shall be made to prevent an outbreak of fire or spontaneous heating belowground or the spread of fire to the mine from any adjoining mine; and adequate steps shall be taken to control or isolate any such fire or heating that may occur:

Provided that where in the opinion of the Regional Inspector the provisions of this sub-regulation have not been complied with or the steps so taken are inadequate, he may, by an order in writing, require such additional precautions or steps to be taken within such time as he may specify therein ; and if any such order is not complied with within the specified period, the Regional Inspector may prohibit until the order has been complied with, 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 order.

- (15) Adequate and sufficient arrangements shall be made in every mine for early detection, control and extinguishing any fire.
- (16) 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.
- (17) 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.
- (18) A competent person shall, once at least in every seven days, inspect the top of all entrances to a mine, all opencast working in order to ascertain whether the precaution 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.
- (19) A record of every inspection made under sub-regulation (18) shall be maintained in a bound paged book kept for the purpose, duly signed and dated by the person making the inspection.

137. 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 suitable 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, 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, 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.

138. Equipment for fire-fighting.-

- (1) In every mine,
 - (a) unless 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, 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 the bottom of every shaft or winze 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, 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, tippers 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 mineral oil or gas or electrically operated 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 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.

139. 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 along with 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 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 and submit a copy of the same to the Regional

Inspector who may, at any time by an order in writing, require such modification as he may specify therein.

140. 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.

141. Precautions when a fire exists belowground.-

- (1) In every mine in which a fire or spontaneous heating exists in working belowground (whether such fire has been isolated by means of suitable seals or not), no work whatsoever shall be done in any part or section adjacent to the part or section on fire or believed to be on fire, except with the permission in writing of the Chief Inspector and subject to such conditions as he may specify therein.
- (2) In every mine to which sub-regulation (1) and regulation 163 apply, arrangements shall be made, once at least in every thirty days, to ascertain the atmospheric conditions behind the seals of an area of old working or a fire or spontaneous heating unless such seals are capable of resisting the force of an explosion:

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 sub-regulation where in his opinion special difficulties exist which make compliance with provisions thereof not reasonably practicable.

- (3) Every seal erected to isolate or control a fire or spontaneous heating belowground shall be numbered, and shall be of adequate strength and shall be so maintained as to prevent any leakage of air or gas through it and 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 of air or gas, etc.
- (4) Where in any mine or part thereof the provisions of sub-regulation (3) 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, 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.

- (5) A competent person shall, once at least in every seven days, inspect all seals erected to isolate or control a fire or spontaneous heating belowground and during every such inspection, he shall ascertain the general condition of every seal, check it for leakage and presence of gas and ascertain the temperature and humidity of the atmosphere outbye the seal.
- (6) The competent persons shall after carrying out the inspection under sub-regulation (5) place his signature, with date, on a check-board provided for the purpose at a suitable position on

the seal and 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 and shall be signed and dated by the person making the inspection:

Provided that the Regional Inspector may, by an order in writing, require such inspection to be made at such shorter intervals as he may specify therein.

142. Precautions 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 work place 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 –
 - (a) in milligrams per cubic meter of air sampled by a 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 five in case of manganese ore and the value arrived at by dividing the figures of ten with the percentage of free respirable silica present in other cases; or
 - (b) in case of respirable asbestos fibres, exceeds one fibre per millilitre of air sampled by an open membrane filter and measured by a phase contrast optical microscope of a type approved by and in accordance with the procedure as specified by the Chief Inspector or by a general or special order.

Explanation.– For the purposes of this regulation, the term “respirable asbestos fibre” means any fibrous form of mineral silicates of chrysotile, actinolite, amosite, anthophyllite, crocidolite, tremolite or any admixture thereof with a length of greater than 5 micrometers and a diameter of less than 3 micrometers and a length to – diameter ratio greater than three is to one.

- (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 carried on 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, tested 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, silica 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 limits" 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 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 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; and
 - (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 and or shall be effectively treated with some other equally efficient dust suppressant agent to reduce dust being raised in the atmosphere to a minimum;
- (d) no plant for the screening or sorting of mineral and as far as practicable, no heap of cinder, cement, sand, mortar or other dry and fine material shall be placed within eighty 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, properly interlocked with the operating lever or switch, and unless such device is operating efficiently;
 - (ii) the design, arrangement, material and condition of picks on every mechanical stone cutter shall be such as to reduce the formation of dust to the minimum and no mechanical stone 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 sixty meters thereof shall be, unless naturally wet throughout, regularly washed down to prevent accumulation of dust and shall be kept thoroughly wetted 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 mineral, ore or waste 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, opening, grinding, screening or sieving of mineral or ore 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 or on surface, 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 percent of the 'permissible limit' before being re-circulated into working places or before emission into atmosphere; and
 - (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 owner, agent or manager of every asbestos mine where mining operations are carried on and 'permissible limit' of dust concentration is exceeded, shall also –
- (a) Provide –

- (i) sufficient protective clothing in good condition for use of, at no cost to the persons employed in such operations as well as arrangements for proper dusting by means of a vacuum cleaner and for regular washing thereof;
 - (ii) suitable place for putting on and taking off the protective clothing;
 - (iii) well maintained washing and bathing places;
 - (iv) separate, clean and hygienic place for storing and changing personal clothing;
- (b)
- (i) sorting, separation, grading, mixing, compression and packing of asbestos fibres and collection and disposal of waste including filtered dust to be carried out in such a manner that asbestos dust does not escape into air;
 - (ii) all machinery, plant, work premises and all internal surfaces of the building where milling operations are carried on to be maintained in clean state and free of asbestos waste. Such cleaning shall be carried out by means of a vacuum cleaner or by some suitable exhaust draught and persons undertaking these operations or present thereat shall be provided with and wear appropriate respiratory equipment and protective clothing;
 - (iii) asbestos fibres to be packed in impermeable bags;
 - (iv) cautionary notices, in language or languages understood by the majority of work persons with standard warning symbol to be prominently displayed at every such place where milling of asbestos is carried on and where the 'permissible limit' of dust exposure is likely to be exceeded, to warn the persons as to the hazards to health from asbestos dust, as to the need for the use of protective clothing or use of appropriate dust respiratory by persons entering therein and as to the synergistic effect on the hazards of smoking cigarettes, beedis, cigars etc., and occupational exposure to asbestos dust.
- (15) 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 silica 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.
- (16) 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 (15).
- (17) If any doubt arises as to any matter referred to in this regulation, it shall be referred to the Chief Inspector for decision.

143. Precautions against irruption of gas.- Where any working is extended to within thirty meters of any stoped-out area or disused working 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 where inflammable gas is present or likely to be present, no lamp or light other than an approved safety lamp or torch shall be used in any such working.

144. Recovery and exploratory work.-

- (1) After an explosion of inflammable gas 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) When 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.

145. 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, if any dispute arises as to whether such protection is adequate or not, it shall be referred to the Chief Inspector for decision.

- (2) No workings 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 horizontal distance of fifteen meters from either bank of river or canal or from the boundary of a lake, tank or other surface reservoir; except with the 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 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 stopped-out area in the neighbourhood, all faults 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 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.

146. Danger from underground inundation.-

- (1) Proper provision shall be made in every mine to prevent irruption of water or other liquid matter from the workings of the same mine or of an adjoining mine.
- (2) No working which has approached within a distance of 60 meters of any disused or abandoned workings (not being workings which have been examined and found to be free from accumulation of water or other liquid matter), 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:

Provided that if any heavy seepage of water is noticed in any working approaching but not within 60 meters of any such disused or abandoned working, such working shall be immediately stopped, and the Chief Inspector and the Regional Inspector shall forthwith be informed about the occurrence. The 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.

Explanation- For the purposes of this sub-regulation, the distance between the said workings shall mean the shortest distance between the said workings measured in any direction whether horizontal, vertical or inclined.

- (3)(a) Every application for permission to extend any workings referred to in sub-regulation (2) shall be accompanied by two copies of a plan and section showing the outline of such disused or abandoned workings in relation to the workings which are approaching the said workings, and such other information as may be available in respect of the said workings.
- (b) Except where otherwise permitted by the Chief Inspector by an order in writing and subject to such conditions as he may specify therein, no such workings shall exceed

two meters in width or height; and there shall be maintained at least one borehole near the centre of the working face, and sufficient flank holes on each side and where necessary, bore-holes above and below the workings, at intervals of not more than five meters.

- (c) All such bore-holes referred under clause (b) shall be constantly maintained, at sufficient distance in advance of the workings; and such distance shall in no case be less than three meters.
 - (d) The precautions under this regulation shall be carried out under the direct supervision of a competent person specially authorised for the purpose.
- (4) The precautions laid down in clause (b), (c) and (d) of sub-regulation (3) shall also be observed in any other working where any heavy seepage of water is noticed whether approaching disused or abandoned workings or not.

147. 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 working 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 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.

148. Construction of a reservoir, dam or other structure.-

- (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 alternations to be made in the design of any such reservoir, dam or structure, as he may specify therein.

CHAPTER - XII

VENTILATION

149. 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 purpose of securing adequate ventilation as specified in sub-regulation (1), the owner, agent and manager shall ensure that-
- (a) at every place in the mine where persons are required to work or pass, the air does not contain less than 19 percent of oxygen or more than 0.5 percent of carbon dioxide or any noxious gas in quantity likely to affect the health of any person;
 - (b) the percentage of inflammable gas does not exceed 1.25 in any place in the mine;
 - (c) 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 shall be made to ventilate the same with a current of air moving at a speed of not less than one meter per second; and
 - (d) for ensuring compliance with the provisions of clauses (a), (b) and (c) of this sub-regulation, air samples and temperature readings shall be taken at least once in thirty days and the result 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) 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 a mechanical ventilator as is capable of producing adequate ventilation in the mine or part thereof.

150. 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 safe distance from the opening of the shaft, incline or winze.
- (2) In every mine to which regulation 163 applies, 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) There shall be provided and maintained at every main mechanical ventilator, a recording instrument to continuously register the pressure developed and a recording instrument by which the speed of the ventilator shall be continuously registered, except where the ventilator is driven by a constant speed drive.
- (4) Every main mechanical ventilator shall be so designed, installed and maintained that the current of air can be reversed when necessary.

- (5) At every shaft, winze 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:

Provided that unless the Regional Inspector so requires by an order in writing, the provision of this sub-regulation shall not apply to a shaft or winze where a mechanical ventilator was installed before 11th day of March, 1961.

151. Installation and maintenance of mechanical ventilators.-

- (1) In every mine to which regulation 163 applies, where a booster or auxiliary fan is electrically driven, the drive motor, unless it is so constructed, installed, operated and maintained as to prevent 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 sub-regulation (3), 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 152, take such action as may be expedited 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 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 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 in case of mine to which regulation 163 applies, and in other cases in every thirty days, be measured –
- (i) in every main intake and return airway of every level 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 subdivided 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.
- (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 the ventilator or fan, as the case may be.

152. 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.

153. Splits and airway.-

- (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) 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.

154. 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 provision of regulation 149.
- (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 centimeters

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) Every stopping in use shall be kept accessible for inspection.
- (9) 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.
- (10) Every air-crossing, ventilation stopping, door or brattice shall be maintained in efficient working order and good repair.
- (11) A competent person shall, once at least in every thirty 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.

155. Velocity of air current.-The velocity of air current measured in meters per minute at the immediate outbye ventilation connection from the face and at a distance of 7.5 meters outbye of the discharge end of an air pipe shall not be less than 30 and 15 respectively:

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 provision of this regulation.

156. 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 4.5 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.

157. Precautions against fire in ventilation appliances.-

- (1) Every mechanical ventilator on the surface shall be installed in a suitable fire proof housing.
- (2) 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 cappel.

158. 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 67.

159. 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 below ground 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 or any mechanical ventilator, including an auxiliary fan installed below ground, 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 149, 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.

160. 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 a 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.

161. 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 by the lowered flame of a flame safety lamp or, where methane indicators are used, they indicate one and a quarter percent, or more of inflammable gas.
- (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 persons, 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 aflame 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.

162. Inspection of unused working for gas.-

- (1) In any part of a mine 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.

163. Safety lamps to be used in gassy 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 a mine where-

- (a) in any part in which an explosion or ignition of inflammable gas has occurred;
- (b) in any ventilating district in which inflammable gas has been found; and
- (c) in any place in which, in the opinion of the Regional Inspector, inflammable gas is likely to be present in such quantities as to render the use of naked lights dangerous:

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 lamp is not necessary therein.

164. Contrabands.-In every mine or part to which regulation 163 applies, the following provisions shall have effect, namely:-

- (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 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 169 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 clothings; and
 - (c) examine any article in the 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 articles 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.

CHAPTER – XIII

LIGHTING AND SAFETY LAMPS

165. 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.

166. 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 open cast working,
 - (iv) at every shunting or marshaling 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:

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;

- (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 stope or place where any pillar or block is under extraction; and
- (viii) at every first aid station below ground:

Provided that in a mine or part where regulation 163 applies or in blind end workings which are not ventilated by a mechanical ventilator, the lighting fixtures installed shall comply with the provisions of the Central Electricity Authority (Measures relating to safety and electric supply) Regulations, 2010.

- (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 –
 - (a) belowground, in every shaft inset and shaft bottom or landing in regular use and in every engine room;
 - (b) on the surface, after dark, at the top of every working shaft and in every engine room; and
 - (c) in travelling roadway and escape routes.
- (5) Every electrical lamp-fitting shall be so constructed as to protect it from accidental damage and adequate precautions 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.

167. Every person to carry a light.- 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.

168. Standards 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.

169. 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 164;

- (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, 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, Foreman's or Gas testing Certificate.

170. 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 a 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 un-authorised 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.
- (8) 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.

171. Maintenance and repairs of safety lamps and electric torch or lamp.-

- (1) Every safety lamp and electric torch or lamp shall be properly assembled and maintained in good order and if any such lamp or torch 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.

172. Precautions to be taken in safety lamp-rooms.-

- (1) No un-authorised 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 where lamps are cleaned, refitted or refilled; and
- (d) adequate number of suitable fire extinguishers shall be provided and kept ready for use in every such room.

CHAPTER - XIV

EXPLOSIVES AND SHOTFIRING

173. Type of Explosives to be used in mines.-

- (1) No explosive shall be used in a mine except that 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 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) The preparation of cartridge from loose gunpowder, the drying of gunpowder and the reconstruction of damp cartridges shall be carried out by a competent person and only in a place approved by the Licensing Authority and in accordance with the rules made under the Explosives Act, 1884 (4 of 1884).

174. Storage of explosives.-

- (1) No owner, agent or manager shall store, or knowingly allow any other person to store, within the premises of a mine any explosives otherwise than in accordance with the provisions of 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.

175. 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 explosives are 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 Blaster 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.

176. 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 detonators 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 workings or in a sinking shaft or winze.

- (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 176 and 178, 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:

Provided further that nothing in this sub-regulation shall prohibit the conveyance of larger quantity of explosives in bulk for supplying an underground magazine.

- (5) Every case or container shall be numbered and as far as practicable, the same case or container shall be issued to the same Blaster or competent person, as the case may be, every day.
- (6) The key of every case or container shall be retained by the Blaster in his own possession throughout his shift.

177. Transport of explosives.-

- (1) While explosives in bulk are lowered or raised in a shaft or winze, a distinguishing mark shall be attached to the cage, skip or bucket containing the explosive; or the person in charge of explosives shall travel in the same cage, skip or bucket.

- (2) Every cage, skip or bucket containing explosives shall be gently lowered or raised; and it shall be the duty of the banksman or bellman, as the case may be, to adequately warn the winding engineman before the cage, skip or bucket is set in motion.
- (3) While explosives are being carried on a ladder, every case or container shall be securely fastened to the person carrying it.
- (4) No person other than a Blaster shall carry any priming cartridge into a shaft which is in the course of being sunk.
- (5) No priming cartridge shall be so carried except in a thick felt bag or other container sufficient to protect it from shock.

178. 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.

179. Reserve stations.- No case or container containing explosives shall be left or kept belowground except in a place appointed by the manager for the purpose and so situated that it is not frequented by work persons and every such place shall be kept clean, safe and adequately fenced, and legibly marked 'RESERVE STATION'.

180. Blasters.-

- (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 'Blaster', who shall fire the shots himself.
- (2) No person shall be appointed to be a blaster unless he holds-
 - (a) a Manager's Certificate or Mine Foreman's Certificate or Mining Mate's Certificate or Blaster's Certificate together with a Gas-testing Certificate in case of belowground mines; and
 - (b) a Manager's Certificate or Mine Foreman's Certificate or Mining Mate's Certificate or Blaster's Certificate in the case of opencast working.
- (3) If 30 or more persons are employed at any one time in any mine or district under the charge of a competent person referred to in regulation 132, such person shall not perform the duties of a blaster.
- (4) No person whose wages depend on the amount of mineral, rock or debris obtained by firing shots, shall be appointed to perform the duties of a blaster.
- (5) The manger shall fix, from time to time, the maximum number of shots that a blaster may fire in any one shift and such number shall be based on-
 - (a) the time normally required to prepare and fire a shot in accordance with the provisions of these regulations;
 - (b) the time required for that blaster to move between places where shots are fired;

- (c) the assistance, if any, available to him in the performance of his said duties; and
 - (d) any other duties assigned to him, whether statutory or otherwise,
- and shall not in any case exceed -

- (i) 80 in case they are fired electrically or by means of an igniter cord and
- (ii) 50 in other cases:

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 blaster during his shift shall not exceed the maximum number of shots that he is permitted to fire under sub-regulation (5).

181. Shot-firing tools.-

- (1) Every blaster on duty shall be provided with –
 - (a) a suitable shot-firing apparatus;
 - (b) 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) where fuses are used, a knife for cutting off fuses and, unless machine-capped fuses are provided, also 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; and
 - (i) 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 Blaster.

182. 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 centimeter over the diameter of the cartridge of explosive, 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) For use of 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.
- (7) The blaster 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.
- (8) Shots shall be fired electrically or by any other means or instruments or apparatus as approved by the Chief Inspector.
- (9) Every shot-hole shall be stemmed with sufficient and suitable non-inflammable stemming so as to prevent the shot from blowing out.
- (10) 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.
- (11) 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.
- (12) No shot shall be fired except in a properly drilled, charged and stemmed shot-hole.
- (13) No shot-hole shall be fired by a fuse less than 1.2 meters in length.
- (14) Blasting gelatine or other high explosives shall not be lighted in order to set fire to fuses; but specially prepared 'kai-pieces' of such explosives may be so used. Such 'kai-pieces' shall be prepared only in the magazine, and a correct record of the issue, use and return of such 'kai-pieces' shall be maintained in the books kept under regulations 175 (4) and 191 (b).
- (15) All surplus explosives shall be removed from the vicinity of a shot-hole before a light is brought near it for the purpose of lighting the fuse or before connecting the shot firing cable to the shot-holes.
- (16) As far as practicable, a shot shall be fired by the same blaster who charged it.
- (17) In any mine in which explosives other than gunpowder are used, every shot shall, if so required by the Regional Inspector, be fired electrically.
- (18) Not more than ten holes shall be fired in one round unless they are fired electrically or by means of an igniter cord.

(19) 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.

(20) In case of opencast workings, no shots shall be fired except during hours of day light or until adequate artificial light is provided.

(21) All holes charged on any one day shall be fired on the same day:

Provided that the Regional Inspector may, by an order in writing and subject to such conditions as he may specify therein, permit firing of shots in variance to this sub-regulation.

(22) Where a large number of shots are to be fired, shot-firing shall, as far as practicable, be carried out between shifts.

(23) No person shall remove any stemming, otherwise than by means of water or an approved device, or pull out a detonator lead or remove explosive from any charged shot-hole.

183. Use of Ammonium Nitrate-Fuel Oil, site mixed slurry or emulsion explosives

etc.: Conditions for use of ammonium nitrate fuel oil, site mixed slurry or emulsion explosives in a mine shall be specified by the Chief Inspector in a general order.

184. Deep-hole blasting.- Conditions for conduct of deep hole blasting in a mine shall be specified by the Chief Inspector in a general order.

185. Electric shot-firing.- Where shots are fired electrically, the following provisions shall have effect, namely-

(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; and

(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 blaster 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 blaster 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, it shall not be in direct line of firing 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 186; and
 - (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 186;
 - (d) the cable to the shot-firing apparatus shall be connected last; and
 - (e) detonators of the same electrical resistance shall only be used.

186. Taking shelter etc.-

- (1) The blaster 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 blaster 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 300 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; and
 - (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 blaster 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 in all the holes fired at one time shall not exceed two kilograms unless permitted in writing by the Chief Inspector or the Regional Inspector and subject to such conditions as he may specify therein:
- Provided that if blasting is done with delay detonators or other means and that there is a delay of atleast half a second between successive shots fired, maximum charge of two kilograms can be used in each hole:
- Provided further that if the shortest distance from the place of firing to any part of such building or structure is less than 50 meter irrespective of the amount of the charge, no blasting shall be done except with the permission in writing of the Chief Inspector or the Regional Inspector and subject to such 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 working, either above or belowground, offer insufficient protection against flying fragments or missiles, adequate shelter or other protection shall be provided.
- (6) When two working places belowground have approached within nine meters of each other, the blaster shall not fire any shot in any one of the said working 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.
- (7) Where shots are to be fired in two or more adjoining stopes, the blasters shall so arrange to time the firing of shots that shots in only one of the stopes are fired at one time.

187. Use of permitted explosives.-

- (1) No explosive other than a permitted explosive shall be used in any mine or part to which regulation 163 applies or where the Regional Inspector may by an order in writing, require the use of such explosive.
- (2) In any mine or part in which the use of permitted explosives is required under sub-regulation (1), no detonator shall be used unless it is an electric detonator with a copper tube.
- (3) No shot of a permitted explosive shall be fired except by means of a shot-firing apparatus of a type approved by the Chief Inspector from time to time 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.

- (4) In any mine to which regulation 163 applies, the following provisions shall have effect, namely:-
 - (a) notwithstanding anything contained in the regulations, no shot shall be stemmed or fired by any person who does not hold either a Manager's Certificate, or Foreman's Certificate or Mining Mate's Certificate together with a Gas-testing Certificate;
 - (b) where more shots than one are charged for firing, the shots shall be fired simultaneously; 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;
 - (c) 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;
 - (d) immediately before charging a shot-hole or a round of shot holes, and again before firing the shots, the blaster shall carefully test for inflammable gas at all places within a radius of twenty meters of the place of firing.

188. Inspections after shot-firing.-

- (1) After a shot has been fired, the blaster 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 blaster 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 respect.
- (3) In the case of opencast workings, after shots have been fired, an all clear signal shall be given except in the case of a misfire.

- (4) After shots have been fired, all persons engaged in clearing mineral, rock or debris shall look for unexploded cartridges and detonators and if such a cartridge and detonator is found, it shall be removed and shall as soon as possible be handed over to a blaster or other official.

189. Misfires.-

- (1) The number of shots which explode shall, unless the shots are fired electrically or by means of an igniter cord, be counted by the blaster and another competent person authorised for the purpose; and unless it is certain that all the shots have been exploded, no person shall re-enter or be permitted to re-enter the place until 30 minutes after the firing of shots:

Provided that where shots are fired electrically, this interval may be reduced to not less than 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 barricaded or 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 workings, it shall be sufficient to mark the place of the misfire with a red flag.
- (4) In the event of a misfire, the tamping may be sludged out with compressed air or water under pressure or removed by such other means as may be approved in writing by the Chief Inspector and subject to such conditions as he may specify therein and the hole shall thereafter be re-primed and fired.
- (5) If the misfire contains a detonator, the leads or fuse 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, or where a shot has been re-primed and fired under sub-regulation (4) 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, the new hole shall be bored in the presence of a blaster, preferably the same person who fired the shots.
- (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 blaster or other competent person holding a Manager's or Foreman's Certificate appointed for the purpose by the manager, amongst the material brought down by the shot:

Provided that in the case of workings belowground if such cartridge, detonator is not recovered, the tubs or any hauling vehicles into which the material is loaded shall be marked and a further search made on the surface and as far as possible, the search for the detonators and cartridges and the loading of any ore, 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 as prescribed, shall be securely plugged with a wooden plug, and no person other than a blaster, 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 blaster shall, before leaving the mine-
 - (a) give information of the failure to such blaster 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 shot-hole is relieved or not relieved;
 - (c) sign the report and, to record in the said book the action taken for reliving the misfired shot-hole.
- (11) The blaster of the next shifts 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 blasters the detail procedure to be followed in the event of a misfired shot.

190. Precaution in case of sockets, etc.-

- (1) Before the commencement of drilling in any working place, the competent person in charge of the place shall see that all loose rock is removed from the face and the area lying within a radius of two meters of the proposed shot-hole is thoroughly cleaned or washed down with water and carefully examined for the presence of misfires or sockets:

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, grant a relaxation from these provisions.

- (2) If any socket is found, it shall be dealt with in the manner prescribed in regulation 189.
- (3) No person shall bore out a hole that has once been charged or attempt to withdraw a charge either before firing or after a misfire or deepen or tamper with any empty hole or socket left after shot-firing.

191. Duties of blaster at the end of his shift.- Immediately after the end of his shift, the blaster shall-

- (a) return all unused explosive to the magazine, or where a store or premises is provided under regulation 174, to such store or premises; and
- (b) record, in a bound paged book kept for the purpose, the quantity of the 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.

192. 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:

Provided that nothing in this sub-regulation shall be deemed to prohibit the use of an open light for lighting fuses.

- (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) Blaster and their helpers shall-
- (a) not use battery operated watches, mobile phones, synthetic cloths, and socks;
 - (b) use only conducting type of foot-wear; and
 - (c) In case of leather shoes or boots, the sole shall also be of leather and without hobnails.

CHAPTERXV

MACHINERY, PLANT AND EQUIPMENT

193. Use of certain machinery, equipment and devices in metalliferous 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 mine or part thereof where regulation 160 applies, 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.
- (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, 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 equipments 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.

194. General provisions about 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.

195. 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 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.

196. Precautions regarding moving parts of machinery.-

- (1) Every winch or wind-lass shall be provided and used with a stopper, pawl or other reliable holder.
- (2) Every drum, 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) During repair, adjustment, cleaning or lubrication of any machinery, suitable tags indicating that the machinery is under such operation shall be placed near its controlling device.

- (5) No person shall, or shall be allowed to repair, adjust, clean or lubricate machinery in motion where there is risk of injury.
- (6) 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.
- (7) No person in close proximity to moving machinery shall wear, or be permitted to wear, loose outer clothing.
- (8) No un-authorised person shall enter any engine room or in any way interfere with the engine.

197. 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.

198. 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 every mine or part thereof where regulation 163 applies, 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.

199. Belowground face equipment, including continuous mining and cutting machines.-

- (1) All self-propelled face equipments, which are used in belowground 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 fall of roof, face or side.

- (2) In every mine to which regulation 163 applies, methane monitors shall be installed on all roof bolting machines, cutting machines, loading machines and other mechanized equipment used to extract or load mineral.
- (3) All face equipment used to cut mineral 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 mine dust.
- (4) Where remote controlled devices are used in belowground mines, 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; and
 - (c) designing 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.

200. 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 organization 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 authorized 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 communication 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.

201. Design, operation and maintenance of heavy earth moving machineries (HEMMs) including trucks, tippers and dumpers.-

- (1) Every heavy earth moving machinery (HEMM) including trucks, tippers and dumpers shall be so designed as to afford the operator clear and uninterrupted vision all around.
- (2) Every heavy earth moving machinery, including trucks, tippers and dumpers, 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.

202. General precautions.-

- (1) All machinery and plant used in connection with working of a mine shall be of good design, sound construction, 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

MISCELLANEOUS

203. 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 these regulations 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.

204. Notices.-Where at any place smoking or un-authorised entry is prohibited, notices to that effect shall be posted at conspicuous places at every entrance to the place.

205. Danger from poisonous substances.-

- (1) At every mineral dressing or separating plant where cyanide or other poisonous substance is used, there shall be kept a sufficient supply of a satisfactory and efficient antidote for poisoning.
- (2) Water containing poisonous or injurious matter in suspension or solution must be effectively fenced off to prevent inadvertent access to it, and notice boards shall be put up at suitable places to warn persons from making use of such water.
- (3) In no case shall water containing any poisonous matter in suspension or solution in a dangerous concentration be permitted to escape.

206. 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.

207. 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.

208. 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.

209. 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.

210. Use, supply and maintenance of self-rescuer.-

- (1) The owner, agent or manager or every belowground mine, shall:-

- (a) at all times keep sufficient stock of self-rescuers of such type as may be approved by the Chief Inspector by a general or special order in writing 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 this regulation 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.
- (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.

211. 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.

212. 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.

213. Man power 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.

214. Mining mates and foremen.-

- (1) No person shall be appointed as a competent person under regulations 35 (1), 77, 106, 137 (4), 138 (6), 141 (5), 154 (11), 156 (3), 160, 162 and 185 unless he is the holder of either a Foreman's Certificate or a Manager's Certificate.
- (2) No person shall be appointed as a competent person under regulations 132, 133, 143, 146 (3) (d), 160 (1) and 161 unless he is the holder of either a Mate's Certificate or a Foreman's Certificate or a Manager's Certificate:

Provided that in the case of a mine to which regulation 163 applies, every person holding a Mate's or Foreman's Certificate shall also hold a Gas-testing Certificate

- (3) In case of mines having opencast workings only, nothing in sub-regulations (1) and (2) shall prohibit the appointment under regulations 35 (1), 77, 106, 132, 133, 137 (4), 138 (6), 141 (5), 143, 146 (3) (d), 154 (11), 156 (3), 160 (1), 162 and 185 of a person holding, as the case may be, a Mining Mate's Certificate, Foreman'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 Foreman's certificate or a Mining Mate's certificate as a competent person under regulation 132, if such person possess otherwise a suitable qualification and experience for effective supervision of the working places.

215. 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.

216. 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.

217. 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 or any other means as specified from time to time by the Chief Inspector.

218. 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.

- (2) One of the authenticated sketches shall be delivered or sent to the concerned inspector.

219. 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 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 equipment and other equipment 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 drill;
 - (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.

220. Taking samples from mine.- Where for official purposes, an Inspector considers it necessary to take samples of any mineral, rope or other material, the owner, agent or manager shall make over to him such samples in such quantities as he may require.

221. 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.

222. 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.

223. 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 66.

224. Signing of Returns, Notices and Correspondence.- All returns and notices required under or correspondence made in connection with the provisions of the Act and of the regulations or orders made thereunder shall be signed by the owner, agent or manager of the mine:

Provided that in case of submission of the returns, notices and correspondences in electronic form, the owner, agent and manager shall ensure that the same is digitally signed and not liable to alteration or tampering and secured in such a manner as to facilitate retrieval by owner, agent, manager and the Chief Inspector or an Inspector:

225. Reports, records and registers.- The reports, records and registers required to be maintained under these regulations shall be maintained in interleaved bound paged registers

kept for the respective purposes and signed by the concerned competent person or official, as the case may be and countersigned by the manager:

Provided that in case of maintenance of reports, records and registers in electronic form, the owner, agent and manager shall ensure that the same is digitally signed and not liable to alteration or tampering and secured in such a manner as to facilitate retrieval by owner, agent, manager and the Chief Inspector or an Inspector:

Provided further that the manager may authorize an assistant manager to countersign any reports, records or register on his behalf, except in cases where the manager is specifically required under these regulations to countersign a report or record or register.

226. Publication of orders and instructions.- Orders and instructions under these regulations shall be published by suitable means as may be specified by the Chief Inspector.

227. 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.

228. 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 227 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.

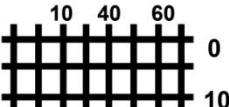
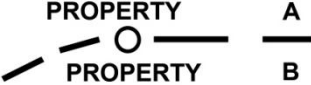
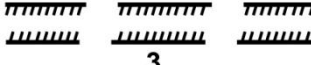
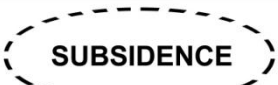







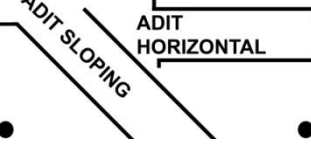
229. Repeal and savings.-




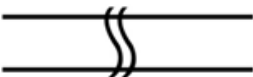
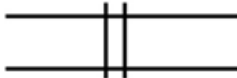
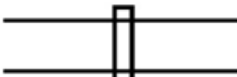




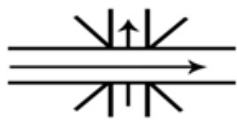


- (1) The Metalliferous Mines Regulations, 1961 are hereby repealed.
- (2) Notwithstanding the repeal referred to in sub-regulation (1), anything done or any action taken under the regulations so repealed including any order or certificate issued, authorisation or permit granted or renewed, any order 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 66]

CONVENTIONS FOR PREPARING PLANS AND SECTIONS

	Symbols	Remarks
Co-ordinate Lines		In Black
Boundary of the Mine		In Red
Outcrop of Dyke		In Brown
Subsidence of Surface		In Red
Prohibited Mining Area		In Red
(a) Borehole (Vertical) from Surface		In Red
(b) Boreholes (Inclined) From Surface		In Red
(c) Boreholes (Underground)		In Red
(a) Shafts		In Black
(b) Abandoned Shafts		In Black
Winze		According to Shape
Adit		

	Symbols	Remarks
Bench Mark		In Black
(a) Brick, Stone or Concrete Ventilation Stoppings		In Black
(b) Horizontal Seals		In Black
Brattice		In Red
(a) Fire Dams or Seals, Open		In Red
(b) Fire Dams or Seals Closed		In Red
Water Dams		In Blue
(a) Doors Open		In Black
(b) Doors Closed		In Black
Regulators		In Red
Air Crossings		
(a) Direction of Air Current Intake		In Blue
(b) Return		In Red

	Symbols	Remarks
Auxiliary Fan		
Telephones		In Green
Underground Ambulance Station		In Red
Fire Refuge Chamber		In Black
Underground Magazine		
Pump Station		In Blue
Outcrop Reef, Vein, Load ETC.		In Yellow
Permanent Station	