

GUIDE TO THE MINING REGULATIONS

INTRODUCTION

1. This booklet has been prepared for the general guidance of officials and employees in Copper Mining Industry of Zambia by Amalgamating the Mining Regulations 1971 (Statutory instrument No. 107 of 1971) with the Mining (Amended) regulations 1973 (Statutory Instrument No. 95 of 1973).
2. The Regulations that have been subject to Amendment – Deletion or Inclusion may be identified in the:-
“Arrangement of Regulations”
3. While every care has been taken to ensure that this booklet depicts accurately the Amendments to the Mining Regulations 1973, it in no way replaces or supplants the Official Statutory Instruments No. 107 of 1971 and 95 of 1973.

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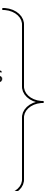
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ELECTRICITY

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IN EXERCISE of the powers contained in section one hundred and thirty two of the Mines and Minerals Act, the following Regulations are hereby made:

PART I

PRELIMINARY

- [illegible]

“Mine” when used as a verb, means intentionally to win minerals and includes any operations directly or indirectly necessary therefor or incidental thereto, and “mining” shall be construed accordingly;

“Open cast working” means any working beneath the original surface of the ground excluding underground and not including any trench, pit or any other such working;

“person in Charge” means any person appointed in accordance with regulation 213;

“raise” means any tunnel at an inclination of more than five degrees above the horizontal which is not included within the definition of shaft or ramp;

“ramp” means any tunnel at an inclination of more than five degrees above the horizontal in which self propelled trackless vehicles move;

“Scheduled mine” means and includes any mine specified in the first schedule, any “scheduled place” specified in the second schedule, to the Pneumoconiosis Ordinances;

“shaft” means any vertical or inclined tunnel equipped with winding plant;

“steeply inclined” in connection with shafts, raises, winzes or other underground excavations means any inclination to the horizontal of more than thirty-five degrees;

“subordinate” means any person under the direction, supervision or control of another person;

“underground” means any working beneath the surface of the ground access to which is by means of ramp, adit, raise, shaft or winze, but does not include open cast workings;

“winze” means any inclined tunnel at an inclination of more than five degrees below the horizontal which is not included within the definition of shaft or ramp;

“workings” mean any excavation made or being made for the purpose of searching for or winning minerals.

Cap. 189

PART II RESPONSIBILITY IN MINES

201. Any holder when commencing, recommencing or abandoning work shall give written notice therefore to the Chief inspector within three days of such commencing, recommencing, or abandoning work and at the same time give his address.

***Notice of commencing or
abandoning work***

202. (1) Subject to the provisions of sub-regulation (2) every holder operating a mine shall appoint in writing a manager who shall at all times be responsible for the control, supervision and direction of such mine:

Appointment of manager

Provided that where the scale of operations is of such magnitude and complexity that in order to effect proper control of operations it is desirable to appoint one or more additional managers, the holder shall apply in writing to the Chief Inspector who may, in his discretion, grant such permission in writing subject to such conditions as he may prescribe, if he is satisfied that the responsibilities of each such manager are defined in his letter of appointment.

(2) No holder working any mine on his own account or in partnership with any other person shall manage such mine himself except with the prior permission in writing of the Chief Inspector.

(3) A holder shall not appoint any person to be manager unless such person holds a suitable qualification or has had adequate experience acceptable to the Chief Inspector.

(4) No person shall be appointed manager of more than one mine except with the prior permission in writing of the Chief Inspector and subject to such conditions, if any, as he may prescribe.

203. Subject to the provisions of sub-regulation (2) of regulation 202, a holder who works any mine or part of a mine for more than three days without the control and supervision of manager shall be guilty of an offense

Mine worked for more than three days without manager

204. (1) The Manager may appoint in writing one competent person to assist him in the control, supervision and direction of the mine and such person shall have the same responsibilities as the manager, but such appointment shall not relieve the manager of his personal responsibility under these regulations. Where, owing to absence or inability to act from illness or other cause, the manager is unable to perform the duties of his office for any period in excess of three days, such person shall immediately assume all the duties and responsibilities of the manager who shall then be relieved of his personal responsibility under these regulations:

Appointment of persons to assist manager

Provided that when the manager is absent from the mine such person shall not carry out the duties of manager for more than three months unless he has been appointed by the holder in terms of regulation 202.

(2) Where no person has been appointed in accordance with sub-regulation (1) and the manager owing to absence or inability to act from illness or other cause is unable to perform the duties of his office for any period in excess of three days such manager or the holder, shall appoint a competent person to act as temporary manager during the absence of the manager and thereupon all the duties and responsibilities of the manager shall devolve upon such temporary manager:

Provided that when the manager is absent from the mine such person shall not carry out the duties of manager for more than three months, unless he has been appointed by the holder in terms of regulation 202.

(3) The manager may appoint in writing in addition to any person appointed by him in accordance with sub-regulation (1) or (2) such other competent persons as may be necessary to assist him in the control, supervision and direction of such person shall, to the extent to be clearly defined in his letter of appointment, have the same responsibilities under these Regulations for his portion of the same responsibility under these regulations.

(4) The Chief Inspector may require the appointment of more than one competent person under sub-regulation (3), when, in his opinion, this is necessary.

205. (1) The manager shall take all reasonable means to ensure that the provisions of these Regulations are observed and enforced on the mine or the part of the mine which comes under his control and any manager who fails to do so shall be guilty of an offence.

Manager to enforce regulations

(2) Every holder shall provide necessary means of enforcing the provisions of these Regulations, and any holder who refuses or fails to provide such means at his manager's request shall be guilty of an offence

206. Every person on the mine shall to the full extent of his ability furnish any inspector with the means necessary for making any entry, inspection, examination or enquiry in pursuance of these regulations, and any such person who fails to do so or who willfully obstructs an inspector in the execution of his duty shall be guilty of an offence.

Duty to assist inspector

207. When the competent person appointed in term of sub-regulation (3) of regulation 204 is of the status of superintendent, such competent person may, if he has been specifically so authorized in his letter of appointment, appoint in writing, one or more person, who shall be suitably qualified or have had adequate and suitable experience in the capacity to which they are appointed to assist him in the management of his portion of the mine, and every such person shall have the same responsibility under these Regulations as the competent person who appointed him to the extent which shall be clearly defined in his letter of appointment; any such appointment shall not relieve the competent person making the appointment of his personal responsibility under these regulations.

Appointment of other competent persons

208. (1) When the duties of the competent person appoint in accordance with regulation 207 or regulation 204 (3) are primarily concerned with rock drilling and blasting operations such competent person shall be termed a mine captain and shall be deemed to be competent if –

Appointment of Mine Captain

- (a) when employed in underground workings
 - (i) is the holder of a valid unrestricted Zambian Blasting License; and
 - (ii) has had at least four years practical mining experience, save that this may be reduced to a period of two years if he is the holder of a university degree in mining or a diploma in mining granted by a school of mines approved by the Chief Inspector; and
 - (iii) is the holder of a valid certificate in first aid granted by a recognized society approved by the Chief Inspector or obtains such a certificate within months of his initial appointment.
- (b) When employed in open cast workings he-
 - (i) Is the holder of a valid unrestricted or suitable restricted Zambian blasting license when blasting operations are carried out in such working;
 - (ii) has had at least three years' practical mining experience, save that this may be reduced to a period of one and half years if he is the holder of university degree in mining or a diploma in mining granted by a school of mines approved by the Chief Inspector; and
 - (iii) is the holder of a valid certificate in first aid granted by a recognized society approved by the Chief Inspector or obtains such a certificate within six months of his initial appointment.

(2) where the duties of the competent person appointed in accordance with regulation 207 or 204 (3) are not concerned with rock drilling and blasting operations such person shall be deemed to be competent if he-

- (a) has had at least two years' practical experience in the sphere of operations to which he is appointed, save that this may be reduced to one year if he is the holder of a suitable qualification approved in writing by the Chief Inspector; and

- (b) is the holder of a valid certificate in first aid granted by a recognized society approved by the Chief Inspector or obtains such a certificate within six months of his initial appointment.

(3) Each person appointed under sub-regulation (1) or (2) shall take charge of a section of the mine during a shaft or shall be on call for such section. Each section shall be clearly defined in writing by the manager or the competent person making the appointment and when such person is absent from his section and no other person is appointed to replace him, his responsibilities shall be assumed by his immediate more senior official.

(4) Each person appointed in terms of sub-regulation (1) or (2) shall carry out an inspection at least once in each week of every place of the section allocated to him in which men work.

209. (1) Where electricity is used and the total rating of all the electrical apparatus installed exceeds seven hundred and fifty kilowatts there shall be appointed in writing by the manager or by the competent person appointed in accordance with sub-regulation (3) of regulation 204 and who has been specifically so authorized by the manager in his letter of appointment a competent person to be the electrical engineer Who in turn may appoint as many competent persons to be subordinate engineers, electricians in charge or electricians as may be required to supervise or effect the proper installation, examination, testing and maintenance of all electrical apparatus in accordance with the following provisions:

Appointment of engineers and electricians

- (a) all electrical apparatus at the mine shall be under the general charge of the electrical engineer;
- (b) any subordinate engineer shall to the extent which shall be clearly defined in his letter of appointment have the same responsibility under these Regulations as the electrical engineer in general charge:

Provided that the appointment of such subordinate persons shall not relieve the electrical engineer of his personal responsibilities under these regulations;

- © the manager shall not appoint himself as such competent person under the terms of this sub-regulation except with the prior written permission of the Chief Inspector.

(2) Where electricity is used and the total rating of all electrical apparatus installed does not exceed seven hundred and fifty kilowatts there shall be appointed in writing by the manager or by the competent person to be in general charge of all such competent persons except with the prior written permission of the Chief Inspector.

(3) The electrical engineer and any subordinate engineer appointed to assist him shall be technically qualified or suitably experienced in the sphere of operations to which he is appointed.

(4) Every electrician in charge, electrician or mechanic electrician shall be a competent person and in addition –

- (a) shall have served an apprenticeship in a designated trade approved by the Chief Inspector; or
- (b) shall in the opinion of the Chief Inspector have gained sufficient experience or undergone a satisfactory course of training; and

- (c) such apprenticeship experience or training shall be appropriate to the duty which he is required to perform.

210. (1) Where the total rating of mechanical apparatus installed exceeds seven hundred and fifty kilowatts there shall be appointed in writing by the manager or by the competent person appointed in accordance with sub-regulation (3) of regulation 204 and who has been specifically so authorized by the manager in his letter of appointment a competent person to be mechanical engineer who in turn may appoint as many subordinate engineers or other competent persons as may be required to supervise or effect the proper installation, examination, testing and maintenance of all mechanical apparatus in accordance with the following provisions:

- (a) all mechanical apparatus and all machinery not covered by Part XIX of these Regulations shall be under the general charge of the mechanical engineer;
- (b) any subordinate engineer shall to the extent which shall be clearly defined in his letter of appointment have the same responsibility under these regulations as the mechanical engineer in general charge: Provided that the appointment of such subordinate persons shall not relieve the mechanical engineer of his personal responsibility under these Regulations;
- (c) the manager shall not appoint himself as a competent person under the terms of his sub-regulation except with the prior written permission of the Chief Inspector.

(2) Where the total rating of all mechanical apparatus installed does not exceed seven hundred and fifty kilowatts there shall be appointed in writing by the manager a competent person to be in general charge of all such mechanical apparatus, but the manager shall not appoint himself as such competent person without the prior written permission of the Chief Inspector.

(3) The mechanical engineer and any subordinate engineer pointed to assist him shall be technically qualified or suitably experienced in sphere of operations to which he is appointed.

(4) Every competent person appointed for the purpose of this regulation –

- (a) shall have served an apprenticeship in a designated trade approved by the Chief Inspector; or
- (b) shall in the opinion of the Chief Inspector have gained sufficient experience or undergone a satisfactory course training; and
- (c) Such apprenticeship, experience or training shall be appropriate to the duty which he is required to perform

211. The manager shall –

- (a) appoint a suitably qualified Chief Surveyor to carry out the provisions of Part V of these Regulation:

Provided that where there are employed less than two hundred persons in the underground workings

Appointment of mechanical engineer and subordinate engineers

Appointment of Chief Surveyor and ventilation engineer

or less than one hundred persons in open cast workings, the duties of the chief surveyor may be assumed by the manager provided he is suitably qualified and he shall notify the Chief Inspector accordingly;

- (b) appoint a suitably qualified ventilation engineer to carry out the provisions of Part IX of these Regulations:

Provided that where there are employed less than two hundred persons in the underground workings or less than one hundred person in the open cast workings or less than one hundred person on the surface the duties of the ventilation engineer may be assumed by the manager and he shall notify the Chief Inspector according.

212. (1) When a holder or manager verbally makes or terminates any appointment under the provisions of regulations 202, 204, 209, 210 or 211, he shall confirm his action in writing within three days.

Notice of appointment and termination

(2) The holder shall in every case and without undue delay notify the Chief Inspector in writing and enclose a copy of every letter of appointment or termination of appointment of any manager.

(3) The manager shall in every case and without undue delay notify the Chief Inspector in writing and enclose a copy of every letter of appointment or termination of appointment made by him.

(4) A copy of every letter of appointment made under regulation 207 shall be kept at the office of the person making such appointment.

(5) A copy of every letter of appointment made under regulations 202, 204, 207, 209, 210 and 211 shall be countersigned by the person appointed.

213. (1) Where more than fifty persons are employed in underground or open cast working at any one time there shall be employed a sufficient number of shift bosses during shift to observe and enforce the provisions of these Regulations.

Appointment of shift boss

(2) A shift boss employed in pursuance of sub-regulation (1) shall be deemed to be competent if –

- (a) when employed in the underground workings he –
- (i) is the holder of a valid unrestricted Zambian blasting license; and
 - (ii) has had at least two years' practical mining experience, save that this may reduce to a period of one year if he is the holder of a university degree in mining or a diploma in mining granted by a school of mines approved by the Chief Inspector; and
 - (iii) is a holder of a valid certificate in first aid granted by a recognized society approved by

the Chief Inspector or obtains such a certificate within six months of his initial appointment

- (b) when employed in open cast workings he –
 - (i) is holder of a valid unrestricted or suitable restricted Zambian blasting license when blasting operation are carried out in his section of such working;
 - (ii) has had at least one year's practical mining experience, save that this may reduce to a period of six months if he is the holder of a university degree in mining or a diploma in mining granted by a school of mines approved by the Chief Inspector; and
 - (iii) is the holder of a valid certificate in first aid granted by a recognized society approved by the Chief Inspector or obtains such a certificated within six months of his initial appointment.

(3) Each section of the mine shall be under the charge of a shift boss and shall be clearly defined in writing to him by the competent person who appointed him in the book provided in accordance with sub-regulation (9).

(4) Each shift boss shall, except in an emergency relating to safety and health which prevents him from so doing, at least once during his shift examine every place in section assigned to him in which any person is working and at least once in each week examine every place in such section through which any person may have access to pass.

(5) The section allocated to shift boss shall be such he can without undue exertion examine every working place in it within a period of five hours

(6) Each shift boss shall be responsible for ensuring the proper observance of the requirements of these Regulations by any person working in his section whether such person is under his direct supervision or not.

(7) Each shift boss shall enter in a book to be provided for the purpose details of any breach of any regulation which he has observed and in respect of which he has taken action or in respect of which he has taken action or in respect of which he considers action should be taken.

(8) Each shift boss shall ensure that at any time in any working place in his section when any operations are being carried out, there is only one person in charge at such working place.

(9) The manager shall ensure that books are provided and kept at places specified by him in which each shift boss shall, at the completion of his shift, record in ink in the appropriate book or books the particulars of –

- (a) any instruction that he may have given during the shift for the purpose of securing the safety and health of persons;

- (b) any matters requiring the attention of the relieving shift boss with regard to the safety and health of any person;
- (c) any place in which any person is at work in the section under his charge which has not been visited and the reasons therefore.

(10) The records require to be made by sub-regulations (9) shall be examined and countersigned by the relieving shift boss and by the mine captain in charge of the section for which the shift boss is responsible or by a more senior official, such records shall be open to inspection at all times by an inspector.

(10) No shift boss shall take charge of any workmen in addition to his normal duties except in an emergency.

214. (1) When more than fifty persons are employed on the surface at any one time there shall be employed a sufficient number of competent persons or shift foremen to observe and enforce the provision of these Regulations.

***Appointment of competent person
of foreman***

(2) A competent person or shift foreman employed in pursuance of sub-regulation (1) shall be deemed to be competent if he-

- (a) has had at least two years' practical experience in the type of work for which he is to be employed except that this may be reduced to one year if he has technical qualifications approved by the Chief Inspector;
- (b) is the holder of a valid certificate in first aid granted by a recognized society approved the Chief Inspector or obtains such a certificate within six months of his initial appointment.

(3) Each section shall be under the charge of a competent person or shift foreman and shall be clearly defined in writing to him by the competent person who appointed him in the book provided in accordance with sub-regulation (8)

(4) Each competent person or shift foreman shall, except in an emergency relating to safety and health which prevents him from so doing, at least once during his shift examine every place in the section assigned to him in which any person is working, or machinery is operating.

(5) The section allocated to the competent person or shift foreman shall be such that he can without undue exertion examine every place in which any person is working or machinery is operating within a period of five hours.

(6) Each competent person or shift foreman shall be responsible for ensuring the proper observance of requirement of these Regulations by any person is working in his section whether such person is under his direct supervision or not.

(7) Each competent person or shift foreman shall ensure that at any time in any working place in his section where any operation is being carried out there is only one person in charge of such operation.

(8) The manager shall ensure that books are provided and kept at places specified by him in which each competent person or shift foreman shall at the completion of his shift record in ink in the proper book or books the particulars of –

- (a) any instruction that he may have given during the shift for the purpose of securing the safety and health of persons;
- (b) any matters requiring the attention of the relieving competent person or shift foreman with regard to the safety and health of any person;
- (c) any place in which any person is at work or machinery is in operation in the section under his charge which has not been visited and the reason therefor.

(9) The records required to be made by sub-regulation (8) shall be examined and countersigned by the relieving competent person or shift foreman. Such records shall be open to inspection at all times by an inspector.

(10) No competent person or shift foreman or other senior official shall take charge of any workmen in addition to his normal duties except in emergency.

215. (1) At every mine the following provisions shall apply:

Appointment of person in charge

- (a) every workman whilst at work shall be under the personal supervisor, of a competent person who for the purpose of these Regulations shall be referred to as the person in charge;
- (b) such persons in charge shall when employed in underground or open cast workings where rock drilling or blasting operations are being carried out or where the nature of the operation is such that danger may arise from the presence of explosives be the holder of a Zambian blasting licence valid for the operation for which he is responsible.

(2) The person in charge shall be the first person to enter each working place assigned to him and the immediate approaches thereto and he shall examine and make safe or cause to be made safe each such working place and immediate approaches thereto permitting any work to take place, and shall ensure that the provisions of these Regulations are observed by any person in such working places and the immediate approaches thereto whether such person is under his personal supervision or not.

(3) A shift boss, competent person, shift foreman or more senior official may in the execution of his duties enter any working place before the person in charge:

Provided that –

- (i) the shift boss or more senior official shall be the holder of a Zambian blasting license when he wishes to enter any working place where rock drilling or blasting operations have been carried out or where danger may arise from the presence of explosives; and
- (ii) when he observes anything that is unsafe he shall immediately take such precautions as may be necessary to prevent any person entering until such time as he has either made the place safe or informed the person in charge of the unsafe condition.

(4) Whilst making safe any working and the approaches thereto the person in charge shall be responsible for the safe disposition of his subordinates in suitable and safe places until he has made safe.

(5) Notwithstanding the provisions of sub-regulation (4) the person in charge may be accompanied by one or more persons to assist him in making safe.

(6) in his examination for making safe in accordance with sub-regulation (2) the person in charge shall –

- (a) satisfy himself that there is adequate ventilation;
- (b) ensure by physical examination that the roof, walls and face of any working place and approaches thereto are free from all loose rock which may cause danger;
- (c) ensure the adequacy of any support, barricade and platform within the working place and the approaches thereto;
- (d) take such other measures as may be necessary to ensure the safety and health of any person who may work therein or pass there through.

(7) The person in charge having made safe in accordance with sub-regulation (6) shall, during the time that any person is working in any working place under his charge, take all reasonable precautions for the safety of any such person present in such working place, and such precautions as he may take shall continue for as long as he allows any person to remain in the working place or until he is relieved or responsibility by another person in charge.

(8) Any person in charge taking over responsibility for any working place shall re-examine it and take any necessary action in accordance with sub-regulation (6).

- (b) To take or remove for the purposes of analysis or of test, or for use in evidence, samples of mineral, material, substances used or handled, or other items:
- Provided that the Managers shall be notified of anything taken or removed for this purpose;
- (c) To enter, inspect and examine any mine and any part thereof at all times by day and by night, but in such manner that the working of the mine shall not be unnecessarily impeded by the exercise of this power;
- (9) No person except the person in charge, shift boss or more senior official shall enter any working place until such person has received definite instructions or permission to do so from the person in charge or more senior official for the time being responsible for the safety of such working place.
- (10) No person in charge shall take charge of more working places or persons than he can supervise efficiently or take charge of working places so scattered that he cannot examine them all within a period of one hour without undue exertion.
216. The Manager shall ensure that any person employed in any place other than those specified in regulation 215 shall be under the charge of a suitably competent person.
217. The Manager shall ensure that there is in force an effective system to prevent any person being exposed to danger from blasting operations when any underground working place approaches within ten metres of any other underground working place or travelling way, whether work is being carried out or not at such place.
218. (1) The Manager shall ensure that there is in force a system to enable a determination to be made of the number of persons in the underground workings at any time.
- (2) Any person who knowingly fails to conform to any system in force in accordance with sub-regulation (1) shall be guilty of an offence.
219. The Chief Inspector may require the appointment of more than one shift boss, competent person or shift foreman when in his opinion this is necessary.

Part III

Powers of Inspector

- 301 . An inspector shall have power to do all or any of the following things-
- (a) To conduct such examination, enquiry or test as he may consider necessary to determine whether or not the provisions of these Regulations are being observed;

Other Competent Persons

Places Underground within ten metres of each other

Determination of numbers of persons underground

or defect is remedied to his satisfaction or he may give such instructions relative thereto as he may deem expedient.

(2) On receipt of any notice or order given under sub-regulation (1), the manager shall comply therewith or, if he intends to object thereto as provided by sub-regulation (3), he shall cease to use the mine or part thereof, machine, plant, matter, thing or practice concerned and shall forthwith withdraw all persons from the danger indicated until such time as the matter shall have been determined by the Chief Inspector in accordance with the provisions of sub-regulation (3):

- (d) To examine into and make enquiries respecting the state and condition of any mine or part thereof, and of all matters and things pertaining thereto, in so far as they relate to the safety or health of persons employed therein.
- (e) To obtain and record statements from witnesses, to appear at or conduct enquiries held regarding mine accidents, dangerous occurrences and contraventions of these Regulations, to appear at inquests and to call and examine witnesses and cross-examine witnesses, and to conduct or assist in conducting a prosecution for any offence against these Regulations subject to the general or specific directions of the Director of Public Prosecutions.
- (f) To require any person to attend as a witness, to give evidence or to produce any document in his possession or power which relates to any matter connected with an enquiry under the provisions of this regulation.

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Dangerous and defective Practices

Provided that the inspector, if he is of the opinion that there is no immediate danger, may permit work to proceed during such period, under such restrictions and upon such conditions which he considers necessary to ensure the safety and health of such persons, as he shall specify in writing.

(3) If the manager objects to a notice or order given under sub-regulation (1) he may, after receipt thereof, submit his objection in writing to the Chief Inspector who shall thereupon determine the matter and give his decision in writing.

(4) If the Manager objects to a decision given under sub-regulation (3) he may, within seven days of the receipt thereof, submit his objection in writing to the Chief Inspector, the Assistant

Chief Inspector and the objection shall thereupon be referred to an Appeal Board, which shall consist of the Chief Inspector and two mine managers from operating mines in the Republic who shall be nominated by the Minister, their chairman being chosen by and from among the members of the Board, which shall thereupon determine the matter and give its decision in writing.

- (5) Pending the determination of an objection by the Board, the manager shall not use mine or part thereof, machine, plant, matter, thing or practice concerned and shall prevent all persons from being exposed to the danger indicated:

Provided that the Chief Inspector, if he is of the opinion that there is no immediate danger, may permit work to proceed during such period, and under such conditions which he considers necessary to ensure the safety of persons employed, as he shall specify in writing.

- (6) If the Manager fails to comply with any notice or order given under sub-regulation (1) or, where an objection has been submitted, with the decision of the Chief Inspector, or, where a further objection has been submitted, with the decision of the Appeal Board or with any restrictions or conditions imposed under sub-regulation (2) or (5), he shall be guilty of an offence.

303. In any enquiry conducted by an Inspector under the provisions of regulation 301 no person shall be compelled to answer any question, or produce any book, record, document or thing which he could not be compelled to answer or produce if he were an accused person or a witness, as the case may be, in criminal proceedings in the High Court.

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| 304. | Any person who fails to comply with the directions issued by an Inspector and any person who knowingly furnishes or causes or instructs any other person to furnish any false particular in any account, survey, statement or report called for by an inspector under these Regulations shall be guilty of an offence. | <i>Offences</i> |
| 305. | Any person who contravenes any of the provisions of these Regulations shall be guilty of an offence, and shall, where no other penalty is prescribed, be liable on conviction to a fine not exceeding four hundred kwacha or to imprisonment for a term not exceeding twelve months or to both such fine and imprisonment. | <i>General penalty</i> |
| 306. | <p>(1) An Authorised officer or an inspector who receives payment of a fine under the provisions of section <i>one hundred and thirty-five</i> of the Mines and Minerals Act, 1969, shall give a receipt therefore in the form set out in the First Schedule to these Regulations (Mines form 8), and pay the fine into the general revenues of the Republic.</p> <p>(2) Any person who admits liability under the provisions of sub-section (2) of the said section and who has been given time to pay the fine by the Authorised officer or inspector who made the demand for the fine, may authorize the manger to deduct the amount of such fine from any wages due, or which may become due, to him; such Authorisation shall be made on the form set out in the First Schedule to these Regulations (Mines Form 3)</p> <p>(3) The Manger shall deduct the amount of the fine due in accordance with the Authorisation referred to in sub-regulation (2) and shall remit such amount to the Chief Inspector who shall pay such amount into the general revenues of the Republic.</p> <p>(4) The Manager, after deducting the amount of the fine due, shall give a receipt in the form set out in the First Schedule to these Regulations (Mines Form 8).</p> | <i>Payment of fines</i>

<i>No. 46 of 1969</i> |
| 307. | All the powers, rights and duties of an inspector may be exercised by the Chief Inspector. | <i>Powers of the Chief Inspector</i> |

Rights of persons at enquiries

GENERAL DUTIES AND CONDUCT

401. A Copy of these Regulations shall be issued to each employee who in the opinion of the manager is required by virtue of his employment to have specific knowledge of them and for such issue the employee shall sign a receipt which shall be retained by the mine.
402. Any person who observes knows or hears of any danger or anything which is dangerous or likely to be or become dangerous or cause danger of any kind to any person or anything shall either remove, remedy or repair such danger or thing immediately if he has the knowledge and the means to do so or, if he is unable to do so because he lacks either such knowledge or such means, he shall forthwith report the matter to a person in authority who shall take immediate steps to rectify the matter.
403. No person shall -
- (a) Fail to observe any lawful order given to him Personally in accordance with or for the proper observance of the Regulations; or any order whatsoever given in the interests of safety or health”,
 - (b) Ignore, damage, deface or remove any sign, notice, Barricade or other measure provided for the safety of any person:

Provided that such measures may be removed for the purpose of maintenance or repair after suitable precautions have been taken.
 - (c) Omit to do any act which it is his duty to do in accordance with the provisions of these Regulations;
 - (d) Omit to do any act the omission of which endangers or is likely to endanger the safety or health of any person;
 - (e) Willfully commit any act which endangers or is likely to endanger the safety or health of any person.

Copies of Regulations to b supplied when applicable

Persons observing, knowing or hearing of danger

Illegal acts

404. If any person complains to the person in charge of his

working place or any other official that such working place is dangerous, such person in charge or other official shall take immediate steps consistent with safety to confirm such danger and then, if it is so confirmed, take immediate steps to rectify such danger or prevent access to such working place.

405. (1) No person shall be or be allowed to be in or about any part of a mine who has been pronounced medically unfit or who, in the opinion of any mine official or other responsible person, is in any other condition which may render or be like to render him incapable of ensuring the safety and welfare of himself or any other person.
- (2) No person shall take, consume or have in his possession any intoxicating liquor while he is in or on any part of any mine unless he has received the prior special permission of the manager himself:

Provided that where any intoxicating liquor is in transit and is not removed from the vehicle in which it is being transported, this sub-regulation shall not apply.

406. No person shall sleep whilst in charge of any machine or boiler.
407. Every person whether on surface, in open cast workings or underground shall behave in an orderly manner.
408. Whenever a contractor is engaged on work and an accident or occurrence of the nature mentioned in regulation 1601 takes place, he shall report the matter to the manager as soon as possible in such manner as the manager may specify.

409. No person shall –

- (a) Forge or counterfeit any certificate required by, under or for the purposes of these Regulations;
- (b) Give or sign any such certificate knowing it to be false;
- (c) Knowingly utter or make use of any such certificate so forged, counterfeited or falsified;
- (d) Knowingly utter or make use of as applying to any person any such certificate which does not apply;

Persons to be fit

***Sleeping
Orderly behaviour***

Responsibility of Contractors

Offences

- (e) Personate
any person
named in

Complaints of persons

- any certificate;
- (f) Falsely pretended to be an inspector;
 - (g) Willfully connive at any such forging, counterfeiting, giving, signing, uttering, making use of, personating or pretending as aforesaid;
 - (h) Willfully make a false entry in any register, book, notice, certificate or document required by, under or for the purposes of these Regulations, to be kept, served or sent;
 - (i) Willfully make or sign a false declaration required by, under or for the purpose of these Regulations;
 - (j) Knowingly make use of any false entry or declaration as aforesaid.

PART V

MINE PLANS

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| 501. | (1) | The manager shall ensure that mine plans are prepared and kept at the mine to which they refer and that copies thereof are deposited according to the following regulations. | <i>Responsibility of Manager</i> |
| | (2) | Where the average number of persons employed is less than one hundred the manager may apply to the Chief Inspector for an exemption from the provisions of sub-regulation (1). | |
| 502. | (1) | Subject to the provisions of regulation 501 the following plans of all workings shall be kept and shall be brought up to date as at the thirtieth day of September in each year – | <i>Plans to be kept</i> |
| | (a) | A Surface plan which shall show - | |
| | (i) | The position of any principal surface erection, including explosives magazines, reservoirs, dams and other works of a similar nature and the position of any open cast working and borehole and Any underground working or installation which is situated between the surface and 4.5 metres below the surface, and any other surface object which the Chief Inspector may require to be shown; | |

- (ii) The position of any railway, tramway, river, main road, main power and public telegraph line;
 - (iii) The boundaries of the prospecting area, the exploration area and the mining area in which work is being carried out ; in the case of a prospecting area whose boundaries are too extended to be shown on a plan of convenient size it shall be necessary to show only that portion of the area on which the surface equipment is situated leaving a reasonable margin for extension and in such case a key plan to any convenient scale shall also be made showing all the prospecting and principal surface objects;
 - (iv) The position of and connection data to any surveyed triangulation or geodetic or boundary beacon within or without the area as may be required by the Chief Inspector, and
 - (v) The boundaries of any curved area and the position of any fence erected to protect such area;
- (b) An underground plan which shall show –
- (i) Any shaft, stope, station, permanent magazine, main drive , main crosscut, main raise, main winze, major fault and major dyke; and
 - (ii) Any abandoned working which is adjacent to the mine workings together with an explanatory note stating specifically the degree of accuracy on which such plan is based;
- (2) The date, month and year shall be marked against the current position of all workings as at thirtieth day of September in each year so that any change or advance of the workings can be easily ascertained with reasonable accuracy.

503. Plans required to be kept under regulation 502 shall comply with the following requirements –

Requirements for plans

- (a) they shall be laid down on scale of 1/500, 1/1,000, 1/1,500, 1/2,000, 1/2,500, 1/5,000:

Provided that the Chief Inspector may approve in writing any other scale at his discretion;

- (b) Measurements shall be shown in metres.
 - (c) Co-ordinate grid lines in suitable colours shall be shown which shall not be more than 0.3 metre apart and the coordinates of which shall have a numerical value which is the exact product of 50 and some whole number from zero.
 - (d) Elevations or contour lines shall be shown in such positions that sections can be made from this data if required; these elevations or contour lines shall be referred to a permanent bench mark which shall be established on all properties and which shall, where possible, be given as the elevation above sea level or, if any arbitrary elevation has to be used this elevation shall be referred to sea level as soon as this can be obtained and the discrepancy between this arbitrary elevation and sea level shall be noted on all plans.
 - (e) The true meridian shall be shown;
 - (f) On any prospecting area, exploration area or mining area which is of such size that the plan of the whole would be unwieldy if made on a single sheet, it shall be at the discretion of the manager to have such plans prepared in sections as mining shall progress together with a key plan of the sheets made to a convenient scale and covering the whole property.
 - (g) A sufficient number of surveyed reference points shall be shown on such plans and such point shall be so numbered that they can be readily identified;
 - (h) Each Survey shall be carried out and plotted to accepted standards of accuracy; and the Chief Inspector may, in any case where he thinks fit, require a check survey to be made, the cost of which shall be borne by the holder;
 - (i) On any underground plan, the portion of the mine which have been stopped out shall be shown by hatching.
504. When the average true dip of any mine working is more than sixty degrees, a plan showing a vertical projection of such mine working shall also be kept.
- Vertical projection for steeply dipping ore bodies***

505. (1) Tracings of transparencies of the surface and underground plans required in accordance with regulation 502 shall –
- (a) Be made on durable material;
 - (b) Be so prepared that surface and underground tracings or transparencies are to the same scale and can be superimposed one upon the others;
 - (c) Be deposited at the office of the Chief Inspector and brought up to date as at the thirtieth day of September of each year, for which purpose they shall be sent to the Manager by the Chief Inspector,
 - (d) Be brought up to date immediately upon cessation of work or on the closing down or abandonment of any mine;
 - (e) Be brought up to date upon the reasonable request of the Chief Inspector;
 - (f) Not be retained at the mine for the purpose of this regulation for a period longer than six weeks.

Tracings on Transparencies

506. All Mine plans, survey co-ordinate ledgers, calculation books and note books shall be properly numbered and indexed and shall –
- (a) Upon the temporary closing down of any mine be retained for safe keeping on the holder's responsibility in a place and in a manner to be approved by the Chief Inspector:

provided that, if any data be handed over to the Chief Inspector for safe keeping upon such temporary closing down, such data shall be treated as confidential; or
 - (b) Before the permanent closing down of any mine, abandonment, forfeiture or other lapse of mining rights, be lodged by the manager at the office of the Chief Inspector; all such data lodged with the Chief Inspector shall at his discretion be available for reference to any interested party and for the preparation of copies therefrom.

Disposition of mine records on closing down

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| 507. | All plans and tracings required by these regulations, when they are first made and also on each occasion on which they are brought up to date, shall be signed and dated by the chief surveyor of the mine who shall be responsible for accuracy. | <i>Responsibility for accuracy of plans</i> |
| 508. | (1) The Chief Inspector may at his discretion call for Copies of any transverse section of any part of any mine; | <i>Transverse sections may be required</i> |
| | (2) The plans of such transverse section shall be indicated on an underground plan by lines and letters. | <i>Returns treated in confidence</i> |
| 509. | All returns, plans and matter furnished to the Chief Inspector under these regulations shall be treated as confidential, except in so far as disclosure may be permissible in terms of the law or the mining right or is compelled by a competent court or as may be necessary to ensure the safety of adjacent workings | |
| 510. | Nothing in these Regulations of regulation 210 shall be deemed to modify the requirements to the Survey Regulations | <i>No modification of survey regulations</i> |

PART VI

SURFACE PROTECTION

- | | | |
|------|---|----------------------------------|
| 601. | (1) When any cracks of subsidence's have taken place or are likely to take place as a result of mining operations the places where such cracks or subsidence's have occurred or are likely to occur shall be fenced in and kept so fenced in and sufficient notices of warning in English shall be prominently displayed at all times in suitable positions along such fences:

provided that, where the manager is satisfied that it is impossible or unduly onerous for him to keep such fence in the condition required by this sub-regulation, he may submit to the Chief Inspector in writing an alternative scheme for affording protection against any danger arising from such cracks or subsidence's, and the Chief Inspector shall, after due consideration, allow or disallow any such scheme, or he may, if he considers it to be inadequate, specify such conditions as he may deem necessary to improve such scheme, and he may at any time require it to be altered. | <i>Surface subsidence</i> |
|------|---|----------------------------------|

- (2) No person shall enter any place fenced in accordance with this regulation except with the permission of the manager.
602. (1) No holder or manager shall mine or permit mining or under any land where the intersection on the surface of the line of break due to subsidence from such mining operations will lie within a horizontal distance of one hundred metres from any building, road, railway, river, water right, tailings dam, lake, or any other object or surface feature requiring protection except with the written permission of the Chief Inspector and subject to such conditions as he may prescribe.
- (2) Whenever, in the opinion of the Chief Inspector, it may be necessary to protect the surface of any ground or to protect any building, road, railway, river, lake or any object adjacent to a mine, he may, by notice in writing, prohibit the holder or manager from mining in any part of a mine except under such conditions as he may prescribe.
603. On the inside of the boundary lines of any mine, safety pillars shall be left standing the horizontal width of which shall not be less than six metres; on the joint application of the holders of adjoining mines, the Chief Inspector may give permission to either party to weaken, cut through or work from the respective safety pillars between such mines; in the absence of such joint application, the Chief Inspector may give written permission for the partial working, weakening or cutting through of such safety pillars.
604. (1) Any person who digs, or causes to be dug, any excavation for prospecting purposes shall throw or cause to be thrown the earth excavated therefrom in such manner as to form, as far as is possible, regular ridges around the boundaries of such excavation: or other safe means shall be taken either by filing, fencing or covering so as to prevent any person from inadvertently falling into such excavation.
- Protection of the mine and surface***
- Safety pillars at the mine boundary***
- Protection of surface excavation***

- (2) Any person who digs, or causes to be dug, any excavation other than a prospecting excavation shall throw or cause to be thrown the earth excavated therefrom in such a manner as to form, as far as is possible, regular ridges around the boundaries of such excavation; or other safe means shall be taken either by filling, fencing or covering so as to prevent any person from inadvertently falling into such excavation: provided that sub-regulation shall not apply to mining in any open cast working where the manager has taken such other steps as he may have deemed necessary to ensure that no person is liable to inadvertently fall into such working
605. Any Tailings dam or any other place where slimes are stored shall be constructed in such a manner as to prevent, as far as is reasonably practicable, any possible collapse or partial collapse of such dam or place which may cause danger to any person or property. *Slimes, dams and slimes stores*
606. Any dump containing carbonaceous material or any other dump containing material liable to spontaneous combustion shall be situated at a safe distance from any shaft, open cast working, roadway or building so as to ensure, as far as is reasonably practicable, that any outbreak of fire or spontaneous combustion of such dump shall not cause danger to any person or property. *Danger from carbonous materials*

PART VII

PROTECTION IN WORKING PLACES

701. In this part (and elsewhere in these Regulations should the term appear) unless the context otherwise requires – “Abandoned place” means any place in which work has ceased and which is no longer in use; “quarry” means any open cast working from which any stone for building on road making is obtained by cutting, blasting or the like. *Interpretation*
702. (1) Every entrance to any dangerous place underground shall be adequately fenced or barricaded across the whole width of such entrance so as to prevent unintentional access to such place, and no person shall enter or be permitted to enter any such place unless Authorised to do so by responsible official. *Fencing of Dangerous places underground*

- (2) When any place underground has been abandoned all entrances shall be securely fenced or barricaded across the whole width of such entrance so as to prevent unintentional entry by any person and a notice forbidding entry shall be displayed at each entrance ; any Authorisation to enter such place shall be given by a responsible official.
703. (1) In any open cast working or quarry no person shall undercut or permit undercutting of any face or any sidewall, and no face or sidewall shall have a vertical height of more than 1.5 metres unless such face or sidewall is terraced or sloped at an angle sufficient to ensure the safety of persons or is adequately supported:
- Prohibition of undercutting and other precautions***
- Provided that with the written approval of the Chief Inspector this sub-regulation need not apply-
- (a) Where the working or digging is done by mechanical equipment which does not expose the operator of such equipment or any other person to danger from such face or sidewall;
- (b) Where, having regard to the natural and physical properties and other circumstances of such face or sidewall, no fall or dislodgement of any earth or other material is liable to occur so as to endanger persons employed there.
- (2) In every quarry any waste and other loose material and any stone on the surface shall be kept cleared to a distance of at least two metres from the edges of such quarry.
- (3) In digging any trench, pit or other similar working in gravel, clay, soils, tailings, slimes, ash, debris or other similar ground or deposit, no person shall undercut or allow undercutting of any face or sidewall, and no face or sidewall shall have a vertical height of more than 1.5 metres unless such face or sidewall shall be terraced or sloped at an angle sufficient to ensure the safety of persons:
- Provide that this sub-regulation shall not apply –
- (a) Where such working or digging is done by mechanical equipment which does not expose the operator to such equipment or any other person to danger from the face or sidewall;

- (b) Where, having regard to the natural and physical properties and other circumstances of such face or sidewall, no fall or dislodgement of earth or other material is liable to occur so as to endanger persons employed there; notwithstanding the necessity to carry out other examinations to ensure compliance with these Regulations, every part of a face or sidewall to which this provision applies shall be examined at least once every day by a competent person who, if he finds the face or sidewall unsafe, shall cause all work thereat to cease until the said face or sidewall is made safe.
- (4) At every trench, pit or other similar working all waste and other loose material and stone on the surface shall be kept cleared to a distance of at least one metre from the edge thereof to avoid danger to any person occurring from such waste or loose material falling into such trench, pit or working.
- (5) In every trench, pit or other similar working where any vertical face or sidewall is of a weak nature and notwithstanding the provisions of sub-regulation (3), such face or sidewall shall be adequately shored up.
704. Wherever a working place underground is advancing through or approaching ground which contains or is likely to contain dangerous accumulations of water, gas or mud, the manager shall ensure the suitable boreholes are driven in advance of the face, sufficient in number, length and direction to give ample warning of the presence of such accumulations and shall cause such additional precautions to be taken as circumstances may indicate to be necessary to ensure the safety of persons.
- Advanced Boreholes in dangerous ground*
705. (1) Every entrance to a working place underground such as a shaft, raise, winze, sump or other dangerous excavation which is either vertical or steeply inclined shall be properly closed by an adequate fence, barrier, door or gate, or shall be kept adequately covered so as to prevent persons having unintentional access thereto or accidentally falling into such excavation.
- Protection at excavations*
- Provided that when such fence, barrier, door, gate or cover is temporarily removed or opened for the purpose of repairs or other operations, proper precautions shall be taken for the safety of persons, and on completion of such repairs or operations the fence, barrier, door, gate or cover shall forthwith be replaced.

- (2) In the case of a working stope, the requirements of sub-regulation (1) shall be deemed to have been complied with if across every entrance to such stope there is placed and maintained a barrier which is not more than 1.4 metres or less than one metre above the existing floor level and not more than thirty metres from the edge of such stope; any person who may be required to work within three metres from the edge of such shall do so only in accordance with the provisions of regulation 710.
- (3) Only the person in charge, being the holder of a valid Zambian blasting licence, or a more senior official in the execution of his duties, or a person who has received definite instructions or permission so to do from the person in charge or such official, shall cross or open any fence, barrier, gate, door or cover provided for protection at any working place or workings, and then only for the purpose of conduction repairs or other necessary operations and subject to effective safety precautions being taken.
706. Every main ore pass or waste pass, past which any person may walk, shall be provided with either –
- (a) An adequate cover which shall be closed at all times other than during tipping, blasting, or repair operations; or
- (b) A walk-way on the opposite side to the pass and adequate gates or barriers which, with such walk-way, shall enclose the area around the pass:
Provided that such gates may be opened during tipping operations and, when so opened, such gates shall not permit room for any person to accidentally enter the tipping area.
707. No timber, rock, tools or other material shall be placed or allowed to remain where they can accidentally fall, or be caused to fall, thereby endangering the safety of any person.
708. In open cast workings where the area which has been mined is backfilled, the backfill shall be graded and drained as far as is practicable, and shall be place in such manner as to eliminate danger from the backfill sliding into any operating area of such open cast working.
709. Every bearer, decking and anchorage in any shaft, raise, winze or other opening in or over, which a platform is installed shall be –
- (a) of material sufficiently strong and free from patent defect to carry the load for which the platform is intended.
- Protection at main ore and waste passes***
- Falling objects***
- Conditions for backfilling***
- Provisions for platforms***

- (b) Adequately secured , and, where by virtue of the nature of the mining operations the decking is required to be frequently removed, the decking shall be so securely installed as to ensure the safety of any person passing over such a platform: Provided that where the removal of any part thereof is necessary for the purpose of use or repair, adequate precautions shall be taken to ensure the safety of persons working thereat.
710. (1) Every person working where falling would be likely to entail injury shall, wherever practicable, be provided with and wear a safety chain, lanyard or rope which shall be maintained in good condition and be securely attached to the wearer and to a safe anchorage.
- (2) No person shall order or permit a subordinate to work without wearing a safety chain, lanyard or rope in a place where sub-regulation (1) requires him to wear such safety chain, lanyard or rope.
- Safety Chains***
711. At any time where any shaft, raise or winze is directly connected to any other mine working and where such shaft, raise or winze is being enlarged by slyping the following conditions shall apply -
- (a) There shall be provided at the lowest lashing point of such shaft, raise or winze an excavation of suitable size capable of accommodating the greatest amount of rock broken in any one blast during slyping operations so as to prevent any possibility of closure of the bottom of such shaft, raise or winze;
- (b) No slyping hole shall be blasted until it has been established beyond doubt that the requirement of paragraph (a) has been complied with;
- (c) No slyping hole shall be blasted until it has been established beyond doubt that the unslyped
- (d) In the event of any known or suspected hang-up or build-up of rock, work at the lowest lashing point of such shaft, raise or winze shall cease forthwith and every person at such point shall be withdrawn to a place of safety and no person shall re-enter the danger area for any purpose whatsoever until it has been established beyond doubt that there is no progressive build-up of water above the blockage;
- Slyping of shafts, raises and winzes***

- (e) In the event of any build-up of water above the blockage immediate steps shall be taken to remove such water from above;
 - (f) After the removal of such water from above the blockage, a competent person or persons may enter the lowest lashing point for the sole purpose of releasing such hang-up or build-up, and all reasonable precautions shall be taken to ensure his or their safety;
 - (g) In the event of any such known or suspected hang-up or build-up or rock, work at the slyping face within such shaft raise or winze shall cease forthwith until such time as the hang-up or build-up has been released;
 - (h) There shall be provided a suitable means of communication whereby the person in charge at the top of such shaft, raise or winze can communicate directly with the person in charge at the lowest lashing point of such shaft, raise or winze;
 - (i) No operation shall take place at the lowest lashing point of such shaft, raise or winze until all lashing has been completed at the slyping face of such shaft, raise or winze.
 - (j) Precautions shall be taken to prevent the inflow of water, other than drilling water, into such shaft, raise, winze from any source around the mouth of such shaft, raise or winze;
 - (k) Precautions shall be taken to ensure that the inflow of any water, from any fissure within the slyped or unslyped portion of such shaft, raise or winze, causes no danger to any person.
712. (1) In any place on surface or underground where there is water and where a person working adjacent to such place in the course of his employment is liable to fall into such water with the risk of drowning, suitable rescue equipment shall be provided and kept in good order and ready for immediate use in the prompt rescue of any person in danger of so drowning.
- Insertion of new regulation 712***
- Protection
against water***

- (2) where the elevation of the ground immediately adjacent to any place referred to in sub-regulation (1) is at least one metre above the level of water or where a floating stage is used on the water or there is a structure immediately adjacent to such water, adequate fencing or similar safeguards shall be provided and maintained to a height of not less than 1.4 metres at all edges of the ground or structure immediately adjacent to the water. Any floating stage shall be so fenced around its full perimeter:

Provided that such fencing may be temporarily removed for the purposes of maintenance, repair or movement of material.

713. Reasonable precautions shall be taken to ensure the safety at all times of every person working or walking in close proximity to any vessel, sump or container associated with any scalding, corrosive or poisonous substance or any molten metal.

***Insertion of new regulation 713
Precautions against vessels etc***

PART III

OUTLETS, LADDERWAYS AND TRAVELLING WAYS UNDERGROUND.

801. In this part (and elsewhere in these Regulations should the term appear) unless the context otherwise requires – “Ladder” means every shaft, raise or winze in which permanent ladders are installed for the use of any person ascending or descending thereon

Interpretation

802. (1) Every person employed underground shall have available to him not less than two separate and independent shafts or outlets affording means of ingress to and egress from underground.

***Two separate and independent
shafts or outlets to be provided***

Provided that this regulation shall not apply to a sinking shaft or winze.

- (2) Such shafts or outlets shall -
- (a) Not at any point be nearer to each other than ten metres;
- (b) Be provided with proper arrangements, which shall be kept constantly available for use, to enable all persons to have a ready means of ingress and egress at all times;

- (c) Be maintained in a safe condition and of Sufficient cross sectional area throughout to allow the free passage of all persons;
 - (d) Be connected to each other by a reasonably convenient route.
 - 803. (1) Every working place in which more than fifty persons Work underground at any one time shall be provided with not less than two separate and independent means of ingress and egress so that every person has available to him two such means of ingress and egress so that every person has available to him two such means of ingress and egress one to each of the two shafts or outlets:

Provided that this regulation shall not apply to the mining of any audit or other development heading underground which is not more than six hundred from the last through connection to two such means of ingress and egress; where such audit or development is likely to exceed six hundred metres prior to approval, with any such conditions as he shall impose, shall be obtained in writing from the Chief Inspector before such audit or development exceeds six hundreds metres.
 - (2) Such means of ingress and egress shall be so arranged that should either become unavailable at any point the other will afford egress from such working place to one shaft or outlet.
 - (3) the two Means of ingress and egress required by sub-regulation (1) shall –
 - (a) Be provided with proper arrangements, which shall be kept constantly available for use, to enable every person to have a ready means of ingress and egress;
 - (b) Be maintained in safe condition and of sufficient cross-sectional area throughout to allow the free passage of every person.
- Two separate and independent means of ingress and egress to be provided***
- Responsibility when the shaft or outlet and means of ingress and egress are situated in another mine***

804. Where any shaft or outlet provided in accordance with sub-regulation (1) of regulation 802 and any means of ingress and egress provided in accordance with sub-regulation (1) of regulation 803 is situated in another mine, the manager of such other mine shall be responsible for such shaft or outlet or such means of ingress or egress; should any obstruction arise in such mine to affect the safe use of such shaft or outlet or such means of ingress the manager shall notify the manager of the other mine who will be affected by such obstruction.

***Ingress and egress only by
Authorised ways.***

805. No person shall enter or leave any underground working except by means of the ingress and egress specially provided or set apart for this purpose unless such person is Authorised by the manager to enter or leave by any other means.

806. There shall be provided sufficient number of ladder ways and travelling ways permanently maintained and kept free from obstruction to enable every person to leave every part of a mine;

***Ladderways and travelling ways
for leaving parts of the mine***

Provided that this regulation shall not apply to a ladder way which is temporarily out of use for the purposes of repair but proper precautions shall be taken for the safety of every person underground at that time.

807. Any shaft or raise at an inclination of more than fifteen degrees above the horizontal or any winze at an inclination of more than fifteen degrees below the horizontal, through which persons travel, or at any shaft, winze or raise having mechanical haulage and through which persons travel, shall have a separate ladder way compartment:

***When separate ladder way
compartment is required***

Provided that this regulation shall not apply to the travelling ways in which vehicles which are employed on trackless mining travel.

808. Every ladder used in ladderways shall –

Requirements for ladderways

- (a) Be securely fastened in position
- (b) be of good construction, free from patent defect and of adequate strength for the purposes for which it is used;
- (c) be maintained in good repair;
- (d) Not be fixed in an overhanging position;

- (e) Project at least one metre above the mouth of every shaft, winze, raise or other excavation and above every landing place; and are fixed at such mouth or landing place; and
 - (f) Have a level and firm footing.
- (2) Subject to the provision of regulation 810 no ladder used in a ladderway shall be at an inclination of over eighty degrees to the horizontal and when a ladder is-
- (a) at an inclination to the horizontal of seventy degrees or over adequate landing places shall be provided at convenient distances, not more than ten metres apart, and each ladder shall be so arranged as to cover the manhole of the landing place on which it rests, or penthouses shall be provided, and shall be adequately bratticed off from any winding compartment; or
 - (b) At an inclination to the horizontal of more than thirty-five degrees and less than seventy degrees it shall be broken every twenty metres by adequate landing places, and the ladderway shall be adequately bratticed off from any winding compartment, hand rails being provided where necessary; or
 - (c) At an inclination to the horizontal of thirty-five degrees or less, steps, ladderways or walkways so designed to minimize the danger of falling or slipping, shall be constructed and shall be adequately bratticed off from any winding compartment.

809. Every ladder other than ladders in ladderways referred to regulation 806 shall –

Other ladders

- (a) Be of good construction, and of adequate strength for the purpose for which it is used and be free from patent defect.
- (b) Be maintained in good repair.
- (c) Not be fixed in an overhanging position; and
- (d) Have a level and firm footing.

810. Where Vertical ladders are used they shall be subject to the following additional conditions –

Vertical ladders

- (a) They shall have adequate safety hoops or shall be so positioned with regard to the wall of the ladderway that the person using the ladder can lean back against the wall of ladder to rest;**
- (b) Landing places shall be provided at distances of not more than ten metres apart; and**
- (c) The provisions of sub-regulation (1) of regulation 808 shall apply.**

811. (1) No person shall carry or cause another to carry and drill, tool or any loose material on any ladderway which may interfere with his safe passage except so far as may be necessary in executing repairs.

Objects carried on ladderways

- (2) Any person carrying an object in a ladder shall ensure that such object is carried out in such a manner that it cannot be reasonably expected to drop down the ladderway**

PART IX

VENTILATION AND AIR POLLUTION

901. In this part (and elsewhere in these Regulations should be the term appear) unless the content otherwise requires -

Interpretation

“Auxiliary fan” means any fan temporarily installed in any part of a mine to provide adequate ventilation in that part of the mine;

“Booster fan” means any fan installed to assist a main fan to provide a primary ventilating current in any part of a mine;

“Re-entry period” means that period of time caused to be fixed by the manager or secondary blast has occurred;

“toxic” means, if of a certain concentration, capable of causing injury to or harmful pathological change in a person by absorption or inhalation.

902. (1) The manager shall cause such steps to be taken as are necessary to ensure that adequate ventilation is supplied to places where persons are travelling or working. ***Provision of adequate ventilation***
- (2) The ventilation shall be deemed to be adequate if it
- (a) Ensures that the amount of oxygen in the general body of the air is not less than nineteen *per centum* by volume;
 - (b) Ensures that the amounts of carbon dioxide, carbon monoxide, nitrous fumes, sulphur dioxide and hydrogen sulphide in the general body of the air do not exceed the quantities set out against each such gas in column 2 in the Second Schedule of these regulations.
 - (c) Dilutes or removes any other toxic gas or fume so that the amount of such gas or fume in the general body of the air conforms to the requirements prescribed, from time to time, by the Chief Inspector.
 - (d) Dilutes or removes any harmful dust so that the amount of such dust in the general body of the air conforms to the requirements prescribed, from time to time, by the Chief Inspector.
 - (e) Maintains working conditions free from dangerous temperatures at high relative humidity's in the general body of the air; and
 - (f) Provides any diesel unit with not less than 0.5 cubic metres of air per second per kilowatt for the purpose of diluting or removing any toxic gas or fume in the general body of the air at places such diesel unit operates.
903. The Chief Inspector may, by notice in the Gazette, prescribe the following; ***Chief Inspector to prescribe maximums***
- (a) Any gas or fume which he may deem to be toxic (other than those already prescribed in the Second Schedule), and the maximum permissible amount of such gas or fume content in the general body of the air; and

- (b) The maximum permissible amount of any harmful dust content in the general body of the air.
904. Where for any reason the ventilation required by sub-regulation (1) of regulation 902 ceases to be adequate the manager shall ensure-
- When ventilation ceases to be adequate manager to restore***
- (a) That all necessary steps are taken to ensure the safety and health of any person who may be endangered by such conditions; and
- (b) That adequate ventilation is restored as soon as possible.
905. Whenever any person becomes aware of the fact that any other person is unknowingly exposed to conditions arising from excessive amounts of toxic gas or fume, dust or harmful temperature such person shall take such steps as shall be necessary to remove such other person from such exposure and shall ensure that the manager is informed without delay of the circumstances of such exposure; the manager shall then take all further steps necessary to ensure the safety and health of all persons who have been or may subsequently be exposed to such conditions and rectify and prevent any recurrence of such conditions.
- Persons unwillingly exposed to bad conditions***
906. No person shall enter, travel, work or remain in any place or permit any other person to enter, travel, work or remain in any place where it is known that the requirements of regulation 902 are not being complied with and where any such person is likely to be exposed to conditions arising from excessive amounts of toxic gas or fume, dust or excessive temperatures unless adequate precautions are taken to ensure the safety and health of such person or such person is equipped with and has been trained in the use of approved breathing apparatus.
- Persons not to enter where conditions are known to be bad***
907. An effective respirator shall be provided to any person who during the course of this normal work is likely to be exposed to excessive amounts of toxic gas or fume or dust, and shall be used by such person working under such conditions.
- When respirators are to be worn***
908. (1) At every underground mine the manager shall ensure that at intervals not exceeding three months a competent person shall make determinations of –
- Determinations to be made***
- (a) The quality of air circulating;

- (b) The temperature of air circulating as indicated by wet and dry bulb thermometers;
 - (c) The amount of dust present in the general body of the air as determined by a method approved in writing by the Chief Inspector.
 - (2) The determinations required in sub-regulation (1) shall be made at the following places –
 - (a) The Collar of each downcast shaft;
 - (b) Every main air intake underground;
 - (c) Each main intake to every working section;
 - (d) Each intake and face at every working place;
 - (e) At or adjacent to every rock tipping and rock loading point.
909. The manager shall ensure that at regular intervals not exceeding thirty days a competent person shall at such times as such person thinks proper take samples of the general body of the air at places underground where any diesel unit operates in order.
- Detection of harmful toxic gases***
- (a) To protect all harmful toxic gases in every such place;
 - (b) To determine the quality of air circulating in every such place: and;
 - (c) To determine the temperature of air circulating in every such place as indicated by both wet and dry bulb thermometers.
910. (1) The results of the determination and samples required by regulations 908, 909, 913 and 933 shall be recorded in a book kept for the purpose and such record shall be signed by the ventilation engineer and by the mine captain and at least one other more senior official.
- Recording of determinations taken***
- (2) A quarterly report of such results recorded in accordance with sub-regulation (1) shall be submitted to the Chief Inspector in such form as he may require.

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| 911. | Every diesel unit underground shall be operated only in Haulage ways or working places where adequate ventilation is maintained by mechanical means. | <i>Operations areas of diesel units</i> |
| 912. | <p>(1) In the event of the failure of the mechanical means mentioned in regulation 911, the engine of each and every diesel unit in the haulage or working places affected by failure shall be stopped forthwith.</p> <p>(2) When a mechanical failure occurs as above no engine of any diesel unit shall be restarted until such time as The mechanical means have been restored to satisfactory working order and the conditions of the air corrected to within the limits specified in regulation 902.</p> | <i>Precautions where mechanical failure occurs</i> |
| 913. | <p>The Manager shall ensure by systematic sampling that no self Propelled diesel unit runs underground.</p> <p>(a) If the exhaust gases of the engine are found to contain more than 0.2 per centum by volume of carbon monoxide or 0.1 per centum by volume oxides of nitrogen; or</p> <p>(b) If the engine has any defect which may cause danger to persons.</p> | <i>Manger to ensure safety underground where diesel units run.</i> |
| 914. | An adequate supply of suitable water shall be provided at a pressure of not less than two bars at every point where it is required for dust suppressions. | <i>Suitable water for dust suppression</i> |
| 915. | <p>(1) No person underground or within fifteen metres of the surface inlet to any airway shall use or be required to use only compressed air for any of the following purposes –</p> <p>(a) To clean any truck, skip or other conveyance unless the contents of such hole surface is thoroughly wet:</p> <p>(b) To blow out any drill hole or to blow over any rock surface is thoroughly wet;</p> <p style="padding-left: 40px;">Provided that a mixture of compressed air and water may be used for such purposes.</p> <p>(2) No person shall use compressed air for the purpose of cleaning his body or his clothing or the body or clothing of any other person.</p> | <i>Use of compressed air</i> |

916. Every determination of the amount of toxic gas or harmful dust made in pursuance of these Regulations shall be made by, and the results evaluated by, such means as the Chief Inspector shall approve. ***Determinations and evaluations to be approved by Chief Inspector***
917. No fire extinguisher which is liable when operate to emit or cause toxic gas or fumes shall be used underground unless it is approved in writing by the Chief Inspector. ***No toxic fire extinguishers***
918. Every door, stopping, brattice or seal installed to maintain ventilation shall be of adequate strength and be properly maintained. ***Provisions for doors, etc.***
919. (1) No locking device fitted to any ventilation door shall be self-locking. ***Locking devices***
- (2) No person shall enter any part of a return airway which is normally isolated except in the course of his duty and then only after he has taken precautions to ensure his safety.
920. Where the natural ventilation current is insufficient to provide adequate ventilation there shall be provided such mechanical means as may be necessary to produce adequate ventilation in all places in which and for such times as persons may be travelling or working therein: ***Provision of Mechanical means***
- Provided that in any place where adequate ventilation is maintained by the discharge of compressed air, the pipe conveying the compressed air to the point of discharge or to such device shall be connected to the supply pipe independently of any valve installed to supply compressed air to any other machine or process and where any such place is a raise or winze being developed any such pipe conveying the compressed air to the point of discharge shall be connected to the supply pipe independently of any other pipe or valve and only one valve shall be installed at the entrance to any such raise or winze.
921. Every main fan installed in accordance with regulation 920 shall be equipped with automatic alarms which shall: - ***Main fans to have automatic alarms***
- (a) Come into operation in the event of any stoppage of such main fan; and
- (b) Be clearly audible or visible to a responsible person at all times during which persons are underground and such person shall report such stoppage forthwith in accordance with an established procedure which the manager shall cause to be laid down.

922. No auxiliary fan shall be installed or operated underground at any place unless the quantity of air reaching it at all times is sufficient to ensure that any recirculation of air shall not prejudice the supply of adequate ventilation. ***No harmful re-circulation of air permitted.***
923. In the event of any stoppage or failure of any fan the person responsible for any section or part of the mine in which such stoppage or failure may prejudice the maintenance of adequate ventilation as endangered thereby is withdrawn to a safe place; no person shall enter such section or part of the mine until adequate ventilation has been restored therein, unless any such person is equipped with and has been trained in the use of approved breathing apparatus. ***Withdrawal of persons when ventilation is inadequate***
924. Except with the written approval of the Chief Inspector and subject to such conditions as he may impose, no rock-drilling, rock boring or portable mechanical rock-breaking machine which is not an approved machine shall be used. ***Rock machines to be approved***
925. Except with the written approval of the chief Inspector and subject to such conditions as he may impose, no person shall use or order any other person to use any rock drill or rock borer at any schedule mine unless – ***Wet drilling***
- (a) The water pressure supplied to the machine is not less than two bars; and
- (b) An adequate flow of water is maintained at the bit or bits to suppress the dust effectively.
926. (1) The manager shall cause a schedule of times to be arranged during which all primary blasting in any part of any mine shall take place and he shall ensure that any blasting in one part shall not expose any person to danger in any other part; no alteration or amendment to such schedule shall be made less than one hour or more than twenty four hours before the commencement of the first shift to which such alteration or amendment applies: ***Primary blasting schedule and re-entry times to be specified***
- Provided that in cases of emergency in order to prevent danger to life or property the manager may temporarily alter or amend such schedule and he shall ensure that every official and person in charge concerned is notified of such temporary alteration.

- (2) The Mine Captain or more senior official in charge of any section shall arrange within the period scheduled for his section the specific times at which primary blasting shall take place in each working place, or group of working places, in his section, and no person shall carry out any primary blasting except at such times:

Provided that in case of emergency such mine captain or official may alter or amend those specific times within the period scheduled for his section, in which case he shall ensure that every person concerned is notified of any such alteration or amendment.

- (3) The schedules required by sub-regulations (1) and (2) shall be so arranged that no person shall avoidably be exposed to fumes, dust or flying debris originating from the blast, and shall be posted on the surface where they can conveniently be seen before the commencement of the shift by any official and the person in charge concerned.
- (4) The blasting of misfired holes or hitches, or any blasting to make a place safe, may be carried out at any time, but only with the express permission of the shift boss, or other more senior official, if such shift boss or such official is satisfied that no person will be exposed to any danger from such blast.
- (5) After primary blasting has taken place no person shall enter, or cause or permit any subordinate to enter, any place in which the air may have become contaminated by dust or fumes resulting from such blasting until the expiry of the re-entry period:
- (6) If, in the opinion of the Chief Inspector, any re-entry period is insufficient for the removal of dust or fumes which might occur, there shall be substituted such longer period as he may in writing require.
- (7) A schedule showing the re-entry periods for the different places shall be posted on the surface where it can conveniently be seen at any time by any official and the person in charge concerned.
- (8) The manager shall ensure that a clock is placed adjacent to the schedules required by this regulation which shall show the official standard time to be observed.

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| 927. | (1) | No primary blasting shall take place in any development work unless there has been installed a pipe not less than twenty-five millimeters in diameter capable of discharging air or a mixture of air and water so as to effectively sweep the face of such development. | <i>Installation of water supply at stope grizzlies</i> |
| | (2) | Any air pipe or any air and water pipe combination installed in accordance with sub regulation (1) shall be properly maintained and tested by the shift boss at intervals not exceeding seven days. | |
| 928. | (1) | The Blasting licence holder shall, before detonating any charge in any development work, turn on the air, or mixture of air and water, required to be provided in accordance with sub-regulation (1) | <i>Turning on of air prior to blasting</i> |
| | (2) | The Air shall continue to be discharged for a period of not less than thirty minutes. | |
| 929. | | No person shall enter, or cause or permit a subordinate to enter a grizzly excavation or other place after secondary blasting has taken place there, until the expiry of the re-entry period; a schedule showing the re-entry periods shall be posted on the surface where it can conveniently be seen at any time by any official and the person in charge concerned. | <i>Secondary blasting and re-entry schedule</i> |
| 930. | | A sufficient supply of water shall be installed and used at every operating stope grizzly for the purpose of suppressing dust. | <i>Installation of water supply at stope grizzlies</i> |
| 931. | | Every surface in places underground, where persons may travel or work and where dust may accumulate and be disturbed by blasting, shall be regularly and frequently washed down with water. | <i>Dust on surfaces</i> |
| 932. | | No lashing operations shall be permitted unless the rock to be lashed is adequately wetted and maintained in such condition during the time lashing continues. | <i>All rock to be wetted</i> |
| 933. | | _____ Effective means for the control, within the limits as prescribed under regulation 903, removal or disposal of gas, fume and dust shall be provided and used at – | <i>Removal, control or disposal of dust</i> |
| | (a) | Main tipping Stations underground; | |
| | (b) | Shaft loading boxes underground; | |

- (c) The loading and discharging points in any Conveyor or system of conveyors;
 - (d) Any Vibratory or mechanical rock feeder;
 - (e) Any rock crushing machine, screen or plant; and
 - (f) Any fixed machine used for the high speed milling, grinding or sand-blasting or rock drill bits or rock drill steel.
934. Where a filtration unit or plant has been installed for the collection of dust, the manager shall ensure the safety and health of persons in the vicinity during the clearing of such unit or plan, and during the removal, transport and disposal of any dust collected.
- Collection and disposal of dust at filtration units or plant***
935. Adequate ventilation shall be provided in any surface plant or building or any part thereof in which any person may travel or work and where any dust containing coal, asbestos or siliceous matter is released,, or is liable to be released, or is liable to be released, or where any toxic gas or fume is evolved or is liable to be evolved.
- Surface plant of buildings to be ventilated***
936. Any harmful dust or toxic gas or fume removed or evolved from any process shall, if not otherwise recovered, collected or disposed of, be discharged into the atmosphere at an adequate height and distance so that the amount of any harmful dust or toxic gas or fume in the general body of the atmosphere in or entering any building, plant or surface inlet to underground workings shall be in accordance with the requirements of regulation 902:
- Plant and buildings in which toxic substances and dust are removed or evolved***
- Provided that such point of discharge into the atmosphere shall not be less than seventy-five metres measured horizontally from the nearest point of any surface inlet to the underground workings.
937. (1) Adequate means shall be provided and used for the positive removal at source, or as near thereto as practicable, of any toxic substance (other than dust) which may escape or be released from any surface plant or building in which such substance is handled, processed, stored or evolved.
- Removal of toxic substances at or near source***
- (2) Any such substance removed in compliance with sub-regulation (1) shall be disposed of in a safe manner.

938. Where any toxic substance is handled, processed or stored the manager shall ensure that there are provided and used by all persons who may be endangered by such toxic substance-
- Provision of washing and eating facilities where toxic substances are handled***
- (a) Adequate and sufficient washing facilities for the use of such persons prior to eating food or leaving work; and
- (b) Where such persons may eat food at any time during their working hours, adequate accommodation for such purpose immediately adjacent to such washing facilities.
939. (1) At any scheduled mine determinations shall be made at intervals not exceeding three months by a competent person of the amount of dust present in the air at every working place in every surface plant or building referred to in regulations 935 and 937 and of the amount of any other toxic gas or fume which is known, suspected or liable to be present in the air at every working place so as to ensure that the air conforms to the requirements of sub-regulation 902.
- Determinations in surface plant***
- (2) The results of the determinations required by sub-Regulation (1) shall be recorded in a book kept for the purpose and the record shall be signed by the ventilation engineer and by the senior official of the plant, building or process concerned; the record shall be open to inspection by any inspector.
- (3) A quarterly report of the results obtained in accordance with sub-regulation (1) shall be submitted to the Chief Inspector in such form as he may require.
940. Any test pit or other similar hole mined in excess of five metres through concentrate tailings shall be provided with adequate ventilation before any person enters such pit or hole.
- Insertion of new Regulation 940
Test pit, etc, to be provided with adequate ventilation***

PART X

TRANSPORT AND TRAMMING

Repeal and replacement of Part x

1001. In this part (and elsewhere in these Regulations should the term appear) unless the context otherwise requires –
- “Diesel Engine: means an efficient and suitable fire extinguisher of such size and weight that it can readily be handled by an individual;
- “Trackless Vehicle” means any vehicle having wheels, tracks or skids, self-propelled or otherwise, which does not run on a track of rails but excludes winding plant.

Interpretation

1002. The manager shall ensure that any place underground in which any locomotive pulling or pushing train of vehicles operates, the following conditions shall apply:

Clearances and refuge holes

- (a) Either there shall be a horizontal clearance of at least six hundred millimeters between the widest part of any vehicle of such train and the sides of such place (except that in any place constructed prior to the date of commencement of these regulations such clearance shall not be less than four hundred and sixty millimeters) or refuge holder shall be provided at intervals not exceeding thirty metres; and
- (b) Adequate clearance shall be provided for the safety of any person riding in or on any such vehicles.

1003. (1) The manager shall ensure that no self propelled trackless vehicle is permitted to move underground in any place unless adequate clearance is provided for the safety of the driver of such vehicle and there are suitable refuge holes provided to afford protection for any person who may have to pass such place whilst the vehicle is in motion therein.
- (2) The clearance referred to in sub-regulation (1) shall be sufficient in width and height for the passage of the vehicle and the driver when he is operating.
- (3) The intervals between the refuge holes referred to in sub-regulation (1) shall be as follows:

Clearances for trackless vehicles and provisions for refuge holes

- (a) Any curve the maximum distances between refuge holes shall not exceed fifteen metres;
 - (b) In any straight ramp which is adjacent to a curve and within sixty metres of the commencement of that curve, the maximum distance between refuge holes shall not exceed fifteen metres;
 - (c) In any straight ramp other than the sixty metres mentioned in paragraph (b) the maximum distance between refuge holes shall not exceed twenty three metres;
 - (d) In any road the maximum distance between refuge holes shall not exceed thirty metres.
- (4) Where the refuge holes are required to be provided in any length of any ramp or road they shall be placed on one and the same side, and in any curve so far as is practical on the outside of the curve.
1004. (1) The dimensions of refuge holes shall be as follows: ***Dimensions of refuge holes***
- (a) In width, one metre or as nearly as may be;
 - (b) In depth, not less than one metre;
 - (c) In height, the height of the road at that place or two metres whichever is the less.
- (2) Every Refuge hole shall be clearly marked, kept clean and be free from any obstruction.
- (5) The Entrance to every refuge hole shall be kept clean and be free from any obstruction.
1005. Where the provisions of regulations 1002 and when 1003 cannot be applied there shall be no movement of persons on foot whilst a vehicle is travelling therein. ***When no movement of persons is permitted***
1006. (1) No self-propelled trackless vehicles shall run in any place underground or at any place on the surface unless precautions are taken to ensure that any live trolley line conductor is isolated during the period in which such vehicle may have to pass or travel there under or adequate precautions are taken to ensure that such conductor is suitably protected so that no person normally seated in the accommodation required to be provided in accordance with regulation 1021 any part of the vehicle can come into contact with the conductor. ***Isolation of live trolley line***

- (2) Any person carrying any material or tools when travelling in any vehicle or when walking under any live trolley line conductor shall take all reasonable precautions to ensure that such material or tools cannot inadvertently come into contact with such conductor.
1007. Every self propelled trackless vehicle shall be provided with-
- Specifications for self propelled trackless vehicles*
- (a) (i) An efficient braking system having two means of operation one of which can be applied by direct mechanical action; or
 - (ii) Two efficient braking systems each having a separate means of operation and so constructed that the failure on the part of the one shall not affect the effectiveness of the other; the same brake shoes operating within or upon the braking surface of the vehicle may be used when operating either of the two braking systems;
 - (b) Means of giving adequate audible warning;
 - (c) A safe driving position for the driver;
 - (d) Adequate lighting which shall be used when such vehicle is operating underground or when such vehicle is operating on the surface between the hours of sunset and sunrise as prescribed hereunder.
 - (i) In the case of vehicle which travels regularly in a forward direction, two white headlights affixed to the front capable of illuminating the way ahead for a distance of at least thirty metres and a suitable reflector or red light affixed to the rear in such manner as to be visible directly from the rear.
 - (ii) In the case of a vehicle which may travel regularly in either direction, two white headlights affixed to the front and two to the rear of the unit, each set capable of illuminating the way ahead for at least thirty metres, and a suitable reflector or red-light affixed to the front and the rear in such manner as to be clearly visible:
Provided that any self-propelled vehicle operated by compressed air shall be exempted from provisions of sub-regulations (a), (b) and (d).

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| 1008. | (1) | Every Locomotive shall be provided with – | <i>Brakes, lighting and other requirements fro locomotives</i> |
| | | (a) An efficient braking system having two means of operation one of which can be applied by direct mechanical action; | |
| | | (b) Means for giving adequate audible warning; | |
| | | (c) A safe driving position for the driver; | |
| | | (d) Adequate lighting which shall be used when any such locomotive is operating underground or when it is operating on the surface between the hours of sunset and sunrise as prescribed hereunder: | |
| | | (i) When puling a train of vehicles a white light capable of illuminating the way ahead for a distance of at least thirty metres shall be affixed to the front of the locomotive and a red light shall be affixed to the last vehicle in such manner as to be clearly visible from the rear; | |
| | | (ii) When pushing a train of vehicles a white light capable of illuminating the way ahead for distance of at least thirty metres shall be affixed to the front of the leading vehicle of the train and a red light shall be affixed to the locomotive in such manner as to be clearly visible from the rear; | |
| | | (iii) When moving without a train of vehicles a white light capable of illuminating the way ahead for a distance of at least thirty metres shall be affixed to the leading end of the locomotive in such manner as to be clearly visible from the rear. | |
| 1009. | | It shall be the duty of the driver in charge of any self-propelled vehicle to ensure that – | <i>Drivers to ensure that vehicles have necessary safety requirements</i> |
| | | (a) The brakes are good working order; | |
| | | (b) The warning signals and lights are in good working order and in the event of them not being in good working order or not being affixed he shall not move such vehicle except to the nearest place where repairs can be effected and; | |

- (c) Such vehicle is not moved when the brakes are not in good working order;

Provided that where only one of braking systems specified in regulations 1007 and 1008 is out of order, the driver may move such vehicle to the nearest place where repairs can be effected to the defective system, but where both such systems are defective then such vehicle may only be towed to the workshop by another vehicle connected to the defective unit by means of a rigid towing bar.

1010. (1) Every self-propelled vehicles excluding private motor cars shall be equipped with a portable fire extinguisher which shall be readily accessible to the driver when the vehicle is in use.

Fire extinguishers for vehicles

- (2) It shall be the duty of the driver of any self-propelled vehicle to ensure that the portable fire extinguisher required in accordance with sub regulation (1) is affixed to the vehicle and if not so affixed he shall forthwith notify his immediate superior.

Provided that for any open cast workings this requirement need not apply if the manager submits to the Chief Inspector for his prior written approval under such conditions as he may prescribe a suitable alternative scheme.

1011. Where the speed of any self-propelled vehicle may be limited for any reason an operative speed indicator shall be provided, maintained and used unless the speed of such vehicle is governed mechanically in such manner that the limited speed cannot be exceeded.

Speed indicator for vehicles

1012. (1) The driver of any self-propelled vehicle shall not leave his vehicle unattended other than at a place where it is normally kept when not in use unless he has taken all reasonable precautions to ensure that it cannot inadvertently be set in motion.
- (2) The driver of any self-propelled diesel vehicle Underground shall not keep the engine running when the unit is stationary except –
- (a) During brief halts or when necessary for normal operation; or
- (b) While the engine is being tested.

Vehicle not to be left unattended

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| 1013. | (1) | The manager shall take reasonable measures to ensure that every vehicle in use has a reasonably unobstructed view in the direction of travel or he shall make arrangements to ensure that when this is not so the driver is guided by suitable signals given only by the persons authorized to do so. | <i>Manager to ensure that vehicle has unobstructed view</i> |
| | (2) | No driver shall move his vehicle when his view is obstructed unless or until he receives a suitable signal as required in accordance with sub-regulation (1). | |
| | (3) | No person authorized in accordance with sub-regulation (1) shall give any signal until he has satisfied himself that it is safe for the vehicle to move. | |
| 1014. | | Every vehicle and each of its accessories shall so far as is practicable be of non-flammable material so as to minimize the risk of fire. | <i>Vehicle and accessories to be of non flammable material</i> |
| 1015. | (1) | The manager shall ensure that there is in force a scheme for the systematic inspection, examination and testing of all self-propelled vehicles in use. | <i>Scheme for inspection of vehicles</i> |
| | (2) | The self-propelled vehicles on the surface required to be inspected in accordance with sub-regulation (1) are those:- | |
| | (a) | owned by the mine | |
| | (b) | not owned by the mine but operated by the mine, and | |
| | (c) | not owned by the mine but operated by a contractor: | |

Provided that this regulation shall not apply to any vehicle owned and operated by Zambia Railways.

- (3) The inspections, examinations and tests referred to in this regulation shall be such as to ensure that the external parts of the engine or motor, the condition and operation of all controls, safety devices and signal arrangements are in all respects in proper working order.

1016. Every self-propelled vehicle which is required to be examined in accordance with regulation 1015 shall be so examined in a suitable workshop which shall:-

***Vehicles to
be examined
at suitable
workshop***

- (a) be constructed of non-flammable material;
- (b) be provided with not less than two means of egress;
- (c) be ventilated by a current of air sufficient to dilute and render harmless the exhaust gases emitted while the engine is being run therein;
- (d) have a concrete floor;
- (e) be equipped with suitable means for inspecting the vehicle from below;
- (f) be kept provided with suitable equipment located in suitable positions for extinguishing fires;
- (g) between the hours of sunset and sunrise on the surface and at all times underground be equipped with suitable electric lighting for use when persons are working therein and the bulbs or tubes therein used shall be adequately protected.

1017. Except with the written permission of the Chief Inspector no internal combustion engine other than a diesel engine shall be used underground.

***Restriction on the use of
combustion engine underground***

1018. The manager shall ensure that every self-propelled diesel unit underground shall be constructed and maintained that :-

***Requirements for diesel unit
underground***

- (a) air entering the engine is cleaned;
- no exhaust gases are expelled directly to the
- (b) atmosphere; and
 - (c) the emission of flames or sparks is prevented.

1019. No person shall:-

***Offences in connection with
vehicles***

- (a) willfully damage or interfere with or order any other person to damage or interfere with any vehicle or part thereof;
 - (b) neglect to inspect or maintain any vehicle which he is required to inspect or maintain under the provisions of these Regulations;
 - (c) get on or off any vehicle whilst it is in motion except those persons directly engaged in shunting operations on the surface;
 - (d) ride in or on any vehicle unless authorized to do so and then only in such position as not to endanger himself or any other person.
 - (e) Drive or operate any vehicle unless he is competent to do so and has been so authorized in writing by his shift boss, foreman or more senior official; or
 - (f) Negligently or willfully drive or operate or cause to be driven or operated any vehicle in such manner as to endanger the safety of the mine or the safety or health of any person.
1020. On every inclined track where trucks or cars are attached to a rope or chain adequate safety devices shall be provided to prevent danger from such trucks or cars in the event of their runaway.
1021. No person shall ride in or on any vehicle unless suitable and adequate accommodation has been provided for this purpose.
- Safety devices for tracks or cars attached to a rope or chain.***
- Restrictions on Riding in vehicle***

**PART X1
LIGHTING**

1101. (1) No person shall proceed underground unless he has in his immediate possession an operable lamp of a type approved by the manager and such lamp shall be kept alight and within safe and easy reach at all times.
- (2) Every person in any unilluminated place shall carry a lighted lamp.
1102. (1) Suitable and sufficient permanent lighting shall be provided and maintained at the following places underground in regular use:-
- Persons to have lamps underground***
- (a) every established station, landing or loading place and other similar place in vertical and inclined shafts, and other similar place in vertical and inclined shafts, winzes and places where man winding is being carried on;
 - (b) every main tip at which any locomotive operates and every place where any locomotive is maintained;
 - (c) every main sub-station and every sub-station in which there is inherent danger due to bare conductors or otherwise;
- Provisions for permanent lighting***

- (d) every room or place made to house winding and main pumping machinery in the proximity of which any person is working or moving about;
 - (e) every main crusher station and every main conveyor.
- (2) Suitable and sufficient permanent lighting shall be provided and maintained at all places on the surface where work is regularly carried out during the hours of darkness or where normal daylight is inadequate for safe working.
- (3) Electricity at a voltage exceeding two hundred and forty volts shall not be supplied to any lighting required by paragraph (1); if the system is polyphase the neutral point shall be connected to earth or if it is not polyphase the mid-voltage point or one pole shall be connected to earth, but this need not apply to the use of Xenon or similar lamps.
- (4) Where electricity is supplied individual circuits shall be used for:-
- (a) Lighting fittings;
 - (b) blasting boxes and blasting circuits;
 - (c) power points; and
 - (d) any other electrical apparatus.
- (5) Such electrical circuits may be supplied from a common distribution board but, whatever system of distribution is used, every such circuit shall be protected by individual fuses or other similar devices.
- (6) There shall be provided in every power plant and main winding engine house and elsewhere as may be necessary to safeguard any person, suitable stand-by lighting which shall automatically light immediately following the failure of the permanent lighting in such place.
1103. (1) There shall be at the surface of every mine where underground work is carried out a separated room to be used as a lamp room.
- (2) The manager shall ensure that there is appointed a competent person to be in charge of such lamp room.
- (3) The manager shall ensure that there is in such lamp room for every person proceeding underground, and the competent person shall ensure that every lamp issued is in proper working order.
1104. (1) A person to whom a lamp has been issued shall take reasonable steps for its care and maintenance so that it is not damaged, tampered with, destroyed or lost.
- (2) If a lamp is lost, destroyed, tampered with or damaged to the knowledge of the person to whom it was issued, he shall report the occurrence to an official of the mine as soon as practicable but not

***Provision
for lamp
room***

***Damage to
safety
lamps***

later than the end of
the shift.

PART X11
FIRST AID AND FIRE FIGHTING

1201. (1) Where at any one time there are more than fifty persons at work, the manager shall ensure that there are provided on the surface:-

***Provision of
first aid room
and equipment
for mines
employing
more than fifty
persons***

(a) an adequate number of first aid stations, to the satisfaction of the Chief Inspector, which shall be:-

- (i) of adequate size and easily accessible;
- (ii) used only for work connected with first aid and have a red cross clearly marked on the door;
- (iii) equipped with an operative telephone and have adequate lighting and ventilation;
- (iv) equipped with an operative telephone and have adequate lighting and ventilation;
- (v) kept clean and properly maintained all interior surfaces shall be so constructed as to facilitate this requirement;
- (vi) provided with an adequate number of stretchers with at least two blankets for each stretcher, a suitable table, benches, chairs and suitable clothes for use by first aid attendants;
- (vii) provided with an adequate supply of dressings for the first aid treatment of all accidents, burns, and other injuries likely to occur and such dressings shall be maintained in good condition kept complete, be readily available at all times for use and kept in a container which shall be capable of being transported to the scene of any accident or to any place where any injured person lies;

(b) sanitary conveniences near each first aid station which shall be kept clean and well lit.

1202. Where first aid station are required in accordance with regulation 1201, the manager shall ensure that there is appointed a sufficient number of competent persons to be in charge thereof at all times when persons are at work; such competent persons shall:-

Appointment of sufficient competent persons

- (a) be readily available at all times whilst on duty;
- (b) the holders of a valid certificate in first aid granted by a recognized society approved by the Chief Inspector;
- (c) record, in a book provided for the purpose, particulars of each case treated specifying the date and time, the name of the injured person, the nature of the injury or illness, the treatment given and the name of the person administering that treatment.

1203. Where at any time there are fifty persons or less at work the manager shall ensure that:-

Provisions of first aid accommodation and equipment for mines employing more than fifty persons or less

- (a) there is provided on the surface threat suitable accommodation under shelter where first aid can be rendered;
- (b) such accommodation is provided with a stretcher, at least two blankets, splints, drinking water and an adequate supply of dressings for the first aid treatment of all accidents, burns or other injuries like to occur, and the provisions of sub-paragraph (vii) of paragraph (a) of Regulation 1201 shall apply to the dressings required by this paragraph.

1204. The manager shall ensure that suitable transport is provided to convey any person who becomes sick or injured whilst at work to hospital or to his home, and that such transport is kept readily available for use.

Transport to be provided

1205.(1) When more than fifty persons are at work underground at any one time, the manager shall ensure that a valid first aid certificate granted by a recognized society approved by the Chief Inspector, is held by every underground official of the rank of section boss up to and including the rank of underground manager.

First aid requirements underground for mines employing more than fifty persons

(2) At suitable places throughout the underground workings canisters shall be provided, clearly marked with a red cross, and these shall be maintained in good condition.

(3) Each canister shall contain the following:-

- (a) a stretcher and at least two blankets ; and
- (b) a first aid box approved by the Chief Inspector.

(2) Each canisters shall be regularly examined by a competent person and any shortage in the contents replenished forthwith.

1206. (1) Where more than fifty persons are at work at any one time on the surface, the manager shall ensure that in every operating section or department where the work undertaken may cause injury to any person there are sufficient officials employed holding valid first aid certificates granted by a recognized society approved by the Chief Inspector.
- First aid requirements on surface for mines employing more than fifty persons***
1207. (1) Where fifty persons or less are at work at any one time, the manager shall issue of a first aid outfit to the person in charge of underground operations and to the person in charge on the
- Surface, and shall personally inspect such outfits at least once in every week.
- (2) It shall be the personal responsibility of the persons provided with such equipment to ensure that any shortage is replenished forthwith.
- (3) While at work, each person in charge shall carry a personal first aid outfit containing two large dressings, four small dressings, one triangular bandage and antiseptic.
- Personal first aid outfits for mines employing fifty persons or less***
1208. First aid equipment shall be used only for the purposes for which it is provided.
- No misuses of first aid equipment***
1209. Where cyanide is used there shall be kept in a conspicuous place, convenient to every building or place at which the cyanide is used, a sufficient supply of a satisfactory and efficient antidote for cyanide poisoning approved by the Chief Inspector; such an antidote shall be kept in a covered but unlocked box labeled "Cyanide Antidote" and explicit directions for the use of such antidote shall be fixed inside the lid of the box.
- Antidotes for Cyanide poisoning***
1210. (1) The manager shall take suitable precautions to ensure that any person employed at a mine who receives any injury or who becomes sick shall without delay receive the necessary first aid treatment or medical attention.
- Manager to ensure injured or sick persons are treated without delay***
- (2) The manager shall lay down a procedure for the reporting of mine accidents.
1211. (1) The manager shall ensure that adequate fire-fighting equipment is available on the surface and underground.
- Manager to provide adequate fire-fighting equipment***
- (2) Where danger exists from large diesel fuel fires, the manager shall in addition ensure that there is a sufficient supply of foam and foam fire-fighting equipment or other effective means for fighting any outbreaks of such fires.
1212. The manager shall ensure that all fire-fighting equipment provided in accordance with regulation 1211 is inspected at intervals not exceeding ninety days by a competent person and shall arrange for the regular discharge and refilling of each fire extinguishers or for any other suitable means necessary to maintain such extinguishers in good working order.
- Inspection and maintenance of fire fighting equipment***

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| <p>1213.</p> | <p>The manager shall ensure that adequate arrangements are made to establish and maintain a proper organization of persons for fighting any outbreak of fire and such arrangements shall include regular fire drills which shall be held at intervals not exceeding one month.</p> | <p><i>Arrangements
for fighting fires</i></p> |
| <p>1214.</p> | <p>Whenever a fire or spontaneous combustion occurs which cannot be immediately brought under control, all persons shall be withdrawn from any place where the ventilation may be so affected as to endanger any person; no person shall be permitted to such affected place except for the express purpose of fire fighting, until such time as safe conditions have been restored.</p> | <p><i>Persons to be
withdrawn when
danger from fire
or spontaneous
combustion
exists</i></p> |

**PART XIII
MACHINERY**

- | | | |
|--------------|--|--|
| <p>1301.</p> | <p>In is Part (and elsewhere in these Regulations should the term appear) unless the context otherwise requires:-</p> <p>“machinery” means every kind of mechanical or electrical appliance or part thereof and includes any conveyor and lifting appliance;</p> <p>“lifting appliance” means a crab winch, gin wheel or similar equipment used for raising or lowering, and a hoist, crane, sheer legs, excavator, drag line, pile driver, aerial cableway or overhead runway;</p> <p>“lifting gear” means a chain sling, rope sling, pulley block or similar gear and a ring, link, hook, plate clamp, swivel or eye bolt.</p> | <p><i>Interpretation</i></p> |
| <p>1302.</p> | <p>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 construction, suitable material, adequate strength and free from patent defect and shall be maintained in good working order.</p> | <p><i>Suitability of
machines</i></p> |
| <p>1303.</p> | <p>(1) Efficient guards shall be provided for such parts of machinery and electrical apparatus as may be a source of danger to persons.</p> <p>(2) The manager shall ensure that such guards are kept in position and properly maintained:</p> <p style="padding-left: 40px;">Provided that when such a guard is temporarily removed for the purpose of repairs proper precautions shall be taken for the safety of persons and on the completion of such repairs the guard shall be securely replaced.</p> | <p><i>Provision of
guards</i></p> |
| <p>1304.</p> | <p>(1) The manager shall ensure that all machinery shall be in the charge of a competent person.</p> <p style="padding-left: 40px;">(2) No person having charge of any machinery which is required to be constantly supervised shall for any reason whatsoever absent himself or cease to have continual supervision of such machinery during the time for which he is in charge unless he is replaced by another competent person.</p> | <p><i>Charge of
machinery</i></p> |

1305. (1) Where it is necessary to stop and start belt-driven machinery without interfering with the speed of the prime mover a suitable appliance for the purpose shall be permanently fitted.
- Precautions for belt-driven machinery***
- (2) Where machinery is in motion, the shipping and unshipping of driving belts is forbidden, except that the customary shifting of light belts on the coned pulley of machine tools for the purpose of altering the working speed may be permitted.
1306. No person in close proximity to any moving machinery shall wear or be permitted to wear loose outer clothing, long hair shall be suitably protected.
- No loose clothing or long hair near machinery***
1307. The manager shall ensure that suitable goggles, face masks or screens are provided to protect the eyes of operators and of any other person in the immediate vicinity, and these shall be used by such persons when:-
- Provision of goggles and screens***
- (a) grinding surfaces of metal, stone, concrete or similar materials by means of a power driven wheel or disc, or
- (b) chipping or scaling or painted or corroded metal surfaces or mechanically wire-brushing such surfaces; or
- (c) welding or cutting metals by means of an electrical, ox-acetylene or similar process; or
- (d) treating stone, metal, concrete, slag or similar materials where danger to the eyes may arise:
- Provided that this paragraph shall not apply to rock drills.
1308. No machine shall be started if by so doing any person is likely to be exposed to danger unless adequate warning has been given that such machine is about to be started.
- Precautions when machinery started***
1309. (1) No person shall cross any moving conveyor except at an authorized crossing place
(2) No person shall ride on any moving conveyor.
- Crossing or riding on conveyors***
1310. The manager shall ensure that every lifting appliance on which the operator travels shall be fitted with an effective audible warning device.
- Audible warning device for lifting appliance***
1311. No lifting appliance shall be used:-
- Stability of lifting appliance***
- (a) on a soft or uneven surface, or on a slope, circumstances in which the stability of the appliance is likely to be affected unless adequate precautions are taken to ensure its stability; nor
- (b) unless it is securely anchored or adequately weighted by suitable ballast properly placed on the structure so as to ensure its stability.

- | | |
|---|---|
| 1312. Where the stability of a lifting appliance is ensured by means of removable weights a diagram or notice indicating the position and the amount of such weights shall be affixed where it can readily be seen. | <i>Ballasting
diagram for
lifting
appliance</i> |
| 1313. On every stage, gantry or other place where a lifting appliance having a traveling or slewing motion is used, an unobstructed passageway not less than six hundred millimeters wide shall be maintained between the nearest part of the appliance at any time in the course of its movement and guard rails, fencing or any nearby structures:-

Provided that if at any time it is impracticable to maintain such a passageway all reasonable steps shall be taken to prevent the access of any person to the place where the lifting appliance is in motion and obstructing free passage. | <i>Passageway
to be
maintained</i> |
| 1314. (1) No lifting appliance shall be erected or dismantled except under the supervision of a competent person.

(2) No lifting appliance shall be used for the first time unless it has been proof load tested and thoroughly examined by a competent person.

(2) At least once in every twelve months at intervals not exceeding fourteen months every lifting appliance shall be thoroughly examined and tested by a competent person.

(4) The provisions of sub-regulations (2) shall also apply after any subsequent modifications or structural design alterations or may repairs to any lifting appliance. | <i>Repeal and
replacement
or
Regulation 1314
rection and
holsting of
lifting appliance</i> |
| 1315. Except for rope blocks with a safe working load of nine hundred kilograms or less, every lifting appliance shall have plainly marked thereon its safe working load or loads and an identification mark. | <i>Safe loads
and
identification
marks</i> |
| 1316. Any lifting appliance so constructed that the safe working load may be varied by the raising or lowering of a job shall have either an automatic indicator of safe working loads or a table indicating the safe working loads. | <i>Automatic
indicator
or tables
for variable
lifting device</i> |
| 1317. Any drum or pulley round which the chain or wire rope is carried shall be of suitable diameter and construction the chain or rope used thereon. | <i>Provision for chain or
wire rope</i> |
| 1318. Any chain or rope which terminates at the winding drum of any lifting appliance shall be properly secured thereto and at least three turns of such chain or rope shall remain in the drum in every operating position of such appliance, except where the design of such appliance permits less than three turns. | <i>Securing of
chain or
rope</i> |
| 1319. No load shall be left suspended from any lifting appliance which is unattended to and which may be danger to any person. | <i>No suspension
from unattended
appliance</i> |

320.	Every lifting appliance shall be provided with an efficient brake or brakes or other such safety device which will prevent the fall of the load when suspended and by which the load can be effectively controlled:- Provided that this regulation shall not apply to rope blocks if adequate precautions are taken to ensure the safety of persons.	<i>Efficient brakes to hold load</i>
1321.	The controls of any lifting appliance shall be placed and so constructed as to prevent accidental or inadvertent operation such controls.	<i>Suitable controls</i>
1322.	No person shall be raised, lowered or carried by an lifting appliance except on the driver's platform. Provided that a person may be raised or lowered within the safe limits of the appliance for the sole purpose of making a working place safe.	<i>Persons not to ride except on platform</i>
1323.(1)	Power-driven mobile cranes shall be so constructed as to hold without overturning a sustained load, in weight no less than 1.5 times the safe working loads for ordinary lifting duty when the crane is standing on level ground.	<i>Safety factor for lifting appliance</i>
(2)	Cranes used for grabbing duties shall be so constructed as to hold without overturning a sustained load, in weight not less than 1.875 times the safe working loads of the crane for ordinary lifting duty when the crane is standing on the ground.	
1324.	No lifting appliance or any part thereof shall be loaded beyond the safe working load, provided that for the purpose of making tests of any such appliance, the safe working load may be exceeded by such amount as a competent person appointed to carry out the tests may authorize.	<i>No appliance to be loaded beyond safe load</i>
1325.	Any lifting appliance and all plant or gear used for anchoring or fixing such appliance shall, as far as the construction permits, be inspected for defects by a competent person before use	<i>Inspections before use</i>
1326.	No lifting appliance shall be operated otherwise than by a person competent to operate that appliance, or by a person under the direct supervision of a competent person for the purpose of training.	<i>Provisions for platform</i> <i>Competent person only to operate lifting appliance</i>
1327.	Any signal given for the movement or stopping of any lifting appliance shall be distinctive in character and such that the person whom it is given is able to see or hear the signal distinctly.	<i>Distinct signals to be given</i>
1328.	Any platform used for the operation of a lifting appliance shall be: (a) of sufficient area for all persons required to work thereon to do so in safety; (b) close planked or plated. (c) Provided with safe means of access; and (d) Provided with guard-rails and toe-boards.	<i>Provisions for platform</i> <i>Suitability of tract upon which lifting appliance moves</i> <i>Travelling brakes on lifting appliance</i> <i>No person to work on lifting appliance</i>

- 1329.(1) No rail track on which a traveling lifting appliances moves shall be used unless it is of good construction, suitable material, adequate strength, free from patent and maintained in good condition.
- (2) Any overhead track upon which a traveling lifting appliance moves shall be provided with effective stops at its ends.
1330. Every power-operated traveling lifting appliance shall have effective brakes fitted to the traveling mechanism.
1331. No person shall work on or near, or order any other person to work on or near, any wheel tract of any travelling lifting appliance in any place where he would be liable to sustain injury by the passage of such lifting appliance unless adequate precautions are taken to ensure his safety.
1332. Every part of a load shall be adequately secured whilst being raised or lowered by any lifting appliance.
1333. Any container used for raising or lowering material shall be so designed as to prevent spillage:-
- Provided that this regulation shall not apply to a grab, shovel or similar excavating equipment if adequate precautions are taken to ensure the safety of persons.
1334. The manager shall ensure that there is maintained a record showing the condition and location of all lifting appliances with a safe working load in excess of nine hundred kilograms.
1335. The following provisions shall apply to all lifting gear:-
- (a) no lifting gear shall be used unless it is of good construction, sound material, adequate strength , free from patent defect and maintained in good condition;
- (b) there shall be posted at store in which such lifting gear is kept, and at other prominent and convenient places where lifting gear is regularly used, a table showing the safe working loads:-
- (i) of every size and kind of lifting gear in use; and
- (ii) of every multiple sling at different angles of the sling legs.
- (c) the safe working loads of all lifting gear shall be that determined by a competent person;
- (d) no lifting gear shall be used for any load exceeding the safe working load, except for the purpose of making tests;
- Travelling brakes on lifting appliance***
- No person to work on lifting appliance***
- Load to be secured***
- Containers to be designed to prevent spillage***
- Record to be kept***
- Provisions for all lifting gear***

- (e) all lifting gear shall be visually examined before use;
- (f) no lifting gear which is defective shall be used.
1336. Any hook used in connection with any lifting appliance shall be of good construction, suitable material, adequate strength, free from patent defect and shall be properly maintained, and be provided with an efficient device to prevent the displacement of the sling or load from such hook if specifically required by an inspector.
- Provisions for all lifting gear***
1337. (1) An Inspector of Machinery may direct that any wrought iron chains or lifting gear in use shall be annealed or otherwise treated by heat at such specified intervals as he considers necessary.
- Annealing of chains and lifting gear***
- (2) The manager shall ensure that a record is kept of such annealing or treatment.
1338. (1) No chain shall be taken into use for the first time unless it has been examined and tested by a competent person.
- Testing of chains and examinations of wire rope slings***
- (2) No wire rope sling with a safe working load exceeding nine hundred kilograms shall be taken into use for the first time unless it has been thoroughly examined by a competent person.
- (3) The manager shall ensure that a record is kept of such examinations and testing.
1339. When any platform, gangway, run or stair, becomes slippery, appropriate steps shall be taken to remedy, such defect as soon as is reasonably practicable.
- Platforms etc., becoming slippery***
1340. No person shall use or permit or instruct any other person to use any vegetable or synthetic fibre rope which has been exposed to any process or substance which has or could have impaired its efficiency. Any rope so exposed shall be destroyed forthwith.
- Insertion of new regulation 1340***

**PART XIV
WINDING**

1401. In this Part (and elsewhere in these Regulations should the term appear) unless the context otherwise requires:-
- Interpretation***
- “banksman” means any person authorized by the manager to be stationed at the shaft bank in accordance with regulation 1433 to supervise the loading and unloading of persons or material at the bank and give the necessary signals:-
- “cage tender” means a person authorized by the manager in accordance with regulation 1433 to be in charge of a cage and to supervise the loading and unloading of person or material at the bank and all stations in the use in shaft and to give the necessary signals;

“conveyance”, when used in connection with winding plant, means a cage, skip, bucket, bale, kibble, material trailer, counter-weight or any other receptacle or structure attached to or suspended from a winding rope and intended to serve as a means of transport or counterbalance;

“locked-bell” means a system of signaling to a winding engine driver which cannot be operated unless a special key, known as the “key to the locked-bell”, remains inserted in the system switch in use at the time;

“man winding” means the conveyance of person for any purpose by means of a winding plant;

“material” means and includes whatever may be conveyed by means of a winding plant except persons and minerals’

“onsetter” means a person authorized by the manager in accordance with regulation 1433 to be in charge of and supervise the loading and unloading of person or material at any station below the bank where for time being he is on duty and to give the necessary signals:

“signaling apparatus” means any apparatus or equipment installed to ensure compliance with the provisions of regulation 1435;

“winding plant” means any machinery or apparatus used for the raising or lowering of men, material or minerals in any shaft, but excludes lifts.

1402. (1) Every windlass shall be provided with a pawl and brake maintained in good working order to prevent the load from descending accidentally.

***Windlasses
and ropes***

- (2) Every rope shall have at least four turns around and drum of every windlass when the conveyance is at the lowest point of travel, the end of such rope shall, in addition, be securely fastened to such drum, or the hub, boss or arm of such drum.

1403. Every person, while in a conveyance for the purpose of traveling, or when presenting himself for the purpose of traveling shall obey all reasonable instructions given by the onsetter, banksman or cage tender in charge of such conveyance.

1404. No person shall enter any winding compartment except for the purpose of entering or leaving a conveyance, or for the purpose of conducting and examination, effecting repairs or doing other necessary work in such compartment:

***Restrictions on
entering winding compartment***

Provided that this regulation shall not apply to person working at the bottom of a shaft in the sinking.

1405. (1) No winding operations shall be carried on in any winding compartment of any shaft or head or headgear and no driver or other person shall touch or move the brakes, clutch or controller of the winding plant whilst any person is engaged in effecting repairs, conducting an examination or doing other such work in such compartment except:-

Winding prohibited during repairs

- (a) where winding operations in such compartments are necessary for the purpose of effecting such repairs, conducting such examination or doing such other work; and
 - (b) where such persons engaged in effecting such repairs conducting such examination or doing such other work in the shaft or headgear are adequately protected from any conveyance as well as from falling objects.
- (2) No person shall effect repairs, conduct an examination or do any other work in any winding compartment of any shaft or headgear whilst winding operations are being carried on in such compartment except-
- (a) where winding operations in such compartments are necessary for such person to effect such repairs, conduct such examination or do such other work; and
 - (b) where such person is adequately protected from any conveyance as well as from falling objects.
- (3) When any person makes any examination, alterations or repairs to the locked-bell system which involves the use of the locked-bell key or which renders the system temporarily inoperative, either such person shall be accompanied by the onsetter or cage tender, or the winding plant shall be shut down.
- (4) The person in immediate charge of any work in a winding compartment or a shaft or headgear in which winding is being done by the mechanical power shall, before any such work is commenced, specifically warn the driver of the winding engine operating the conveyance that such work is about to be undertaken and, except in special circumstances where it is impracticable for him to do so, shall forthwith record such warning and the time in the driver's log book; such entry shall not be valid until countersigned by the driver so warned:
- Provided that in special circumstances where it is not practicable for such person to record the warning the records shall be made by the driver on duty.
- (5) On completion of such work the person in immediate charge of the work shall cancel the warning entered in the driver's log book, noting the time of such cancellation, which shall be countersigned by the driver then on duty, until so cancelled the entry shall be countersigned by each subsequent driver of the winding engine concerned.
- (6) For the purpose of sub-regulation (4) the term "work" shall include any repairs, examinations and any maintenance or installation of equipment but shall not include work at the bottom of a sinking shaft or the loading on unloading of a conveyance.
- (7) After the completion of the alterations or repairs to a winding compartment of a shaft or to its winding plant, no person shall travel, or be permitted to travel in a conveyance until such a time

- (8) as the conveyance has been caused to make a complete trip up and down the working portion the shaft.
- (9) The manager shall ensure that there is in force a code of safe practice covering all work in or about every shaft and such code shall be suitably displayed in the winding engine room.

1406. (1) No person shall work or permit or instruct any other person to work at the bottom of any vertical or steeply inclined shaft in the course of sinking unless he is protected by an adequate covering extending over the whole area of such shaft, only sufficient opening being left therein for the passage of the conveyance.
- (2) Such covering shall be situated:-
- (a) in the case of vertical shafts, not more than twenty-five metres above any place where a person is working in the shaft; and
 - (b) in the case of steeply inclined shafts not more than thirty meters above any place where a person is working in the shaft.
- (3) A set of doors to cover the sinking compartments shall be maintained at the collar or other point of service of any vertical or steeply inclined shaft in the course of sinking, and shall be closed at all times except when required to permit the immediate passage of the conveyance.

***Protection for
sinkers***

1407. In every shaft:-
- (a) the driver shall pick up and land the crosshead without undue shock;
 - (b) no conveyance shall be filled with loose rock or ground or material in such a manner as to cause danger from spillage to any person working in the shaft, and
 - (c) in the course of sinking, except at blasting time, every such conveyance, when being hoisted from the bottom of the shaft, shall be stopped approximately 1.5 meters from the said bottom, steadied, and any stones or much shall be removed from the sides and bottom of such conveyance, which shall not be further hoisted by the driver until a signal to do so has been received.

***Crossheads filling
and cleaning
of conveyance***

1408. In any shaft in the course of sinking, no conveyance shall be lowered directly to the bottom of such shaft, but shall be stopped at least five metres from the bottom until a signal to lower it further has been given by one of the men thereat:

***Stopping of
conveyance
five metres
from bottom***

Provided that this regulation shall not apply to shafts less than fifteen metres in depth.

1409. Any material, when being raised or lowered in a shaft shall, if it projects above the top of the conveyance, be fastened to the winding rope or to some suitable device attached to such conveyance.

***Securing of
projecting
materials***

1410.(1) No person shall in any way distract the attention of the person operating a winding engine whilst it is in motion except in a case of emergency.

Drivers not to be distracted and only authorized person in winding room

(2) No unauthorized person shall enter a winding engine room, chamber or enclosure, and notices to this effect shall be posted at each entrance to every winding engine room, chamber or enclosure.

1411. No person in charge of any winding engine shall work, or, be caused or permitted to work, for more than ten hours in any one period of twenty-four hours, except in cases of emergency and then only with the permission of an inspector, if after forty –eight hours, the emergency still exists, the written permission of the Chief Inspector shall be required:

Driver not to work more than ten hours

Provided that during the normal change-over of his working shift such a person may work, within one twenty-four hour period, two shifts of not more than eight hours each, which must be separated by a period of not less than eight hours between the end of the first shift and the start of the second period.

1412. No person shall travel or be permitted to travel in conveyance together with mineral or material when such mineral or material is of such shape, size or weight or is stowed in such a manner, that the safety of any person is likely to be endangered, no person other than the onsetter or cage tender and his crew shall travel in any conveyance together with explosives.

Persons not to travel with material

1413.(1) No person shall travel or be permitted to travel in any shaft on the roof, top, rim or bridle or in any position outside a conveyance:-

Persons not to ride outside conveyance

Provided that persons engaged in examining or repairing the shaft or doing other work in the shaft may travel on the roof of such conveyance if this is necessary for the efficient conduct of such examination, repairs, or work, and if such persons, when engaged in a vertical shaft, are adequately protected from objects falling from above.

(2) Except in the case of an emergency, no person shall travel and no person shall order or permit any other person to travel in a conveyance to within sixty meters of the highest stopping place used for passenger landing while any fitting is attached to the winding rope above the safety detaching hook:-

Provided that this prohibition shall not apply to persons whose presence is necessary for operating the conveyance or to person engaged in shaft repairs, examination or other work which requires the use of such fitting on the rope.

1414. Except where a conveyance is properly positioned at an established landing place, no person shall enter or leave or be permitted to enter or leave a conveyance unless and until the appropriate signals required by sub-regulation (1) of regulation 1437 have been exchanged:-

Persons to enter only when conveyance properly positioned

Provided that this regulation shall not only apply to shaft sinking operations or to examinations, repairs, or other work conducted in accordance with regulations 1405, 1406 and 1413.

1415. No person shall smoke in any cage, kibble or skip and a clearly visible notice to this effect shall be displayed in every cage:-

Provided that where the man winding has been authorized in a kibble or skip such notice shall be suitably displayed and maintained at the bank and at each shaft station for the time being in use.

1416. No person whose sight or hearing is deficient or who is subject to any other infirmity, mental or physical, likely to interfere with the effective discharge of his duties shall drive, or be caused, instructed or permitted to drive any winding engine.

***Repeal and
Replacement
of regulation 1415,
No smoking in
Cage, kibble or
skip.***

***Driver to be
medically fit***

- 1417.(1) No person shall drive, or be caused, instructed or permitted to drive any winding engine unless he is the holder of a valid winding engine driver's certificate of competency issued in accordance with regulation 1421 and 1425, or is a learner acting under the direct supervision of a holder of a valid winding engine driver's certificate of competency:-

Provided that, unless otherwise ordered by the Chief Inspector in a written order to the manager, where the winding engine has a maximum rope speed of not more than one hundred and fifty metres per minute and where the maximum number of persons permitted to travel in the conveyances suspended from it does not exceed five, and subject to any other condition an inspector of machinery may impose, such engine may be driven by the holder of a valid winding engine driver's certificate of test, issued in accordance with the provisions of regulation 1431.

***Driver to be
certificated***

- (2) Only one certificated driver shall be in charge of a winding engine at any one time and when it may be necessary for such driver to be replaced for any period of time by another certificated driver, the certificate driver taking over such winding engine shall, when taking charge, comply with the requirements of regulation 1418.

1418. The driver of every winding engine:-

- (a) shall, immediately on taking charge of such engine, examine and sign the driver's log book and acknowledge by his signature or initials each uncalled entry made in accordance with the provisions of either sub-regulation (4) of regulation 1405 or paragraph (c) of regulation 1457;
- (b) shall not start such engine before he has received a distinct and proper signal to do so, except in any case of emergency when he is instructed to do so by the manager or other responsible person;
- (c) shall not act on any signal if he has been unable to do so within one minute after receiving it but shall call for a fresh signal:-

***Duties of a
driver***

Provided that in the case of the clear signal 2-1, the driver may at his discretion move his engine, but if a period of more than five minutes has elapsed since receiving such clear signal, he shall move the conveyance away very slowly;

- (d) shall not run such engine at a speed greater than that specified by an inspector of machinery, except where he is testing the over-speed device;
- (e) shall avoid undue shocks in starting, running and stopping such engine;
- (f) shall not, after receiving a signal to raise or lower persons, start his engine until the expiration of at least ten seconds:-

Provided that this paragraph shall not apply when the engine driver has received the special signal used in accordance with sub-regulation (4) or regulation 1437;

- (g) shall not unclutch of a drum of such engine until he has assured himself immediately beforehand, by testing the brake of the drum against the normal starting power or normal starting current of the engine applied in the direction of out-of-balance load, that the brake is in proper condition to hold the load suspended from the said drum;
- (h) shall, when the drum is unclutched, use the brake only for the purpose of maintaining such drum stationary; and shall not on any account lower a conveyance with the drum unclutched.
- (i) Shall observe only authorized signals and operate such engine in accordance therewith;
- (j) Shall, whenever any conveyance is not in use, leave it at some point in shaft other than at the bank or at a station;
- (k) Shall. Within two hours of taking charge of such engine, test the brakes, check the clutch, reversing gear and depth indicator and test such safety devices as he can readily reset, and shall enter in the driver's log book the results and time of such tests, for the purpose of this test the brakes shall be considered satisfactory if each brake is capable of holding the drum or drums stationary against the normal starting power, or normal starting current of the engine, applied in the direction of the out-of-balance load:-

Provided that such two-hour period may be extended when the operation of changing ropes or any other maintenance operation is occurring when the driver takes charge of any engine but such extension shall cease immediately such

ropes have been changed and the requirements of this paragraph shall be complied with forthwith;

- (l) shall, if during any such rest as is herein before required there is discovered any defect by which the safety of persons may be endangered, record such defect in the driver's log book immediately and shall report it to the responsible person charge and, until such weakness or defect is remedied, the winding plant shall not be used;
- (m) shall, having taken charge of such engine, throughout his period of duty:-
 - (i) remain immediately available to receive and to act in accordance with all authorized signals received:-
 - (ii) except in the case of any such engine running on automatic or remote control, remain at the controls whilst the engine is in motion, and not speak on any telephone;
 - (iii) remain at the controls whilst men are in or on a conveyance or in any compartment served by such engine unless the compartments served by such engine are locked;
- (n) shall not, after receiving the "compartment locked" signal, move such engine until the compartments have been re-opened, and shall record both these signals in the driver's log book at the time he receives the respective signals.

1419.(1) Any manager employing a driver who is required by regulation 1417 to be the holder of either a certificate of competency or certificate of test shall ensure that such driver is the holder of a valid certificate.

***Manager to
check validity
of certificate***

- (2) Upon employing a driver who is required by regulation 1417 to be the holder of either a certificate of competency or a certificate of test the manager shall ensure that the Chief Inspector is notified forthwith in writing to that effect, and shall also ensure that the termination of the employment of such driver is notified in a like manner.

1420. Every applicant for a winding engine driver's certificate of competency shall submit to the Chief Inspector an application in writing together with:-

***Qualification of
driver***

- (a) evidence in writing to the effect that he is not under twenty one years of age;
- (b) a medical certificate issued within thirty days preceding the date on which the application is submitted specifying that his sight and hearing are not defective and that he is not subject to any other

- (c) infirmity, mental or physical, likely to interfere with the efficient discharge of the duties of a driver;
- (d)
 - (i) evidence of at least six months of training, including evidence of experience in the driving of the class of winding engine for which a certificate of competency is required, of which period at least four months must have been spent under the supervision of a holder of an appropriate winding engine driver's certificate of competency; or
 - (ii) in the case of a person who holds a winding engine driver's certificate of competency and who wishes to drive a winding engine of a class other than that permitted by such certificate of competency, evidence of having undergone a further period of at least two months training for that class of winding engine for which a certificate of competency is required; or
 - (iii) evidence that he has, as a fitter or electrician, been employed for at least twelve months on winding engine maintenance, or as an apprentice fitter or electrician been employed for at least twelve months on winding engine maintenance during the last two years of his period of apprenticeship, and, in either such case, two months of the six months of experience of driving winding engines may be waived; or
 - (iv) evidence that he has completed satisfactorily a course of training for drivers approved by the Chief Inspector, in which case he may be accepted as having had training and experience equivalent to all or part of that required by sub-paragraph (i) of paragraph (c) of this regulation.

1421. (1) An application for a winding engine driver's certificate of competency shall, if in order, be referred by the Chief Inspector to the board of examiners:-

***Board of
examiners***

Provided that if the applicant is already the holder of a recognized certificate of competency the Chief Inspector may, at his discretion, grant the applicant a winding engine driver's certificate of competency without referring the application to the board of examiners, and in such cases the requirements of paragraph (c) of regulation 1420 shall be deemed to have been met.

- (2) The board of examiners shall consist of an inspector of machinery, who shall be chairman, and two other members selected by the chairman as and when required from a panel of examiners approved in writing by the Chief Inspector.

1422. (1) The board of examiners shall meet at such times and places as shall be appointed by the Chief Inspector and shall keep such records and submit such reports of their proceedings as he shall direct.

***When board to
meet***

- (2) Examinations shall be conducted in English.

1423. (1) The chairman and the members of the board of examiners shall be present at every examination of an applicant; one of the two members of the board of examiners shall be qualified

***Qualifications
of members
of board***

engineer and the other member shall be a person holding a winding engine driver's certificate of competency for the class of winding engine for which a certificate of competency is required by the applicant.

- (2) If there is a difference of opinion among the members of the board of examiners on any matter connected with the examination of a candidate under these regulations the chairman's decision shall be final.

1424. Rules for the conduct of the examination by the board of examiners shall be framed by the Chief Inspector who may later alter such rules as occasion may require: copies of such rules for the time being in force may be obtained from the office of the Chief Inspector.

***Rules for the
conduct
of the
examination
Validity of
certificate***

1425. After the examination of an applicant the chairman of the board of examiners shall submit its recommendations in writing to the Chief Inspector, the board may recommend that a certificate of competency be refused, and the Chief Inspector shall follow the recommendations of the board and either issue to the applicant a certificate of competency, in the form prescribed by the Chief Inspector, subject to any qualifications and limitations recommended by the board, or inform the applicant that his application for a certificate of competency has been unsuccessful.

***Recommendation of
Issue of certificate***

1426. A certificate of competency or a certificate of test issued in terms of these Regulations shall not be valid unless it bears the holder's signature in ink.

Validity of certificate

- 1427.(1) It at any time a certificated drive shall, in the opinion of an inspector, be guilty of gross inattention or negligence or of any misconduct in the execution of his duties or shall suffer from an infirmity likely to be detrimental to the efficient discharge of his duties, such inspector may suspend such driver's certificate of competency.

***Suspension of
Certificate***

- (2) Any suspension shall be reported immediately by the inspector to the Chief Inspector who, after giving the driver concerned an opportunity to state his case, may confirm the suspension, for such period as he may think fit, or cancel the driver's certificate of competency or rescind the suspension.

- (3) Any driver who is aggrieved by the Chief Inspector's decision under sub-regulation (2) may within seven days of the date on which he was notified of such decision request in writing that his case be submitted to the board of examiners, whose chairman for this purpose shall be either the Assistant Chief or the senior inspector of machinery; the case shall then be so submitted and the board, after

Giving the driver an opportunity to present his case before it in person, shall submit its recommendations thereon to the Chief Inspector who shall, if in agreement with those recommendations, give his decision in accordance therewith, which shall be final.

- (4) Should the Chief Inspector disagree with the recommendations of the board the case shall be referred to the Minister whose decision shall be final.
- (5) Any certificate of competency which has been suspended or cancelled shall forthwith be returned, together with any copies thereof, to the Chief Inspector who may, after any appeal under sub-regulation (3) or (4) has been finally decided, endorse the certificate accordingly.
- (6) The Chief Inspector shall forthwith notify the manager of the mine at which the holder of the certificate of competency is employed as a driver of the suspension, termination of suspension or cancellation of such certificate.

1428.(1) The fee payable on an application for a winding driver's certificate of competency shall be four kwacha.

Fee

- (2) An applicant whose application is rejected without examination shall be entitled to a refund of the fee paid but no applicant who has been accepted for examination shall be entitled to a refund.
- (3) If satisfied that a certificate of competency or test issued under these Regulations has been lost the Chief Inspector may issue a duplicate thereof on payment of a fee of fifty ngwee.

1429. The members of the board of examiners shall receive such remuneration and such sums in respect of traveling expenses as the Minister may from time to time determine.

***Remuneration
for board***

1430.(1) In case of emergency the manager may, notwithstanding the provision of regulation 1417 give written permission to a person who is not the holder of a winding engine driver's certificate of competency to operate any winding plant if the manager is satisfied that such person is competent to do so.

***Non-certificated
person may drive
in emergency***

- (2) A copy of any permission so given shall be sent immediately to the Chief Inspector together with full details of the emergency necessitating the giving of that permission and the Chief Inspector shall also be immediately notified on the telephone of such permission.

1431. A driver's certificate of test in the form prescribed by the Chief Inspector shall be issued free of charge by an inspector after he has satisfied himself by oral and practical examination of the applicant that such applicant is competent; each applicant must produce a medical certificate dated within thirty days preceding the date of application to show that he does not suffer from deficient hearing or eyesight and that he does not suffer from any other

***Issue of certificates
of test***

infirmity, mental or physical likely to interfere with the satisfactory conduct of his duties as a driver.

1432. Sub-regulation (1) or (2), (5) and (6) of regulation 1427 and regulation 1430 shall apply to the validity of a winding engine driver's certificate of test.

***Regulations
applicable to
certificate***

- 1433.(1) No person shall be permitted to carry out the duties of the banksman, onsetter of cage tender or be in possession of or use the keys of the locked-bell system unless he is authorized in writing to do so, the manager shall ensure that a register is kept in which are entered the names of all persons authorized under the provisions of this regulation to use or be in possession of keys of the locked-bell system:

***Banksmen,
onsetters
and cage tenders***

Provided that this regulation shall not be taken to prohibit the giving of signals by the person in charge of a shaft in the course of sinking or by a person in acting under his immediate supervision.

- (2) The manager shall ensure that before a person is authorized to use the keys of a locked-bell systems or to carry out the duties of a banksman, onsetter or cage tender, he has a competent knowledge of the shaft signals and of his duties and the provisions of these regulations pertaining thereto.

1434. The person authorized to give signals on the locked-bell system and who is in charge of a conveyance:-

***Persons authorized
to give signals***

(a) shall not, after the driver has signaled that persons may enter the conveyance for the purpose of traveling in the conveyance, give any signal on the locked-bell for that winding compartment until all passengers have entered the conveyance, and the doors or gates or barriers at the station or landing platform are properly closed; when the person authorized to use the keys of the locked-bell system or other person authorized to carry out the duties of a banksman, onsetter or cage tender intends to travel, such doors, gates and barriers as will prevent his entrance into the conveyance may be left open until he has given the signal to raise or lower and has entered the conveyance; may be left open until he has given the signal to raise or lower and has entered the conveyance;

(b) Shall not, in the case of a conveyance which contains persons and which has been brought to rest in the proper position at a station, after the driver has signaled that persons may enter or leave the conveyance, give any signal on the signaling arrangements for that winding compartment until all persons who are to

leave the conveyance are out and clear of it, and any person who he has permitted to enter the conveyance are properly placed in it;

- © shall use and give all signals appropriate to the operation intended.
- (e) shall take all reasonable measures to prevent persons from having unauthorized access to or egress from the conveyance and to the winding compartments;
- (f) shall not, except as is provided in regulation 1413, allow any person to travel in any shaft on the top, side, rim or in any position outside a conveyance;
- (g) shall acquaint himself with the maximum number of persons authorized to travel at any one time in the conveyance and shall not allow the number to be exceeded;
- (h) shall not allow any authorized person to give any signal except when such person is undergoing training in the use of the locked-bell system under his direct supervision;
- (i) shall lock the signaling system before leaving it and retain the key in his possession;
- (j) may, in an emergency, and then only if he is satisfied that is reasonably safe to do so leave the conveyance although it has not been properly positioned:
- (k) may, in an emergency, when he is of the opinion that the lives of persons are endangered by remaining in such conveyance, permit any such persons to leave such persons to leave such conveyance although it has been properly positioned.

1435. Unless exempted in writing by the Chief Inspector or more specifically provided for in regulation 1436, 1438, 1439, 1440 and 1461, every shaft in which winding is carried out shall be provided with effective signaling arrangements in respect of each winding engine for engine driver and the bank and very station in the shaft from which winding is carried on.

***Effective
signals between
driver, bank
and station***

1436. In every winding compartment used for man winding, the following provisions shall be observed (except where the compartment is used for sinking or equipping:-

***Signaling
arrangements in
man winding
compartments***

- (a) there shall be provided and maintained in good working order two separate, independent and efficient signaling arrangements hereinafter referred to as the locked-bell system and call-bell system, which shall be used for transmitting signals;
- (b) the locked-bell system shall:-
 - (i) provide for the interchange of signals between the winding engine driver and the bank;
 - (ii) provide for the interchange of signals between the winding engine driver and every established point

below the bank from which winding is normally carried on;

- (iii) be so arranged that it shall not be possible to signal from the bank to anyone other than the winding engine driver;
- iv) comprise different types or tones of signals so that the winding engine driver can distinguish without doubt between signals received from the bank and those received from below the bank;

- (c) the signal operating mechanism of the locked-bell system at the bank and at points below the bank shall be of a type securely enclosed in a metal case of substantial construction, and shall be kept locked when not in actual use, and the key shall be retained by the banksman, onsetter, cage tender or other authorized person, subject to the provisions of paragraph (d), no person shall give a signal on any locked-bell system unless the conveyance to which it refers is at or near the station served by the bell.
- (d) if an inspector of machinery should so require in the case of any winding engine used for man winding, there shall be used a device which automatically prevents the conveyance from being raised or lowered after the engine driver has given a signal on the locked-bell system until he has received a signal on each of the circuits on which previously he gave a signal; the manager shall lay down a procedure to be followed at each shaft when the driver of a winding engine has locked his winding engine with the conveyance at any position other than at an established point;
- (e) the call-bell system shall enable signals to be transmitted between every station below the bank from which winding is normally carried on and the bank;
- (f) where the bells or other audible devices of more than one signaling system are installed together, their tones shall be different and easily distinguished by the person receiving the signals;
- (g) in addition to the foregoing requirements of this regulation, there shall be installed a permanent standby communication system, which shall provide for the transmission of signals to the driver from all stations for the time being in use, such stand-by system may be a magneto telephone, a pull wire or a radio bell having its own independent power supply.

1437.(1) The following code of signals shall be used in connection with all winding plant:-

***Codes of
Signals***

Provided that the manager may authorize such additional signal codes as local conditions may demand:

But any such additional signal shall not be in conflict with any signal required under paragraph (a) hereof.

- (a) for the locked-bell system and for any other signaling system used to direct the movements of a winding engine;

Signals

1		Raise when engine is at rest
1		Stope when engine is in motion
1	From Driver:	Repeat signal last given
2		Lower
2-1		Clear signal – driver may move at his discretion.
2-1	From Driver	Request for clear signal to be given by responsible person at shaft.
2-2		Lower conveyance slowly.
3	To Driver:	Persons about to travel.
3	In reply:	Persons may travel or may enter the conveyance for the purpose of traveling.
3	From Driver:	When conveyance is brought to the rest: persons may enter or leave the conveyance.
3-3	To Driver:	Raise conveyance slowly.
2-2-2	From Driver:	Persons must leave conveyance.
2-2-2	In reply:	No persons in conveyance.
4	From Driver:	Engine temporarily unavailable.
4-4	To Driver:	Mark signal.
4-4	In reply:	Acknowledgement of “Mark Signal”
4-4-4	To Driver:	Clutching signal.
4-4-4	In reply:	Clutching operations completed.
5-5	To Driver:	Request for explosives to be placed in conveyance.
5-5	In reply:	Explosives may be placed conveyance.
5-5-5	To Driver:	All explosives removed from conveyance.
5-5-5	In reply:	Above signal acknowledged.
6	To Driver:	Request for person to work in winding compartment.
6	In reply:	Persons may work in winding compartments.
6-6	To Driver:	Request for winding compartments served by engine to be locked.
6-6	In reply:	Winding compartments served by engine have been locked.
6-6	To Driver:	Request for winding compartments served engine to be locked below station designated followed by station signal.
6-6	In reply:	Winding compartments served by engine have been locked below station designed.
6-6-6	To Drive	Request for winding compartments to be reopened.
6-6-6	In reply:	Compartments served by engine have been reopened.
13	To Driver:	Electricians testing bells.
13	In reply:	Bell test satisfactory.
1 long ring		Accident in shaft: winding operations to be suspended immediately in all compartments of the shaft until a responsible person instructs the driver as to further procedure.

- 8 To Driver: Heavy material about to be loaded
- 8 In reply: Acknowledgement that heavy material is about to be loaded.
- 8-8 To Driver: Heavy material unloaded.
- 8-8 In reply: Above signal acknowledged.
- 9 To Driver: Obstruction to winding referred to in log book now exists.
- 9 In reply: Acknowledgment of above signal.
- 9-9 To Driver: All obstructions to winding now removed.
- 9-9 In reply: Acknowledgment of above signal.
- 10 Telephone communication required.

And when both an onsetter and a banksman are used:

- 3-3-3 To Driver: Person giving signal is about to travel.
- 3-3-3 In reply: Acknowledgment of above signal:

Provided that when persons are traveling in a conveyance the signal 1 meaning "raise" and the signal 2 meaning "lower" shall be preceded by a signal indicating the point in the shaft to which the conveyance is to be raised or lowered, any signal given on the locked-bell system or on any other signaling system used to direct the movements of the winding engine whilst in motion shall be treated by the driver as stop signal:

(b) for the call-bell system:

- | | |
|------------------------------|--|
| 7 followed by station signal | Accident to person: station where conveyance is required |
| 10 | Telephone required. |

- (2) Copies of the code signals in use at the shaft, as well as any additional signals authorized by the manager, shall be suitably displayed and so placed that they can be conveniently read on the driver's platform or in the winding engine room, and at the bank and at all shaft stations for the time being in use.
- (3) Copies of codes of signals shall be maintained in proper repair and shall be so placed that they can be conveniently read by persons operating the signaling system.
- (4) The person in charge of blasting operations in a shaft in the course of sinking shall notify the driver by means of a special signal, namely knocks or rings, when blasting is about to take place, and, except in the case of firing by

electricity, the driver shall reply by raising and lowering the conveyance about two metres; on receiving the signal 1 following 5, signifying that persons have entered the conveyance, the driver shall raise the conveyance, the driver shall raise the conveyance without delay.

- (5) Any person who fails to act in conformity with the signals laid down in sub-regulation (1) and (4) or any additional signals authorized by the manager, shall be guilty of an offence.

1438. Any shaft where persons travel on or in a conveyance whilst carrying out shaft examination shall be provided with some efficient means, in respect of each conveyance used in connection with such examination, whereby such persons can signal effectively from any depth in the shaft to the driver.

Signals for shaft examination

1439 (1) Any vertical shaft in the course of sinking shall, in respect of each winding engine used for sinking, be provided with –

Signaling system vertical shaft sinking

- (a) an efficient signaling system for interchanging distinct and definite signals between the driver and the bank and between the driver and every established intermediate passenger landing point below the bank
- (b) two separate means whereby persons employed in connection with the sinking process can signal effectively from the shaft bottom and from any depth in the shaft to the bank and the driver; such means shall be so installed that they cannot be used from intermediate passenger landing points and the tone of the bells shall be easily distinguishable from that of the system referred to in paragraph (a);
- (c) an efficient means whereby the driver can signal to the shaft bottom and to the sinking platform

(2) Only signals necessary for the control of the sinking of the winding plant shall be transmitted to the driver from a shaft in the course of sinking.

1440 Any inclined shaft in the course of sinking shall be provided with efficient signaling arrangements in respect of each winding engine for interchanging distinct and definite signals between –

Signaling system for inclined shaft sinking

- (a) the driver and the bank
- (b) the driver and every established intermediate passenger landing point below the bank; and
- (c) the driver and a point not more than forty metres from the bottom of the shaft to shaft, an additional efficient signaling system shall be provided and used for signaling from the bottom of the shaft to this point.

1441. (1) No winding plant, other than those referred to in regulation 1461, shall be used unless compliance with the requirements of these Regulations, has been proved by actual test to the satisfaction of an inspector of machinery, who will then issue a Certificate of Permission, specifying the limitations of the use of such winding plant.

Inspector to test winding plant

(2) When an inspector of machinery has decided to issue such certificate he shall, by entry in the driver's log book and the machinery record book, authorize the use of such winding plant prior to the certificate being issued.

1442. (1) The Certificate of Permission, or copy thereof, shall be posted in the winding engine room or chamber, and shall automatically be invalidated by any subsequent modifications or structural or design alterations to the winding plant or any departure from its specified use.

No modification to winding plant

(2) When the manager intends to make any such modifications or if he intends to use the winding plant for a purpose other than that for which it is certificated he shall receive the prior approval of an inspector of machinery. Such approval shall be confirmed in writing and a copy of or a reference to it shall be kept in the machinery record book.

1443. (1) Any shaft exceeding thirty metres in depth and used for winding purposes shall have winding plant worked by a stationary engine.

Provisions for shafts

(2) Prospect pits shall not be sunk to a depth greater than thirty metres without permission in writing from the Chief Inspector under such conditions as he may prescribe.

(3) Any winding compartment of any vertical shaft exceeding thirty metres in depth shall be provided with guides for the conveyance; such guides shall

- (a) in a sinking shaft, allow the lowest part of the crosshead to travel to a position not more than two metres above the sinking platform and while in this position the maximum length of wind below the lowest deck of such platform shall not exceed twenty-five metres.
- (b) In any other shaft, extend to such a distance that in the event of an over-wind, the conveyance cannot leave the guides before reaching the limits of its level.
- (c) not be required in the case shaft raising and slyping cages, and shaft sinking platforms.

1444. (1) In every headgear there shall be provided such permanent ladderways and platform as may be necessary for the proper maintenance of all equipment installed thereat.

Provisions for headgears

(2) For man winding, where the speed of the winding rope may exceed one hundred and fifty metres per minute, there shall be provided for each winding clearance such that in the event of an overwind each conveyance shall be free to travel without obstruction for a distance of not less than-----

- (a) 7.5 metres above the highest stopping point used for passenger landing; and
- (b) except in the case of a shaft in the course of sinking or equipping, 7.5 metres below the lowest stopping point used for passenger landing:

Provided that for the purpose of this paragraph the retarding devices required by paragraph (b) of regulation 1447 shall not be deemed to be an obstruction.

(3) Form man winding, where the speed of the winding rope may not exceed one hundred and fifty metres per minutes, such lesser overrun space at the top and at the bottom of the wind shall be provided as the Chief Inspector may direct.

1445. (1) Every winding engine shall be such that –

- (a) When running at various speeds with light and heavy loads it can readily be slowed and stopped and, after stopping, can immediately be started again in either direction by the driver,
- (b) any winding drum when unlatched from the engine can be maintained in a position of rest by means of its own brake or brakes with no slipping when loaded to double the maximum permitted weight of persons, or to the maximum permitted weight of mineral, whoever is the greater.

(2) In calculating the total weight of persons for the purpose of the regulation and of regulation 1453, seventy kilograms shall be allowed for each person.

***Provision
For winding
Engine***

1446. Every winding engine other than those referred to in regulation 1461 shall –

- a) in the case of a single drum or single sheave winder have an overlay rope, and in the case of a double drum or double sheave winder have an overlay rope on the drum or sheave on the right hand side as seen from the driver's control position, and this overlay rope shall be termed the "reference rope";
- b) on the drum or sheaves thereof, have such grooves, flanges or horns, and if the drum is conical such other appliance, as may be sufficient to prevent the rope from slipping off;
- c) have a pointer on the dial depth indicator for the reference rope which moves in a clockwise direction when lowering the conveyance to which it refers, and In the case of a spiral or post indicator, one which moves in the same direction as the conveyance to which it refers;
- d) Have any bolts and fittings, which in the event of their becoming loosened might be locking devices;
- e) Be provided with a device which shall prevent inadvertent withdrawal of the clutch;
- f) Be fitted with an interlocking device making it impossible to unclutch any drum unless the brakes of such drum are applied, and making it impossible to release the brakes of such drum until the clutch is fully engaged and securely locked;
- g) Be provided with protective devices to shut off the power and apply the brakes in the event of an overwind of a conveyance or in the event of the speed of a conveyance exceeding the maximum authorized speed by fifteen per centum; in the case of a winding engine operating a conveyance in a shaft in the course of sinking, such overwind devices need be provided only to guard against overwind of a conveyance above the highest stopping place, and in the case of a winding engine used for man winding, and in the case of a winding engine used for man winding, such devices shall be so set that any passenger conveyance will be brought to rest within a distance of three metres above the highest stopping and three metres below the lowest stopping point used for passenger landing:

Provided that at the discretion of an inspector of machinery where the maximum possible rope speed of the winding engine does not exceed on hundred and fifty metres per minutes such overspeed protective device need not be fitted;

***Further
provision
for winding
engines***

- h) When fitted with a multi-tooth type clutch or clutches, which are not visible to the driver from his position at the clutch controls, be provided with mirrors or other suitable means so that the driver may see, without moving his position at the controls, whether or not a clutch is the correct position for engagement;
- i) Where necessary, be provided with guards over the drums and brake paths so as to protect the driver and any control gear from flying rope dressing;
- j) When used for man winding and where the speed of the winding rope may exceed three hundred metres per minute, be provided with a device which shall prevent the brakes from being applied at high rope speed with such pressure as to produce a dangerous rate of deceleration;
- k) Have all instruments, signal lights, switches and push buttons required by the driver for the control of the winding engine clearly labeled with their functions where such function is not obvious;
- l) Have all push buttons, controls adjusting devices and levers, including clutch operating levers, used by the driver for the control of the winding engine, clearly visible to and within the reach of the driver without moving from his driving position;
- m) Have an efficient brake to each drum or sheave and, in addition, when the winding engine is driven by electric power, be fitted with an emergency brake system, which shall be so arranged that the brakes will be applied automatically in the event of a failure of the power supply;
- n) Except in the case of a sheave type winder, have not less than three turns of rope round the drum when the conveyance is at the lowest point in the shaft from which winding is effected, and shall be the end of the rope securely fastened to the hub, boss or arm of such drum;
- o) Where a conveyance is suspended from more than one rope, have the diameter of one of these grooves:
- p) Have an indicating device which will clearly and accurately show the driver the position of the conveyance in the shaft; in the case of a sheave type winder, disconnection of the indicator drive for the purpose of adjusting the indicator position shall automatically apply the brakes;
- q)
 - (i) have the control lever follow the reference rope in the direction of movement;
 - (ii) have brake lever which shall be pulled towards the driver in order to apply the brake;
 - (iii) be fitted with a rope speed indicator which shall be so situated that the winding speed can at all times be easily read by the driver from his driving position; and
 - (iv) be provided with suitable current and voltage measuring instruments; the current measuring instrument all be so situated that it can at all times be easily read by the driver from his driving position:

Proved that sub-paragraphs (ii) and (iii) shall not apply to winding plant having an authorized maximum rope speed of less than one hundred and fifty metres per minute.

1447. Except where the winding plant is being used for sinking or equipping, in any vertical shaft where man winding is being carried out –

- a) Where the end of the winding rope is fastened to the drum of the winding engine –
 - (i) For each winding engine used for man winding there shall be provided clutch plates and safety detaching hooks to detach from the winding rope

***Safety
Devices for
Man winding
In vertical
shafts***

- and to support any conveyance overwound in the headgear;
and
- (ii) For each winding engine there shall be provided in the headgear such unobstructed overwind space above the highest conveyance stopping place in use as the Chief Inspector may direct; such direction shall not specify a space of more than 7.5 metres:
- b) Where the winding rope is not fastened to the drum or sheave of the winding engine –
 - (i) The overrun space in the headgear above the highest established stopping place shall be provided with rigid guides or other appliances so arranged that an overwound conveyance colliding with the rope sheave or the buffer stops in the headgear;
 - (ii) The overrun space at the bottom of the shaft below the lowest established stopping place shall be provided with rigid guides or other appliances so arranged that an overwound conveyance is retarded and arrested before it can collide with any fixed obstacle; and
 - (iii) There shall be fitted sprig keeps or jack-catches above the bank to arrest any conveyance which becomes accidentally disconnected from the rope as a result of an overwind;
- c) Landing keeps shall not be used:
Provided that paragraph (a) and (b) shall not apply to winding plant having an authorized maximum rope speed of less than one hundred and fifty metres per minute.

1448. In any shaft where man wining is carried out, the suspension gear or attachments for each winding plant between the rope and the conveyance and between the conveyance and the balance rope shall when new –

- a) have a designed static safety factor of not less than 10 in respect of the load suspended from the rope;
- b) be designed for movement in at least two planes;
- c) be proof-loaded by a reliable authority to twice the safe working load and show no permanent set as a result; when in use the load suspended from the attachment shall in no case exceed the safe working load;
- d) be stamped on a non-vital part or carry a ring or disk with its identity and safe working load; and
- e) be designed, in cases where more than one rope is used, to provide as far as is practicable for equal sharing of the load between the ropes from which the conveyance is suspended either automatically or by indicating individual rope loads.

Attachments between rope and conveyance

1449. Except for wrought iron components fabricated with the use of fire forge welding, components of suspension gear used for the suspension of any conveyance shall not be welded.
Provided that the electric flash butt welding, used and necessary in the manufacture of chains and links of material other than wrought iron, may be used; such chains and links shall be subjected to suitable heat treatment after such welding in order to bring the completed components to the optimum condition for service.

Suspension Gear

1450. (1) Any rope used for the suspension of a conveyance shall be made of steel wire when the depth of wind exceeds thirty metres.

Suspension Gear

(2) The gauge of any steel wire used for the suspension of a conveyance shall be suited to the diameter of the sheaves and the drums fitted.

(3) In no case shall a winding rope be used which has a splice or join of any kind except at its attachments.

(4) The connection between any winding rope and a conveyance shall be of such a nature that no accidental disconnection can take place, and rope attachments shall be properly made off.

1451. For any winding plant used in a shaft where man winding is carried out—

**Provision
For hoisting
Ropes**

- a) when a new hoisting rope or balance rope is not accompanied by a certificate from the manufacturer showing the breaking load as obtained by actual test on a whole sample of the rope, such rope shall not be used until a specimen cut from the rope has been tested by a reliable authority and the result of such test has been furnished to the manager;
- b) a hoisting rope or balance rope newly put on whether new or previously used, and the attachments connecting any such rope to any conveyance, shall be carefully examined by a competent person appointed for the purpose by the manager, and shall not be used until the conveyance loaded with the maximum permitted weight has been run at least two complete trips down and up between the highest and the lowest stopping places ordinarily in use; the result of this examination and test shall immediately be recorded in a book, termed the rope record book, and the record shall be signed by the person who conducted the examination and test;
- c) the rope record book shall, in addition to the results of the examination and test prescribed in paragraph (b), contain the following information —
 - i. name of manufacturer of rope;
Date of manufacture of rope;
Date when rope put on;
Name of shaft and whether vertical, inclined or compound;
Name of compartment in which rope is used;
Certificate of permission number of winding plant;
Length of rope in metres
Coil number of rope;
Weight of
Rope per metre in kilograms;
Diameter of rope in millimeters, or width and
Thickness of rope in millimeters;
Construction of rope;
Number of strands;
Type of lay;
Class of heart of rope;
Construction of strands;
Number of wires in millimeters;
Class of strand core;
Class of steel wires and tensile strength of main wires;
Breaking load of rope in tones;
Rope test certificate number and place of test;
 - (ii) dates of cutting and recapping rope;
Breaking load at each test;
Dates of spooling;

- Date rope taken off;
 - (iii) A record of the changing, heat treatment and testing of attachments carried out in terms of paragraph (a) of regulation 1452;
 - (iv) a detailed record of the position of each visible broken wire in the rope together with the month in which the break was found, or a reference to the place in which such record is kept;
 - (v) a record of the examinations required by subparagraph (iv) of paragraph (a) or regulation 1455;
- (d) All records shall be entered as soon as is practicable after such examination or test and signed by the person who conducted such examination or test.

1452. At any winding plant used in a shaft in which man winding is carried out –
- (a) unless the winding plant is such that it does not allow of the hoisting rope being cut for test, the rope shall be recapped at intervals not exceeding six months, a sample being cut from the rope during this operation and having its ends served with binding wire to prevent disturbances of the strands; the sample shall be properly prepared and sent to a reliable laboratory for a breaking load test; the certificate of test shall be retained and brief particulars thereof shall be entered in the rope record book;
 - (b) where the winding plants is such that it does not allow of the periodical cutting of the hoisting rope as required by paragraph (a), such rope shall, at intervals of not more than six months, be moved in its attachment, in such a manner that the position of the rope relative to the capped or thimble is moved at least one hundred and fifty millimeters; each successive movement shall always be in a direction that will tend to shorten the rope;
 - (c) at intervals of not more than six months or forthwith if overriding caused the detaching gear or in the case of friction winder any braking appliance or arrester fitted in the head frame to operate the attachments between the hoisting rope and the conveyance, and any connections between conveyances shall be subjected to suitable heat treatment to relieve stress and to restore the designed physical properties of the material and be examined for defects by a competent person, or be replaced; details of heat treatment and replacement shall be entered in the rope record book;
 - (d) the attachments may be used without heat treatment for a period of not more than three years if crack detection tests approved by the Chief Inspector and conducted by a competent person are applied at intervals of not more than six months; if cracks are revealed the attachment shall be discarded and details of the crack detection tests shall be entered in the rope record book and signed by the person conducting the test:
 - Provided that no such winding rope attachments shall be used for a period exceeding

***Capping or
Cutting of
Hoisting
ropes***

three year except with the written permission of an inspector of machinery.

1453. (1) where a balance rope is not used and where the end of the hoisting rope is securely attached to the winding drum, no hoisting rope shall be used for man winding if the breaking load of such rope when new is less than –

- a) five and one-half times the static tension in the rope at the point where the rope leaves the head sheave when the conveyance is at its lowest working point and is loading with the maximum number of persons permitted to travel, or the maximum permitted weight of material, whichever causes the greatest tension;
- b) Eight times the static tension in the rope at a point immediately above the cappel or splice when the conveyance is loaded with the maximum number of persons permitted to travel or the maximum permitted weight or material, whichever causes the greatest tension.

(2) where a balance rope is used or where the end of the hoisting rope is not attached to the drum or sheave, no hoisting rope shall be used for man winding if the breaking load of the hoisting rope when new is less than a multiplying factor of 8, less 0.00015 of the number of metres of distance between the head sheave centre and the lowest point of travel of the conveyance in the shaft, multiplied by the weight of the conveyance and attachments plus the weight of the maximum number of persons permitted to travel or the maximum permitted weight of material, whichever is the greater, plus the whole weight of the balance rope plus 0.5 of the total suspended weight of the tail carriage if used:

Provided that in no case shall the multiplying factor be less than 6.

(3) where the weight of the conveyance and balance rope is suspended from more than one hoisting rope in such manner that as far as is practicable the load is share equally between the hoisting ropes, then the hoisting ropes shall not be used for man winding if the combined breaking load of the hoisting ropes, when new, is less than 1.1 of the minimum breaking load calculated according to sub regulation (2)

***Safety
Factor for
Hoisting
Rope***

1454. In any shaft where man winding is carried out –

- (a) no hoisting rope shall be used for winding mineral if the breaking load of such rope, when new, is less than 0.9 of the minimum breaking load calculated according to the provisions of sub-regulations (1) and (2) of regulation 1453, whichever is applicable, but substituting in the breaking load calculation the weight of mineral in place of the maximum permitted number of persons or the maximum permitted weight or material;
- (b) no balance rope shall be used in a shaft if the breaking load of the rope, when new is less than six times the combined weight of whole balance rope plus 0.5 of the suspended weight of the tail carriage if used;
- (c) no hoisting rope or balance rope shall be used when its strength as determined by a breaking load test is less than 0.9 of its breaking load when new, or when marked external corrosion pitting, or when a detailed examination of cleaned portions of the rope indicates that the rope is longer in a safe condition:

Provided that no such winding rope shall be used for a period exceeding two years, except with the written permission of an inspector of machinery.

***Safety
Factor for
ropes***

1455. For any winding plant used in a shaft, other than those referred to in regulation 1461, the following conditions shall apply –

***Examination of
Winding plant***

- a) the winding plant shall be maintained in proper working order and the manager shall appoint in writing a competent person or persons to be responsible for the safe operation and maintenance of all winding plant and such persons may appoint in writing other competent persons whose duty it shall be to examine such plant carefully and maintain it in good working order and, except as is provided in paragraph (iv), to record their findings from each examination in a book termed the machinery record book.

- (i) at least once in each day in respect of the winding rope attachments to the drums and the conveyances, the brakes and depth indicators, the conveyances, and any safety devices attached thereto;
- (ii) at least once in each week at intervals not exceeding ten days in respect of the guides or rails and the winding compartments generally and overrun clearance as referred to in regulation 1444.
- (iii) at least once in each week at intervals not exceeding ten days in respect of the external parts of the winding engine and the condition and operation of all controls and safety devices and circuits, the hoisting ropes, balance ropes, guide ropes and the signaling arrangements head frame fittings, sheave wheels and all ancillary equipment for loading and unloading conveyances;
- (iv) at least once in each calendar month at intervals not exceeding forty-five days in respect of the structure of the hoisting ropes, balance ropes and guide ropes with a view to ascertaining the amount of deterioration thereof; for the purpose of this examination the rope shall be thoroughly cleaned at places to be selected by the said person, who shall note and record in the rope record book any reduction in the circumference of the rope, the superficial condition of the wires as to wear, corrosion, fractures and brittleness and all other data necessary for ascertaining the amount, extent and distribution of the deterioration of the rope:

Provided that where the winding plant is to be shut down for a period, such examinations and tests as are required by this-paragraph may be waived, in which event the plant shall not be put back into service until one each of such examinations and tests as would otherwise have been required with the period of shutdown has been carried out;

(b) If, during any such examination as is hereinbefore required, there is discovered any defect by which the safety any person may be endangered, such defect shall be recorded in the driers' log book immediately and reported to the responsible person in charge, and until such weakness or defect can be remedied the winding plant shall not be used.

1456. The provisions of regulations 1448, 1451, 1452, 1454 and 1455 shall apply to any shaft in the course of sinking or equipping.

Provisions for sinking

1457. The manager shall keep or cause to be kept at every winding engine a book to be termed the driver's log book, of a form to be approved by the Chief Inspector, in which shall be recorded signed reports of –
- Driver's log book*
- a. he conditions of the winding engine including the brakes, clutches, reversing gears, depth indicators and all protective devices;
 - b. The condition of the signaling arrangements and a report of any wrong signal, or signals received by the winding engine driver the accuracy of which he has questioned, or any signal, other than the signal 1, to stop, received while the engine is in motion; and
 - c. Any special instruction involving the safety of persons given to the driver, and the time at which such instruction was given; such entry shall be signed by the person giving the instruction, and as soon as possible to be in charge of the winding plant or shaft.
1458. Any person who, without authority, removes any page from or who defaces any page of driver's log book, machinery record book or rope record book shall be guilty of an offence.
- Offence to deface driver's Log book*
1459. The machinery and rope record books and the driver's log book shall always be open to inspection by an inspector of the Mines Department; the machinery record book shall be kept in the engine room of the winding engine to which it pertains.
- Books open to Inspection*
1460. In vertical and steeply inclined shafts, other than in the course of sinking or equipping, no conveyance shall be used for man winding unless it is fitted with adequate covers at the end of the conveyance nearest to the top of the shaft, and is so constructed as to prevent any portion of the body of any person travelling therein from accidentally coming into contact with the timbering or other equipment or the sides of the shaft; doors shall be so fitted that they cannot be opened accidentally.
- Covers in shafts*
1461. (1) In the case of any service or ramp raise, having winding plant used for the conveyance of materials between two or more levels underground, and at which no man winding or winding of mineral is permitted at any time, and of which the motive power does not exceed seventy-five kilowatts the following conditions will apply –
- A. Where such winding plant is manually operated, such winding plant, together with any auxiliary lifting apparatus, examined at least once in each week by a competent person, who may be the shift boss carrying out the inspection required by sub-regulation (4) of regulation 212;
 - B. No person shall operate such winding plant unless he is competent and duly authorized by the shift boss or other senior official in charge of the section in which the winding plant is situated;
 - C. Each drum of such winding plant shall have an efficient brake capable of being fixed in the applied position, that is to say locked in the ON position when such winding plant is at rest in such a way that it cannot be inadvertently released;
 - D. Such winding plant shall be provided with an efficient and effective signaling arrangement for transmitting distinct and definite signals from all levels in use to the driver;
 - E. For such winding plant in use for multi-level operation, adequate precautions shall be taken to protect any person
- Manually operated of Remote controlled Winding plant*

engaged in loading or unloading the conveyance from any movement of such conveyance.

2. Where any winding plant referred to in sub-regulation (1) is operated by remote control –

- a. Each drum shall be provided with an efficient brake which shall operate automatically in the event of a failure in the supply of motive power to such winding plant;
- b. Every such winding plant shall be provided with a device for applying the brake efficiently in case of an overwind; and
- c. Adequate precautions shall be taken to ensure the safety of person working in close proximity to such winding plant.

1462. Stop blocks or other similar contrivances shall be provided and maintained at every entrance to every shaft, winze, or incline to which vehicles or conveyances are brought.

***Insertion of new
Regulation 1462
Provision of stop
Blocks or other
Contrivances***

PART XV

STEAM BOILERS, STEAM CONTAINERS AND STEAM
AND AIR RECEIVER

1501. In this part (and elsewhere in these Regulations should the term appear) unless the context otherwise requires –
“air receiver” means–

- a. Any vessel, other than a pipe coil or an accessory, fitting or part of a compressor, for containing compressed air and connected to an air compressing plant;
- b. Any vessel for containing compressed air or compressed exhaust gases and used for the purpose of starting an internal combustion engine;
- c. Any vessel in which any liquid is stored and forced from it by compressed air, and
- d. Any fixed or portable vessel, not being part of a spraying pistol, used for the purpose of spraying by means of compressed air any paint, varnish, lacquer or similar material;

Interpretation

“authorized” working pressure” means, in the case of air receivers, steam boilers and steam containers, that pressure specified by an inspector of machinery which is entered in the records maintained for such plant;

“boiler” means any apparatus for the continuous generation of steam at a pressure greater than that of the atmosphere, and includes superheaters, economizers and steam accumulations;

“steam container” means any vessel, other than a steam pipe or coil, constructed with permanent outlet into the atmosphere, or into a space where the pressure is not greater than that of the atmosphere and through which steam is passed at or approximately at or below atmospheric pressure for the purpose of heating, boiling, drying, evaporating or other similar purpose;

“steam receiver” means any vessel or apparatus, other than a steam boiler, steam container, steam pipe or coil, or any part of a prime mover, used for containing steam under pressure greater than that of the atmosphere.

1502. Every air receiver, boiler or steam container, the foundations for such plant and the installations referred to in this Part shall be of good construction, sound material, adequate strength, free from patent defect and maintained in good condition. ***Standards of construction***
1503. (1) Before the first installation of any boiler at a mine the manager shall ensure that full maker's specifications and drawings of such boiler are submitted to the Chief Inspector for his approval in writing. ***Requirements for boilers***
- (2) No boiler shall be encased during erection, and when erected no boiler shall be used until it has been examined and tested to the satisfaction of an inspector of machinery; from the result of this examination and test the inspector shall specify the authorized working pressure, and shall enter such authorized working pressure in the boiler record book.
- (3) (a) every boiler shall be provided with a plate upon which is marked in clearly visible characters the year of first examination and the authorized working pressure at which such boiler may be worked.
- (b) The plate required by paragraph (a) shall be securely fixed to the boiler in a suitable position.
- (4) The maximum continuous steaming rate of any boiler, in kilograms of steam per hour, shall be specified by an inspector of machinery and such specification shall be based on the maker's specification; such rate may be exceeded only with the written permission of an inspector of machinery and subject to such conditions as he may impose.
- (5) Safe access must be provided and maintained to every point where a boiler safety device is installed.
1504. (1) Every boiler shall be provided with one or more reliable safety valves, and the loading of such safety valves shall be such that at least one will lift when the authorized working pressure in such boiler is exceeded; the loading of such safety valves and the aggregate area available for the discharge of steam shall be such as to prevent an accumulation of steam pressure in the boiler than ten per centum above the authorized working pressure: ***Safety valves for boilers***
- Provided that one such safety valve shall be sufficient for any super-heater or economizer that can be isolated from its boiler.
- (2) Every safety valve shall be constructed and installed so that –
- a. It can be easily freed from its seat at any time by lifting gear worked by hand from some accessible place, and shall be free to rotate on its seat; these arrangements shall be free from steam danger;
 - b. Where directly loaded by springs the compression nuts shall abut against metal stops or washers at the working load compression to prevent such safety valve being loaded to beyond the authorized maximum working pressure; adequate precautions shall be taken to ensure that the load settings of such safety valve cannot be altered by any unauthorized person;
 - c. Where loaded by a weight or spring action on a lever. The load shall act only at the extreme end of such lever;
- (3) Every safety valve shall be so installed that –
- a. It is mounted on or as near as possible to the boiler shell;

- b. No stop valve is placed between the safety valve and the boiler which it serves;
- c. No person is exposed to danger from the discharge of such valve; and
- d. Such safety valve is fitted with a suitable drain.
- e.
1505. (1) at any point at which steam is taken from a boiler a stop valve shall be provided as close as is practicable to the point draw-off. ***Provision of stop valves***
- (2) Where any boiler delivers its steam into a range or main common to other boilers a non-return valve shall be fitted in such manner that any accidental reversal of flow shall be prevented.
1506. (1) every boiler shall have connected to the steam space on or more reliable pressure gauges which shall be so installed that any gauge may be change while the boiler is in service. ***Pressure gauges for boilers***
- (2) The dial of every pressure gauge shall be calibrated in bars and shall have a range greater than the authorized working pressure of the boiler by not less than twenty per centum and not more than one hundred per centum.
- (3) The authorized working pressure of the boiler shall be marked with a red line on the dial of the pressure gauge.
- (4) Suitable arrangements shall be made to ensure that the element of any pressure gauge is not subjected to live steam.
- (5) Every boiler shall be provided with a suitable attachment to enable an inspector of machinery to affix a pressure gauge for the purpose of carrying out pressure tests.
1507. (1) every boiler shall be provided with two independent means of feed water supply. ***Feed water***
- (2) Where the feed apparatus is an injector, a second means of feeding consisting of a power or hand pump shall be fitted.
- (3) For the purpose of this regulation, two or more such boilers combined for joint working shall be regarded as one boiler.
- (4) Where a multiple pump supply system is in use sufficient capacity shall always be maintained to ensure a safe steaming rate.
- (5) the capacity of these means of supply shall be such that in the event of failure any one means of supply the feed water requirements of the boiler can still be met:

Provided that on reliable means of feed water supply shall suffice for any boiler having a total volume of ninety liters or less for the combined steam and water spaces.

(6) Where the feed delivery pipe enters a boiler such pipe shall be provided with a self acting non-return valve and the boiler, and these two valves may have a common body.

1508. (1) every boiler shall be provided with two or more reliable water level indicators, one of which shall be a glass water level gauge:
Provided that one glass water level gauge shall suffice for any boiler having a total volume of ninety litres or less for the combined steam and water spaces.
- (2) Fusible plugs shall be fitted to any fire-tube boiler:
Provided that an inspector of machinery may give written exemption from this requirement
- (3) Every glass water level gauge shall be efficiently guarded in such manner so as not to obstruct the reading of such gauge; any isolating cock must be of such type that it can clearly be seen whether it is in the open or closed position.
- (4) The lowest safe water level for every stationary boiler shall be at least seventy-five millimeters above the highest part of the flue passing round or through such boiler.
- (5) Every boiler shall be provided with some means, independent of visual observation, whereby any deficiency of water is made known.

Water levels

1509. (1) every boiler shall be provided with one or more blow down valves effectively placed.
- (2) Every joint between a boiler and a blow down valve shall be flanged, and when such flanges are not integral with the pipe or valve they shall not be fastened by means of screw threads alone.
- (3) No pipe between any boiler and blow down valve shall be in contact with any masonry or any supporting structure in such manner that it will be subjected to dangerous stress by the relative movement of various parts of such boiler.
- (4) The discharge from a blow down valve shall be conducted by means of a pipe into an open tank, drain or sump fitted with adequate vents so situated and guarded as to prevent danger to persons.
- (5) A blow down valve of two or more boilers shall not discharge into a common pipe.
- (6) Adequate safety measures shall be taken to ensure the safety of any person working on the piping system of any blow down valve between such valve and any tank, drain or sump.
- (7) Any key used to operate any main blow down valve shall be so constructed that it cannot be removed while such valve is in the open position.

Blow down valves

1510. No pipe or fitting shall be screwed directly into the shell of any boiler:
Provided that an inspector of machinery may give written exemption from this requirement.

Pipes, fittings not to be screwed into shell

1511. (1) Any steam receiver not so constructed as to withstand with safety the authorized working pressure of the boiler or the maximum pressure

Steam receiver Modification

which can be obtained in the pipe connecting such receiver with any other source of supply steam shall be fitted with –

- A. A steam reducing valve of other automatic appliance to prevent its own authorized working pressure being exceeded;
- B. A suitable safety valve so adjusted as to permit the steam of such receiver is exceeded, or a suitable automatic appliance for cutting off the supply of steam to such receiver, as soon as the authorized working pressure is exceeded;
- C. An accurate pressure gauge which shall indicate the steam pressure in bars;
- D. A suitable stop valve; and
- E. A plate bearing a distinctive identification number which be clearly visible.

(2) Every safety valve and pressure gauge required by sub-regulation (1) shall be fitted either on the steam receiver or on the supply pipe between the receiver and any reducing valve or other appliance provided to prevent the authorized working pressure being exceeded.

(3) for the purpose of paragraph (a), (b), (c) and (d) of sub-regulation (1) any set of receivers supplied with steam through a single pipe and forming part of a single unit may be treated as one receiver and further, for the purpose of paragraphs (a), (b) and (c) of sub-regulation (1), any other set of receivers supplied with steam through a single pipe may be trusted as one such receiver:

Provided that this sub-regulation shall not apply to any set of receiver unless the reducing valve, or other such appliance provided to prevent the authorized working pressure being exceeded, is fitted on such single pipe.

(4) Every steam receiver and its fittings shall be properly maintained and shall be thoroughly examined by an inspector of machinery, so far as its construction permits, at intervals not exceeding three years.

(5) a record of the result of every examination of a receiver, containing such particulars as the Chief Inspector may from time to time require, shall be kept and made readily available for inspection at all times.

(6) Every steam container shall be properly maintained so as to ensure that the permanent outlet to atmosphere is kept open and free from obstruction at all times.

1512. Every boiler shall be blown down continuously or with sufficient frequency so as to ensure that no dangerous amount of sludge or dissolved salts is allowed to accumulate.

Blowing down of boilers

1513. No person shall enter or be permitted to enter any part of a boiler which has been opened for cleaning, repairs or examination until the person in charge of such work has satisfied himself that it is safe to do so; before signing permission the person in charge shall ensure that –

Condition before cleaning Boilers

- (a) any pipe through which steam or water might enter such boiler has been disconnected or effectively isolated therefrom and, where valves are used to achieve such isolation, that they have been closed and securely locked;
- (b) all reasonable precautions have been taken to safeguard any person working in the boiler or its flues against any danger from gases, dust and falling objects.

1514. (1) every boiler in service or on standby for emergency generation shall at intervals exceeding two years be thoroughly examine internally and

Examination of boilers

externally as far as is practicable by an inspector of machinery, and before being put back into service shall be hydraulically tested in the presence of such inspector.

(2) If the examination of any boiler cannot otherwise be properly executed, any parts or the whole, of the masonry or casing shall be removed if an inspector of machinery deems this to be necessary.

(3) If at any time it is necessary to remove the masonry of casing of any boiler for the purpose of major renewal or repairs and this work reveals parts of such boiler which would otherwise be inaccessible, an inspector of machinery shall be notified before any such masonry or casing is replaced.

1515. (1) any boiler having an authorized working pressure of less than five bars shall be hydraulically tested to double such pressure
(2) Any boiler having authorized working pressure of five bars shall be hydraulically tested to not more than 1.2 times such pressure plus four bars.
(3) No masonry or casing of any boiler may be replaced before the prescribed examination and test by hydraulic pressure has been carried out except with permission of an inspector of machinery.

***Examination by
Hydraulic pressure***

1516. (1) if an examination reveals that any boiler can no longer be worked safely at the authorized working pressure originally specified and the manager considers it inadvisable to have the necessary repairs made, and inspector of machinery may specify a lower working pressure and such lower pressure shall be recorded in the boiler record book.
(2) If on examination any boiler is found to be in dangerous condition, and inspector of machinery may order such boiler to be shut down and such boiler shall not be used again until such time as it has been examined by an inspector of machinery and he is satisfied that such boiler is safe to operate.

***Reduction of maximum
Working pressure***

1517. (1) A record shall be kept for every boiler installed which shall contain the following particulars –
(a) The country of origin, date of manufacture and name of maker;
(b) The technical description and history;
(c) The location and official number;
(d) The authorized working pressure in bars;
(e) The dates on which the boiler is cleaned or examined and the condition of such boiler at the times of such examinations;
(f) The dates on which the boiler is hydraulically tested, the test pressure applied and the result of the test; and
(g) Details of any repair made to the boiler or its fittings.
(2) (a) every entry in a boiler record book shall be signed by the person responsible for carrying out the work therein described; and
(b) If no work is carried out on any boiler in the course of any calendar month, an entry to that effect shall be made.
(3) The manager shall ensure that notice is given to the Chief Inspector when any –
(a) Major repairs or any design or structural alterations are to be executed to any boiler;
(b) Part of any boiler is damaged so as to affect its authorized working pressure;
(c) Boiler is being disposed of;
(d) Boiler is moved from one location to another; and
(e) Boiler is out of commission for more than three months.

***Records of particulars and
Information on boilers***

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| 1518. | Every evaporator shall be fitted with at least one suitable safety valve which shall be so loaded that it will lift when the authorized working pressure of such evaporator is exceed. | <i>Safety valves for evaporators</i> |
| 1519. | The provisions of sub-regulations (1) and (2) of regulation 1503 and regulation 1507 shall not apply to evaporators operated above atmospheric pressure. | <i>Regulations not applicable to Evaporators</i> |
| 1520. | (1) every air receiver shall have marked upon it so as to be clearly visible the year of manufacture, the serial number and the authorized working pressure.

(2) Every air receiver and its fittings shall be of sound construction consistent with the relevant British Standard or equivalent specification and shall be properly maintained. | <i>Amendment of regulation 1520</i> |
| 1521. | No air receiver shall be used until it has been examined and tested to the satisfaction of an inspector of machinery; from the result of this examination and test the inspector shall fix the working pressure: Provided that any new air receiver on a new self-propelled vehicle shall be exempt from this regulation. | <i>Examination and testing of air receivers</i> |
| 1522. | Every air receiver shall be so mounted that the shell is visible for external inspection at all times, and prevision must be made for free expansion of the shell under all conditions of temperature. | <i>Mounting of air receivers</i> |
| 1523. | (1) Every air receiver shall have at least one reliable safety valve which shall be so loaded that it will lift when the authorized working pressure is exceeded; the area available for discharge of air shall be such as to prevent accumulation of pressure greater than ten percentum above the authorized working pressure.
(2) Adequate precautions shall be taken to ensure that the load setting of every safety valve cannot be altered by any unauthorized person.
(3) When directly loaded by springs the compression nuts shall abut against metal stops or washers at the working load compression, or be positively locked in position.
(4) No stop valve shall be placed between any safety valve and any receiver which it serves.
(5) When loaded by a weight or spring acting on a lever, the load shall act only at the extreme end of such lever.
(6) Every safety valve shall be so constructed that is shall be free to rotate on its seat.
(7) Every air compressor, except one which discharges into an air receiver and cannot be closed off therefrom, shall be provided with a pressure relief valve or other automatic device capable of preventing an accumulation of pressure greater than that for which such air compressor was designed or ten per centum above the pressure for which the system into which the air Compressor discharges was designed whoever is the lesser pressure. | <i>Safety valve for air receivers</i> |
| 1524. | (1) Every air receiver shall have at least one reliable pressure gauge so connected that it may be changed when the receiver is in use.
(2) The dial of every pressure gauge shall be calibrated in bars and shall have a range greater than the authorized working Pressure of such receiver by not less than twenty per centum and not more than one hundred per centum. | <i>Pressure gauges for air Receivers</i> |

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| <p>1525.</p> | <p>(1) every air receiver shall be provided with at least on drain valve which shall be so arranged that persons operating it are not exposed to danger from the discharge from such drain valve.</p> <p>(2) Every air receiver shall be drained with sufficient frequency to ensure that no dangerous amount of water or sludge is allowed to accumulate.</p> <p>(3) Every air compressor, air receiver, inter-cooler and their connections to air compressor shall, as far as it practicable, be kept clean and free from water, and from carbonized oil and other material liable to ignition.</p> | <p><i>Drain valves</i></p> |
| <p>1526.</p> | <p>No pipe, plug or fitting shall be screwed directly into the shell of any air receiver.</p> | <p><i>Pads</i></p> |
| <p>1527.</p> | <p>Every air receiver shall be</p> <p>(a) Examination internally by a competent person at intervals not exceeding twelve months and shall be tested by hydraulic pressure to the satisfaction of an inspector of machinery at intervals not exceeding two years; the pressure applied during such test shall be 1.5 times the authorized working pressure;</p> <p>(b) Provided with a suitable manhole, hand hole or other means which will allow the interior to be thoroughly cleaned and inspected: Provided that, if it is so constructed that the internal surface cannot be thoroughly examined, a suitable hydraulic test of the receiver shall be carried out instead of the internal examination.</p> | <p><i>Examination of Air Receivers</i></p> |
| <p>1528.</p> | <p>The results of any examination and test referred to in regulation 1527 shall be suitably recorded and the record signed by the competent person making such examination and test.</p> | <p><i>Record of examination
And tests</i></p> |
| <p>1529.</p> | <p>(1) thermometers or pyrometers, the indications of which can be clearly read, and fusible plugs shall be fitted close to the outlet valves or discharge ports of all positive displacement air compressors having a rating exceeding seven cubic metres of free air per minute.</p> <p>(2) Thermometers of pyrometers, the indications of which can be clearly read, shall be fitted to the discharge pipes of all other compressors having a rating exceeding seven cubic metres of free air per minute.</p> <p>(3) The maximum temperature allowed shall be indicated by a red mark on the scale of each such thermometer or pyrometer.</p> | <p><i>Fitting of thermometers and
pyrometers</i></p> |
| <p>1530.</p> | <p>The provisions of regulations 1520 to 1529 inclusive shall not apply to any portable gas cylinder or working cylinder or any engine.</p> | <p><i>Exemption for gas
Cylinders</i></p> |

**PART XVI
ACCIDENTS**

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| <p>1601.</p> | <p>(1) The manager shall ensure that, on the form prescribed in sub-regulation (5), he shall give notice of any accident specified in sub-regulation (2) and that an inspector shall be immediately informed, by the quickest means available, of any such accident.</p> | <p><i>Notification of accidents</i></p> |
|--------------|--|--|

(2) The accidents of which notice is required to be given are those –

- (a) Involving the death of any person;
- (b) In which any person becomes unconscious either from heatstroke, heat exhaustion, electric shock, the inhalation of blasting or other poisonous fumes or the inhalation of any poisonous gas;
- (c) In which the injuries sustained by any person are so serious that it is possible that they may prove fatal.

(3) In the case of death, the manager shall ensure that the police are notified immediately by the quickest means possible and that the nearest magistrate is informed forthwith in writing.

(4) the manager shall ensure that, on the form prescribed in sub-regulation (5), notice is given to the Chief Inspector of any accident in which any person is injured and is incapacitated from performing his usual work for more than three days, excluding the day of the accident but including weekends or official holidays.

(5) the notice required to be given by sub-regulation (2) and (4) shall on Mines Form 55 as set out in the First Schedule to these Regulations; the completed form shall be dispatched so as to arrive at the office of the Chief Inspector within twenty-one days of the date of the accident:

1602. (1) in addition to the requirement of sub-regulation (3) of regulation 1601, when any injury results in the death of any person after notice has been given in accordance with regulation 1601, or when any slight injury of which no notice was given results in the death of the injured person, the manager shall cause notice thereof to be given to the Chief Inspector.

Injury resulting in death

(2) when any injury immediately results in the death of any person the place where the accident occurred shall not be disturbed or altered before the arrival of, or with the consent of, an inspector unless such interference is unavoidable to prevent further accidents, to remove dead bodies or to rescue persons from danger:

Provided that this regulation shall not apply to any place where any delay would seriously affect safe working or if the inspector fails to visit the place within three days after the notice of the accident has been dispatched.

1603. (1) whether personal injury is caused or not by any occurrence specified in sub-regulation (2), the manager shall ensure that it is reported to an inspector within twenty-four hours and forthwith confirmed in writing.

Dangerous occurrences to be reported

No material or apparatus shall be disturbed or destroyed or the scene of the incident otherwise altered without the consent of an inspector unless such interference is unavoidable to prevent further accidents or to rescue persons.

(2) The occurrences which are required to be reported are –

- (a) The fracture or failure of any part of any machinery other than machinery referred to in paragraph (b), whereby the safety of any person has been or may be endangered;
- (b) Any occurrence in connection with winding plant or lift installations involving –
 - (i) The fracture or failure to work efficiently of any essential part, including a winding or lift installation involving –

- (ii) The jamming or overloading of any part of the winding plant or the derailment of any conveyance which results in the possible overstrain of the rope;
- (iii) The failure of any overwind prevention device or safety catch to act when required, or the action of such device or catch when not required;
- (iv) Any conveyance accidentally leaving its guides in a vertical shaft;
- (v) Any accidental overwind on a certificated winding engine;
- (c) The accidental ignition or detonation of explosives and any accident due to explosives;
- (d) The flooding of any considerable portion of the workings or the failure of any dam or reservoir used for conserving water or slimes;
- (e) The collapse, mechanical failure or overturning of any crane, derrick, winch, hoist or similar lifting appliance;
- (f) Any accidental explosion or large fire due to the ignition of dust, gas, oil or vapour,
- (g) Any accidental fire underground or accidental large fire on surface;
- (h) The explosion or bursting of any receiver or container used for the storage at a pressure greater than atmospheric pressure of any gas or mixture of gases, or of any liquid or solid resulting from the compression of gas;
- (i) The explosion or bursting of any steam boiler or steam receiver;
- (j) Any electrical short circuit or failure of electrical machinery resulting from the malfunction of any protective device and attended by explosion or fire;
- (k) Any electric shock or burn to a person who consequently receives medical treatment;
- (l) The extensive caving of any underground workings or any extensive subsidence of the ground which is not normal from the method of mining in practice;
- (m) Any prolonged failure of the main ventilation system;
- (n) The bursting of any revolving vessel, wheel or grinding wheel moved by mechanical power, but excluding rubber tires.

1604. (1) if he is able to do so, any person is injured in an accident shall report it as soon as possible to his immediate superior who shall ensure that the relevant procedure for accidents, as laid down by the manager, is complied with.
- (2) Any official or contractor who is aware of any accident in which any of his subordinates have been injured shall ensure that the relevant procedure of accidents, as laid down by the manager, is complied with.

Reporting of accidents

**PART XVII
LIFTS**

1701. No lift installation shall be used until such use has been authorized by the Chief Inspector and a Certificate of Permission issued: such certificate shall be mounted behind glass in the lift car.
1702. Every lift installation and every part thereof shall be of good construction, suitable material, adequate strength, free from patent defect and shall be properly maintained.

Certificate of permission

Suitability of lift installations

1703.	<p>(1) the manager shall ensure that a competent person is appointed to examine carefully –</p> <p>(a) At least once in each week at intervals not exceeding ten days, the motor, guides and all drum, sheaves and safety appliances of each lift;</p> <p>(b) At least once in every thirty days at intervals not exceeding forty-five days, the entire lift installation and all fittings and appliances in connection therewith.</p> <p>(2) the competent person appointed in accordance with sub- regulation (1) shall make a report of the result of any test, examination or inspection which shall , as soon as is practicable, be entered in a register kept for this purpose and such register shall be kept at a suitable place; each entry shall be signed by such competent person.</p>	<i>Appointment of competent Person to examine Installation</i>
1704.	<p>(1) every lift shaft shall be effectively protected by gates so as to prevent, when such gates are closed, any person falling down such lift shaft or coming into contact with any moving part in such list shaft.</p> <p>(2) every gate provided in accordance with sub-regulation (1) shall be equipped with an efficient interlocking or other device to ensure that such gate cannot be opened except when conveyance is at the landing and to ensure that the conveyance cannot be moved away from the landing until such gate is closed.</p>	<i>Provision of gates</i>
1705.	<p>Except for testing or maintenance, no person shall ride upon the platform of any lift authorized for the carriage of goods or material only and there shall be a legible notice clearly displayed on such platform so stating.</p>	<i>When persons forbidden To ride</i>
1706.	<p>In every lift installation efficient devices shall be provided and maintained which will support the conveyance together with its safe working load in the event of failure of the ropes or any other part of such installation.</p>	<i>Failure of ropes</i>
1707.	<p>in every lift installation efficient automatic devices shall be provided and maintained which shall ensure that the platform or conveyance does not overrun the highest or lowest point to which it is for the time being construction to travel.</p>	<i>Overrun devices</i>
1708.	<p>Every lift installation used for carrying persons shall be provided with a conveyance which is so constructed as to prevent any person carried from falling out or being trapped between any part of such conveyance and any fixed structure or other moving part of such lift or from being struck by articles or material falling down the lift shaft.</p>	<i>Construction of Conveyance</i>
1709.	<p>No rope shall be used for supporting a lift or counterweight unless it is of good quality and manufacture and of adequate strength and free from any defect.</p> <p>(2) Any such rope shall be made of wire, and the gauge of the wires used in the construction thereof shall be suited to the diameter of the sheaves and drum.</p> <p>(3) No rope shall be used for supporting a lift conveyance or counterweight when the breaking load at any point therein has become reduced to less than five times the maximum working load, the supporting effect of the other rope, if any, being ignored:</p>	<i>Ropes</i>

Provided always that in the case of any lift in which such conveyance or counterweight is suspended by more than two ropes fitted with appliances for equally distributing the load, a minimum factor of safety of 10 shall be allowed on the aggregate strength of all the ropes, but no rope shall have a lower factor of safety than 3, with respect to the maximum working load.

(4) Every lift car operated by ropes shall be suspended by at least two ropes, each of which shall have independent connection with the car or with the special connection bracket hinged thereto; each set of counterweights shall likewise be suspended by two ropes.

1710. (1) in the case of any lift where no part of the open is rigidly fixed to the drum, the construction shall be such that there shall be no dangerous slipping of the ropes on the drum under any possible working condition, the safety of the apparatus to be judged by an inspector or machinery.

Fixing of ropes to Drums

(2) When the lifting and counterweight ropes are rigidly fixed to the drum there shall be at least one full turn of rope on the drum when they have run the limit.

1711. In every lift the drum, engine or motor shall be provided with an adequate brake which shall be kept in proper working order.

Brakes

1712. A clear space of not less than one metre shall be provided between the bottom of the lift shaft and the lowest point of the underside of the lift car when the car is at its lowest landing and between the top of the lift car and the underside of the overhead grating or floor when the car is at its top landing and also between the top of the counterweight and the underside of the sheave or beams when the lift car is at its lowest land; in the case of lifts which run at a speed greater than one hundred metres per minute, the clear space at the top or bottom shall not be less than 1.5 metres.

Under run and And overrun clear Space

1713. No lift shall be used whilst repairs are being effected in the lift shaft.

Not to be used During repairs

PART XVIII BUILDINGS AND CONSTRUCTION

1801. In this part (and elsewhere in these regulations should the term appear) unless the context otherwise requires –

Interpretation

“Construction work” means any building operations or work of engineering construction;

“Ladder scaffold” means a scaffold with a working platform which is supported directly or by means of a crutch or bracket on a rung or rungs of a ladder;

“scaffold” means any temporary structure on or from which persons perform work in connection with any structure work, and any temporary structure which enables persons to obtain access to or which enables materials to be taken to any place at which such work is performed;

“suspended scaffold” means a scaffold suspended means of ropes or chains which is capable being lowered or raised by such ropes or chains but does not include a boatswain’s chair or such similar appliance

“trestle scaffold” means a scaffold in which the supports for the platform are step-ladders, tripods or similar movable contrivances;

“working platform” means that part of a scaffold or cradle upon which persons stand or sit for the purpose of work.

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| 1802. | All material and equipment used in building and engineering construction shall be of good construction, suitable material, and adequate strength, free from patent defect and shall be properly maintained. | <i>Standards of construction</i> |
| 1803. | (1) all material used for any scaffold shall be inspected and found satisfactory by a competent person on every occasion before being put or taken into use.

(2) no scaffold or suspended scaffold shall be erected, or be substantially added to or be altered or be dismantled otherwise than under the immediate supervision of a competent person and so far as possible by persons possessing adequate experience of such work. | <i>Scaffold inspection and Erection</i> |
| 1804. | The manager shall ensure that every scaffold in use, together with all fittings and connections, shall be examined at least once a week by a competent person. | <i>Frequency of inspection</i> |
| 1805. | (1) no skip, bucket, basket, boatswain’s chair or similar equipment shall be used in place of a suspended scaffold, except in special circumstances where the work to be performed therefrom is of such short duration as to make the use of a suspended scaffold unreasonable or where the use of a suspended scaffold is not reasonably practicable; such equipment shall only then be used under the supervision of a competent person, and suitable measures shall be taken to prevent spinning or tipping and to prevent any occupant from falling therefrom.

(2) No skip, bucket or basket shall be used in place of a suspended scaffold unless it is at least 1.1 metres deep. | <i>Skips, buckets, boatswain’s Chair, etc.</i> |
| 1806. | (1) no trestle scaffold shall be used –
A. If it is constructed with more than three tiers; or
B. If it has a working platform more than five metres above the ground, floor or other surface upon which it is erected.
(2) No trestle scaffold shall be erected on a scaffold platform unless –

(a) The width of such platform is such as to leave sufficient clear space for the transport of material, and
(b) The trestle or uprights are firmly attached to such platform and adequately braced to prevent displacement.
(3) No trestle scaffold shall be erected on a suspended scaffold. | <i>Trestle scaffold</i> |
| 1807. | (1) every ladder scaffold shall be of adequate strength and used only for light work.
(2) No ladder scaffold shall be erected on a suspended scaffold | <i>Ladder scaffolds</i> |

1808. (1) no scaffold or suspended scaffold shall be overloaded and material shall not be kept thereon unless needed within a reasonable time.
- (2) No crane shall be installed on any scaffold unless a competent person has satisfied himself as to the strength and stability of such scaffold.
- (3) Any material being transferred on a scaffold or suspended scaffold shall be moved or deposited without causing any violent shocking.
1809. Any working platform from which any person is liable to fall more than two metres shall be –
- (a) Closely boarded, planked or plated;
- (b) At least four hundred and sixty millimeters wide if the platform is used as a footing only and not for the deposit of any material thereon;
- (c) At least one metre wide if the platform is to be used for the deposit of material thereon; and
- (d) At least 1.2 metres wide if the platform is to be used for the support of any higher platform.
1810. (1) suitable measures, such as the provision of adequate beveled pieces, shall be taken to reduce to a minimum the risk of tripping and to facilitate the movement of barrows where boards or planks which form part of a working platform, gangway or run overlap each other or are not of reasonably uniform thickness where they meet each other, or owing to warping or for some other reason do not provide an even surface.
- (2) every side of any working platform or working place, being a side from which a person is liable to fall a distance of more than two metres, shall be provided with –
- (a) Rails of adequate strength, one being in hand-rail at a height of at least 1.1 metres above such platform or place, and a second being a knee-rail at a height of at least six hundred millimeters above such platform or place;
- (b) Toe-boards up to sufficient height, being in no case less than one hundred and fifty millimeters, and so placed as to prevent so far as possible the fall of any person, material or tool from such platform or place.
- (3) A clear passageway at least four hundred and sixty millimeters wide shall be left between one side of any working platform and any fixed construction or deposited material.
1811. Every accessible opening in any roof or floor of a building or structure, or in any working platform for a lift, shaft or stairway, or for the hoisting of materials, or for access by workmen or for any other purpose during any construction work, shall, until it becomes necessary to remove any fencing in order to complete the permanent structure or enclosure, be provided with a guard-rail and toe-board constructed in accordance with sub-regulation (2) of regulation 1810 or with a covering to prevent the fall of any person. Material or tool through the opening, except when access is required for any person or for the movement of any material, and then only if adequate precautions are taken for the safety of any person working in the immediate vicinity thereof.

No overloading of scaffolds

Provisions for platforms

Planking guards-rails and toes-boards on platforms

Openings left in roofs of floors

1812. Where any person is employed in connection with any construction work on the sloping surface of any roof structure, ground or material from down which, taking into account the inclination of the slope, the nature of the surface or material and the state of the weather, a person is liable to fall a vertical distance of more than two metres, there shall be provided where practicable and appropriate –
- (a) Sufficient and suitable ladders or crawling boars which shall be secured as soon as is practicable; and
Planking, guard-rails and
Toe-boards on platforms
- (b) A suitable working platform fitted with suitable guard-rails.
- Working on sloping surface***
1813. Where any person has to pass over or work on any roof through which he may fall, suitable and sufficient ladders, duck ladders, crawling boards or other means for facilitating his safe passage or safe working conditions shall be provided and used.
- Protection for person on roofs***
1814. (1) no gangway, run or working platform shall be used for the passage or materials unless it affords a clear passageway which is adequate in which for the passage of any material without the removal of any guard-rail or the toe-board, and in any case is not less than seven hundred millimeters wide.
- (2) No gangway or run shall be used if its slope exceeds one vertical to three horizontal.
- (3) where the slope of any gangway or run renders additional foothold necessary, and in every case where the slope exceeds one vertical to four horizontal, there shall be provided proper stepping laths which shall be –
- (a) Placed at suitable intervals; and
- (b) The full width of not more than one hundred millimeters to facilitate the movement of barrows.
- Gangways and runs***
1815. Any gangway, staircase, working place or exit from any building from which a person is liable to fall a distance of more than two metres shall be provided with a suitable guard-rail, of adequate strength and to a height at least 1.1 metres above such gangway, staircase, working place or exit.
- Guard-rails for gangways, etc.***
1816. Every platform gangway, staircase and working place shall be kept free from any unnecessary obstruction, projection or material, and from any rubbish, projecting nail or any substance likely to cause any person to slip.
- Platforms etc., to be unobstructed***
1817. All demolition work and any operation incidental thereto shall be placed under the supervision of a competent person experience in demolition operations, and such person shall have charge of such work during the whole time such work is being carried out.
- Competent person in Charge of demolition***
1818. Before any demolition work is commenced and also during the progress of such work –
- Precautions to be taken During demolition work***

- (a) No electric cable or apparatus (other than any cable or apparatus used for the operation) which is liable to be a source of danger shall remain electrically charged
 - (b) All practicable steps shall be taken to prevent danger any person from the –
 - (i) Risk of fire or explosion through accumulated gas or vapour; and
 - (ii) Risk of flooding from water mains, sewers or culverts.
 - (c) Precautions shall be taken to prevent, as far as is practicable, any accidental collapse or such demolition work or other operation which may endanger persons.
1819. No floor, roof or other part of any building shall be over-loaded with debris or material in such a manner as to render it unsafe. ***No over-loading of floors, etc.***
1820. Before any steel work or ironwork is cut or released, precautions shall be taken, so far as is practicable, to avoid danger from any sudden twist spring or collapse of such steelwork or ironwork. ***Removing steelwork***
1821. When, in any construction work, a scaffold or working place remains as part of the completed structure, so as to become an established working place, it shall be – ***When any working place becomes permanent, provisions for safety***
- (a) Provided with a safe means of access and egress;
 - (b) So constructed as to provide a safe working place for every person employed thereat.

**PART XIX
ELECTRICITY**

1901. In this part (and elsewhere in these regulations should the term appear) unless the context otherwise requires –
- “blasting cable means any cable or conduct used to supply current from a blasting box or other device for electrical blasting;
- “circuit” means an electrical circuit forming a system or branch of a system;
- “circuit breaker” means a device for making and breaking an electrical circuit and fitted with some suitable means for automatically breaking the circuit under abnormal conditions;
- “conductor” means an electrical conductor connected to an electrical system.
- “danger” means danger to health or danger to life or limb from shock, burn or other injury to person, or from fire attendant upon the generation, transformation, distribution or use of electrical energy.
- “dead” means at or about zero electrical potential and disconnected from any live electrical system;
- “earthed means connected to the general mass in such manner as will ensure at all times an immediate discharge of electrical energy without danger;
- “electrical apparatus” includes electrical cables and conductors and any part on any machinery, apparatus or appliance in which conductors are used;
- “electrical power” does not include electricity used in a portable safety lamp, shot –firing apparatus, signaling apparatus or a telephone;
- Interpretation**

“flexible cable” means any cable or cord which is designed to be movable while in use;

“isolator” means a device suitable for disconnecting a circuit, only where there is no load current.

“live” means electrically charged;

“main substation” means a substation in which any system voltage exceeds medium voltage;

“metallic covering” means in relation to any electric cable or conductor any metallic covering, armouring, sheath or pipe through which any conductor passes;

“mobile apparatus” means any electrical apparatus which is designed to be moved whilst working, and include locomotives, cranes, bucket shovels, welding machines and similar apparatus;

“portable apparatus” means any electrical apparatus which is designed to be hand-held whilst working, and includes power drills, inspection lamps, testing equipment, welding electrode holder and similar apparatus;

“Substation” means an assemblage of electrical swift- gear, include any necessary housing, for the control of electrical power, in which any system voltage does not exceed medium voltage;

“system” means an electrical system in which all the conductors and apparatus are electrically connected to a common source of electromotive force;

“voltage” means a difference of electrical potential between any two conductors, or between a conductor and earth and is classified as follows-

- (a) “extra high voltage” means a voltage normally exceeding 3,000 volts;
- (b) “high voltage” means a voltage normally exceeding 650 volts, and not exceeding 3,000 volts;
- (c) “medium voltage” means a voltage normally exceeding 250 volts, and not exceeding 650volts
- (d) “low voltage” means a voltage normally exceeding 250 volts.

1902. (1) Electrical apparatus shall not be installed underground in any place where electrical apparatus is not already installed, unless the manager of the mine has served on the chief inspector notice of the intention so to do in such form as may be specified by the chief Inspector, and has received from the Chief Inspector written authorization for such installation.

(2) Nothing in this regulation shall apply

- (a) to the installation of electrical apparatus in any place where in which the installation of such apparatus was lawful before 1st June,1971;or
- (b) to the installation of telephone and signaling apparatus, or blasting cables.

Notice of introduction of electricity

1903. Subject to these regulations (which shall prevail in case of conflict), the installation of any electric cable, switch gear, transformer and electrical apparatus of any kind conform to the Central African Standard Safety Code for the Electrical Wiring of Premises.

Installation

1904. The manager shall ensure that all electrical, blasting and signaling apparatus shall be of good construction, suitable material adequate strength, free from patent defect and properly maintained.

Standard of apparatus

1905. Where there is installed electrical apparatus operating at a voltage in excess of medium voltage, there shall be kept-

Plans and diagram to be kept

(a) all the office concerned on the mine, plans or distribution diagram showing the general electrical arrangement for all such apparatus as far as is reasonably possible;

(b) at each main substation accurate distribution diagrams showing the electrical arrangement of each main circuit showing immediately associated with the substation's switch-gear:

Provide that in a main substation having no more than three main circuits, adequate labeling of the switch- gear shall suffice.

1906. (1) There shall be provided on the surface where there is installed underground electrical apparatus, other than telephone and signaling apparatus, suitable switch –gear for controlling the supply of electricity thereto.

Main switchgear for controlling the supply of electricity

(2) Efficient arrangement shall be maintained where by a competent person is in attendance or readily available on call, for the purpose of operating such switch- gear, whenever any cable underground is live and any person is at work underground.

(3) An effective means of communication shall be provided between the place at which such- gear is situated and –

(a) each established shaft station; and

(b) a place at or near each main substation immediately controlled by such switch- gear.

1907. (1) There shall be provided in relation to every electrical circuit effective means suitably placed for cutting off the supply of electricity from that circuit, as may be necessary to prevent danger, and without prejudice to the generality of the aforesaid, for cutting off the supply from any flexible cable at the apparatus by which it is connected to a fixed cable.

Other means for cutting off electricity

(2) There shall be provided in relation to every electrical circuit effective means for cutting off the electricity automatically from such circuit in the event of any fault occurring in any part of such circuit.

(3) There shall be provided such effective means of preventing the automatic making live of any electrical circuit or electrical apparatus as may be necessary to prevent danger, this shall not preclude the use of autoreclosers on overhead lines.

(4) There shall be provided in relation to every electrical motor an efficient means where by the supply of electricity can be entirely cut off from such motor, such means being located so as to be readily available to the operator; whenever such motors are remotely controlled and there is likelihood of damage to the control cable the means adopted shall include an isolator mounted on or adjacent to the motor.

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| <p>1908.</p> | <p>(1) No inflammable or explosives material shall be placed in dangerous proximity to any electrical apparatus.</p> <p>(2) Any part of electrical apparatus which require attention and any handle for the operation of such electrical apparatus shall be so placed that there is a safe means of access thereto</p> <p>(3) Any such handle shall be kept of obstruction and conveniently placed for operation.</p> <p>(4) Every electricity generating plant and all main substations equipment shall be adequately fenced off or enclosed and notices prohibiting unauthorized persons from entering shall be placed at all designed places of ingress; when such plant or equipment is unattended by an authorized person, all designed places of ingress shall be kept closed and prevent unlawful access</p> | <p><i>Housing apparatus</i></p> |
| <p>1909.</p> | <p>(1) No electrical apparatus shall be used unless it is of sufficient power or capacity to avoid dangerous overloading, and is protected against any danger of such use.</p> <p>(2) whenever there may exist any risk of ignition by electrical sparking, gas, coal dust or other inflammable or explosive substance, the design, construction and method of installation of any electrical apparatus shall be approved by the chief Inspector.</p> | <p><i>Suitability of apparatus</i></p> |
| <p>1910.</p> | <p>(1) All electrical apparatus and every conductor shall be so selected, arranged, installed, protected, maintained and worked as to prevent danger so far as is reasonably practicable.</p> <p>(2) Any person doing any work which may result in damage to any electrical apparatus shall take such action as may be appropriate to protect such electrical apparatus from damage.</p> | <p><i>Protection of person and apparatus</i></p> |
| <p>1911.</p> | <p>(1) The manager shall ensure that there is in force a scheme of the systematic inspection, examination and testing of all electrical apparatus.</p> <p>(2) Such inspection, examination and testing shall ensure, as far as is practicable, the safety persons.</p> <p>(3) Whenever necessary to prevent danger</p> <p style="margin-left: 20px;">(a) electrical apparatus shall be kept clean ,dry and clear of obstruction;</p> <p style="margin-left: 20px;">(b) electrical apparatus shall carry an effective means of identification.</p> | <p><i>Inspection examination and testing of apparatus</i></p> |
| <p>1912.</p> | <p>No person shall willfully damage any electrical apparatus or without proper authority operate, interfere with, remove or render useless any electrical apparatus, but in any emergency any person may operate electrical apparatus in order to cut off the supply.</p> | <p><i>No person to willfully damage apparatus</i></p> |
| <p>1913.</p> | <p>(1)All material used for the purpose of insulating any conductor shall be suitable, having regard to the degree of insulation and mechanical strength required and the conditions of temperature and moisture to which it is likely to be subject, and to any means provided for its protection.</p> <p>(2) Every conductor, forming part of any electrical system, shall be kept efficiently insulated from earth.</p> <p>Provided that-</p> | <p><i>Installation</i></p> |

- (a) in the case of any system with polyphase supply all neutral points in that supply shall be connected to earth at the surface ;and
- (b) in the case of any electrical distribution system with single phase or direct supply, the mid- voltage point or one pole shall be connected to the earth at the surface.
- (3) In relation to every electrical system, efficient means shall be provided to ensure that as far as is practicable, wherever any dangerous defect arises in the insulation of the system, the supply of electricity to this fault is automatically cut off.
1914. (1) There shall be connected to earth at the surface in such manner as will ensure immediate electrical discharge without danger-
- (a) every metallic covering of any cable;
- (b) every outer conductor of any concentric cable;
- (c) every metallic part of any covering or container of or mounting for any other electrical apparatus; and
- (d) every metallic handle for the operation of any electrical apparatus:
- provided that the provision of this sub- regulation shall not only apply to any lamp- holder or any electrical apparatus having approved double- insulation.
- (2) Without prejudice the generality of sub- regulation (1) any earthing conductor installed for the purpose thereof shall have a conductivity throughout, including any joint ,not less than 0.5 that of the conductor having the greatest current carrying capacity in relation to which it is provided: the equivalent copper cross section area shall however; not less than 2.5 square millimeters.
- (3) Subject to the preceding provision of the regulation and to provision of regulation 1916 the metallic covering of any cable may be used as an earthing conductor.
- (4) No switch, fuse or circuit breaker shall be placed in any earthing conductor; this shall not preclude the use of an isolator in the neutral conductors for alternators or transformers.
- (5) Where two or more earth plates are used for the purpose of this regulation, adequate precaution shall be taken to ensure that no dangerous potential exist between such earth plates.
1915. (1) The provision of this regulation shall apply to all the electric cables other than –
- (a) flexible cables for portable apparatus;
- (b) telephone and signaling apparatus;
- (c) blasting cables
- (2) Every conductor in any cable to which to the regulation applies, except an earthed outer conductor of a concentric cable or a metallic covering of a cable used as an earthing conductors in accordance with the provision of sub- regulation (3) of regulation 1914,shall be covered with insulation material.
- Earthing**
- Cables**

3) Every cable to which this regulation applies shall be protected from mechanical damage and supported at such interval and in such manner as to prevent damage thereto or danger therefrom.

(4) Every cable to which this regulation applies and which used-

- (a) for transmitting electricity at a voltage exceeding 250 volts at the surface or in open cast working, or exceeding 125 volts below ground; or

- (b) in any length of underground road on which vehicles are moved otherwise than by hand where conveyors are installed;

shall be a cable protected by a metallic covering containing all the conductors forming part of that electrical system at that place:

Provide that this sub – regulation shall not apply to place cables which are otherwise adequately protected.

(5) In the case of every cable to which this regulation applies and which is protected by a metallic covering, that covering shall be electrically continuous through out, and where necessary, having regard to its position against corrosion

(6) Every single- core cable and every core of a twin or multi-core cable of flexible cord shall have an indelible means of identification.

1916. (1) all flexible cable shall be adequately protected against mechanical damage and shall be of an approved specification.

Flexible cables

(2) No single- core flexible cable shall be used for supplying portable or mobile apparatus other than trolley-wire locomotives or welding electrode holders; each conductor in a flexible cable shall be covered with insulating material and such conductor and insulating material shall be adequately protected from damage.

(3) A metallic covering provided to protect a flexible cable from damage shall not be used as the sole earthing conductor in respect of such cable or any apparatus connected thereto unless such cable is of an approved specification

(4) No flexible cable by which electricity is supplied at a voltage exceeding 32 volts shall be connected to any electrical apparatus except by means of a properly constructed conductor.

(5) All flexible cable in use shall be examined by a competent person at least once in each week, and any cable used with portable apparatus shall be examined immediately before use by the person authorized to use the apparatus; if any such cable is found damaged or defective it shall be repaired.

1917. (1) Every blasting cable shall be readily identified as follows-

Blasting cables

- (a) twin twisted flex shall have one yellow sheath and one green sheath

- (b) a multi-core sheath shall be coloured yellow through out its length:

- (2) Blasting cables shall not be used for any other purpose than blasting.
- (3) Current from telephone .signaling or lighting circuits or from any source other than a blasting box, other blasting device approved for blasting, shall not be used in blasting circuits.
- (4) Adequate precautions shall be taken to prevent cables or conductors used in blasting circuits from coming into contact with other cables or electrical apparatus other than an approved box, or other device approved for blasting.

1918. (1) All parts of any switchgear and of electrical connections shall be of sufficient mechanical strength and current carrying capacity prevent danger.
- (2) All live parts of any switch gear and connections shall be so closed or otherwise protected as to prevent danger to persons accidentally coming into contact therewith or danger from a deposit thereon of dust, water or other matter.
- (3) The material insulating any conductor in any cable shall be efficiently protected at any point at which that conductor is connected to other apparatus where its insulating properly might be diminished
- (4) Whenever any cable protected by a metallic covering is connected to other apparatus such metallic covering shall be securely attached to that apparatus.
- (5) Every joint in any cable shall be-
- (a) made in such a manner as to be mechanically and electrically sound:
 - (b) such that the resistance of the jointed conductor shall not exceed that of a similar continuous and unjointed conductor;
 - (c) such that that the insulation thereof is not less effective than the insulation of the cable core and shall, be protected against moisture.

Switchgear and electrical joints and connections

1919. (1) Where more than thirty persons are employed underground, there shall be provided and maintained an effective means of telephonic communication, or other equivalent means of transmitting speech, between a point on the surface and such points underground as may be for safety and within reasonable and easy access from any place at which work is being carried out.
- (2) Contact makers in telephone or signaling apparatus shall be so constructed as to prevent the accidental closing of the circuit.
- (3) In any electrical signaling system where any failure or disconnection would be likely to cause a dangerous situation due to loss of signaling facilities, an alternative means of signaling be provided.
- (4) Adequate precautions shall be taken to prevent any telephone wire or signaling conducting wire or apparatus coming into contact with any cable or other electrical apparatus in which the voltage exceeds 32 volts.

Telephone and signaling apparatus

1920. The following notices shall be exhibited at suitable places within electrical generation stations, winding engine rooms, main substations,

Notices

and pump stations, and elsewhere as may be necessary minimize danger-

- (a) a notice prohibiting unauthorized persons from operating or interfering with installed electrical apparatus;
- (b) a notice containing directions upon the procedure in any case of fire: and
- (c) a notice containing directions for treatment of persons suffering from electric shock.

1921. (1) Suitable safeguards, so arranged that persons cannot inadvertently come into contact with the current- carrying parts, shall be provided and properly maintained throughout the length of any trolley line conductor:

Locomotive system

provided that where the trolley line conductor is installed at a height in excess of 2.5 meters above the rail, such safeguards need only be provided and maintained at any place where-

- (a) loading or unloading of vehicles as regular carried out;
- (b) maintenance or repair of locomotives or other rolling stock is regularly effected.

(2) Effective means shall be provided for cutting off the supply of electricity of the trolley line conductor system to any section on the same level; such section being so controlled shall not exceed an installed length on one thousand metres.

(3) Effective means shall be provided, by bonding or otherwise, to ensure the track system overrun by locomotive operating from trolley line conductors is continuous throughout, and that the resistance of any joint shall not be greater than the resistance of ten metres of the track rail.

(4) Reasonable precautions shall be taken to ensure –

- (a) that no metallic structure or article in the vicinity of a trolley line conductor shall attain a potential above that of earth: and
- (b) the safety at all times of any persons working or walking in close proximity to trolley line conductors.

(5) The supply of electricity shall be cut off from any trolley line system which is not in use.

(6) There shall be provided on any locomotive exceeding eight tonnes weight and on any other electrically propelled apparatus whether supplied with electricity from trolley line conductors or storage batteries, a device actuated by the driver such that its release in an emergency will automatically disconnect the supply of electricity to the driving motors.

(7) Control levers of electricity propelled apparatus shall be so arranged that such levers cannot accidentally be removed whilst there is a supply of electricity to the driving motors.

1922. (1) No person shall charge or charge any batteries of any storage batteries locomotive or storage battery vehicle except at a place recognized for that purpose of this regulation shall be called a charging station:

Provide that this regulation shall not apply to any combined battery and trolley line locomotive which is designed for battery whist in use.

- (2) Every charging station and all battery chargers shall be so arranged that the gases evolved on charging are adequately dispersed:

- (3) Every charging station shall be –

- (a) constructed of non- flammable material
- (b) provided with suitable and sufficient apparatus for fighting outbreak of fire; and
- (c) under the control of a competent person

- (4) Any person spilling any water or electrolyte on any batteries, or any electrolyte on the floor of any charging station, shall forthwith remove it or cause it to be removed.

- (5) No authorised person shall interfere with any battery charging equipment at any charging station.

- (6) No person shall smoke or use any light, other than an adequately protected electric lamp, in or within ten metres of any charging station, and a suitable notice to this effect shall be displayed.

1923. (1) Any person doing work with or any electrical apparatus which may such apparatus a source of danger to persons shall make adequate precautions to ensure the safety of such persons

- (2) any person neglecting to maintain or inspect or carry out work on electrical apparatus as instructed by a competent and more senior official shall be guilty of an offence

- (3) No person shall be instructed to carry out any duty or any electrical apparatus, for which technical knowledge and experience are necessary to avoid danger, except under such a degree of supervision as may be appropriate having regard to the nature of the work and the knowledge and experience of the person concerned.

- (4) No person shall commence any work upon any conductor in proximity to any exposed conductor, being in either case a conductor in a circuit in which the voltage exceeds 32 volts A.C or 50 volts D.C, until he has ensured that such conductor has been made dead, and has taken steps, by earthing or other adequate means, to ensure that it will remain dead until he is satisfied that it is safe to restore the current:

Provided that the provision of this sub- regulation shall not apply to-

- (a) the cleaning of commutators and slip- rings in a circuit in which the voltage does not exceed 650 volts;
- (b) welding equipment for an approved type;

Battery charging

Precautions and offences

- (c) the replacement of incandescent lamps of florescent tubes in light fitting or elsewhere, in condition such that this replacement may be effected without danger;
- (d) any work on electrical apparatus which due to the location of such apparatus cannot be made dead, in which case, whilst this work is being performed, at least two competent persons shall be present throughout the operation;
- (e) the live testing of electrical apparatus, in which case suitable equipment shall be used; or
- (f) the electrical supply to, or work, refinery tank house cells.

(3) No person, whose duties include the operation of any mobile or portable apparatus supplied with electricity by means of a flexible cable, shall at any time either leave that apparatus while it is working or leave the working place, except for the purpose of cutting off the supply of electricity to the cable, without ensuring that the cable has been made dead, unless this instruction expressly authorize him to do so.

- (3) A person, whose duties include the operation during his shift of any electrical apparatus supplied with electricity by means of a flexible cable, shall ensure before using that cable during that shift, that so much of it as is accessible is examined, and that any further parts which subsequently become accessible are also then examined, and he shall not use any cable which is found to be damaged or defective.

1924. Whenever any electrical apparatus is in use there shall be competent person to operate such apparatus available at the mine or readily available on call.

1925. (1) Service lines in the terminal span of a connection between an overhead line and a building or in a span between one building and another building, shall be insulated conductors.

(2) The point of attachment of a service line shall –

- (a) where connected to an overhead line, be at a support
- (b) where connected to a building, be at a terminating device securely fixed to the building.

(3) a conductor, other than an earth conductor, leading to or from a transformer or other apparatus at a pole-mounted substation shall, at all points below a height of 3.7 metres from the ground, be insulated and in the case of high- voltage conductor, shall have earthed metal sheathing or earthed screening .

(4) Whenever any portion of any overhead line passes any building and is readily accessible from such building or any ladder affixed thereto, such portion shall be insulated.

(5) The minimum height from the ground of all overhead lines, other than trolley line conductors and overhead service lines, shall be as specified hereunder-

- (a) where such overheads lines do not cross a railway track-

voltage	Over roads normally accessible to vehicular traffic metres	Elsewhere metres
Not exceeding 650 volts.....	5.5	4.9
650 volts to 33,000 volts.....	5.8	5.2
33,000 volts to 88,000 volts.....	6.1	6.1
88,000 volts to 132,000 volts.....	6.7	6.7
132,000 volts to 275,000volts.....	7.0	7.0
Exceeding 275,000 volts.....	7.3	7.3

- (c) where such overheads lines cross a railway track having a gauge of not less than 1.1 metres-

Voltage	metres
Not exceeding 650 volts	6.1
Exceeding 650 volts but exceeding 33,000volts	7.6
Exceeding 33,000 volts but not exceeding 88,000 volts	7.9
Exceeding 88,000volts but not exceeding 132,000.....	8.5
Exceeding 132,000 volts but not exceeding 275,000.....	8.8
Exceeding 275,000volts	9.1

Provide that at all road and rail track crossings the minimum clearance between any line conductor and any vehicle using such road or rail track shall be-

Voltage	Minimum Clearance Metres
Not exceeding 650 volts	1.8
Exceeding 650voltsbto 11,000 volts	2.6
Exceeding 11,000 volts to 66,000 volts	3.1
Exceeding 66,000 volts.....	3.7

- (6) At any point excluding townships, where railways roads or telegraph, telephone or power lines are crossed by a power line-

- (a) the crossing shall be made at right angles or as near thereto as practicable;
- (b) the length of span at the crossing shall be as short as is reasonably practicable.
- (c) there shall be no joints in the crossing span; and
- (d) A device shall be provided to ensure that in the event of a live conductor failing it shall be instantly earthed.

1926. (1) In calculating the strength of the various constituent parts, including supports, of an overhead line the following basic conditions shall be assumed-

- (a) minimum temperature of minus one degree Celsius;
- (b) a wind pressure, acting on the projected area of line conductors and supports not exceeding twelve metres in height of not less than five hundred and fifty Newtons per square meter and, on those exceeding twelve metres but not exceeding thirty- six metres in height , of less than seven hundred Newtons per square metre.

Loading conditions and factors of safety of overhead lines

- (c) In the case of conductors, earth wire and round, elliptical or hexagonal poles used as supports the area on which the pressure acts shall be taken as sixty per centum of the projected area, and in case of lattice or composite structures as 1.5 times the projected area of the constituent parts of one side.

(2) In the design of spans of over one hundred and twenty –two metres the assumed wind load on conductors and earth wires may be reduced to seventy per centum of the calculated load.

(3) In the design of span due regard shall be given to the possibility of injurious conductor vibration caused by wind.

(4) A support shall be designed so that the failing load under operating conditions shall be not less than the resultant of simultaneous horizontal and vertical loads calculated in accordance with the provision of this regulation multiplied by the following factors-

- (a) where the support is of metal or concrete, 2.5;
- (b) where the support is of wood, 3.5.
- (c) Subject to the provision of sub-regulations (6) the load in all line conductor, earth conductor, insulator, joint or cradle component or an associated fitting under operating conditions shall not exceed fifty per centum of its ultimate breaking load.

(6) The minimum permissible size for a single line conductor shall be such as to have an ultimate breaking load of not less than three hundred and sixty- three kilograms and shall not be less in gauge than 3.251 millimeters.

1927. In order to prevent, as far as is reasonably practicable climbing which has not been authorized by the manager, anti climbing device shall be fitted-

- (a) at every support for a pole- mounted substation;
- (b) at every support which has broken surface within three metres of the ground

Anti- climbing device

**PART XX
PETROL AND FUEL OIL STORAGE**

**Repeal and replacement of part
xxx**

2001. In this Part (and elsewhere in these Regulations should the term appear) unless the context otherwise requires –

Interpretation

“mobile container” means any container mounted on wheels, tracks or skids, whether self-propelled or otherwise, used for the conveyance of fuel oil;

“portable container” means any container which when filled with fuel can be easily carried;

2002. No person shall replenish any self-propelled vehicle with petrol or fuel oil except at a filling station approved by the manager;

**Vehicles to be replenished at filling
station only**

Provided that such replenishing may be done elsewhere from a suitably equipped mobile container approved in writing by the Chief Inspector or in an emergency a small quantity of petrol or fuel oil sufficient to

- enable the vehicle to be driven to a filling station may be taken to it in a portable container.
2003. (1) no petrol or fuel oil shall be stored in bulk on the surface in quantities in excess of two thousand litres in any tank above or below ground level except with the prior written approval of the Chief Inspector.
- (2) No petrol shall be stored in drums in excess of a total of two hundred litres in any building or other place except with the prior written approval of the Chief Inspector.
- (3) No fuel oil shall at any time be stored underground it is stored in a suitable container or tank which does not leak.
- Restriction on storing petrol or fuel oils in excess of 2,000 litres**
2004. The manager shall ensure that every filling station –
- Filling station**
- a) is constructed of non-flammable material;
 - b) is provided with not less than two metres of egress;
 - c) is ventilated by a flow of air sufficient to dilute and render harmless all gases emitted during filling operations;
 - d) has a concrete floor,
 - e) is kept provided with suitable equipment located in suitable positions for extinguishing fires;
 - f) Between the hours of sunset and sunrise on the surface and at all times underground be equipped with suitable electric lighting for use when persons work therein and the bulbs and tubes used for such lighting shall be adequately protected.
2005. Where, in the initial stage of any development underground it is impracticable for a filling station to be erected, filling directly from a mobile container shall be permitted for such period of time as an inspector may approve and any such approval shall be confirmed in writing.
- Filling in initial stage of development**
2006. Every storage tank provided at any filling station on the surface for the purpose of containing petrol or fuel oil shall be –
- Suitable storage tanks**
- a) substantially constructed and not liable to leak;
 - b) provided with a vent pipe, not exceeding fifty millimeters in diameter, fixed to each tank and suitably protected by two non-corrodible wire gauze diaphragms and each such vent pipe shall be carried to the open at least three metres above ground level and not within three metres of any door, window, chimney or exhaust pipe, and its open end shall be facing downwards;
 - c) Covered with reinforced concrete to a thickness of not less than one hundred and sixty millimeters where such tank is placed below the surface or the ground and is under a building and it shall be wholly below the level of the lowest floor or any such building and shall be filled only from outside
 - d)

such building through oil-tight pipes fitted with screwed caps or valves;

- e) Electrically earthed, the resistance not to exceed five ohms.

2007. (1) every storage tank provided at any filling station underground for the purpose of containing fuel oil shall be kept in or adjacent to the filling station in an enclosed storage compartment which –

Manner of keeping suitable storage tanks

- a) Shall be provided with two means of egress if any point within such compartment is in excess of eleven metres from the entrance;
- b) Shall be constructed of non-flammable materials;
- c) Shall be suitable in a well ventilated place, the return air of which shall be satisfactorily diluted; and
- d) Shall have walls so constructed as to form a liquid – tight joint with the floor, and no opening through the walls shall be at a height less than that necessary to form a reservoir fuel greater capacity than the maximum volume of diesel fuel containable therein:

Provided that where such containers or tank is buried in concrete, or material having no cavities, within or adjacent to the filling station, it shall be provided with a breather pipe leading from the top of such tank or container to a through airway.

(2) Every fuel oil storage compartment shall be kept provided with suitable means for extinguishing fires and this equipment, being part of all the equipment required by these Regulations shall be positioned immediately adjacent to the air inlet of such enclosed storage compartment.

2008. (1) every fixed metal pipe in any filling station or associated with any storage tank shall be so placed that it will not be liable to be damaged.

Placing of metal pipes

- (2) Every pipe used for the purpose of refueling shall be electrically earthed the resistance not to exceed five ohms.

2009. Every container used for transporting petrol or fuel oil shall be of suitable construction, leak proof and provided with positive locking devices.

Suitable containers

2010. (1) no person shall take any petrol or fuel oil from any storage tank or container at any filling station or elsewhere while any engine is running at such place.

Conditions for taking petrol or fuel

- (2) During all petrol and fuel oil transfer operations the mobile container shall be effectively earthed.

(3) Any flexible hose used for transferring petrol or fuel oil shall be of an anti-static type and such hose shall be suitably inscribed to this effect.

(4) No transfer or filling operation of any petrol or fuel oil shall take place within three metres of any live trolley line conductor.

2011.	<p>No fuel oil shall be delivered underground in any pipe in any downcast shaft or be transported underground in any intake airway, except that, where such means of delivery or transportation does not constitute a hazard, the Chief Inspector, under such conditions as he may prescribe may give prior approval in writing for such means of delivery or transportation:</p> <p style="padding-left: 40px;">Provided that fuel oil may be transported in such a pipe from a mobile container to an oil storage compartment from an oil storage compartment to a filling station, from a filling station to a diesel vehicle if the length of any such pipe does not exceed thirty metres.</p>	Restriction on means of delivery underground
2012.	Fuel oil underground for supplying motive power to diesel vehicles shall have a flash point not less than sixty degrees Celsius and sulphur content not greater than 0.5 per centum by weight.	Flash point and sulphur content underground
2013.	The total quantity of fuel oil stored or in transit underground in any section, together with any fuel oil tanks of diesel vehicles in that section, shall not exceed such quantity as is likely to be consumed by these diesel vehicles in normal usage within a period of seven days.	Total quantity of fuel stored underground
2014.	<p>(1) where any petrol or fuel oil is spilled in any place it shall be removed forthwith and if in the process of removing such petrol or fuel oil any materials contaminated such material shall be placed where the material can be safely destroyed.</p> <p>(2) Every person spilling any petrol or fuel oil on any engine or vehicle shall forthwith wipe it up or cause it to be wiped up.</p>	Wiping oil off any place
2015.	<p>(1) no person shall smoke or use any naked light in any filling station or at any other place where petrol or fuel oil is stored and notices shall be posted to this effect at all such places.</p> <p>(2) Notwithstanding the requirement of sub-regulation (1) no person shall smoke at any other place where any engine or vehicle is being replenished with petrol or fuel oil.</p>	No smoking or naked lights
2016.	The manager shall ensure that each filling station or other place where petrol or fuel is stored is in the charge of a competent person.	Competent persons to be in charge of storage and filling stations
PART XXI MISCELLANEOUS		
2101.	The Minister may from time to time exempt from the operation of these Regulations of these or from any provisions thereof any mine or class of mine for such period and on such conditions as he may think fit	Power of minister to exempt
2102.	When the circumstance at any mine are such as to render any provision of these regulations inapplicable or unduly onerous to such mine, or whenever it is necessary for the purpose of carrying out experiments or tests as to the expediency for any regulation or proposed Regulation or proposed Regulation, the Chief Inspector may grant written exemption from such conditions as he may determine.	Power of Chief Inspector to exempt

2103.	No unauthorized persons shall enter any part of a mining area in the immediate vicinity of, or within a fence enclosing, any shaft or other mine working or any plant machinery	No unauthorized persons to enter mine
2104.	No person shall enter or remain or be permitted or caused to enter or remain in, any underground working, in the vicinity of any shaft headgear or in any area declared by the manager to be a hard hat area, unless he wears a hard hat in good condition and of a type approved by the Chief Inspector.	Hard hat areas
2105.	An adequate supply of drinking water shall be provided in and about every time	Drinking water
2106.	<p>(1) Where fifty persons or more are employed underground there shall be provided suitable change house accommodation proportioned in size to the number of such persons employed.</p> <p>Provided that when at any time there is insufficient accommodation for the number of persons employed the chief Inspector may upon written application, after having duly considered the circumstances applicable, grant an exemption from the provision of this sub- regulation specifying any conditions he may wish to impose.</p> <p>(2) Where change house accommodation is required there shall be –</p> <ul style="list-style-type: none">(a) Sufficient lockers, cupboards or other suitable accommodation capable of being locked so as to enable every person employed underground to store his clothes separately;(b) adequate facilities for bathing;(c) adequate facilities for drying clothes; and(d) suitable latrine accommodation. <p>(3) Where less than fifty persons are employed underground shall be exempt from the provision of sub- regulations (1) and (2)</p> <p>(4) The Chief Inspector may require that extra change house accommodation be provided for any persons employed on the surface if, in his opinion, this warranted by the nature of their work.</p> <p>(5) Where change house accommodation is provided it shall be situated conveniently to all main traveling shafts, except that, when this is not convenient or possible, persons who are required to use such accommodation shall be provided with transport to reach such accommodation</p>	Change House
2107.	The managers shall ensure that any effluent water discharged from any treatment or other process is so discharged to comply with the provision of the water ordinance.	Effluent water
2108.	(1) All inflammable material shall be stored in a suitable manner at a safe distance from any explosives magazine, storage box or shaft, except that any such material awaiting transport underground may be	Storage of inflammable materials and calcium carbide

	stacked at the shaft bank if suitable precautions are taken to prevent ant danger from fire.	
	(2) Calcium carbide shall be stored on the surface only, in a suitable dry place and in its original container, it shall only be taken underground in lamps or in small quantities in watertight containers.	
2109.	The managers shall ensure that all decayed timber and any water timber not in use in any readily accessible place underground shall, as soon as is reasonably practicable, be removed to surface.	Waste timber
2110.	Any welding or other operation which might create a fire hazard shall not be carried out anywhere unless adequate precautions have first been taken.	Welding
2111.	The managers shall ensure that, in any place where ionizing radiations are used or where radio active substance are present in such concentrations as to constituent a danger to the health of any such concentration shall not exceed the standard prescribed from time to time by the chief inspector, or, where he cannot achieve such standards, he shall take adequate precautions necessary to protect any such person from any danger or bodily harm.	Protection against radioactive substance
2112.	The manager shall ensure that there is provide sufficient and suitable latrine accommodation and all such latrine accommodation shall be well ventilated, well lit and kept in a clean condition.	Sanitary underground conveniences
2113.	No person shall pollute any place with faeces, and no person shall wantonly misuse or foul the sanitary accommodation.	Pollution
2114.	Any stagnant water which is foul or putrid or which may become foul or putrid shall not be allowed to accumulate in any readily accessible place underground but shall be drained off.	Stagnant water to be drained off
2115.	The manager shall ensure that suitable precautions are taken to prevent or reduce to a minimum any danger to any part of any mine from flooding from any source whatsoever.	Prevention of flooding
2116.	The manager shall ensure that the collar of any shaft, or other similar opening from the surface, which is situated in low-lying ground and is connected to underground working, is raised so as ensure efficient protection against flooding.	Shaft collars to be raised
2117.	(1) Save as is provided in sub-regulation (2) no person shall employ underground a youth under the apparent age of eighteen years or any female. (2) The provision of sub –regulation (1) shall not apply to the employment of any male for the purpose of apprenticeship or other systematic vocational training provided under adequate supervision by competent persons. (3) The manager shall ensure that a register is kept in which the following entries shall be made and retained therein from the date of engagement up to twelve months after the date on which employment ceases	Employment of youths and employment register

- (a) the name of every person employed together with some positive means of identification;
- (b) the dates of engagement of termination of employment of each such person'
- (c) in the case of the death of any such person, the date, place and (as far as can be ascertained) the cause of death
- (d) e case of each person who is employed or works underground and who is less than twenty years old-
 - (i) his date of birth, duly certified wherever possible; and
 - (ii) the date on which he was employed or worked underground in the undertaking for the first time

(4) Every register kept under the provision of sub-regulation (3) shall, at all reasonable times, be open to inspection by an inspector, an authorized officer of the Department of Labour or an authorized representative of any such person's trade union.

2118. (1) The manager shall render monthly labour returns to the Chief Inspector on or before the fifteenth day of the month following that to which they relate.

(2) Such returns shall be rendered in duplicate on Mines Form No. 25 set out in the First schedule to these Regulations.

(3) (a) Separate returns shall be rendered in respect of-

(i) all persons directly employed by such mine;

(ii) all person (if any) employed by contractors who are under contract to the mine

(b) On or before the third day of every month such contractors shall submit to the manager a return providing all the information required for the completion of Mines form No.25 in respect of persons employed by them during the preceding month in terms of their contract with the mine

(c) A list of such contractors by name shall accompany each monthly return submitted in pursuance of sub- paragraph (ii) of paragraph (a) or be written on the reverse side of the return.

Labour returns

2119. (1) the manager shall ensure that a mineral production return is rendered monthly to the Chief Inspector on or before fifteenth day of the month following that to which it relates.

(2) Such returns shall be rendered in duplicate on mines form No 39.set out in the first schedule to these regulations, and shall record all ore raised and treated, and all mineral output whether by way of trials, regular business or otherwise.

Mineral returns

2120. (1) When any person works on any drilling rig on the surface or in any open cast working where there is danger of him falling suitable platforms shall be provided.

Surface drilling platforms

- (2) The person in charge of such drilling rig shall be responsible for ensuring that-
- (a) all such platforms are of good construction, suitable material, adequate strength, free from patent defect and are properly maintained; and
 - (b) every ladder providing access to every such platform is securely fastened.
2121. Other than that contained in a cigarette in cigarette lighter, on hydrocarbon liquid or lubricant with a flash point of less than sixty degrees Celsius shall be taken underground without the prior approval in writing of the Chief Inspector.
2122. At any place underground where coal is mined and where any danger exists or likely to exist to any person working in a traveling through such mine from any inflammable gas, any inflammable dust or any other such hazard associated with the mining of coal, the Chief Inspector may, at his discretion, impose such further conditions as he may deem necessary for the safety and health of any such person working in such mine.
2123. The manager shall ensure that there is providing and maintained adequate and safe means of access to and egress from every place at which any person has at any time to work.
2124. (1) Subject to the provision of sub-regulations (4) and (5) these regulations shall apply to all operations conducted under a prospecting licence or an exploration licence granted under the provision of the Mines and Minerals Act, 1969, but only in so far as any of these operations are of a type contemplated by any particular regulation.
- (2) The holder of a prospecting licence or an exploration licence shall, as soon as he has been granted such licence, and on any renewal thereof or amendment thereto, submit to the Chief Inspector a copy of the programme of his intended prospecting or exploration operations together with a plan or description of the area of such operations, and of any alteration, re-orientation or enlargement of such area, approved by the Minister or the Engineer.
- (3) When, under the provision of section thirty-eight of the mines and minerals Act, 196, proposed amendments to his programme of prospecting or exploration has not been rejected, holder of the prospecting licence or an exploration licence shall submit to the Chief Inspector a copy of such amendments together with any amended plan or description related thereto.
- (4) When submitting the programmes, amendments or plans required by the sub-regulations (2) or (3), the holder of the prospecting or exploration or exploration licence may apply in writing to the Chief Inspector for a dispensation from the provision of sub-regulation (1) and a declaration specifying which of these Regulation shall apply to his operations.
- (5) On receiving an application under the provision of the sub-regulation (4) the Chief Inspector shall, in order to ensure the persons employed or working in or on the prospecting or exploration area, either –
- (a) refuse, in writing, to give dispensation asked: or
- Hydrocarbon fuels and lubricants forbidden underground**
- Conditions for safety and health in underground coal mines**
- Safe and access egress**
- Application to prospecting and exploration operations**

- (b) grant the application, and specify, in writing, which particular Regulation (with or without any modification as he may think fit) shall apply to the operations of the applicant.

2125. These regulations shall not apply to townships and other residential areas.

Regulations not to apply to townships

2126 (1) The mining Regulations made under the Mining Ordinance are hereby revoked.

Revocation and saving Cap. 91 of the 1965 Edition of Laws

(2) Notwithstanding the provision of sub-regulation (1) all written permissions, approvals, exemption and orders winding engine drivers certificate of test and competency and winding engine certificate of permission made or issued by the Government Mining Engineer or by the Chief Inspector in accordance with the provision of regulations made under the Mining Ordinance shall remain valid until cancelled in writing by the Chief Inspector.

FIRST SCHEDULE
MINES FORM NO.
FORMS
REPUBLIC OF ZAMBIA

THE MINES AND MINERALS ACT, 1969

THE MINING REGULATIONS, 1971
(Regulation 306)

RECEIPT FOR FINE

.....Mine
Received from Mron behalf of the
Government of Zambia the sum ofbeing
The amount of a fine imposed byfor contravening
Of: Mining Regulation
On.....
.....
Inspector/Authorized Officer/Manager

REPUBLIC OF ZAMBIA
MINES FORM NO. 3

THE MINES AND MINERALS ACT, 1969

THE MINING REGULATIONS, 1971
(Regulation 306)

AUTHORITY TO DEDUCT FINE FROM WAGES

.....Mine
I,.....hereby authorize the Manager to deduct the sum of
.....from the wages due to me for the month ofin part/payment of the
fine imposed on me on, 19.....
Thisday of....., 19.....
At.....
Signed.....

REPUBLIC OF ZAMBIA
MINES FORM NO. 55

THE MINES AND MINERALS ACT, 1969

THE MINING REGULATIONS, 1971
(Regulation 1601)

ACCIDENT REPORT

.....Mine
Number of Accident(1)
*Fatal/Non-fatal

The Chief Inspector of Mines
P.O Box
Kitwe

In terms of Mining Regulation 1601 notice is hereby given of an accident, the details of which are:
Name of injured person, Mine No.
Nature of employment
Date of accidentTimem.

Guide to the Mining Regulations

Place of Accident

If not employed by the Mine, state name of actual employer

Nature and extent of injury

Causes of accident

.....

.....

.....

Classification (Place an "X" beside number applicable):

Electricity	1	
Moving machinery... ..	2	
Handling tools... ..	3	
Nails and splinters... ..	4	
...		
Handling material... ..	5	
Men falling... ..	6	
Transport:	7	
Rock... ..	7(a)	
Men and material... ..	7(b)	
Burns:	8	
Chemical	8(a)	
Heat	8(b)	
Fall of material (including rock broken and mined)	9	
Explosives:	10	
During blasting operations... ..	10(a)	
During drilling operations... ..	10(b)	
Other	10(c)	
Cage, skip, etc... ..	11	
Inundation by water or mud... ..	12	
Rock drilling (including collaring)	13	
Fall of ground... ..	14	
...		
Lashing/mucking... ..	15	
Other causes (specify)	16	

(1) Accidents should be numbered 1/71, 2/71, etc

*Delete word not applicable.

Signature of Manager