

BECHUANALAND PROTECTORATE.

HIGH COMMISSIONER'S NOTICE

No. 29 of 1946.

It is hereby notified for general information that, under and by virtue of the powers vested in him by section *two* of the Regulation of Works and Machinery (Bechuanaland Protectorate) Proclamation, 1934 (No. 40 of 1934), His Excellency the High Commissioner has been pleased to repeal the regulations contained in the Schedule to Proclamation No. 40 of 1934, and to substitute therefor the regulations contained in the Schedule to this notice.

By Command of His Excellency
the High Commissioner.

H. E. PRIESTMAN,

Administrative Secretary.

High Commissioner's Office,
Cape Town, 8th February, 1946.

SCHEDULE.

REGULATIONS.

DEFINITIONS.

1. In these regulations, unless the context otherwise requires—

“ inspector ” means, in relation to machinery an inspector of machinery, and, in relation to all other matters, an inspector of mines or a sub-inspector of mines;

“ machinery ” means every kind of mechanical or electrical appliance or portion thereof employed in or about any works used for the extraction or treatment of minerals, metals or precious stones;

“ mine manager ” means the person appointed in terms of regulation 3 and any deputy appointed in lieu of such mine manager;

“ miner in charge ” means the person appointed by the mine manager to take charge of operations in any section or in any part of the mine;

“ mining ” means the purpose of obtaining or extracting any minerals by any mode or method, or any purpose directly or indirectly connected therewith or incidental thereto.

MINE MANAGERS: THEIR APPOINTMENTS AND DUTIES.

2. Every mine shall be under the control and supervision of a mine manager.

3. (1) The mine manager shall be appointed—

(a) in the case of a mine which is worked by the registered holder thereof either personally or through a servant or agent, by such registered holder or his agent;

- (b) in the case of a mine which is worked on tribute, by the tributer;
- (c) in the case of a mine which is worked by or on behalf of a partnership or company, by the accredited agent or manager of the said partnership or company;
- (d) in any case not falling within paragraphs (a), (b) or (c) above, by the person for whose benefit the mining operations are conducted.

(2) Until a mine manager has been appointed for a mine, the person responsible for such appointment in terms of this regulation shall be deemed to be the mine manager.

4. A certificate of the appointment of a mine manager shall be forwarded by the person making such appointment to the Chief Mining Commissioner of the District in which the mine is situated within fourteen days of the commencement of mining operations upon the mine:

Provided, however, that in the case of mines wherein mining operations were actually being conducted at the date of coming into force of these regulations the appointment of a mine manager in terms of these regulations shall be made within three months of such date.

5. Every person responsible for the appointment of a mine manager in terms of these regulations who fails to appoint a mine manager within the time specified herein shall be guilty of an offence.

6. (1) Every mine manager shall be responsible for the due observance of all the provisions of these regulations.

(2) (a) A mine manager may appoint persons to assist in the control, management and direction of the mine.

(b) In the event of such an appointment being made, there shall be entered in a log book, kept expressly for the purpose—

- (1) the name of the person appointed;
- (2) particulars of his appointment;
- (3) the section of the mine placed in his charge;
- (4) the extent of his responsibilities in regard to the enforcement of the observance of these regulations and the duration of such responsibility.

(c) The entries in such log book shall be signed by the mine manager and the person appointed.

(d) If the entries in such log book are not made or signed in terms of this regulation, the appointment shall be of no force and effect.

(e) Any person duly appointed in terms of this regulation shall, to the extent stated in the log book, have the duties and the responsibilities of the mine manager in so far as the works of the section of the mine assigned to him are concerned.

Provided that the appointment of any such person shall not be taken to relieve the mine manager of any personal responsibility under the regulations.

7. When mining operations in a mine are abandoned, discontinued or recommenced, notice of the fact shall, within thirty-one days, be given by the mine manager to the Mining Commissioner.

8. (1) Whenever a contravention of any regulation occurs in a mine, the mine manager or the person appointed to act in the absence of such manager and any person duly appointed in terms of regulation 6, in so far as responsibility in regard to the enforcement of the observance of the regulations has been assigned, shall be deemed guilty of such contravention unless they are able to prove, to the satisfaction of the court, that all reasonable means of enforcing the provisions of the regulations and preventing such contraventions have been taken.

(2) Any person through whose neglect or wrongful act a contravention of any regulation may occur shall be deemed to be guilty of such contravention, without prejudice to any responsibility or liability on the part of the manager or of any other person.

9. Whenever a mine manager is absent from a mine for a period exceeding twenty-four hours, he shall appoint, in writing, a suitable person to act as mine manager during his absence; and during the absence of the mine manager the person so acting shall be liable for the due observance of these regulations in the same manner as if he were the mine manager.

10. The mine manager shall, as soon as practicable, report in writing to the inspector the occurrence of every breach or apparent breach of these regulations on the mine of which he is manager.

INSPECTORS: THEIR POWERS AND DUTIES.

11. An inspector shall have the power to do all or any of the following things:—

- (1) To make examination and inquiry to ascertain whether the provisions of these regulations affecting any mine are complied with;
- (2) to enter, inspect and examine any mine or any machinery in connection therewith, and every part thereof, at all times by day or night, but any such entry, inspection or examination shall be made in such a manner as not necessarily to impede or obstruct the working of the mine;
- (3) to examine into and make inquiries respecting the state or condition of any mine or part thereof, and of all matters or things connected therewith, in so far as such relate to the well-being or safety of persons employed therein, or in any mine contiguous thereto;

- (4) to obtain written statements from witnesses, and to appear at inquiries held respecting mine accidents and at inquests, and to call and examine witnesses and to cross-examine witnesses;
- (5) to exercise such other powers as are necessary for carrying into effect these regulations.

12. Every mine manager who refuses to furnish to the inspector the means necessary for making an entry, inspection, examination or inquiry in terms of these regulations in relation to such mine shall be guilty of an offence.

13. In any case where an inspector finds any mine or part thereof, or any machinery, plant, matter, thing or practice therein or connected therewith, to be dangerous or defective so as in his opinion to threaten or tend to the bodily injury of any person, and the case is not sufficiently provided for elsewhere in these regulations, the following special provisions shall apply:—

- (1) The inspector shall, by requisition in writing addressed in general terms to the mine manager and delivered at the mine, specify the nature of such danger or defect together with his reason for holding that the same exists, and require the matter complained of to be remedied within a specified time.
- (2) On receipt of such requisition, the mine manager shall comply therewith or, if he intends to object thereto, as provided in the next succeeding paragraph, he shall cease to use the said mine or part thereof, machine, plant, matter, thing or practice as to which such requisition shall have been given and shall forthwith withdraw all men from the danger indicated by the inspector until such time as the matter shall have been determined by arbitration.

Provided, however, that if, in the opinion of the inspector, there be no immediate danger, he shall allow work to proceed during such period under such restrictions and upon such conditions as he may deem necessary and shall specify in writing, to ensure the safety of the workmen.

- (3) If the mine manager objects to comply with such requisition, he may, within seven days after the delivery thereof as aforesaid, send his objections in writing stating the grounds of his objections to the inspector, who shall send a copy thereof to the Chief Mining Commissioner, and thereupon the matter shall be referred to the decision of a single arbitrator to be agreed upon by the mine manager and the inspector; if the mine manager and the inspector are unable to agree as to the person to be appointed, then the matter shall be decided by arbitrators to be appointed in terms of the law of arbitration of the colony of the Cape of Good Hope.

14. If the mine manager fails to comply with the special provisions herein prescribed, he shall be guilty of an offence.

15. If the mine manager fails to comply within fourteen days with the award which is made on arbitration, he shall be guilty of an offence.

ACCIDENTS.

16. Whenever an accident occurs on a mine which results in the death of, or in serious personal injury (which term shall mean an injury which may incapacitate the injured person from work for at least fourteen days) to one or more persons, the mine manager shall give notice thereof in writing immediately by the quickest means available, and also where practicable by telegraph or telephone to the inspector of the District.

17. Where such accident has resulted in death, notice shall similarly be given to the District Commissioner of the District, together with a full statement of the particulars regarding such accident.

18. Where death supervenes after the accident has been reported, such statement shall be furnished as soon as practicable after death.

19. After an accident has occurred, no restoration work shall be undertaken which might have the effect of destroying any evidence required by an inspector at any subsequent inquiry until an examination has been made by an inspector or until permission has first been obtained from an inspector. For the purposes of this regulation, restoration work shall not include any work undertaken by way of assistance to injured persons.

20. Every person employed in a mine shall forthwith report to the mine manager any accident on the mine which may come to his knowledge.

21. Where more than thirty persons are ordinarily employed underground, ambulances or stretchers and surgical requisites shall be kept at the mine ready for immediate use in case of accidents.

PROTECTION OF CYANIDE WORKINGS.

22. At every mine where cyanide is used, there shall be kept in a conspicuous and convenient place a sufficient supply of an antidote for cyanide poisoning approved by the inspector.

23. Such antidotes shall be kept in a box labelled "Cyanide Antidote", and explicit directions for the use of such antidote shall be affixed inside the lid of the box.

24. All vessels used for the treatment with acid of zinc slimes from the cyanide process shall be fitted with mechanical agitators and hoods or other appliances of such a nature that the fumes generated in such vessel shall be carried direct to the external air.

25. At every mine where cyanide solutions are in circuit, all cocks, taps, and pipe outlets from which cyanide solutions are delivered shall be painted RED.

26. No pipe which carries water shall be connected with a pipe which carries cyanide solutions in such a way that the cyanide solution may enter the water circuit.

27. Water used in the treatment of gold or other ore which contains chemical solutions poisonous or injurious to man or beast must be effectively fenced off to prevent access thereto by persons or animals. In no case may water containing such injurious solutions be permitted to escape. Notices in the English language and in the Sechuana, Chishona, Sindebele and Chinyanja languages must be put up in suitable places to warn persons against making use of such water.

UNDERGROUND AND SURFACE WORKINGS.

28. Every winze, shaft, level, underground stable, working place and travelling way in a mine shall be maintained in a fit state for the working and passage of persons employed on the mine by the circulation therein of an adequate amount of fresh air.

29. Adequate provision shall be made in every mine for cleanliness and sanitation.

30. The top of, and every entrance between the top and bottom of, every shaft, winze and surface excavation shall be properly and securely fenced or covered. No fence shall be removed except for the purpose of repairs or other operations and unless proper precautions are taken. Adequate stationary lights shall be provided during working hours at all stations, landings and loading places that are in actual use.

31. Where the working conditions in any mine are not safe, every ladder, working or pumping shaft shall be securely timbered, lined or otherwise made secure.

32. Every drive, winze, rise or stope and every excavation of every kind, whether at surface or underground, in connection with the working of a mine, shall be securely protected and made safe for persons employed therein.

33. No person in charge of any working, whether on the surface or underground, shall allow anyone to work on or in close proximity to ground which is dangerous, or which any person has attempted to take down or remove, unless such ground is adequately supported by timbering or otherwise, and if not so supported he shall personally warn or cause to be warned all persons working in close proximity thereto against working or being near such ground and report the dangerous condition to any person entering the place in which such ground is situated.

34. An inspection with regard to safety by a person appointed by the mine manager shall be made of all

surface and underground workings in which persons have to work or pass through before an oncoming shift is allowed to start work.

35. If any labourer or other person working under the supervision of a miner complains that his working place is dangerous, the miner shall not cause or permit him or any other person to remain or work in the place complained of until he has made such place safe or had it examined by a person appointed by the mine manager and has obtained such person's concurrence as to the safety of such place.

36. In every working in a mine approaching a place likely to contain a dangerous accumulation of water or gas, boreholes shall be kept in advance of the face and at such an angle from the working as is necessary to ensure safety. No drive, gallery or other excavation shall be made within a dangerous distance of such accumulation of water or gas until the ground has been so tested. No rise shall be allowed to approach any portion of a winze in which there is a dangerous accumulation of water, unless a sufficient number of boreholes shall have been kept in advance or other precautionary measures taken to obviate danger therefrom.

37. If required by the inspector to ensure the safety and good health of the workmen employed, additional rises, chambers, drives or other workings shall be constructed.

38. Waste timber in underground workings shall not be piled up and permitted to decay, but shall be removed as soon as practicable.

39. When any shaft is being sunk below levels which are being worked, it shall be protected below such level by a securely constructed penthouse; and, when considered necessary by the inspector, further penthouses shall be constructed in any such shaft, and penthouses shall forthwith be constructed in any shaft after he has given instructions to that effect.

40. All persons working underground and in open-cast workings shall wear miner's hard hats.

41. On the inside of the boundary lines of every mine, safety pillars must be left standing, the width of which in coal mines shall not be less than 50 feet and in metalliferous mines not less than 20 feet; provided that on the joint application of the owners of adjoining mines the inspector shall give permission to either party to weaken, cut through or work from the respective pillars between such mines. In the absence of such joint application, the inspector has the power to give written permission for the partial working, weakening or cutting through of such pillars.

EXPLOSIVES AND BLASTING.

42. Charges may be untamped sufficiently to permit of immediate refiring.

43. No person shall deepen any hole which has contained explosives.

44. All misfires and sockets must be efficiently plugged with wooden plugs where possible. A sufficient supply of wooden plugs for the purpose of complying with the provisions of this regulation shall be available and kept on hand near every working face.

45. In any mine other than a fiery mine, no person shall drill or cause or permit to be drilled any hole in any shaft, drive, crosscut, winze, rise or other similar confined space where there is a misfired hole until such misfired hole has been again blasted, or until the explosives have been extracted as provided in regulation 67.

46. No person shall drill or cause or permit to be drilled any hole within six feet of a misfired hole in a stope.

47. No person shall drill or cause or permit to be drilled any hole adjacent to a socket unless such hole is placed more than six inches from such socket and given such a direction that it cannot come nearer to such socket or the line of direction thereof than six inches. The direction of any such socket shall be ascertained by placing a brass, copper or wooden rod therein, or by washing out with water.

48. All places before being abandoned shall be thoroughly examined by the miner in charge to ascertain that there are no misfired or cut off holes remaining in the face, and a record of such examinations shall be made by the miner in charge.

49. A similar examination shall be made and a similar record kept where work is temporarily suspended.

50. No person shall remove or attempt to remove the wooden plug with which a misfired hole or socket of a hole has been plugged without the authority of the miner in charge.

51. The date of the manufacture shall be stamped on all cases of explosives.

52. The date of manufacture and the burning rate per minute shall be stated on every packet of fuse or on the ticket attached thereto.

53. Explosives shall be stored in a main magazine or a distributing magazine.

54. No distributing magazine or box containing explosives shall be situated or placed near a main drive, shaft, station or travelling way, but shall be situated or placed in an unused chamber of crosscut apart from any such drive, shaft, station or travelling way. These magazines or boxes shall be kept securely locked at all times except when explosives are being placed therein or taken therefrom, and the keys of such magazine or box shall be retained by the miner in charge. No person shall be allowed to be in the immediate vicinity of a place where explosives are kept or charges prepared, except those who are necessary for handling and using them.

55. The quantity of explosives allowed in a distributing magazine shall not exceed the supply required for two working days underground.

56. No larger quantity of explosives shall be taken into a working face than is required for use during one shift in such face, and no explosives shall be taken to the working face until they are required.

57. Detonators shall in all cases be stored apart from other explosives. Not more than one week's supply of detonators shall be kept underground at any level at one time. These shall be kept in a separate drive or chamber and only taken out in such quantities as are required for immediate use. In no circumstances whatever shall detonators be placed in any travelling road, pass or working face.

58. Every main magazine shall be in charge of a European who shall be responsible for the safe storage of explosives contained therein.

59. The distribution of all explosives from any distributing magazine shall be under the supervision of a person appointed either by the mine manager or by the miner in charge. This appointment shall be made in writing and entered in the log book provided in regulation 6 (2) (b).

60. No person shall allow a naked light to be nearer than three feet to any explosive.

61. All places where explosives are stored shall be kept free from litter and any inflammable material.

62. When work is discontinued in any mine, all explosives stored underground shall be removed.

63. No person shall make up a charge in a magazine, and all charges shall be made up in a safe place.

64. No person shall smoke when handling explosives, and no person shall smoke at any time within any magazine.

65. No person shall use any tools other than wooden, brass or copper tools when charging holes for blasting.

66. No person shall use any inflammable material for tamping purposes other than tamping material enclosed in paper.

67. No person shall extract or attempt to extract explosives from a hole that has once been charged without the authority of the miner in charge. Such explosives shall be extracted by means of water or compressed air and water applied through a brass or copper pipe of a design approved by an inspector.

68. No person shall approach a charge which has misfired until half an hour has elapsed from the time of lighting the fuse: Provided, however, that where charges are fired by an electric current a person may approach after an interval of ten minutes, if the conducting wires have first been disconnected.

69. No person shall bore a hole in the butt or the remaining portion of a hole in which a charge of explosives has been previously exploded.

70. No person shall recharge any hole which has been fired until it has been thoroughly cooled or washed out with water.

71. The blasting of the various stopes and other working places shall be arranged where possible in such a way that the number of shots exploded, except in the case of electric firing, shall be counted by at least two persons, one of whom shall be the miner in charge of the blasting operations. The miner in charge shall be responsible for the proper firing and handling of the explosives, and when relieved from duty he shall forthwith report the position of any mischarged holes or misfires to the miner relieving him or to the shift boss and mine manager.

72. After blasting in a place where there is no through ventilation and compressed air is available the place shall be blown out to the satisfaction of the miner in charge. The air valve shall be placed, in the case of a winze, at the collar, and, in the case of shaft sinking, on the station immediately above the face being worked. On all mines reasonable precautions shall be taken after blasting to ensure the safety of the oncoming shift, and the miner in charge shall not allow any workmen to enter the working places until he shall have satisfied himself that work can be performed in safety: Provided that the miner in charge may, with the approval of the mine manager, appoint some person in authority as his deputy, in which case any deputy so appointed shall, in the absence of the miner in charge, assume all the duties and liabilities imposed by these regulations upon the miner in charge.

73. No person shall be allowed to charge or fire explosives unless he shall be experienced in blasting, or unless he is under the direct supervision of the miner in charge. No person shall be permitted to handle or otherwise deal with explosives without the authority of the miner in charge.

74. Every person before firing charges shall give or cause to be given due warning in every direction by shouting " Fire ". He shall satisfy himself that no person, except such as are required to assist him in firing charges, remains where he might be exposed to danger from the firing of such charges and shall take all reasonable precautions to safeguard those assisting him from accident due to blasting operations.

75. No person engaged in mining shall use lighting torches which in burning evolve more nitrous fumes expressed in terms of nitrogen dioxide (NO_2) than one half of one per cent. of the substance burned and which do not burn continuously for at least four minutes.

76. In the case of blasting under an electric hoist or compressed air hoist where electricity is the prime mover, other than the Ilgner Hoist (Ward Leonard system), approved by an Inspector of Mines, a wind-

lass, rope ladder or other safety device must be provided to enable the operator blasting to reach the first point of safety, that is, a crosscut, drive, penthouse or other safe place.

TRAVELLING LADDERWAYS.

77. In every pit, shaft or winze exceeding one hundred feet in depth which is used for the ascent and descent of persons, and in which no machinery is used for lowering and raising persons other than a whim, whip or windlass, a proper ladder or footway shall be provided.

78. Where one portion of a vertical shaft is used for the ascent and descent of persons by ladders, or a cage, skip or bucket, and another portion of the same shaft is used for raising material, the former portion shall be securely fenced off from the latter.

79. In every shaft or winze in which machinery is used for raising persons, a proper ladderway shall also be provided, unless some other safe means exists for exit of persons from such shaft or winze.

80. In ladderways exceeding sixty feet in depth and having an inclination of more than seventy degrees from the horizontal, resting places or platforms shall be provided at distances not more than thirty feet apart. The ladders shall be so placed as to cover the manholes of the resting places.

81. No ladder shall be erected at an inclination of more than eighty degrees from the horizontal.

82. No ladderway shall be fixed in an overhanging position in a travelling way.

83. Every ladder used in a mine shall be—

- (a) of strong construction;
- (b) securely fastened to the timbering or wall of the shaft, winze or stope;
- (c) maintained in good repair.

84. The use of single ropes made of wire for climbing purposes is prohibited.

WINDING AND HOISTING.

85. No winding plant shall be used in any shaft or winze for the raising or lowering of persons, or for the raising or lowering of material, unless the following provisions are carried out:—

- (a) The method of signalling to indicate that persons or material are to be raised or lowered shall be clear and distinct, and the code of signals shall be posted in a clear and legible form on frame boards, one of which shall be placed at each station in use in the shaft or winze, one at the shaft collar and one in the engine room.
- (b) No person shall be raised or lowered by any mechanical means other than positively driven or Vee-belt driven hoists. The use of flat belt, chain or friction hoists and the lowering on an unclutched drum are prohibited.

(c) The hoist or winding engine shall be equipped with an adequate brake, and, when more than one level is in use, with some efficient means of indicating the position of the cage, skip or other conveyance in the shaft or winze.

86. No person in charge of hoisting machinery shall be allowed to work for more than ten hours per diem; provided that this limit may be exceeded where ordered by the manager or other person in authority in cases of emergency or where written permission thereto has been granted by an Inspector of Mines.

87. No person shall signal or attempt to signal by verbal communication up or down any shaft or winze exceeding one hundred and twenty feet in depth.

88. No person shall signal or attempt to signal by verbal communication up or down any shaft or winze where the immediate presence of moving machinery or extraneous noise might cause the signal given not to be heard.

89. No person shall place any explosives, iron, timber, tools, rails, sprags or other such materials in the same cage, skip or other means of conveyance in which persons are being lowered to or raised from their work, and no person shall travel in the same cage, skip or other means of conveyance in which there are any explosives, or timber, tools, rails or other such material; provided, however, that this regulation shall not apply to any person specially authorised by the mine manager or miner in charge to travel with such explosives, iron, timber, tools, rails, sprags or other such materials, nor to any person in charge of sinking operations, nor to any person who is engaged in repairing the shaft or winze.

90. The connection between rope and cage, skip or other means of conveyance must be of such a nature that no accidental disconnection can take place.

91. When mechanical means are used for lowering or raising persons by a conveyance in a shaft or winze more than 120 feet in depth, sufficient overhead cover shall be provided on every such conveyance.

92. In all cases where cages are used for lowering or raising persons, gates or bars shall be provided for use when persons are travelling, to prevent them from inadvertently falling out of the cage. Only when work in the shaft is being carried out may the gates or bars be dispensed with.

93. Notice of the maximum number of persons permitted to ride at one time on a cage, skip or other means of conveyance shall be posted up and kept so posted in legible characters at the top of the shaft.

94. No person shall ride on any cage, skip or other means of conveyance if the number of persons present in such cage, skip or other means of conveyance is in excess of the maximum number of persons permitted to ride thereon at any one time.

95. On every incline on which trucks are hauled by means of a rope, there shall be installed some safety device or devices which shall arrest the trucks as soon as possible in the event of the rope or couplings breaking.

96. Prior to any steel rope being used for hauling in a shaft, a certificate shall be obtained from the supplier of the breaking strain thereof, and no rope shall be used that will not carry at least six times the working load.

97. Steel ropes used for winding shall be re-shod at least every six months, and the oiling of such ropes shall be carried out at least once a month.

98. Every winch worked by steam or compressed air which is used for hauling purposes shall be provided with a proper pressure gauge to indicate to the person in charge the amount of pressure available for working it, or in the case of electricity, some efficient appliance shall be provided. In no case should the steam, air, or other motive power used be cut off unless and until the person in charge of the generating plant on the surface has given due notice to the drivers of the machinery.

99. In every vertical shaft or winze over one hundred feet deep in which persons are raised or lowered by machinery, other than machinery operated by hand labour, guides shall be provided to within not more than fifty feet from the bottom of the shaft.

100. Upon the drum of the windlass or hoist, there shall be not less than four rounds of rope, when the cage, skip or other means of conveyance is at the lowest point in the shaft or winze from which such hoisting is effected. The end of the rope on the barrel or drum shall be securely fastened.

101. Some mechanical means of transport shall be provided in any shaft or winze having an inclination of more than fifty degrees to the horizontal and with a greater length than one hundred and twenty feet, and no person shall operate a mechanical hoist unless authorised to do so by the manager.

102. The following code of signals shall be used in all shafts one hundred feet in depth:—

Ring:

1—raise when engine at rest.

1—stop when engine in motion.

2—lower.

3—men about to ascend or descend.

3—in reply from the engine driver, meaning that men may enter cage, skip or other means of conveyance.

5—1—Blasting signal. On ringing 5, the engine driver should raise the bucket ten feet, then lower; on ringing the following 1, hoist rapidly.

7—Accident signal.

Power is given to the manager to introduce such additional signals as local conditions demand.

Signals for men working in shaft:—

2—2—lower bucket slowly.

3—3—hoist bucket slowly.

Where men are working in shaft the engine driver must disregard all signals except shaft signals.

103. No person shall give or cause to be given any wrong signal.

104. No person shall ride upon any cage, skip or other means of conveyance at a time when signals have informed the engine driver that no person is so riding.

105. Every person in an unilluminated part of a mine shall carry a light.

MACHINERY.

106. Moving machinery, belts and electrical plants or apparatus shall be so safeguarded that there is no undue risk to persons whose duties necessitate their being close to or working with such machinery, belts, plant or apparatus. All such moving machinery shall be adequately illuminated.

107. Belt-driven machinery which it is necessary to stop and start without interfering with the speed of the prime mover shall be permanently fitted with a satisfactory mechanical appliance for the purpose.

108. Shipping and unshipping driving belts whilst the machinery is in motion is forbidden, with the exception of the customary shifting of light belts on the coned pulleys of machine tools.

109. No repairing or adjustment to any machine shall be made whilst the machinery is in motion that will in any way entail the operator running any danger of being killed or disabled.

110. No person in close proximity to moving machinery shall wear loose outer clothing.

111. The persons in immediate charge of moving machinery or supervising other persons working in the neighbourhood of moving machinery shall not allow any person engaged in close proximity to such machinery to wear loose outer clothing.

112. Buildings containing moving machinery or electrical apparatus which would endanger life or limb on contact shall have notices posted prohibiting the entry of unauthorised persons.

113. Dangerous places such as elevated platforms, pits or trap holes shall be protected in a manner to safeguard such persons as may be authorised to work on such platforms, pits or trap holes, or to be in the vicinity thereof.

114. The mine manager, or some duly qualified person appointed by him, shall once in each week carefully examine the hoisting and hauling machinery and ropes used in the working of the mine, and shall record in a book his opinion as to their condition and safety. A separate book shall be kept to record the particulars of examination of winding ropes, which shall be as follows:—

Name of manufacturer.
Date of purchase and certificate.
Description and make of rope.
Date on which rope was put on.
Date of oiling, cleaning and examination.
Date of shortening and re-capping.
Breaking strain per certificate.
Safe working load.
Ordinary working load.
Condition of rope at date.

This record book shall be kept by a competent person appointed by the mine manager to conduct a periodical examination of rope.

115. (a) The manager or some person appointed by him shall carefully examine and determine that all compressed air receivers, intercoolers, aftercoolers and their connections to air cylinders are kept clean and free from carbonised oil or other materials liable to ignition.

(b) The compressed air receivers, intercoolers, aftercoolers and their connections shall be opened and cleaned out at intervals not exceeding six months. Cylinders and receivers, the use of which are for the starting of the engines, shall be deemed adequately equipped with means for cleaning if fitted with drain cocks of sufficient area.

(c) Receivers of small diameter (maximum 18 inches diameter) shall be fitted with drain cocks or inspection doors.

(d) A written record of each inspection signed by the person responsible for making this inspection shall be kept by the manager and shall be open to inspection by the Inspector of Mines.

(e) All cylinders, air receivers or other vessels that are subject to higher pressure than the atmosphere, other than the working cylinders of engines, shall be equipped with a pressure gauge and a lock up relief valve or safety valve capable of automatically preventing an increase of pressure above the normal working load.

MISCELLANEOUS.

116. Every person employed in or about a mine shall before commencing and while at work, use ordinary and reasonable care to ascertain that the

boilers, tubs, chains, tackle, windlass ropes or other appliances he uses and the places in which he works are safe; he shall not himself use, nor shall he cause or permit any other person to use, anything that is unsafe; he shall not himself work, nor shall he cause or permit any other person to work, in a place that is unsafe, nor do any dangerous act which may cause any undue risk to any person.

117. Every person employed in or about a mine who witnesses in or about the mine anything likely to produce danger of any kind, shall forthwith report the same to the person in immediate authority over him, and it shall be the duty of such last mentioned person forthwith to report the same to the mine manager.

118. No person in a state of intoxication or in any other condition which may render him incapable of taking care of himself or of persons under his charge shall be allowed to enter a mine, or to be in the proximity of any working place on the surface or near to any machinery in motion.

119. Any person who enters a mine or is found at any working place above or below ground in a state of intoxication shall be guilty of an offence, and shall be immediately removed therefrom by the mine manager or by some person duly authorised by the mine manager.

120. No native coming from the part of tropical Africa which is north of the Zambesi River, who is engaged for work on a mining location in the Bechuanaland Protectorate, shall be employed on underground work for a period of one calendar month from the date of his arrival on the mining location, unless the responsible manager or lessee of such location shall have satisfied himself that such native had previously been employed on mining work in the Bechuanaland Protectorate.

121. The Resident Commissioner, if satisfied that such action is necessary for the preservation of the health of native labourers, may by notice communicated to a mine manager in writing—

- (1) limit the number of hours of continuous employment of such labourers on a mine or any section thereof;
- (2) limit the number of such labourers employed on any one shift;
- (3) limit the number of shifts or rounds of blasting in twenty-four hours;
- (4) withdraw all labourers or any class thereof from any mine or section thereof;
- (5) impose conditions as to the employment of any class of labourers.

122. Where the structure and working conditions of a mine are such that the due observance of certain provisions of these regulations is impracticable, an inspector may grant exemption in writing from such provisions.

123. The High Commissioner may from time to time exempt from the operation of these regulations any mine or class of mine for such period and on such conditions as he may deem fit.

124. A printed copy of these regulations shall be posted on a board in some conspicuous place in the vicinity of every mine, and this copy shall be maintained in a legible condition.

125. Any person who pulls down, damages or defaces such copy of these regulations, or who pulls down, damages or defaces any notice posted in terms of these regulations, shall be guilty of an offence.

PROTECTION AGAINST THEFT OF GOLD.

126. In all mills and reduction plants all amalgamating plates, extractor boxes, launders, receptacles or other devices in which gold, gold amalgam, gold zinc slime or gold concentrate can collect shall be covered by screens or other devices approved by the Inspector of Mines.

127. All screens or devices which have been approved in terms of the provisions of the last preceding regulation shall be kept locked, and no plate, screen, box, launder or other device shall be uncovered by any person other than—

- (a) the owner of the mining location;
- (b) the manager of the mine; or
- (c) any person authorised in writing by either the owner or manager aforesaid.

ELECTRICITY.

Interpretation of Electrical Terms.

128. The following definitions shall apply:—

- (a) "Electrical apparatus" shall include all apparatus, machinery and fittings in which conductors are used or of which they form a part;
- (b) "life" shall mean electrically charged;
- (c) "dead" shall mean at zero potential and disconnected from any "live" system;
- (d) "system" shall mean an electric system in which all the conductors and apparatus are electrically connected to a common source of electromotive force;
- (e) "circuit" shall mean an electric circuit forming a system or branch of a system;

- (f) "earthed" shall mean connected to the general mass of earth in such a manner as will insure at all times an immediate discharge of electrical energy without danger;
- (g) "Earthing system" shall mean a system whereby all armour surrounding cables, the casing of joint boxes, the metal covering of switch-gear, motors, etc., are joined by a copper bond wire to an efficient earth;
- (h) "pressure" shall mean the difference in electrical potential in volts between any two conductors or between any conductor and earth;
- (i) where electrical energy is used, "low pressure" shall mean a pressure not exceeding 250 volts;
- (j) where electrical energy is used, "medium pressure" shall mean a pressure above 250 volts, but not exceeding 650 volts;
- (k) where electrical energy is used, "High pressure" shall mean a pressure normally above 650 volts but not exceeding 3,000 volts;
- (l) where electrical energy is used, "extra high pressure" shall mean a pressure normally exceeding 3,000 volts;
- (m) "skilled electrician" shall mean a person appointed in writing by the manager of the mine to supervise the electrical apparatus in or on the mine and the working thereof, such person being over twenty-one years of age and having had at least five year's electrical experience before being put in charge;
- (n) "authorised skilled person" shall mean a person appointed in writing by the manager of the mine to carry out certain duties incidental to the generation, transformation, distribution or use of electrical energy in or on a mine, such person being competent for the purposes of the regulations in which the term is used.

129. All electrical apparatus and conductors shall be of such design, rating and construction as to be suitable for the work which it is required to perform and shall be installed, protected, worked and maintained as to prevent danger so far as is reasonably practicable.

130. All electrical apparatus shall be adequately earthed.

131. When bare wires are used for the transmission or distribution of electrical energy on the surface, porcelain insulators of correct voltage must be used. Wood insulators are not permissible. The minimum height of the wires above the ground shall be 12 feet for low pressure system, 15 feet for medium pressure system and 18 feet for high pressure and extra high

pressure systems. In the case of electrical trolley machines, on the surface or underground, where the minimum height of the bare conductor is required to be less than 16 feet, written permission for the use of such must be obtained from the Inspector of Mines, providing that existing systems, where reasonably safe, shall be exempted.

132. On mines not employing a skilled electrician, insulated overhead service lines on „ medium pressure systems ” which are accessible in or about a building and liable to be adversely affected by conditions of heat or moisture shall consist of approved insulated wire. A list of approved wires may be obtained from the Inspector of Mines.

133. All wiring underground on pressures other than “ low pressure systems ” shall be carried out with armoured and/or lead sheathed cable of with 4 core C.T.S. (Cab Tyre Sheathed) or 4 core T.R.S. (Tough Rubber Sheathed) unless where otherwise specified.

134. On or after six months from the promulgation of these regulations, all “ medium pressure ” systems shall be equipped with main switches, which in the case of three phase alternating current shall have three over-current trip coils and not volt releases, and direct current systems one trip coil.

135. The maximum permissible pressure for lighting shall be:—

Underground:

- (a) 125 volts alternating current.
- (b) 220 volts alternating current in a three phase supply if the neutral point is earthed, or in a single phase supply 250 volts if the centre point is earthed, thereby limiting the potential of any one conductor to 125 volts above earth.
- (c) 250 volts direct current.

Surface:

250 volts alternating current or 250 volts direct current.

136. (a) The maximum permissible pressure for electrical signalling systems shall be 30 volts alternating current or 60 volts direct current.

(b) All electrical signalling apparatus shall be of a type approved by the Chief Inspector of Mines except where a skilled electrician is employed.

137. No examination, repairs or alterations necessitating the dangerous approach to or the handling of electrical apparatus shall be carried on while such apparatus is “ live ”, unless such work be done by or under the constant supervision of a skilled electrician or otherwise authorised skilled person.

PENALTY.

138. Any person who contravenes or fails to comply with any provision of these regulations shall be liable on conviction to a fine not exceeding twenty pounds or in default of payment to imprisonment with or without hard labour for a period not exceeding three months, and upon a second conviction to double such penalty and punishment.