

M.V.S. January, 1949.

EXTRACTS FROM THE GOVERNMENT MINING REGULATIONS.

REGULATIONS

referring to

VENTILATION AND DUST-PREVENTION

AND ITEMS ALLIED THERETO.

(METALLIFEROUS MINES.)

The various regulations are subdivided under the following main headings:

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A. DUST INSPECTORS

DUST INSPECTORS APPOINTMENT AND DUTIES. REG. 161 (10)

At any scheduled mine the manager shall, when the total number of persons employed underground on any one shift exceeds one thousand persons, appoint one or more competent persons whose principal duty it shall be to examine and report to the manager on:

- a) All matters relating to the mine's water supply, its quality, distribution, and use;
- b) The condition of the necessary appliances for using water at each working place and elsewhere;
- c) The dust sampling of the mine, more particularly as regards development ends;
- d) The conditions of the mine relating to ventilation and health, more particularly as regards the amount of air supplied during the interval after blasting and before re-entry and during the working shift, in all development ends and working places in which there is no "through" ventilation current.

The Manager shall, by letter, notify the Inspector of Mines of the person or persons so appointed from time to time.

The Government Mining Engineer may require the appointment of such competent person when the number of persons employed underground on any one shift is less than one thousand if he considers that the conditions prevailing underground render such appointment necessary.

B. RECORDS AND PLANS

PLANS. REG. 56, (5)

Direction of main currents and position of doors, stoppings, crossings and main ventilation appliances shall be shown on the plans referred to in sub-section (11) of Regulation No. 161 on scheduled mines and sub-section (2) of Regulation No. 109 on non-scheduled mines.

RECORD OF AIR QUANTITY. REG. 58, (2), (c) and (d)

- c) The quantity of air circulating in each ventilating district shall be determined at least once in every three months and recorded in the book mentioned in Regulation No. 59.
- d) If the ventilation districts of a mine are, in the opinion of the Inspector of Mines, not suitably laid out, he may direct the Manager in writing to amend the arrangement.

RECORD OF DUST. REG. 59 (2)

In every scheduled mine where the manager is required to make any appointment under Regulation No. 161 (10) the quantity of dust present in the air of the working places shall be determined not less than once in three months and recorded in a book in a manner similar to that prescribed in sub-section (1) and such book shall be open for inspection to the Inspector of Mines.

VENTILATION SIGNS. REG. 121 (25)

As soon as the direction of any air currents or the position of any ventilating appliances can be considered as permanent, they shall be shown in ink on the plans and sections referred to in Regulation No. 109, sub-section (2) in the manner shown in the Second Schedule, but until such time they shall be shown in pencil.

LOG BOOK. REG. 161 (10)

The condition of the mine as found by such persons shall, at the completion of his shift, be entered by him in a book to be provided by the manager for the purpose and kept in the mine survey office or other place determined by the manager. Such book shall be examined and countersigned by the manager or underground manager at least once a week, and by the mine overseer concerned after each inspection, and shall be open to inspection at all reasonable hours by any official of the Mines Department and by any official employed underground on the said mine.

VENTILATION PLAN. REG. 161 (11)

At every scheduled mine a plan, which shall be a tracing or print taken from one of the plans required under Regulation No. 109, sub-section (2), (3) or (5), shall be kept, and on it the competent person or persons referred to in sub-section (10) of this Regulation, shall enter the ventilation signs where the direction of the air current is permanent and the quantity of air circulating in each ventilating district. The Inspector of Mines may, however, grant permission for the above plan to be drawn to the scale of one in five thousand.

C. VENTILATION

TIMBERING. REG. 10 (3)

All timber, walling material, brattice cloth, and other material or tools for making any place safe or improving the ventilation, shall be provided free of any charge whatever to the workman.

MINE OUTLETS. REG. 46 (1)

In connection with every mine, except as provided for in Regulation No. 48, there shall be at least two shafts or outlets to the surface such that every person employed in

such mine shall have at least two separate means of ingress or egress available to him, provided that it shall not be necessary for such shafts or outlets to be situated in the same mine.

EXEMPTIONS FROM REGULATION NO. 46. REG. 48 (1)

The provision of Regulation No. 46 (1) shall not apply:-

- a) To any mine on which one of the shafts or outlets has temporarily become unavailable for the persons employed in the mine so long as every effort is being made by the manager to repair the damage.
- b) To any mine on which not more than ten persons are at any one time employed below ground in, or in any workings connected with, any shaft or outlet which is unconnected with any other shaft or outlet.
- c) To any mine on which more than ten but not more than three hundred persons are at any one time employed below ground in, or in any workings connected with, any shaft or outlet, which is unconnected with any other shaft or outlet, if such mine is exempted in writing by an Inspector of Mines.
- d) To any mine on which more than three hundred persons are at any one time employed below ground in, or in any workings connected with, any other shaft or outlet which is unconnected with any shaft or outlet, if such mine is exempted in accordance with the requirements of sub-section (2) of this regulation.
- e) To any shaft when only sinking operations and work accessory thereto are being carried out.

SECOND OUTLET. REG. 336.

Where in any underground working served by one shaft only the Inspector of Mines finds that a second outlet has become necessary either for safety of those employed or in order to secure proper ventilation, the claimholder shall provide such with reasonable dispatch.

QUANTITY OF AIR PER PERSON. REG. 58 (2) (a) and (b)

- a) In any scheduled mine the quantity of fresh air, including compressed air, supplied underground in any ventilating district shall be such, that for every person employed in such district at any time at which the number of persons so employed is at its maximum, it is never less than thirty cubic feet per minute during the full period of twenty four hours.
- b) In any scheduled mine the current of fresh air supplied shall be suitably split, and each working place shall receive not less than thirty cubic feet of air per minute per person employed therein; and such katathermometer standard shall be maintained as the Inspector of Mines, after consultation with the Manager, may require.

VENTILATION COLLAR OF SHAFT. REG. 56 (1)

The vicinity of the collars of downcast shafts shall be kept clear of cinder heaps and, so far as practicable, of smoke.

SPLITTING OF AIR-CURRENT. REG. 56 (2)

The ventilating current from the downcast shall be suitably split to provide sufficient air to all working places.

MECHANICAL AID. REG. 56 (3)

In all portions of a mine or workings where the natural ventilating current is insufficient, suitable mechanical appliances for ventilation shall be provided and operated.

SELF-CLOSING DOORS. REG. 56 (4)

Every door directly assisting or in any way affecting the ventilation of a mine shall be so adjusted as to be self-closing, or be operated by an attendant, unless any such door is required to be closed only occasionally and under special circumstances.

AIR IN WINZES. REG. 62 (1)

In any scheduled mine, every winze and every working connected only with such winze and not with a second outlet shall be provided with a separate air-pipe not less than one inch in diameter, independent of the air-supply to any machine-drills used therein, such air-pipe to be controlled only by a valve at the top of the winze whereby any foul air at the bottom of such winze or such other working may be expelled, and to be fitted with a T-piece and hoseplug thereon immediately below the valve, and no person other than for purpose of inspection, shall descend or be caused or permitted to descend until such foul air has been so expelled. The air shall be turned on by the miner after lighting up his charges.

VENTILATION OF DEAD ENDS. REG. 62 (2)

In any scheduled mine no person shall be caused or permitted to enter after blasting has taken place therein, any tunnel or development end, such as a drive, crosscut, raise, incline shaft, or winze, or any other working place in which there is no through ventilating current, until a quantity of fresh air not less than the volume of such tunnel or development end or of such other working place, beyond the last through-ventilation-connection, or not less than a smaller quantity sanctioned by the Inspector of Mines in writing for the particular working place, has been supplied so as to replace the air vitiated by dust or fumes due to the blasting.

VENTILATION OF BACK-STOPE. REG. 62 (3)

In any scheduled mine no person shall stope or be required or permitted to stope above any drive or level where there is no through connection from the stope to the drive or level above, except by permission of the Inspector of Mines, and then only on condition that the ventilation of such stope is adequate, that the number of persons working therein is limited, and that when machine drills are used such machine drills are provided with axial water feed.

D. DUST PREVENTION

DUST PREVENTION. REG. 158 (10) (a), (b), (c), (d), (e), (f) (g)

The manager shall at any scheduled mine:

- a) Provide or cause to be provided an adequate and constant supply of water which is clear and odourless at every working place which is not sufficiently wet to make the formation of dust impossible. Such supply shall be sufficient for effectively wetting the broken ground and for preventing the formation of dust caused by drilling operations. Such water shall be supplied in metal pipes not less than one inch in diameter at a pressure not less than 30 lb. to the square inch at each working place when all sprays and jets supplied from the same pipe are working. Such pipes shall reach to within fifty (50) feet from the face and from there a sufficient length of hose shall be provided and used to bring the water up to every point of the working face.
- b) Cause the surfaces in all working places, travelling ways and shafts which are not naturally wet to be kept wet or regularly washed down.

(NOTE: The Committee on "ventilation of dead ends" passed the following resolution.

"That this Committee is satisfied as the result of tests, that the dust content of the air current passing along an airway diminishes to an equal extent, whether the roof and walls are dry or wet, and, therefore, recommends that the roof and walls of all intake airways should, wherever possible, be maintained in a dry condition in order to assist in reducing humidity, provided that, if any work liable to create dust is being performed in any such airway, adequate steps are taken to allay the dust at its source".

In signifying his approval to this resolution, the Government Mining Engineer stated that in his opinion the wording of Regulation 158 (10) (b) was sufficiently elastic to allow Inspector of Mines to use their discretion as to the periods at which intake airways should be washed down.)

- c) Cause a ventilating current to be circulated along the working face.
- d) Provide in shafts which are not wet, ring sprays at suitable points to prevent dust being carried with the air current.
- e) Provide or cause to be provided a waterblast as near as practicable to all development faces.
- f) Provide or cause to be provided at every orebin, orepass or grizzly, unless exempted by the Inspector of Mines, a constant supply of clean water, which

shall be applied during working hours at the openings of such orebins, orepasses and grizzlies by means of efficient atomisers which shall be kept at all times in good working order.

- g) Provide and cause to be used in every crusher station and ore-sampling room appliances such as suction fans, atomisers and sprays, which may be necessary for the effective prevention of dust arising from the operations conducted in such station or room.

CLEANING BY COMPRESSED AIR. REG. 101 (11)

In any scheduled mine no person shall use or cause or permit to be used compressed air for cleaning

- a) Any skip or truck underground;
- b) Any skip at a downcast shaft at any point lower than the tip in the headgear;
- c) The footwall of any stope in the course of sweeping operations.

DUMPS, PREVENTION OF DUST. REG. 158 (27)

The manager shall cause any such dump as the Inspector of Mines may direct to be sprayed with a sludge of black soil or otherwise dealt with in a manner satisfactory to the Inspector, so as to prevent the dissemination of dust or sand from it.

SHIFTBOSS TO INSPECT. REG. 161 (5)

Each shift boss shall at least once during his shift inspect every portion of the section of the mine assigned to him in which persons are working or through which they may have occasion to pass and shall ascertain the condition thereof as regards ventilation, sanitation, the presence of gases, and the state of the hanging wall, foot-wall and sides, and generally so far as the safety and health of persons are concerned, and more particularly as regards the observance of the Regulation for the prevention of dust and shall then and there enter in his notebook particulars of any unsatisfactory conditions.

REGULATIONS TO BE TRANSLATED IN NATIVE LANGUAGES. REG. 178 (2)

All regulations referring to prevention of miners' phthisis shall, so far as they concern non-scheduled persons, be translated into the more important native languages and kept posted up in the compounds.

E. SANITATION.

SANITATION. REG. 158 (1) (2) (3)

The manager shall

1. Provide or cause to be provided on the surface and in the case of a mine in the underground workings, sufficient and suitable sanitary conveniences in accordance with the following rules:-

- a) Where the number of persons employed does not exceed one hundred there shall be one sanitary convenience for every twenty-five persons or portion thereof;
 - b) Where the number of persons so employed exceeds one hundred but does not exceed five hundred there shall be one additional sanitary convenience for every forty persons or portion thereof over the first one hundred;
 - c) Where the number of persons so employed exceeds five hundred there shall be one additional sanitary convenience for every sixty persons or portion thereof over the first five hundred;
 - d) At each working level a well-ventilated screened latrine, in the construction of which no wood shall be used after the first day of January, 1918 with cement concrete floor, graded and drained to a sump, shall be provided for Europeans and Non-Europeans separately. In coal or other mines working horizontal seams or beds the latrines shall be situated within convenient distances of the working places, and, if the floor is impervious, cement floors may be dispensed with;
 - e) All pails or buckets used in connection with underground sanitary conveniences shall have close-fitting lids which can be clamped on to prevent spillage during removal to surface.
 - f) All disused workings shall be barricaded off so as to prevent liability to faecal pollution;
 - g) In every mine pail removal, cleaning and disinfecting of sanitary conveniences, floors of drives, crosscuts and dead ends shall be carried on systematically by a scavenging squad under the supervision of a competent person, provided that in the Transvaal and Orange Free State Provinces such competent person shall be the holder of one or other of the certificates issued for underground work or shall have special authorization from the Inspector of Mines.
2. Cause all latrines to be sufficiently ventilated and disinfected and to be kept in a clean condition.
3. a) Cause all latrines to be so arranged and maintained as to be conveniently accessible to all persons employed on the mine or works.
- b) Cause all latrines and the contents of all sanitary buckets before removal to be treated daily with common salt.
- c) Cause all latrines as far as possible to be made and kept rodent-proof, so as to prevent rodents from gaining access to the pail contents.
- d) Cause the seat or squatting place at every latrine to be simple in construction, comfortable in use and easily kept clean.

- e) Where it is impracticable to erect a permanent latrine within reasonable distance from any working place, or where the work is of a temporary nature, cause portable latrines proportional to the number of persons engaged at work at such place to be provided within reasonable distance.

Provided that an Inspector of Mines may issue instructions to the manager of any mine fixing the maximum distance of a latrine from a working place and the number of conveniences thereat, if the Inspector of Mines considers such instructions necessary in the interests of health.

POLLUTION OF WORKINGS. REG. 169

No person shall pollute the underground workings with faeces or urine, nor wantonly misuse or foul the latrines.

F. AIR SAMPLES

AIR SAMPLES. REG. 58 (1)

In every metalliferous and every diamond mine sufficient air shall be provided and such other arrangements made that in any sample of air taken under normal working conditions from any part of a mine not less than one hour after blasting:*

PROPORTION OF CO₂. REG. 58 (1) (a)

The proportion of carbon dioxide shall not, as regards any mine within the mining district of Johannesburg, Krugersdorp and Boksburg, exceed twenty volumes per ten thousand of air (.20%); and as regards any mine in the mining district of Pilgrims Rest or in any other mining district in which it may be proved to the satisfaction of the Government Mining Engineer that there are geological sources of production of carbon dioxide unaccompanied by carbon monoxide, such additional proportion of carbon dioxide shall be permitted as the Government Mining Engineer may from time to time decide.

PROPORTION OF CO. REG. 58 (1) (b)

The proportion of carbon monoxide shall not exceed one volume per ten thousand of air; (.01%).

PROPORTION OF NO AND NO₂. REG. 58 (1) (c)

The proportion is such that practically no detectable trace of the oxides of nitrogen (NO and NO₂) shall be present.

DETERMINATION OF AIR SAMPLES. REG. 59 (1)

Chemical determination shall be made by each mine on which not less than 500 persons on the average are employed underground, not less than once in three months of the quantity of CO₂ in the air taken under normal working conditions, from the following places, provided men are working therein:- All

drives 100 feet from face; all winzes and shafts 50 feet from face; bottom of the upcast shaft; all stopes connected with only one drive. The report on such determination shall record the locality where sample taken, the amount of carbon dioxide present, the time of sampling and hour of last previous blast, which particulars shall be entered in a record book which shall be kept at the mine office and be open for inspection to the Inspector of Mines. The Inspector of Mines may give written permission granting exemption from the provisions of this regulation to any mine, in which, in his opinion, the ventilation conditions are such as to render the sampling of air unnecessary.

DETERMINATION OF AIR SAMPLES BY ASSAYER. REG. 59 (1)

Every determination made for the purpose of this sub-section shall be conducted by or under the direct supervision of a certified assayer who shall take all reasonable measures to ensure the accuracy of the results, and who shall cause the results of every such determination to be entered into the record book.

DETERMINATION OF QUANTITY OF DUST. REG. 59 (2)

Every determination made for the purpose of this sub-section (quantity of dust present in the air) shall be conducted by or under direct supervision of the person appointed under Regulation No. 161 (10) who shall take all reasonable measures to ensure the accuracy of the results, and who shall cause the results of every such determination to be entered into the record book.

G. FOUL AIR : GASES

FOUL AIR. REG. 61.

No person shall work or remain or be permitted or ordered to work or remain in any place in a mine if the air contains dust, smoke or fumes perceptible by sight, smell or other senses.

EXAMINATION FOR FOUL AIR. REG. 57

Underground workings, especially shafts, sumps and winzes, which have been in disuse for some time, shall be examined before being used again, in order to ascertain whether foul air or other dangerous gases have accumulated there, and only such workmen as may be necessary to make such examination shall be allowed to proceed to such places until such places are in a fit state to work or travel in. When these underground workings are situated in coal mines, flame safety lamps shall be used in making such examination.

EMPLOYMENT OF PERSON WHERE GASES. REG. 104 (1) (2)

1. No person shall except as hereinafter provided be allowed to commence work in any part of a mine in or within one hundred feet of which there is known to be sufficient inflammable gas to show a distinct

cap on the reduced flame of a safety lamp of similar construction to those ordinarily in use on the mine, or to continue such work after the discovery of the existence of gases in such quantity as aforesaid.

2. The foregoing prohibition shall not apply:
 - a) When the amount of inflammable gas is so small that it does not show a cap on the flame when the flame is held two feet from the working face of the coal or from the point of issue of blowers or jets of inflammable gas;
 - b) To persons employed in the presence and under the direct supervision of a competent ganger for the erection of brattice or for other similar work with a view to the clearing away of inflammable gases;
 - c) To persons employed in sinking shafts in the presence of and under the supervision of a competent ganger.

GANGER TO EXAMINE FOR GAS. REG. 104 (4)

The ganger shall be responsible for making the necessary examinations in connection with and for the observance of sub-section (2) (a) and (3) (b) of this Regulation.

GASSING TO BE REPORTED. REG. 107

The ganger or miner shall report without delay any case of gassing, however slight, to a mine overseer, shiftboss or onsetter, who shall in the case of a non-scheduled person, immediately give notice of the occurrence to a compound or native hospital official.

NOTICES FOR TREATMENT OF GASSING. REG. 168

One or more notices on which are legibly printed simple directions setting forth the approved procedure for the immediate treatment of cases of "gassing" shall be posted in a conspicuous place in every change-house, recreation room and accident emergency station.

WITHDRAWAL OF WORKMEN WHERE DANGER. REG. 163 (1)

1. If at any time it is found by the person for the time being in charge of the mine or any part thereof that, by reason of inflammable gases prevailing in the mine or that part thereof or of any cause whatever, the mine or that part is dangerous, every workman shall be withdrawn by him from the mine or part so found dangerous and the matter shall be immediately reported by him to the manager.

FURTHER EXAMINATION. CAUTION BOARDS. DANGER FROM GAS. REG. 163(2)

2. The manager shall immediately cause an examination to be made of the dangerous area by a competent person who shall sufficiently fence off any part of the mine found dangerous and erect a caution board on the fence and report to the

manager. If the danger arises from inflammable gas sufficient examination shall be made daily by such competent person to ascertain the extent of the danger and he shall record the result in the same manner as reports under Regulation No. 162, section (1).

WORKING NEARING WATER, GASES. REG. 12.

Where a place contains or is likely to contain a dangerous accumulation of water or noxious gases, any working approaching that place shall have boreholes kept in advance, and such additional precautionary measures shall be taken as may be deemed necessary to obviate the danger of a sudden breaking through of such water or gases and such working place must not exceed eight feet in width.

A certificated surveyor shall exercise supervision at every such working place and shall be responsible for the correct direction of such working, and for the breaking through of such water or gases without accident.

In the case of a mine for which there is no certificated mine surveyor the manager shall have all the powers and responsibilities and perform all the duties conferred or imposed on a certificated surveyor in this regulation.

GANGER'S DUTY WHERE FIREDAMP. REG. 104 (6)

No ganger shall have charge of more than six working-places where a new section or district is being opened out that is giving off firedamp freely, and the ganger shall visit each working place under his charge at intervals not exceeding one hour's duration during his shift and shall at each visit of each working place make a thorough test for firedamp.

CONSTRUCTION OF SAFETY LAMPS. REG. 73.

Wherever safety lamps are used they shall be so constructed that they may be safely carried against the air current ordinarily prevailing in that part of the mine in which lamps are for the time being in use even though such current should be inflammable.

SAMPLES OF SAFETY LAMPS FOR APPROVAL BY INSPECTOR. REG. 74 (1) (2)

1. A sample of every type and construction of safety lamp proposed to be used in any mine shall be forwarded to the office of the Inspector of Mines for approval by him before such type or construction of lamp is used. The sample may be retained by the Inspector of Mines.
2. The make of lamp-glass used shall not be altered without the prior consent of the Inspector of Mines.

H. FIRES.

FIRES. REG. 164 (1) (2) (3)

1. In case of a fire occurring in any fiery mine or in case of a fire due to or resulting in the ignition of fire-damp occurring in any mine, all persons except those dealing with the fire and on service in connection there-

with shall be withdrawn from the whole of the underground portion of the mine and only be allowed to return when safe conditions are restored.

2. Whenever in a non-fiery mine an underground fire occurs, which cannot be immediately got under control, the mine overseer and shiftbosses shall withdraw all persons from the ventilating district or districts affected by the fire unless the manager directs to the contrary.
3. The manager shall not in any non-fiery mine permit or direct any person to remain in or proceed to a ventilating district where there is a fire which cannot be got under control unless and until he has satisfied himself that such persons safety will not be endangered thereby; provided that this prohibition shall not apply to such persons as are required to get the fire under control, and to conduct investigations or to do other necessary work.

FIRE PREVENTION. REG. 68 (2)

In any mine, no person shall place or throw or cause or permit to be placed or thrown, any naked light, such as candle, unenclosed lamp, or lighting torch (cheesa stick) on or near any timber, wooden structure, or other combustible material, where such naked light may cause danger from fire.

FLAME-PROOFING. REG. 184 (5)

Where there may be risk of igniting gas, coal-dust, or other explosive material, approved flame-proof or explosion-proof apparatus shall be used.

REPORTING OF NON-CASUALTY ACCIDENTS. REG. 274 (16)

Whether personal injury is caused or not, every accident or occurrence included in the following classification or of a nature similar thereto shall be reported without delay to the Inspector of Mines:

- (16) Any fire or any indication or recrudescence of fire or of spontaneous combustion in the mine or any explosion of gas or dust.

I. WATER.

POISONOUS WATER ON SURFACE (SEE ALSO SECTION "D" "DUST ALLAYING")
REG. 7 (1) (2)

1. Water containing poisonous or injurious matter in suspension or solution must be effectually fenced off to prevent inadvertent access to it, and notice boards shall be put up in suitable places to warn persons from making use of such water.
2. In no case may water containing any injurious matter in suspension or solution be permitted to escape

without having been previously rendered innocuous.

DRINKING WATER. REG. 158 (11)

The manager shall provide or cause to be provided underground a supply of wholesome drinking water at points reasonably accessible to working places.

DRINKING WATER, ASSAY ROOMS. REG. 278 (4)

An adequate supply of wholesome drinking water shall be provided in each testing-room and assay office and this supply shall be distinctly labelled "Drinking Water".

WATER WASTAGE. REG. 101 (10)

In any scheduled mine no person shall negligently cause or permit water supplied from any service pipe for dust allaying or drinking purposes to run to waste.

STAGNANT WATER. REG. 171

Stagnant water shall not be allowed to remain on the floors of the levels which are in use.

REPORTING OF NON-CASUALTY ACCIDENTS. REG. 274 (15)

Whether personal injury is caused or not, every accident or occurrence included in the following classification or of a nature similar thereto shall be reported without delay to the Inspector of Mines:

- (15) Flooding of any considerable portion of the workings, or failure of any dam or reservoir used for conserving water or slimes.

J. WETTING DOWN

WETTING DOWN. REG. 102 (3)

At any scheduled mine the ganger or miner making the examination prescribed in sub-sections 1 (a) and (b) shall also thoroughly wet the roof, sides and floor as well as the broken rock and other surfaces, before admitting to the working place the members of the gang other than those required to assist him in wetting down and making safe.

WETTING DOWN BEFORE DOING WORK. REG. 101 (g)

In any scheduled mine no person shall in any part of a mine perform or be caused or permitted to perform work of any kind liable to create dust unless and until the floor, roof and sides, packs or other surfaces of the working place to a distance of at least twenty five feet have been effectively wetted and kept wet, unless such working place is naturally sufficiently wet to render the formation of dust impossible.

K. LASHING

WETTING OF DUSTY GROUND BEFORE REMOVAL. REG. 101 (8)

In any scheduled mine no person shall move any broken rock or ground or cause or allow the same to be moved, if such rock or ground is in a dusty condition, unless and until it and the floor, roof and sides, packs and other surfaces of the working place to a distance of at least twenty-five (25) feet have been effectively wetted and kept wet so as to prevent the escape of dust into the air during removal.

L. BLOWING OVER

BLOWING OVER BEFORE DRILLING. REG. 100 (13) (a) and (b)

In any scheduled mine and in such other mines as the Inspector of Mines may direct:

- a) Before drilling is commenced in any shaft in the course of sinking, the miner or ganger, who shall be the holder of a blasting certificate, shall thoroughly wash over all the ground within three (3) feet of any hole to be drilled with water under a pressure of not less than 30 lb. per square inch, or, if the ground to be examined is under water, blow over with compressed air, so as to expose the presence of all misfires and sockets, and shall make a sketch showing the position of such misfires and sockets.
- b) In vertical shafts washing or blowing over and the preparation of the sketch shall be done under the immediate supervision of the manager or mine overseer or of a shift boss or other duly appointed official, unless exempted by the Inspector of Mines, and in incline shafts such official shall satisfy himself by personal inspection during the shift that the blowing over and the sketch have been properly done.

M. DRILLING

PRIOR TO DRILLING. REG. 100 (13) (c)

In any scheduled mine and in such mines as the Inspector of Mines may direct:

Before commencing drilling on the face of any drive, winze, raise, crosscut or at any point in a stope or at any other

place in a mine not being a shaft in the course of sinking, the miner shall wash the face and adjacent surfaces to a distance of at least six feet in all directions from each hole to be drilled, with water applied under a pressure of not less than 30 lb. per square inch, or, where the ground to be examined is under water, shall blow over it with compressed air to expose all misfires and sockets. He shall further examine every socket within six feet of each such hole to be drilled, by means of water under adequate pressure or compressed air and water under adequate pressure applied through a pipe of a design and material approved by the Inspector of Mines, and shall ascertain the direction and depth of every such socket and whether it contains explosives.

SIZE OF AXIAL HOLE. REG. 101 (1) (a)

In any scheduled mine:

- (1) in drilling a hole no person shall use or cause or permit to be used any percussion machine drill unless:
 - (a) the drill steel with which the machine is equipped is provided with an axial hole not less than one-quarter of an inch in diameter throughout its whole length when the diameter of the drill steel is one and one-eighth inch in diameter or over, and not less than three-sixteenths of an inch in diameter throughout its whole length when the diameter of the drill steel is less than one and one-eighth inch.

WATER SUPPLY. REG. 101 (1) (b)

In any scheduled mine:

- (1) in drilling a hole no person shall use or cause or permit to be used any percussion machine drill unless:
 - (b) an adequate supply of water flows through such drill steel.

WATER PRESSURE. REG. 101 (1) (c)

In any scheduled mine:

- (1) in drilling a hole no person shall use or cause or permit to be used any percussion machine drill unless:
 - (c) the working water pressure at the machine drill is maintained at fifteen pounds per square inch or over.

BRANCH HOSE PROHIBITED. REG. 101 (2)

In any scheduled mine:

- (2) no branch hose or branch pipe shall be fitted to any hose supplying water to any percussion machine drill.

FRONT-HEAD RELEASE PORTS. REG. 101 (3) (a)

In any scheduled mine:

- (3) no person shall send or cause or permit to be sent

underground any percussion machine drill which is designed to supply water to the drill steel through an internal water tube unless:

- (a) such machine is provided with front-head air release ports of a design approved by the Government Mining Engineer.

AXIAL HOLE IN PISTON. REG. 101 (3) (b)

In any scheduled mine:

- (3) no person shall send or cause or permit to be sent underground any percussion machine drill which is designed to supply water to the drill steel through an internal water tube unless
 - (b) the diameter of the axial hole in the piston, when new, does not exceed 0.262 inch and is not less than .260 inch for a length of at least two and one-half inches.

WATER TUBE DIAMETERS. REG. 101 (3) (c)

In any scheduled mine:

- (3) no person shall send or cause or permit to be sent underground any percussion machine drill which is designed to supply water to the drill steel through an internal water tube unless:
 - (c) the external diameter of the water tube, when new, is not less than 0.255 inch, and the internal diameter of the water tube is not less than 0.156 inch.

WATER TUBE LENGTH. REG. 101 (3) (d)

In any scheduled mine:

- (3) no person shall send or cause or permit to be sent underground any percussion machine drill which is designed to supply water to the drill steel through an internal water tube unless:
 - (d) the machine drill is fitted with a water tube of such length that, when drill steel of the type supplied for use with the said drill underground is inserted into the chuck to its fullest extent, when the machine is not operating, the water tube either enters the axial hole in the shank of the drill steel for a distance of at least one inch, or, alternatively, the end of the water tube is not less than one quarter of an inch and not more than one inch short of the shank end of the drill steel.

OBSTRUCTION OF FRONT HEAD RELEASE PORT PROHIBITED. REG. 101 (4) (a)

In any scheduled mine:

- no person shall block or otherwise obstruct any of the front-head release ports provided in terms of paragraph (a) of sub-regulation (3) of this regulation, and no

person shall operate or cause or permit the operation of any machine drill if the front-head release ports so provided are partially or totally blocked or otherwise obstructed.

PROPER WATER TUBE. REG. 101 (4) (b)

In any scheduled mine:

no person shall supply for use in, or fit into, any rock drill a water tube which does not comply with the provisions of paragraphs (c) and (d) of sub-regulation (3) of regulation 101.

WILFUL DAMAGE. REG. 101 (4) (c)

In any scheduled mine:

no person shall wilfully damage or alter a water tube supplied for use in a machine drill.

GANGER'S RESPONSIBILITY RE WATER TUBE. REG. 101 (4) (d)

In any scheduled mine:

any ganger in charge of drilling operations, who knows or has reason to suspect that the watertube in any machine drill under his control has become damaged or is defective, shall immediately examine such water tube, and if it is found to be damaged or defective he shall replace it with an undamaged water tube before drilling operations are resumed with any such drill. It shall be the duty of any person, who knows or has reasons to suspect that the water tube in a machine drill is damaged or defective, to report the matter immediately to the ganger responsible for the operation of the machine drill.

MACHINE DRILL TO BE APPROVED. REG. 101 (5) (a)

In any scheduled mine:

no new type or make of machine drill may be used without the prior approval of the Government Mining Engineer, or may be continued in use unless that approval is ratified by him within one year, or such longer period as he may determine, and after at least twenty (20) of the machine drills so provisionally approved have been in regular use on scheduled mines, or mines to which this sub-regulation has been applied in terms of sub-regulation (2) of regulation 166, to his knowledge for a period of six months.

APPROVAL AND TESTING OF DRILLS. REG. 101 (5) (b) (c) (d) (e)

In any scheduled mine:

- (b) the Government Mining Engineer may prohibit the use of any type or make of machine drill in use on any scheduled mine. Such prohibition shall take effect after a date to be specified by the Government Mining Engineer, such date to be not less than six months after the date of notice of prohibition.

- (c) The Government Mining Engineer shall not prohibit the use of any drill under paragraph (b) of this sub-regulation unless there is evidence that the drill to be prohibited seriously and materially endangers the health of workmen and until he has consulted the employers and the workmen concerned.
- (d) The Government Mining Engineer may carry out any inspection or test of any machine drill, device, or attachment at a cost to the owner, manufacturer, or agent of a sum not exceeding thirty pounds (£30) for each complete test.
- (e) Any employer and any owner or manufacturer of a machine drill or his agent may appeal to the Minister against any refusal by the Government Mining Engineer to approve or to ratify the approval of a new type or make of machine drill, or against any prohibition by him of any existing type or make of machine drill, and the decision of the Minister shall be final and conclusive.

USE OF WET SWAB. REG. 101 (6)

In any scheduled mine:

no person shall use or cause or permit to be used any hand-drill, moil or similar tool, except in sampling, unless water is applied or a wet swab is used around the drill at the collar of the hole so as to allay the dust.

SURFACES IN VICINITY OF DRILLING TO BE KEPT WET. REG. 101 (7) (a)

In any scheduled mine:

no person shall commence or continue to drill any hole, or cause or permit such commencement or continuation of drilling unless the floor, roof, sides, packs, other surfaces and broken rock of the working place, to a distance of at least twenty-five (25) feet from such hole, have been thoroughly wetted and kept wet.

BLOWING OUT HOLES. REG. 101 (7) (b)

In any scheduled mine:

no person shall blow out or be caused or permitted to blow out any hole with compressed air unless he has applied sufficient water in case there is already a sufficiency, to prevent the formation of dust during the process of blowing out.

N. BLASTING

BLASTING ONCE IN 24 HOURS. REG. 60 (1)

In any scheduled mine blasting shall only take place once in every twenty four hours, except as permitted under Regulation No. 106 (34) (removing obstructions in orepasses and boxholes)

or for vertical shafts being sunk from the surface, or after written permission has been obtained from the Inspector of Mines.

TIME FOR BLASTING. REG. 158 (4)

The manager shall cause the times of the working shifts and of blasting operations in every section of the mine to be so arranged that workmen shall not be exposed to fumes and dust from blasting, unless this is unavoidable.

NO BLASTING WHERE INFLAMMABLE GAS. REG. 100 (3)

No person shall blast or be permitted to blast any shot in fractured coal or in a hole if inflammable gas is being given off from such fractured coal or hole, nor in any place where there is sufficient inflammable gas present to show a distinct cap on the reduced flame of the safety lamp ordinarily in use in the mine.

BLASTING WHERE INFLAMMABLE GAS. REG. 106 (10)

The ganger or miner shall not blast in any mine where inflammable gas has been reported to be present during the past twenty four hours in the ventilating district in which the shot is to be fired, until he has examined the place where gas has been so reported to be present and has found that such gas has been sufficiently cleared away and that there is not at or near such place sufficient gas issuing or accumulated to render it unsafe to fire the shot.

BLASTING AT A TIME TO BE FIXED BY THE MANAGER. REG. 106 (34)

The ganger or miner shall at any scheduled mine only blast at a time to be fixed by the manager, except for removing obstructions in orepasses or boxholes or for the purpose of making the hanging safe or for blasting misfired holes in development faces, and then only with the permission in each case of the manager, mine overseer or shift boss. Before blasting such obstructions in orepasses or boxholes or for making the hanging safe, the ganger shall wet the ground thoroughly within at least twenty five feet of the obstruction or holes to be blasted.

BLASTING MISFIRES. REG. 106 (34)

When blasting misfires, the ganger or miner shall observe the precautions prescribed in Regulation No. 106 (33). No such permission shall be given unless reasonable precautions have been taken to prevent any person being exposed to smoke and fumes from such blasting.

WATERBLAST. REG. 60 (2)

In any scheduled mine every tunnel and development end such as a drive, crosscut, raise, incline shaft or winze shall be furnished with a waterblast approved by the Inspector of Mines. Such waterblast shall discharge within a distance of not more than fifty feet of the face being advanced and shall be applied so as effectively to wet the face and broken rock for at least fifteen minutes immediately after blasting and again for a further period of fifteen minutes immediately prior to entry by any person; provided that the Inspector of Mines may give written permission to the manager to vary these conditions on

any mine or part thereof.

WATERBLAST IN PHTHISIS MINE. REG. 106 (35)

The ganger or miner shall in all development faces at any scheduled mine immediately after lighting up put into action the waterblast which he shall previously have tested. If as a result of such test the waterblast shall be found to be not in order no blasting shall take place.

PROVISION FOR WATERBLAST. REG. 158 (10) (e)

At any scheduled mine the manager shall provide or cause to be provided a waterblast as near as practicable to all development faces.

COMPRESSED AIR AFTER BLASTING. REG. 62 (1)

In any scheduled mine the compressed air shall not be turned off at the mains or compressors for at least twenty minutes after blasting operations have been completed in the mine or section of the mine supplied from such mains or compressors.

PERSONS NOT ENGAGED IN BLASTING. REG. 158 (5)

The manager shall cause every person not engaged in blasting operations or not required for the transport of the persons so engaged to be hoisted to the surface or removed to the intake side of all places in which blasting is to be done, or to remain in a waiting place free from fumes and dust, before blasting commences.

PERSONS ENGAGED IN BLASTING OPERATIONS. REG. 158 (6)

The manager shall cause every person engaged in blasting operations or required for the transport of persons so engaged to travel to the surface in the downcast shaft, unless they can be removed from the mine before the fumes overtake them or can remain in a waiting place free from fumes and dust until these have dissipated.

O. RE-ENTRY

WORK AFTER BLASTING. REG. 158 (7)

The manager shall cause any person who is to work in the mine after blasting has taken place to enter the mine only after the places in which he has to travel or work are clear of fumes and dust, and after the expiry of an interval to be fixed for each mine by the Inspector of Mines.

WAITING PLACES UNDERGROUND. REG. 158 (12) (a) and (b)

The manager shall:

- (a) provided or cause to be provided underground such waiting places as may be necessary for the use of non-scheduled persons prior to entering their working places, and shall by such means as the Inspector of Mines may have approved in writing, prevent such non-scheduled persons from proceeding

to their working places until they have been instructed to do so by the ganger or miner who is responsible for the safety of their working places when they enter them, and shall further satisfy himself by weekly reports from the shift bosses that this instruction is being strictly observed.

- (b) cause all waiting places to be adequately disinfected and kept in clean condition.

NO RE-ENTRY UNTIL FUMES DISSIPATED. REG. 106 (32)

The ganger or miner shall not after firing has taken place whether by electricity or in any other manner enter or allow any person to enter the place in which such firing has occurred until the fumes caused by the explosion shall have been sufficiently dissipated unless he or such person is wearing a safety helmet or other effective apparatus to prevent the inhaling of fumes.

TIME TO EXPIRE BEFORE RE-ENTERING. REG. 106 (27)

The ganger or miner shall except in the case of firing by means of electricity count in conjunction with at least one other person the number of shots exploding, and unless both he and such other person are certain that all the shots have exploded shall not enter nor allow any person to enter the place or places in which the shots have been fired until the expiry of thirty minutes from the time of lighting the fuses.

When misfires are reblasted no person shall enter the working place until the expiry of thirty minutes from the time of lighting the fuses.

TIME FOR RE-ENTRY IN PHTHISIS MINES. REG. 106 (33)

The ganger or miner shall at any scheduled mine not enter nor allow any person to enter any end, raise, winze, or other closed place after blasting within less than thirty (30) minutes after putting the waterblast in action, and then only if the air is free from dust, smoke and fumes perceptible by sight, smell or other senses.

RE-ENTERING AFTER FIRING BY ELECTRICITY. REG. 106 (29)

The ganger or miner shall not where firing takes place by means of electricity enter or allow any other person to enter the place or places where shots have exploded until he has disconnected the cable of the battery.

NO ENTERING EXCEPT BY GANGERS INSTRUCTIONS. REG. 100 (11)

No person other than a shiftboss or an official of a higher rank shall, either at the beginning of a shift or after blasting, enter a working place until he has received definite instructions or permission so to do from the ganger or miner who, for the time being, is responsible for the safety of such working place.

P. CHANGE - HOUSE

CHANGE-HOUSES. REG. 143 (1)

At all main travelling shafts or main adits, except where

exemption is granted by the Inspector of Mines, suitable change-house accommodation proportionate in size to the number of miners employed shall be provided with adequate facilities for bathing and for changing and drying of clothing, and with adequate latrine accommodation.

Every miner employed underground when coming off shift shall change his clothing in such change-house.

No person shall use an engine house or boiler house for this purpose.

Lockers, cupboards, or chains, or other suitable appliances approved by the Inspector of Mines, capable of being locked, shall be provided in every such change house, and shall be sufficient to enable every miner to store his clothes separately.

RECORD BOOK IN CHANGE HOUSE. REG. 143 (2) (a) (b) (c) (d) (e) (f)

- (a) At each shaft-head or change house the manager shall provide a record book in which scheduled persons may enter any complaints which they wish to bring to his notice. Such record book shall be inspected and initialled daily by the mine overseer and at least once a month by the manager, and shall be open for inspection by the Inspector of Mines.
- (b) Any defect in the mine water service or dust-allaying devices or in any appliances provided for the health or safety of persons working underground shall be recorded in the record book by the employee having knowledge of such defect immediately on coming off shift.
- (c) Any person who has knowledge of dust or fumes in the workings during working hours or of defective ventilation or of any other condition or conditions prejudicial to health or safety shall similarly record the matter without delay in the record book.
- (d) A verbal report of any such defect or defective condition shall be made to a shift boss or other official where practicable and especially in cases of immediate necessity, but such verbal report shall not be deemed sufficient notice of such defects or conditions.
- (e) No person shall tamper with or damage the record book.
- (f) A copy of this Regulation shall be kept posted in a place near where the record book is kept.

Q. DRILL SHARPENING AND TEMPERING SHOPS

DRILL SHARPENING (UNDERGROUND). REG. 145

No person employed in the sharpening of drills underground shall be caused or allowed to perform such work in any place where, in the opinion of the Inspector of Mines, the performance of such work would be deleterious to health,

and no such place shall be used for the performance of such work except with the written permission of the Inspector of Mines, a true copy whereof shall be posted up conspicuously in such place. Any condition contained in such permission shall be effectively maintained. Underground drill sharpening stations shall be provided with impervious floors and be properly drained.

DRILL SHARPENING AND TEMPERING SHOPS. REG. 345.

At any scheduled mine:

- (1) every drill sharpening and tempering shop shall be adequately ventilated and shall be provided with a concrete floor which at all times must be kept clean;
- (2) in any such shop, furnaces, forging and hot milling machines, abrasive wheels, how saws, butt-welding plants and other machines likely to produce dust, shall be fitted with suitable equipment which shall be used to ensure the effective removal from the shop of fumes and dust produced in the process of drill sharpening;
- (3) compressed air shall not be used in any such shop in any way likely to produce dust;
- (4) drill steel that has been used in a mine shall not be brought into any such shop unless it has been treated to prevent the escape of dust;
- (5) drill steel having an obstruction in the axial hole shall not be cleared inside any such shop, or in the proximity of other workers, unless adequate steps are taken to prevent the escape of dust.

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