

CHAPTER 14.

AN ACT

[S. B. 36]

To regulate the operation of coal mines.

Be it enacted by the Legislature of the Territory of Alaska:

Section 1. In so far as they may be applicable, the provisions of this Act shall apply to all coal prospects, mines, tunnels, banks and open cut workings, in the Territory of Alaska, which employ one or more men, or on which one or more lessees are working.

Mines to which provisions are applicable.

Section 2. (a) In cases where, in the opinion of the Federal Mine Inspector, the enforcement of any provision would not materially increase the safety of employees and would work undue hardship on the operator, exceptions may be made at the discretion of the said inspector, but such exceptions must be in writing to be effective, and can be revoked any time upon notice given in writing.

Exceptions to provisions may be made.

(b) No errors or omissions in this Act shall be construed as permitting any unsafe or unsanitary conditions to exist.

Powers of Federal or Territorial Mine Inspector.

Section 3. (a) The Federal or Territorial Mine Inspector shall have the right to enter, inspect and examine any coal mine in Alaska, and to inspect and examine the workings and the machinery belonging thereto, at all reasonable times, either day or night, but not so as to impede or obstruct the workings of the mine. He shall also have the right to make inquiry into the condition of such mine, workings, machinery, ventilation, drainage, method of lighting or using lights, and into all methods, things and appliances connected with and relating to the health and safety of persons employed in or about the same, and especially to make inquiry whether or not the provisions of this Act have

been complied with. The manager of each mine is hereby required to furnish the means necessary for such entry, inspection, examination, inquiry and exit. When upon such examination any mine or portion thereof is found to be in an unsafe or insecure condition, or if proper first aid or mine rescue measures have not been adopted, the inspector shall at once serve a notice in writing upon the owner, lessees, agent, operator, manager, or superintendent thereof, setting forth the nature of the defects which render such mine unsafe or insecure and the point or place in such mine where such defects exist, and requiring the repairs necessary to remedy such defects to be made within a specified time; and, if in his judgment the circumstances so require, he shall forbid the operation of such mine or portion thereof as has been declared unsafe or insecure, save and except for the purpose of making the repairs necessary for the purpose of remedying such defects and making such mine safe for the employees therein.

Manager of mine to furnish means for examination, etc.

Inspector may forbid operation of mine when unsafe.

(b) The Territorial Mine Inspector will report any violation of this Act to the Federal Mine Inspector with recommendations, for his information and appropriate action.

Territorial Mine Inspector to report violations to Federal Inspector.

Section 4. (a) Each operator, at the beginning of the year or as soon thereafter as practical, shall register with the Federal Mine Inspector, giving the name of the operator, the name of the manager, the name of the property and its location, and the probable number of men to be employed during the coming season.

Operator shall register mine.

(b) The Federal Mine Inspector will distribute blank forms requiring statistics of accidents, labor, production and other information, which, as soon as practical after the close of each month, shall be filled in by the person in charge of the mine or mine workings and returned to the Federal Mine Inspector's office,

Statistical records.

to be made and used under the same conditions and restrictions as now required by the U. S. Geological Survey and the U. S. Bureau of Mines.

Injuries to workmen must be recorded and reported.

Section 5. (a) The lessee, manager, or his agent, of every coal mine, shall keep a record of all injuries, fatal or otherwise, received by his employees, arising out of and in the course of their employment. At the end of each calendar month such accidents must be reported in writing to the Federal Mine Inspector, giving name of employee, nature of accident, cause of accident, place of accident, probable time employee will be incapacitated for work, and any other information required.

Notice of accident, investigation and prosecution.

(b) Whenever a serious or fatal accident occurs in any coal mine it shall be the duty of the person in charge thereof to immediately notify the Federal Inspector, in the quickest manner practicable, and whenever possible to do so, the inspector shall be present at the coroner's inquest held over the remains of the person or persons killed by such accident and testify as to the cause thereof, and state whether in his opinion, the accident was due to the negligence or mismanagement of the owner or the person in charge. If the inspector cannot be immediately present in case of a fatal or serious accident occurring, it shall be the duty of the owner or person in charge of the mine to have written statements made by those witnessing the same and sworn to. In case no person was present at the accident, then the verified statements of those first present after the accident must be taken and such statement, together with a written report of the accident, must be forwarded to the inspector. A second report, stating when the injured returned to his regular employment, shall be made to the inspector in case of a serious accident. If after making such investigation the inspector finds that any provisions of this Act have been violated by the owner, lessee, agent, operator, man-

ager or superintendent of the mine in which such accident occurred, he shall cause such owner, lessee, agent, operator, manager or superintendent to be prosecuted in a criminal action.

Section 6. (a) Any miner or other workman who shall discover anything wrong with the ventilating current or with the condition of the roof, sides, timbers, or roadway, or with any other part of the mine in general, such as would lead him to suspect danger to himself or to his fellow workmen, shall, as soon as possible, report the same to the mine foreman or any other person in charge of that portion of the mine.

Miners must report dangers.

(b) Any person who shall knowingly or wilfully damage or without proper authority remove or render useless any fencing, means of signalling, apparatus, instruments or machinery, or shall throw open or obstruct any air-way, or open any ventilating door and not close the same, or enter a place in or about a mine against caution, or carry a fire, open lights, matches, any fire lighting device, pipes or other smoker's articles, in places where safety lamps are used, or handle without proper authority or disturb any machinery or cars, or do any other act or thing whereby the lives or health of persons, or the security of property, in or about the mines are endangered, shall be deemed guilty of a misdemeanor, and punished therefor as provided in Section 50 of this Act.

Miners must not damage or remove safety devices or carry matches or smoker's articles in mine.

(c) In any mine in which safety lamps are exclusively used, the mine superintendent, foreman, his authorized agent or the Federal Mine Inspector, shall have the right to search any person or persons entering such mines for matches, or any fire lighting device, pipes or other smoker's articles.

Operator may search workmen for matches and smoker's articles.

(d) It shall be the duty of every mine owner, operator, manager or lessee of every mine in which safety lamps are exclusively used to post notice of this section

Operator must post notices.

on the mine bulletin boards and at the entrance of every such mine.

First aid supplies.

Section 7. (a) At every working coal mine or striping there shall be provided first aid equipment, which shall include a book of instructions, a properly constructed stretcher, a woolen blanket, a supply of linseed oil, antiseptic gauze, carbolated vaseline, soap, carbolic acid, proper splints, suitable towels and wash basins, all for the comfort and treatment of any injured in such mine.

Employee who shall destroy or remove first aid supplies.

(b) Any person or persons who shall misuse, destroy or wrongfully remove first aid materials shall be guilty of violating Section 6 of this Act.

Men who must be trained in first aid.

(c) At every coal mine or stripping the management shall require his officials to have first aid training, and there shall be at least one first aid man at each mine, when instructors can be furnished to give such training.

Rescue apparatus to be kept at mines.

Section 8. (a) Whenever, in the opinion of the Federal Mine Inspector, there is a serious hazard from fire or irrespirable gases in any mine, he may demand the operator thereof to keep artificial breathing apparatus at all times available at such mine. All coal mines in the Territory of Alaska employing fifty or more men underground, shall be considered as having such a hazard and shall keep at least five sets of such breathing apparatus available.

Supplies for rescue apparatus.

(b) All mines which are required to keep artificial breathing apparatus on hand shall keep a type approved by the U. S. Bureau of Mines and shall keep at least six extra regenerator charges on hand for each apparatus and an oxygen pump for recharging oxygen bottles. Sufficient oxygen shall be kept on hand to furnish at least a ten hours' supply for each apparatus. At least two flame safety lamps and five electric lamps must also be kept with each five sets of apparatus.

(c) At all mines where artificial breathing apparatus is required to be kept, there shall be at least two men for each apparatus, trained in the use and wearing thereof, if a sufficient number of physically competent men can be obtained, and the men so trained shall include the foreman and all underground bosses at the mine if they are physically fit. At least once in every three months the men required to be so trained shall be given additional training in the use of such apparatus. The original course of training received by such men shall be at least equivalent to that required by the U. S. Bureau of Mines for qualifying for mine rescue certificates.

Men to be trained in use of rescue apparatus.

Section 9. (a) In every separate mine employing more than ten men underground on any shift, the owner, operator, superintendent or lessee shall provide, in addition to the main shaft, slope or drift, an escape-way or second means of egress to the surface, which, in the case of drift, slope or tunnel exits, shall be separated at the surface from the first exit by not less than 50 feet of rock or coal in place, and in case either or both exits are by vertical shaft or by incline shaft, the exits shall not be less than 200 feet apart. An escape-way or outlet through an adjoining mine which has adequate facilities for escape will be regarded as a satisfactory compliance with the requirement if at all times available and kept in proper condition for use.

Second exit to surface to be provided where more than ten men are employed on a shift.

Outlet through adjoining mine.

(b) All escape-ways or second means of egress and traveling ways shall be kept in proper travelling condition.

Escape-ways and traveling ways to be kept in proper condition.

Section 10. (a) At the top of all inclines there shall be a positive acting stop block or a derail near the top. One of these safeguards must be positive in action at all times.

Positive acting stop block on inclines.

(b) On any rope incline where the rope is disconnected from the car, no person other than the trip rider,

None but officials shall ride any but man trip.

inspectors, or other officials on duty shall ride on any loaded or empty trip except a man trip, and no person shall be permitted to board or alight from a man trip while it is in motion except in case of apprehended danger.

Not allowed to travel inclines while in operation.

(c) No person shall travel any incline while in operation except those whose duties require them to do so.

(d) On all slopes in which men ride, the hoisting rope and fastenings shall comply with the provisions of Section 12 of this Act.

Safety device for man trip.

(e) When the man trip is run, unless some safety device is used, approved by the Federal Mine Inspector, that will prevent the trip from running back, safety chains must be attached from the first car to the hoisting cable at a point at least three feet above the drawbar.

No building of inflammable material to be constructed within 75 feet of any mine.

Section 11. (a) No structure of inflammable material shall be constructed or maintained within 75 feet of any mine opening; nor within said distance shall any structure of non-inflammable material be permitted to be connected to any other structure by means of any structure or erection of inflammable material, or to be connected to any structure beyond said distance which shall be constructed of inflammable material, except as follows, that is to say:

Exceptions.

(b) Any open timber framework or headframe of timber may be constructed on a shaft, slope or incline.

(c) The posts, studs, and rafters of any such structure may be of wood if the covering or lining is made of non-inflammable material, but under no circumstances shall wood flooring be used, except in tiple or trestle structures.

Boilers shall be inspected.

Section 12. (a) All boilers, used for the generation of steam, shall be equipped with a safety valve, water

gauge and water glass, and shall be inspected at least once every year by a competent person and a written report of such inspection shall be kept, and such boilers shall be hydraulically tested, annually to a pressure exceeding the working steam pressure by forty per cent.

(b) All gears shall be covered or enclosed.

Gears shall be covered.

(c) All exposed set-screws shall be counter-sunk or covered.

(d) All belts, through which it is necessary for employees to travel, shall be suitably protected so as to comply with the provisions of subdivision "m" of this Section.

Belts guarded.

(e) All keys on shafting shall be covered or protected by railing.

(f) Shafting in exposed places shall be protected by railing or housed.

Shaftings.

(g) Hoisting engines shall be equipped with brakes of sufficient strength to hold the loaded cage, skip or trip at any point in the shaft or on the slope.

Hoisting engines equipped with safe brakes.

(h) All hoists shall be equipped with efficient indicators.

Indicators for hoists.

(i) Hoisting ropes shall have at least three turns around the drum when the cage or skip is at the lowest point in the shaft.

Hoisting rope shall have at least three turns around drum.

(j) No rope shall be used for hoisting men, when ten per cent. of the wires in any running foot are broken.

Strength of hoisting rope.

(k) Hoisting ropes shall have a factor of safety not less than five, to be calculated by dividing the breaking strength as published in the manufacturer's tables by the sum of the maximum load to be hoisted, plus the weight of the rope, plus ten per cent. of

Factor of safety for hoisting ropes and how determined.

such values, to take into account the shock of striking and of starting and stopping.

Haulage locomotives.

(l) Haulage locomotives shall be equipped with gongs or whistles.

Guards for dangerous machinery.

(m) Any owner, lessee, agent, operator, manager or superintendent of any coal mine or plant, wherein laborers are employed, or machinery used, shall provide and maintain reasonable safeguards to protect the employees from all cogs, gearing, belting, shafting, couplings, set-screws, conveyors, rolls, and machinery of other or similar description, which it is practicable to guard, and which can be effectively guarded with due regard to the ordinary use of such machinery and appliances, and with which the employees of any such mine, tunnel, shaft, or surface works may come in contact while in the performance of their duties; and if any machinery or any part thereof, is in a defective condition and its operation would be extra hazardous because of such defect, or if any machinery is not safe-guarded as provided for in this Act, the use thereof is prohibited, and a notice to that effect shall be attached thereto by the employer immediately upon receiving notice of such defect or lack of safe-guard, and such notice shall not be removed until such defect has been remedied or machine safe-guarded as herein provided.

Hoisting machinery.

Section 13. All hoisting machinery using steam, electricity, air, gasoline, or hydraulic motive power, for the purpose of hoisting from or lowering into the mines, employees and materials, except shafts or slopes not exceeding three hundred (300) feet in depth, shall be equipped with an indicator, said indicator to be placed near to, and in clear view of, the engineer. This indicator must be in addition to the marks on the rope, cable or drum. No internal-com-

bustion engine shall be used to hoist men away from lighted shots.

Section 14. (a) The superintendent of the mine, subject to the approval of the Federal Mine Inspector, shall establish for each shaft or slope, rates of speed for the cages, skips, buckets, or other conveyances which must not be exceeded in the hoisting or lowering of men, and he shall post a notice of such limitation in a conspicuous place near each hoisting engine.

Speed of hoisting.

(b) The superintendent of the mine, subject to the approval of the Federal Mine Inspector, shall determine the maximum number of men that, in his judgment, may safely ride in each cage, skip, bucket, or other conveyance used in the mine under his supervision, and shall see that some properly authorized person is present to permit no more than the authorized number to ride.

Number of men on cages, etc.

Section 15. (a) In non-gaseous mines oil lamps shall not be used for the purpose of illumination. Locked flame safety lamps shall be provided and used for testing purposes when required.

Oil lamps not to be used for illumination.

(b) Exception—in non-gaseous mines motormen, trip riders or drivers may use oil lamps.

Section 16. (a) In any working place approaching any place where there is likely to be an accumulation of explosive gas, no light or fire other than locked safety lamps shall be used. Whenever such lamps are required in any mine they shall be the property of the owner or operator and a competent person shall be appointed for the purpose of examining every such lamp, which examination shall be made as soon as possible before it is taken into the mine for use. He shall clean, lock and otherwise ascertain if it is safe for use; provided, that all fire bosses or those who inspect the mine for the presence of ex-

Lamps in gaseous mines.

plusive gases, must also personally examine their own lamps, and be responsible for their safe condition.

Mine Inspector may require that only safety lamps be used.

(b) In any mine classified as gaseous, in Section 30 of this Act, the Federal Mine Inspector may require that only permissible safety lamps be used, but each mine will be passed upon separately by the Federal Mine Inspector.

Method of determining kind of lamp to be used.

(c) In determining whether only permissible safety lamps shall be allowed, the efficiency of the sprinkling system and the efficiency and reliability of the ventilating system will be considered. However, only permissible lamps will be permitted in any section of a mine, the return air course of which shows one-half of one per cent. of inflammable gas on any working day. The percentage of inflammable gas to be determined by chemical analysis of samples of air, which samples shall be taken within two hundred (200) feet of where such return air course joins the main return air.

Lamps for testing purposes.

(d) In any case where permissible lamps are required, sufficient flame safety lamps must be provided for testing purposes.

Gasoline or other internal combustion locomotives, pumps, hoists, etc. in entries.

Section 17. (a) Gasoline or other internal combustion locomotives, pumps, hoists and other machinery shall not be used in a gaseous mine or district and shall only be used in tunnels, drifts and entries where the air current is sufficient to dilute and render harmless the exhaust gases, and to this end the percentage of carbon monoxide given off in the air current by the exhaust shall not exceed two one hundredths of one per cent. (0.02%) in the air current, and the air return from the haulage road of the locomotive and other internal combustion engines shall not be circulated through the active working places.

(b) When the exhaust of a stationary internal combustion engine can be piped to the surface, this will be considered an adequate provision permitting the use of such engine, if in other respects the installation is properly made with regard to prevention of fire or explosion resulting from the use of the engine.

Exhaust from internal combustion engine may be piped to surface.

(c) Gasoline or other highly inflammable oil used in the internal combustion engines must be taken into the mine in tight containers to replace the empty containers of the respective locomotives or engine and in no event shall such inflammable liquid be poured from one container into the other in the mine.

Gasoline to be taken into mines in tight cans.

Section 18. (a) In gaseous mines, or any part thereof, where permissible lamps are required to be used, electric trolley locomotives must not be used in any haulage way, except it be an intake airway. This should not prevent coal from being pulled from the back entry, either in advancing or retreating. Trolley wires must be kept back of the last crosscut and at least fifty (50) feet back of the first room where pillars are being drawn.

Electric locomotives.

(b) Electric storage battery locomotives, when used in such gaseous mines, shall only be used the same as electric trolley locomotives unless they are of explosion proof make.

(c) No person except those authorized by the mine foreman shall operate any locomotive.

Section 19. (a) On all hauling roads other than when tramming is done by hand, there must be a clearance on one side of at least two feet, measured between the widest part of the car or motor and the rib. There should be a clearance on both sides, and when there is a clearance only on one side it must be continuously on the same side of the entry, if practicable.

Clearance.

Clearance where drift timbers are used.

(b) When drift timbers are used and there is room for a man to stand between them there should be at least two feet of clearance from the rib or lagging. This paragraph does not apply to partings.

Clearance on partings.

(c) At partings there must be at least two feet of clearance (three feet is recommended) between the widest part of cars on tangent and if the parting has center posts there must be at least twenty inches clearance on each side of center posts. (Note: Paragraphs (a), (b) and (c) above apply to workings opened up after the passage of this Act.)

Loose material.

Section 20. All haulage roads must be kept as free as practicable from lumps of coal or any obstructions over which men might stumble. Special care must be taken to keep the clearance side of the track clean.

Offset in roof.

(b) All abrupt offsets in the roof which are six and one-half ($6\frac{1}{2}$) feet or less in height on which men might strike their heads shall be kept whitened.

Illumination of partings, etc.

Section 21. In shaft or slope mines, both at intermediate and bottom landings, the ribs and roof shall be kept white-washed. If electricity is available in the mine, electric lights shall be maintained at intermediate and bottom landings of shaft or slope.

Track.

Section 22. (a) The tracks for mine cars must be laid in a workmanlike manner, with sufficient ties, and with rails heavy enough to prevent the danger of cars being derailed or overturned.

Switches.

(b) Switch throws must be installed to avoid, as far as practicable, the danger of men tripping over them.

Frogs and guard rails blocked.

(c) On all haulage-roads, frogs and guard rails shall be properly blocked.

Mining system.

Section 23. (a) The system of mining employed in any mine must be such as will not create any unnecessary hazard to life. In room and pillar work

two or more parallel entries must always be used, with crosscuts at frequent intervals, as provided for in Section 37, subdivision (i) of this Act with reference to ventilation.

(b) In room and pillar workings the width of rooms and pillars are to be consistent with safety and good mining practice, governed by the conditions existent at each mine.

Section 24. (a) It shall be the duty of every person, owner, operator, superintendent or mine foreman to furnish to the miners all props, ties, rails and timbers necessary for safe mining in coal mines and for the protection of the lives of workmen. Such props, ties, rails and timbers shall be suitably prepared and shall be delivered within one hundred (100) feet of the working places.

Timbering.

(b) Any miner or other person having charge of a working place in any mine shall for his own protection keep the roof and sides thereof properly secured by timbering or otherwise, so as to prevent such roof and sides from falling and injuring him or his fellow workmen; and he shall not do any work or permit any work to be done under loose rock or dangerous material, except for the purpose of securing the same.

Miners must keep roof properly timbered.

(c) In places where necessary, systematic timbering shall be required. By systematic timbering is meant the placing of timbers in adjacent rows and spaced a certain distance apart, and such spacing shall be such as to insure reasonable safety.

Places requiring systematic timbering.

(d) Where systematic timbering is employed, the miners must keep the timbers within a reasonable distance of the working face as directed by the mine officials or by the Federal Mine Inspector.

(e) Miners must pull down from the face all loose coal and miners and machine men must sprag coal when necessary.

Miners must pull down loose coal.

Bars for sound-
ing roof.

(f) In every working place which is over eight (8) feet in height, the miner must keep at all times suitable bars of convenient weight and length to sound the roof, and the operator shall furnish ladders or "horses" for men to stand on when placing props or sounding roof.

Storage of
explosives.
Exceptions.

Section 25. (a) All explosives must be stored in a magazine or magazines located on the surface, which magazines must be located away from all mine openings, mine buildings or inhabited dwellings, as is required by the American Table of Distances, which is as follows:

Quantity of Explosive Stored—lb.	Minimum Distance	Quantity of Explosive Stored—lb.	Minimum Distance Ft.
500	400	50,000	1,460
1,000	530	100,000	1,835
2,000	650	200,000	2,095
4,000	750	400,000	2,555
8,000	850	500,000	2,755
10,000	890		
20,000	1,055		
30,000	1,205		

These distances are given for barricaded magazines. When magazines are not barricaded the distance should be doubled. By "barricaded" is meant that the magazine has between it and any building or mine opening, a natural or artificial barrier not less than three (3) feet in thickness and of such height that a straight line drawn from the top of any side wall of such magazine to any part of a building or opening to be protected, will pass through the barrier.

(b) Whenever it is impracticable to locate magazines in accordance with the above table the question should be taken up with the Federal Mine Inspector.

(c) Magazines must be kept locked and no inflammable material shall be allowed within sixty (60) feet of the same. Magazines must be kept locked.

(d) Magazines must be designated by a sign—"Explosives—Keep Away" and such a sign should be placed so that a bullet passing through the sign will not enter the magazine. Separate magazines must be provided for black powder, and detonators must, in no case, be stored with black powder or other explosives. The magazine must be placed under the charge of a man or men designated by the superintendent and such men should not be intemperate nor shall they be habitual smokers. Signs on magazines.

(e) The following rules shall apply to all magazines: Rules which apply to magazines.

1. No person, other than officials or those actually engaged in handling explosives shall be allowed to enter any magazine.

2. No smoking shall be permitted in or within twenty-five (25) feet of a magazine and no one must carry into any magazine, any matches, or any tool or material which might cause a spark.

3. No lights, other than enclosed, guarded electric lamps shall be permitted in any magazine.

4. All magazines must have dry soft earth or wooden floors, free from exposed nail heads, and must be kept clean and free from inflammable material.

5. Packages of explosives shall not be opened in the main storage magazine.

6. While at work in a powder magazine, men must wear rubbers or boots with rubber or cork heels and soles and there must be no projecting or exposed nails, unless such are of brass or copper.

Explosives must not be thawed in magazine.

Section 26. Thawing must not be conducted in explosive storage magazines and thawing house where necessary shall be located not less than 250 feet away from explosive storage magazine and at least 300 feet away from any mine opening or structure.

Explosives shall not be kept in dwellings, etc.

Section 27. At any coal mine no explosive of any character shall be thawed, kept or stored in buildings or dwellings except in magazines as designated heretofore.

Miners shall have one shift's supply only in mine.

Section 28. (a) No explosives of any character shall be stored in a mine and no miner shall have in any working place more than one shift's supply.

Explosives in mine kept in box or cubby hole.

(b) Explosives shall be kept underground only in a cubby hole cut in the rib or in a closed wooden box or in equally safe receptacle.

Men may carry their individual supply of powder.

(c) Men may carry their individual supply of explosives into the mine when walking. In such cases men must not smoke while carrying powder.

Matches and detonators not to be kept with powder.

(d) Matches, carbide, oil or tools shall not be kept in the same compartment with explosives. Detonators must be kept at least five (5) feet apart from other explosives.

Cartridges to be prepared 5 feet from powder box.

(e) All cartridges and priming sticks must be prepared at least five (5) feet away from the powder box.

Section 29. (a) No person shall be employed to blast coal or rock, unless the mine foreman is satisfied that the person is qualified by experience to perform the work with ordinary safety, or unless he is placed at work with an experienced miner.

Loading of holes.

(b) In charging holes for blasting in coal, slate or rock, in any coal mine, no iron or steel pointed needles shall be used, and a tight cartridge shall not be rammed

No iron or steel needles or tamping bars to be used.

into a hole in the coal, slate or rock with an iron or steel tamping bar, unless the bar is tipped with copper

or other soft metal. No exception will be made in case of permissible powder.

(c) The charge of powder or any other explosives in coal, slate or rock which has missed fire shall not be withdrawn or the hole reopened.

Missed holes must not be withdrawn.

(d) It shall be unlawful to tamp holes for the purpose of blasting with coal dust, drillings or small pieces of coal. But it shall be the duty of the superintendent, foreman or lessee to furnish clay or earth tamping.

Unlawful to tamp with coal dust, etc.

(e) Before commencing work and also after firing of every blast, the miner working a room or other place in the mine shall enter such room or place to examine and ascertain its conditions, and his assistant shall not go to the face of such room or place until the miner has examined the same and found it to be safe.

Miners must examine working place.

(f) The charge in any one shot shall not be more than three pounds of black powder, where black powder is used. In all places where coal is sheared or cut, shot holes must not extend closer than six (6) inches to the end of such cutting and shall be at least twelve (12) inches in the clear from the ribs.

Charge to the shot, etc.

Section 30. (a) A gaseous mine shall be considered one in which inflammable gas can be detected by an approved safety lamp in any working place on three different working days, within a period of thirty days, or if from such place or places, samples of the air can be gathered, which show by chemical analysis, one per cent. or more of inflammable gas, or if one half of one per cent. or more can be found in any return current, as determined by chemical analysis.

Definition of gaseous mine.

(b) A mine will also be classified as gaseous if inflammable gas, as determined by the preceding paragraph, can be found in abandoned workings which are not bulkheaded off, or if there is liable to be an inrush

Gas in abandoned workings.

of gas due to falls or caves of the overlying strata as determined by conditions in the mine or in adjoining or nearby mines.

Finding of gas in a non-gaseous mine must be reported.

(c) Upon the finding of gas in any part of a mine classed as non-gaseous, a report shall be at once made to the Federal Mine Inspector.

Blasting in gaseous mine.

Section 31. In gaseous mines shot firing shall be done by electricity after all men are out of the mine or by authorized shot firers under the following conditions:

Permissible explosives to be used.

(a) Only permissible explosives shall be used and then only when used in such quantities and under such conditions as have been approved by the United States Bureau of Mines.

Coal to be cut or sheared.

(b) Coal in advance work shall be undercut or sheared six inches deeper than the bottom of the shot hole.

Shot firers to load holes.

(c) The shot holes shall be measured by an authorized shot firer and shall be charged and tamped in his presence or under his instructions.

Shots to be fired electrically after men have left mine.

(d) The shots shall be fired electrically by an authorized shot firer after all men are out of the mine.

Section 32. (a) Blasting in non-gaseous mines may be done when men are in the mine under the following conditions:

Blasting in non-gaseous mines.

(1) The coal in advance work shall be undercut or sheared to a depth of at least six inches beyond the bottom of the holes to be fired.

(2) Permissible powder only shall be used in mines that show any accumulation of coal dust.

Exception.

(b) Operators of lignite mines may be relieved from compliance with the provisions of this section upon application in writing to the Federal Mine Inspector.

Section 33. In any mine where the roof or bottom in [is] brushed or rock work is being done in proximity to gas or coal dust, the same precautions for blasting must be taken as when shooting in the coal.

Section 34. (a) Every owner, manager or lessee of coal mines shall provide and maintain a constant and adequate supply of pure air. Fans houses and casings.

(b) The main ventilating fan must be placed on the outside of the mine and must be of sufficient capacity to provide the amount of air required in the mine by this Act. All fans, placed after the passage of this Act, must be of fire proof material and have a fire-proof casing. The fan must be placed in a non-inflammable building and must be placed to one side of the mine opening. Directly over or in front of the mine opening there must be placed efficient explosion relief doors of the full area of the air shaft or air way in order to protect said fan in case of mine explosion. Underground fans.

(c) It shall be unlawful to use a furnace for the purpose of ventilating any coal mine in the Territory of Alaska. Unlawful to use furnace.

(d) Electric fans underground shall be placed only in fire-proof rooms and have fire-proof housing. Electric fans shall be placed in fire proof rooms.

Section 35. (a) In gaseous mines the fan must be operated twenty-four hours each day that men work in the mine, providing, however, that if it is necessary to shut down the fans for repairs, all men must be withdrawn from the mine and must not reenter the mine again until the fan has been in operation for two hours, and an inspection for gas by the fireboss has been made in each working place. Operation of fan in gaseous mines.

(b) The fan should not be reversed when men are in the mine except in case of an emergency. Fan must not be reversed.

(c) The fan must be inspected at least twice daily and must be equipped with a device or other arrange-

ment made whereby any stopping of the fan will be immediately known. The fan must also be equipped with a device by which the effective ventilating pressure of the fan shall be registered and the registration of each day, with the day thereof, shall be kept in the office at the mine for future reference for one year, the same to be produced upon the request of the inspector.

Fan must be inspected twice daily.

Electrically driven fan in gaseous mines to have two independent sources of power.

(d) In a gaseous mine the fan, if electrically driven, must have two independent sources of power.

Section 36. (a) In a non-gaseous mine, if the fan is not operated continuously, it must be started at least two hours before the men enter the mine. Each working place must be inspected for gas with a safety lamp by the foreman or a fireboss, before the men enter, and the fan must be in operation at least thirty minutes before the mine is entered by the foreman or fireboss.

Operation of fan in non-gaseous mines.

(b) In a non-gaseous mine the men must be withdrawn if the fan is shut down for longer than four hours.

Section 37. (a) The minimum quantity of air provided shall not be less than one hundred cubic feet per minute for each and every person in every mine, and 300 cubic feet for each and every animal employed therein, and as much more as the Federal Mine Inspector may deem necessary. In gaseous mines 150 cubic feet per minute must be provided for each man.

Quantity of air.

(b) The ventilation current shall be conducted and circulated to the face of each and every working place through the entire mine, in sufficient quantities to dilute, render harmless and sweep away smoke and noxious and dangerous gases, to such an extent that all working places and travelling roads shall be in a safe condition for working and travelling therein.

Air distribution.

(c) All worked out or abandoned parts of any mine in operation, so far as practicable, shall be kept free from dangerous bodies of gases or water; and if found impracticable to keep the entire mine free from dangerous accumulation of standing gases or waters, the Federal Mine Inspector shall be immediately notified.

Worked out or abandoned places.

(d) Every mine wherein are employed more than seventy-five persons must be divided into two or more districts. Such districts shall be provided with a separate split of pure air, and the ventilation shall be so arranged that not more than seventy-five (75) persons shall be employed at the same time in any one current or split of air.

Number of men on split.

(e) When crosscuts or break-throughs are no longer used for the passage of ventilation they shall be closed on main haulage entries or gangways with stoppings of incombustible material and sealed as air tight as possible.

Ventilation stoppings.

(f) All doors used in assisting or in any way affecting the ventilation shall be so hung and adjusted that they will close automatically. Main doors regulating the principal air current of a mine shall be so placed, in all cases, when it is practicable, that when one door is open, another, which has the same effect upon the same current of air, shall be and remain closed.

Door.

(g) All permanent air bridges shall be built of such material and of such strength as the circumstances may require, but in no case shall wood be used for a permanent overcast.

Overcasts.

(h) The quantities of air in circulation shall be ascertained with an anemometer, or other efficient instrument, such measurements to be made by the inside foreman or other competent person, at least once

Measurement of air.

every week, and a record of all air measurements shall be entered in a book provided for that purpose and kept at the mine.

(i) For the purpose of properly ventilating rooms and entries in coal mines, crosscuts in rooms shall not be more than one hundred feet apart; and crosscuts in main entrances shall not, except in cases approved by the Federal Mine Inspector, be more than two hundred feet apart.

Distance between crosscuts.

(j) Rooms must not be worked beyond the last completed crosscut on any entry. This is not to be construed as preventing the turning of room necks.

Section 38. (a) In gaseous mines, worked out areas shall either be sealed off with explosion and fire proof bulkheads, or they shall be fenced off, well posted with danger signs and so ventilated as to prevent any accumulation of inflammable or noxious gas. In non-gaseous mines, worked out areas shall either be sealed off or posted with danger signs and so ventilated as to prevent any accumulation of noxious gas.

Ventilating or sealing worked-out areas.

(b) Air from worked out areas must be conducted into the return airway without passing through working rooms or entries.

Air from worked-out areas must not pass through active workings.

Section 39. 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 the prevalence of inflammable or noxious gases, or for any cause whatever, the mine or any place in the mine is dangerous, every workman shall be withdrawn from the mine or place found dangerous. For the purpose of this section, a place shall be deemed dangerous if the percentage of inflammable gas in the general body of the air is found to be as much as two per cent. or as much as three per cent. of carbon dioxide or if there are indications of an extensive fall of roof or of a serious "squeeze"

Withdrawal of workmen for dangerous conditions of gas or roof.

over any section where men are working: Provided, this is not intended to prevent men from "clearing" gas or catching up caves.

Section 40. (a) In all mines known to generate explosive gases, the mine foreman or fire bosses shall examine every working place and accessible part of the mine within three hours prior to the entrance of a shift of miners, where shifts in the same district of the mine do not immediately succeed one another, to determine if every place is free from a dangerous quantity of firedamp or noxious gas, and if the roof and other conditions are safe for men to work. Any place in which blasting has been done either in coal, roof, or floor within less than three hours prior to the time of entrance of a shift, shall be examined by the mine foreman or fireboss before the workmen are permitted to enter. Such examination shall be made with a safety lamp. No person except those whose presence is necessary to prepare the mine for the entrance of the workmen shall enter the mine or any part thereof until the mine foreman or fireboss of his district shall report to him that his place is in safe condition. The mine foreman or fireboss making such an examination shall record the result of his examination in a book kept for that purpose, which book shall be open to the inspection of the Mine Inspector and all employees.

(b) All accessible parts of abandoned portion of mines in which explosive gases have been found or are known to exist, shall be carefully examined by the mine foreman or his assistants at least once in each and every week, and all danger existing therein from such gases shall be removed as soon as possible. A report of each and every examination shall be recorded in a book kept for that purpose, signed by the person making the examination, Provided, if such places are

Gas inspection.

Abandoned workings to be examined.

so located that gas from them could enter any workings or travelling way, such inspection must be made daily.

Danger sign
must be placed.

(c) When a fireboss or foreman detects a dangerous quantity of gas in any working place he must place a danger sign warning employees of gas, and no employee, except those authorized by the foreman, shall enter such place until such sign has been removed.

Gas must not
be cleared by
brushing.

(d) It shall be unlawful for any owner, operator, superintendent, mine foreman or any employee of any mine which generates explosive gases to remove any accumulated body of gases by wafting or brushing. All such bodies of gases must be removed from the mine by approved methods of ventilation.

Non-gaseous
mines to be in-
spected by fire-
boss unless.

(e) In non-gaseous mines the inspection by the fireboss must be made the same as in gaseous mines unless permission not to do so is granted in writing by the Federal Mine Inspector.

Sprinkling.

Section 41. (a) To lessen the danger of coal dust explosions in every mine producing dust of an explosive character, unless the floor, roof and sides of roads are naturally wet, arrangements shall be made and methods employed as follows:

(1) The floor, roof and sides of haulage entries shall be systematically cleaned so as to prevent as far as practicable, coal dust accumulations.

(2) In mines and parts of mines which make or may make dust of explosive character, as may be determined by samples gathered by the Mine Inspector and tested by the U. S. Bureau of Mines and that are not naturally wet, the systematic and regular application of water, or rock or shale dust shall be made to render the coal dust inert;

(3) If water is used, the dust must be made wet or washed down from the roof and ribs, and the floor dust must be so wet that it cannot be raised into the air by concussion.

(4) If the dry rock dusting method is used, there shall be sufficient rock, shale or other inert dust added and distributed systematically along the entries, slopes, tunnels and escapeways so that the mixture will not be explosive when brought up in suspension in the air, to this end, that the ash content of the mixture shall be determined from time to time through sampling and analysis, in accordance with Bureau of Mines prescribed methods. The ash content, plus the moisture, shall not be less than 75 per cent. or the rock dusting must be renewed in that portion of the mine where the deficiency is thus indicated.

(b) Any person who shall, without proper authority, remove or wilfully damage any hose or any part of appliance of a sprinkling system, will be considered as having violated Section 6 hereof.

Section 42. (a) Not more than one barrel or tank holding not over Fifty-two (52) gallons of lubricating oil shall be taken inside of any mine at any one time, and there shall be not exceeding two barrels of oil in the mine at one time.

Oil under-
ground.

(b) Buckets or drop pans shall be used for catching the drip or leakage from the barrels or tanks. A supply of sand shall be kept in a suitable container located not in the chamber but near by for use in case of fire.

Fire prevention.

Section 43. Workmen shall keep their working places free from accumulations of coal or other loose material which would result in obstructing travel in so far as it is possible to do so. Material underground shall be piled in a workmanlike manner and kept far

General pre-
cautions.

enough away from the track to provide clearance for a man or animal, if sufficient space is available. Boards and ties containing nails or spikes which might result in causing injury, shall not be left on haulage ways or other places where men work or travel. Tools which are in a dangerous condition through use, or abuse shall not be used.

Electrical Regulations.

Section 44. The following regulations shall govern the installation and maintenance of electrical equipment in and about coal mines.

Limitation of voltage of underground use.

(a) Voltage underground shall not exceed three hundred (300) on bare wires or five hundred (500) on properly insulated wires.

Exception.

(b) Voltage limits do not apply to armored pick proof cable.

Trolley installation.

(c) In all underground haulage the trolley wires shall be securely supported upon efficient insulated hangers, well placed and kept in good condition, and at such intervals that the trolley wire shall be taut.

(d) The height of the trolley wire above the track shall be uniform in each gangway. It shall be placed on the outside of the rail and properly aligned. Trolley wires shall be maintained on the same side of the track on any one haulage road and shall be opposite the clearance side.

(e) Trolley wires, when less than six (6) feet six (6) inches above the rail shall be protected at all branch roads, side tracks, cross-overs, room necks, doors and other places where men regularly pass under it by adequate guards.

(f) Guard boards shall be supported on efficient hangers giving a distance between boards of not to exceed five (5) inches, except that on curves the distance between boards shall not exceed eight (8)

inches. The boards shall in all cases extend at least two (2) inches below the lowest point of the wire.

(g) All underground electric stations shall be fire-proof and at all such stations at least one chemical fire extinguisher shall be kept for use in event of fire in the electric apparatus. Underground electric stations.

(h) All electric installations are to be so installed and used as to insure the greatest safety to workmen. Electric installation by safest method.

Section 45. If at any time in any place in the mine the percentage of inflammable gas in the general body of the air in that place is found to exceed two per cent. (2%), the electric current shall at once be cut off from all cables and other electric apparatus in that place, and shall not be switched on again as long as the percentage of inflammable gas exceeds that amount. Electricity when 2% inflammable gas is present to be cut off.

Section 46. Drills, undercutting, shearing, loading machines, pumps, and other machines, when electrically driven, and also unenclosed electric switches, shall not be used in gaseous mines or gaseous districts in mines unless the motor and connections and inclosed switches shall have been approved by the U. S. Bureau of Mines as explosion proof.

Section 47. In gaseous mines electric lighting circuits may be used only at the foot of the intake shafts and in the intake main roads in which the air currents contain not more than one-half of one per cent. of inflammable gas, as determined by samples gathered from time to time by the mine inspector. Electric lighting circuits on intake only.

Section 48. (a) Cut-out switches in the trolley lines and lighting circuits shall be placed at the mouth of each branch entry and elsewhere at distances not to exceed one thousand (1,000) feet. Switches in all circuits at intervals.

(b) Electric currents shall, by means of cut-out switches, be cut off from districts of the mine when

men are not working in such districts, and wires permanently disused shall be disconnected from the source of current.

**Motors
underground.**

Section 49. Every stationary motor and every portable motor underground, together with its starting device, shall be protected by a fuse on each phase, or in case of motors of more than forty horse power, by a circuit-breaking device on at least one leg of direct current motors, and on each phase of alternating current motors, and by switches arranged to cut off entirely the power from the motor.

**Penalty for
violations.**

Section 50. Any persons or corporations failing to comply with any of the provisions of this Act, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in a sum not less than fifty dollars (\$50.00), nor more than One Thousand dollars (\$1000.00), or be imprisoned in the Federal jail for a period of not less than thirty (30) days nor more than one (1) year, or punished by both such fine and imprisonment, at the discretion of the Court.

Section 51. This Act shall supersede the provisions of Chapter 51 of the Laws of 1917, to the extent that the latter have heretofore been applicable to coal mines and coal mining, and said Chapter 51 of the Laws of 1917 shall not hereafter be applied to coal mining.

Approved May 2, 1921.