TEMPORARY

MINE MANAGER

STUDY GUIDE

This should be used in conjunction with the **Coal Mining Act**

The temporary test will cover:

CMA Articles 5, 6, 11, 14, 19, 20, 21 (21:03, 21:06, 21:08, 21:11), 24 & 31

Map

Diesel Regs

Math

Gas Chart

(225 ILCS 705/Art. 5 heading)

ARTICLE 5.

MINE MANAGER--REQUIREMENTS AND DUTIES.

(225 ILCS 705/5.01) (from Ch. 96 1/2, par. 501)

Sec. 5.01. Each applicant for a certificate of competency as mine manager shall produce evidence satisfactory of the Mining Board that he is a citizen of the United States, at least 23 years of age; that he has had at least 4 years' practical underground mining experience; has been issued a Certificate of Competency as Mine Examiner, or its equivalent issued by another state; and that he has satisfactorily completed a course of instruction in first aid to the injured and mine rescue methods and appliances prescribed by the Department; and that he is a man of good repute and temperate habits. He shall also pass such examination as to his experience in mines and in the management of men; his knowledge of mine machinery and appliances; the use of surveying and other instruments used in mining; the properties of mine gases; the principles of ventilation; and the legal duties and responsibilities of mine managers, as shall be prescribed by the rules of the Mining Board.

Persons who have graduated and hold a degree in engineering or an approved 4-year program in coal mining technology from an accredited school, college or university are required to have only 2 years' practical underground mining experience to qualify for the examination for a Certificate of Competency.

Persons who have graduated and hold a two-year Associate in Applied Science Degree in Coal Mining Technology from an accredited school, college or university are required to have only 3 years' practical underground mining experience to qualify for the examination for a Certificate of Competency. (Source: P.A. 79-876.)

(225 ILCS 705/5.03) (from Ch. 96 1/2, par. 503)

Sec. 5.03. It shall be unlawful for any operator to operate an underground coal mine without the services of a mine manager. Further, it is unlawful for the operator of any coal mine to have in his service as mine manager at his mine, any person who does not hold a certificate of competency issued by the Mining Board of this State; Provided, that whenever any exigency arises by which it is impossible for any operator to secure the immediate services of a certificated mine manager, he may place any trustworthy and experienced man of the mine inspection district in charge of his mine to act as temporary mine manager for a period not exceeding 7 days, and with the approval of the State mine inspector of the district, for a further period not exceeding 23 days. (Source: Laws 1955, p. 2012.)

(225 ILCS 705/5.04) (from Ch. 96 1/2, par. 504)

Sec. 5.04. The certificate of any mine manager may be cancelled and revoked by the Mining Board upon notice and hearing as provided by this Act, if it shall be established in the judgment of said Mining Board that the holder thereof has obtained said certificate by fraud or misrepresentation of his

experience or has become unworthy to hold said certificate by reason of violation of the law, intemperate habits, incapacity, abuse of authority or for any other cause. Any person against whom charges or complaints are made hereunder shall have the right to appear before the Mining Board and defend himself against said charges, and he shall have 15 days' notice in writing of such charges previous to such hearing. The Mining Board, in its discretion, may suspend the certificate of any person charged as aforesaid, pending such hearing, but said hearing shall not be unreasonably deferred.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/5.05) (from Ch. 96 1/2, par. 505)
Sec. 5.05. Effective on or after January 1, 1977, it shall be unlawful for the operator of any underground mine to employ as a superintendent any person who does not hold a certificate of competency as a mine manager issued by the Mining Board. Upon request, the Mining Board may issue a temporary Certificate of Competency as mine examiner or mine manager to any person who possesses a valid equivalent certificate issued by the appropriate agency in another state, provided however that such temporary certificate shall be valid only until the first available examination given by the Mining Board or 6 months, whichever is longer.
Source: P.A. 79-460.)

(225 ILCS 705/5.06) (from Ch. 96 1/2, par. 506)
Sec. 5.06. The mine manager shall be responsible for the performance of all the functions and duties prescribed in Sections 5.07 to 5.25, both inclusive.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/5.07) (from Ch. 96 1/2, par. 507)
Sec. 5.07. Visit each working place in the mine at least once in every two weeks and require his assistants or the Face Bosses to go into all working places in their territory or sections regularly during each working shift.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/5.08) (from Ch. 96 1/2, par. 508)
Sec. 5.08. Provide a suitable checking system whereby the entrance into and the departure from the mine of each employee shall be positively indicated.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/5.09) (from Ch. 96 1/2, par. 509)
Sec. 5.09. (A) In gassy mines:
1. When the mine is to be operated he shall have the prescribed working places of such mine examined by a certified mine examiner within 4 hours before the workers of any shift, other than the examiner or the examiners designated by the

mine manager to make the examination, enter the underground areas of such mine. Have the mine examiner inspect every active working place in the mine and make tests therein with a permissible flame safety lamp for accumulation of methane and oxygen deficiency in the air therein; examine seals and doors to determine whether they are functioning properly; inspect and test the roof, face and rib conditions in the working areas and on active roadways and travelways; inspect active roadways, travelways, approaches to abandoned workings and accessible falls in active sections for explosive gas and other hazards; and inspect to determine whether the air in each split is traveling in its proper course and in normal volume.

2. On "non-coal producing shifts" he shall have the mine examined in its entirety the same as for a coal producing shift, except where persons are to work only in the shaft, slope, drift or on the immediate shaft or slope bottom, then only that area immediately surrounding the bottom shall be examined.

3. He shall see that no person, other than competent personnel, enters any underground area in a gassy mine, except during a coal-producing shift, unless an examination of such area has been made by a mine examiner within 12 hours immediately preceding his entrance into such area.

(B) In non-gassy mines:

1. Have the underground areas examined by a certified mine examiner at least once in each calendar day during which coal is produced. Such examination shall be made within 4 hours immediately preceding the beginning of the first coal-producing shift on such day.
2. On idle days, have all sections of the mine examined where men are to be required to work.
3. On idle nights, when the mine has been examined for the day shift and the men are to work in sections previously examined and no coal is to be mined, no further examination shall be required.

(C) One examination on each day when workers perform production or idle day work shall include the escape ways required by Sections 19.11 and 19.13.

(Source: P.A. 81-992.)

(225 ILCS 705/5.10) (from Ch. 96 1/2, par. 510)

Sec. 5.10. To have the underground working places in the mine examined for hazards by competent personnel designated by the operator to do so, at least once during each coal-producing shift, or oftener if necessary for safety. In a gassy mine such examinations shall include tests with a permissible flame safety lamp for methane and oxygen deficiency. In all underground face workings in a gassy mine where electrically driven equipment is operated, examinations for methane shall be made with a permissible flame safety lamp by a person trained in the use of such lamp before equipment is taken into or operated in face regions, and frequent examinations for methane shall be made during such operations.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/5.11) (from Ch. 96 1/2, par. 511)

Sec. 5.11. To see that a mine examiner makes the examinations provided in Articles 5, 6, and 31 of this Act, and that he enters his report thereof with indelible pencil or ink in a well-bound or properly protected loose leaf book provided by the operator for that purpose.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/5.12) (from Ch. 96 1/2, par. 512)

Sec. 5.12. To examine the mine examiners' reports in the morning before workers are permitted to enter the mine, and if any working places are reported dangerous, the mine manager shall see that all workers and supervisory personnel concerned are notified of the danger and instruct them not to enter such places until the reported danger has been removed, except for the purpose of removing the dangerous condition.

(Source: P.A. 81-992.)

(225 ILCS 705/5.13) (from Ch. 96 1/2, par. 513)

Sec. 5.13. He shall provide a sufficient number of props, caps, and timbers, when needed, delivered on the miners' cars at the usual place, in suitable lengths and dimensions for the securing of the roof by the miners. When cross bars are set by the miners they shall be furnished in the required lengths.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/5.14) (from Ch. 96 1/2, par. 514)

Sec. 5.14. He shall see that cross-cuts are made at proper distances apart; that necessary doors, curtains, and brattices are provided to furnish the men in the mine the volume of air required by this Act or by the written demand of the State mine inspector; and that all stoppings along airways are properly built.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/5.15) (from Ch. 96 1/2, par. 515)

Sec. 5.15. He shall take daily barometer readings and record the readings when men are in the mine, and keep a careful watch over all ventilating apparatus and the air currents in the mine. When the ventilating fan at any mine fails or stops, he shall take immediate action to cut off the electric power and withdraw the workers from the face regions of the mine. In gassy mines, if the ventilation is restored within a reasonable time, the face regions and other places where methane is likely to accumulate shall be re-examined by competent personnel, and if such places are found to be free from explosive gas the power may be restored and work resumed. If the ventilation is not restored within a reasonable time all underground employees shall be removed from the mine. In non-gassy mines, if the ventilation is restored within a reasonable time, the power may be turned on and the work resumed without the necessity of re-examination.

(Source: P.A. 81-992.)

(225 ILCS 705/5.16) (from Ch. 96 1/2, par. 516)

Sec. 5.16. He shall measure the air current or cause the same to be measured at least once each week at the inlet and outlet, also at the last open cross-cut in each division or split, and shall keep a record of such measurements for the information of the State mine inspector.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/5.17) (from Ch. 96 1/2, par. 517)

Sec. 5.17. He or his assistant shall, at least once a week, examine the escapement shaft and the roadways leading thereto and all other openings for the safe exit of men to the surface; and shall make a record of any obstructions or other unsafe conditions existing therein, and cause the same to be promptly removed.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/5.18) (from Ch. 96 1/2, par. 518)

Sec. 5.18. He shall examine or designate a competent person to examine the hoisting ropes, cages, and safety catches every morning and shall require the ropes to be tested by hoisting the cages before men are lowered.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/5.19) (from Ch. 96 1/2, par. 519)

Sec. 5.19. At shaft mines, he must see that the top and bottom people are on duty at the beginning and end of regular shifts where people are hoisted in and out of the mine, and that sufficient lights are maintained at the top and bottom landings when the miners are being hoisted and lowered.

(Source: P.A. 80-296.)

(225 ILCS 705/5.20) (from Ch. 96 1/2, par. 520)

Sec. 5.20. He or his assistant shall be at his post at the mine when the men are lowered into the mine in the morning for work, and shall remain at night until all the men employed during the day shall have been hoisted up.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/5.21) (from Ch. 96 1/2, par. 521)

Sec. 5.21. He shall give special attention to and instructions concerning the proper storage and handling of permissible explosives in the mines.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/5.22) (from Ch. 96 1/2, par. 522)

Sec. 5.22. Where coal is broken down "on shift"; and while men are in the mine, with compressed air, or by some mechanical or chemical-mechanical device which does not emit spark or flame, he shall see that frequent examination for gas and other hazards is made by competent personnel.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/5.23) (from Ch. 96 1/2, par. 523)

Sec. 5.23. He shall require all excessively dusty haulage roads to be thoroughly sprayed, sprinkled, cleaned or rockdusted at regular intervals when the health and safety of the men in the mines are jeopardized.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/5.24) (from Ch. 96 1/2, par. 524)

Sec. 5.24. To instruct employees as to their respective duties and to require of all employees obedience to the provisions of this Act.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/5.25) (from Ch. 96 1/2, par. 525)

Sec. 5.25. To prescribe special rules concerning the proper storage and handling of explosives in the mine and concerning the time and manner of placing and discharging the blasting shots, and it shall be unlawful for any miner to fire shots except according to such rules.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/5.26) (from Ch. 96 1/2, par. 526)

Sec. 5.26. In mines in which the works are so extensive that all the duties devolving upon the mine manager cannot be discharged by one man, competent persons may be designated and appointed as assistants to the mine manager, who shall exercise his functions under the mine manager's instructions.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/Art. 6 heading)

ARTICLE 6.
MINE EXAMINERS--REQUIREMENTS AND DUTIES.

(225 ILCS 705/6.01) (from Ch. 96 1/2, par. 601)

Sec. 6.01. Each applicant for a certificate of competency as mine examiner shall produce evidence satisfactory to the Mining Board that he is a citizen of the United States, at least 21 years of age and of good repute and temperate habits and that he has had at least 4 years practical underground mining experience, and has been issued a First Class

Certificate of Competency by the Department of Natural Resources. He shall pass an examination as to his experience in mines generating dangerous gases, his practical and technological knowledge of the nature and properties of mine gases, the laws of ventilation, the structures and use of safety lamps, and the laws of this State relating to safeguards against fires from any source in mines. He shall also submit to the Mining Board satisfactory evidence that he has completed a course of training in first aid to the injured and mine rescue methods and appliances prescribed by the Department. Persons who have graduated and hold a degree in engineering or an approved 4-year program in coal mining technology from an accredited school, college, or university, are required to have only 2 years of practical underground mining experience to qualify for the examination for a certificate of competency.

Persons who have graduated and hold a two-year Associate in Applied Science Degree in Coal Mining Technology from an accredited school, college or university are required to have only 3 years' practical underground mining experience to qualify for the examination for a Certificate of Competency as a Mine Examiner.

(Source: P.A. 89-445, eff. 2-7-96.)

(225 ILCS 705/6.02) (from Ch. 96 1/2, par. 602)

Sec. 6.02. Certified mine examiner. A certificated mine examiner shall be required at all coal mines. There shall be one or more additional certificated mine examiners whenever required in writing by the State Mine Inspector when the conditions are such as to make the employment of such additional mine examiners necessary.

(Source: P.A. 87-1133; 88-185.)

(225 ILCS 705/6.03) (from Ch. 96 1/2, par. 603)

Sec. 6.03. The mine examiner shall perform the duties set out in Sections 6.04 to 6.11, inclusive.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/6.04) (from Ch. 96 1/2, par. 604)

Sec. 6.04. (A) In gassy mines:

1. When the mine is to be operated he shall examine the prescribed working places of such mine within 4 hours before any workers in such shift, other than the examiner or the examiners designated by the Mine Manager to make the examination, enter the underground areas of the mine. Examine every active working place in the mine and make tests therein with a permissible flame safety lamp for accumulation of methane and oxygen deficiency in the air therein; examine seals and doors to determine whether they are functioning properly; inspect and test the roof, face and rib conditions in the working areas and on active roadways and travelways; inspect active roadways, travelways, approaches to abandoned workings and accessible falls in active sections for explosive gas and other hazards; and inspect to determine whether the air in each split

is traveling in its proper course and in normal volume.

2. On non-coal producing shifts he shall examine the mine in its entirety the same as for a coal producing shift, except where men are to work only in the shaft, slope or drift or on the immediate shaft bottom, then only that area immediately surrounding the bottom need be examined.

(B) In non-gassy mines:

1. He shall examine the underground areas in the mine at least once in each calendar day during which coal is produced. Such examination shall be made within 4 hours immediately preceding the beginning of the first coal-producing shift on such day.

2. On idle days he shall examine all sections of the mine where men are required to work

3. On idle nights, if the mine has been examined for the day shift and the men are to work in sections previously examined and no coal is to be mined, no further examination shall be required.

(C) One examination on each day when workers perform production or idle day work shall include the escape ways required by Sections 19.11 and 19.13. (Source: P.A. 81-992.)

(225 ILCS 705/6.05) (from Ch. 96 1/2, par. 605)

Sec. 6.05. When in the performance of his duties, he shall carry with him a safety lamp in proper order and condition and a rod or bar for sounding the roof.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/6.06) (from Ch. 96 1/2, par. 606)

Sec. 6.06. He shall see that the air current is traveling in its proper course and in proper quantity; and measure with an anemometer the amount of air passing in the last cross-cut or break-through of each pair of entries, or in the last room of each division in long-wall mines, and at all other points where he may deem it necessary; and note the result of such measurements in the mine examiner's book kept for that purpose.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/6.07) (from Ch. 96 1/2, par. 607)

Sec. 6.07. He shall inspect all places where men are required in the performance of their duties to pass or to work, and observe whether there are any recent falls or dangerous roof or accumulations of gas or dangerous conditions in rooms or roadways; and examine especially all roadways leading to escapement shafts or other openings for the safe exit of men to the surface, the edges and accessible parts of recent falls and old gobs and air-courses.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/6.08) (from Ch. 96 1/2, par. 608)

Sec. 6.08. As evidence of his examination of said doors, rooms and roadways as provided for in this Article, he shall inscribe with chalk in some suitable place on the doors, the roof or walls of rooms and roadways, but not on the face of the coal, his initials and the date of his examination.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/6.09) (from Ch. 96 1/2, par. 609)

Sec. 6.09. When working places are discovered in which there are recent falls, dangerous roof, accumulation of gas or other dangerous conditions, he shall place, in all entrance ways to said working places where dangerous conditions exist, conspicuous marks or signs to "keep out". Should he find that the provisions of Section 24.03, with reference to distance rock dusting is back from the face, are not complied with, he shall record such condition, and the place, in his daily examination report.
(Source: Laws 1955, p. 2012.)

(225 ILCS 705/6.10) (from Ch. 96 1/2, par. 610)

Sec. 6.10. Upon completing his examination, he shall make a daily record of the same in a book kept for that purpose, for the information of the company, the State Mine Inspector and all other persons interested; and this record shall be made each morning before the miners are permitted to enter the mine.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/6.11) (from Ch. 96 1/2, par. 611)

Sec. 6.11. Should any dangerous conditions be found as described in Section 6.09, he shall record the same in the daily record book of examinations, setting forth the nature of the conditions found and the location of same.
(Source: Laws 1955, p. 2012.)

(225 ILCS 705/6.12) (from Ch. 96 1/2, par. 612)

Sec. 6.12. It shall be unlawful for the operator of any mine to have in his service as mine examiner any person who does not hold a certificate of competency issued by the Mining Board except that anyone holding a mine manager's certificate may serve as a mine examiner; but in any mine employing more than 25 men, the mine manager shall not act in the capacity of mine examiner while acting as mine manager. However, whenever any exigency arises by which it is impossible for any operator to secure the immediate services of a certificated examiner, he may employ any trustworthy and experienced man of the mine inspection district to act as temporary mine examiner for a period not exceeding 7 days, and with the approval of the State Mine Inspector of the district, for a further period not exceeding 23 days. The employment of persons who do not hold certificates as mine examiners shall in no case exceed the limit of time specified herein, and the State Mine Inspector

shall not approve of the employment of such persons beyond the 23 day limit.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/6.13) (from Ch. 96 1/2, par. 613)
Sec. 6.13. Effective on or after January 1, 1977, it shall be unlawful for the operator of any mine to employ underground any person in a supervisory capacity who does not hold a certificate of competency as a mine examiner or mine manager issued by the Mining Board; except those engineering and maintenance supervisors who supervise persons engaged in the maintenance and repair of underground equipment, provided that these supervisors have had training in mine ventilation and mine related hazards approved by the Mining Board. Upon request, the Mining Board may issue a temporary certificate of competency as mine examiner or mine manager to any person who possesses a valid equivalent certificate issued by the appropriate agency in another state, provided however that such temporary certificate shall be valid only until the first available examination given by the Mining Board or 6 months, whichever is longer.
(Source: P.A. 80-296.)

(225 ILCS 705/6.14) (from Ch. 96 1/2, par. 614)
Sec. 6.14. The certificate of any mine examiner may be cancelled and revoked by the Mining Board upon notice and hearing as hereinafter provided, if it shall be established in the judgment of the Mining Board that the holder thereof has obtained said certificate by fraud or misrepresentation of his experience or has become unworthy to hold said certificate by reason of violation of the law, intemperate habits, incapacity, abuse of authority or for any other cause. However, any person against whom charges or complaints are made hereunder shall have the right to appear before the Mining Board and defend himself against said charges, and he shall have 15 days' notice in writing of such charges previous to such hearing. The Mining Board, in its discretion, may suspend the certificate of any person charged as aforesaid, pending such hearing, but the hearing shall not be unreasonably deferred.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/6.15) (from Ch. 96 1/2, par. 615)
Sec. 6.15. In mines classified as gassy, a sufficient number of men trained in the use of a permissible flame safety lamp shall be employed by the operator, who shall examine the mine for obnoxious and inflammable gases while men are working therein.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/6.16) (from Ch. 96 1/2, par. 616)
Sec. 6.16. When in the judgment of the State Mine Inspector, expressed in writing to the mine operator, certain

sections of a mine generate dangerous quantities of explosive gases, the State Mine Inspector shall require those sections of the mine to be examined for gas in a prescribed manner and at shorter intervals of time than 4 hours preceding the time the day shift goes on duty for every day in which the mine is to be operated.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/Art. 11 heading)

ARTICLE 11.
MINE RESCUE.

(225 ILCS 705/11.01) (from Ch. 96 1/2, par. 1101)

Sec. 11.01. Mine rescue stations. For the purpose of providing prompt and efficient means of fighting fires and of saving lives and property jeopardized by fires, explosions or other accidents in coal mines in Illinois, there shall be constructed, equipped and maintained at public expense 4 mine rescue stations, certified by the Mine Safety and Health Administration of the U.S. Department of Labor, to serve the coal fields of the State. Notwithstanding any other law of this State, the primary responsibility for the control and maintenance of the mine rescue stations shall be vested with the Department. Each station shall be equipped with a mobile mine rescue unit. The Department may establish, equip and maintain three additional substations for preservation of health and safety if the conditions warrant. Temporary certification may be issued by the Mining Board for a maximum of 6 months after the effective date of this amendatory Act of the 94th General Assembly.
(Source: P.A. 94-1041, eff. 7-24-06.)

(225 ILCS 705/11.02) (from Ch. 96 1/2, par. 1102)

Sec. 11.02.

The Department shall provide or purchase or accept as a gift, suitably located sites for the stations, temporary and permanent quarters and suitable equipment and materials for the work. The Department shall further arrange for cooperation in the work with mine owners, miners and State and Federal organizations so as to render the service of the utmost efficiency.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/11.03) (from Ch. 96 1/2, par. 1103)

Sec. 11.03. Mine rescue station operation. The Department shall employ a superintendent for each station. The Department is authorized to pay for such assistants as may be needed in giving instruction in first aid to the injured and such other assistants as may be needed from time to time to properly carry on the work of the rescue stations. Not more than 2 assistants shall be employed for each mobile mine rescue unit.
(Source: P.A. 88-472.)

(225 ILCS 705/11.04) (from Ch. 96 1/2, par. 1104)

Sec. 11.04. The Department shall supervise the work at each of the stations, shall purchase necessary supplies, and shall keep a complete record of all operations and expenditures and an invoice of all supplies on hand. The Department shall provide that at each station some representative shall be on duty or within call at all hours of day and night for each day of the year.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/11.05) (from Ch. 96 1/2, par. 1105)

Sec. 11.05. Whenever the superintendent of any station shall be notified by any responsible person that an explosion or accident requiring his services has occurred at any mine in the State, he shall proceed immediately with suitable equipment and on arrival at the said mine shall superintend the work of the rescue corps in saving life and property; and he shall co-operate with the State Mine Inspector and the management of the mine in rescue work to such extent as is necessary, for the protection of human life in the mine, during such time as members of the rescue corps are underground and while there is a reasonable expectation that men in the mine may be alive.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/11.06) (from Ch. 96 1/2, par. 1106)

Sec. 11.06. Should an explosion occur, or a fire that is not promptly extinguished, at any mine in the State, the operator of said mine or his representative shall immediately notify the Department.

(Source: Laws 1957, p. 2413.)

(225 ILCS 705/11.07)

Sec. 11.07. Rescue teams. Rescue teams shall be based out of each mine rescue station to serve the Illinois coal industry as either a primary or secondary responder. Every operator in the State must provide employees to serve on a rescue team and must compensate these employees who are serving as rescue team members at their regular rate of pay.

(Source: P.A. 94-1041, eff. 7-24-06.)

(225 ILCS 705/11.08)

Sec. 11.08. Self-contained self-rescuer (SCSR) devices; caches; strobe lights; luminescent signs.

(a) An operator must require each person underground to carry a SCSR device on his or her person or, alternatively, a SCSR device must be kept within 25 feet of the person underground or may be kept more than 25 feet from the person underground if done according to a plan approved by the Mining Board.

(b) An operator must provide for each person who is underground at least one SCSR device, in addition to the device required under subsection (a), that provides protection for a period of one hour or longer, to cover all persons in the mine. This additional SCSR device must be kept within 25 feet of the person underground or may be kept more than 25 feet from the person underground if done according to a plan approved by the Mining Board.

(c) If a mantrip or mobile equipment is used to enter or exit the mine, additional SCSR devices, each of which must provide protection for a period of one hour or longer, must be available for all persons who use such transportation from portal to portal.

(c-5) Beginning July 31, 2007, in addition to the SCSR devices required under subsections (a), (b), and (c) of this Section, an operator must provide a minimum of 30 SCSR devices in each cache located within a mine. All SCSR devices required under this subsection (c-5) shall be stored in caches that are conspicuous and readily accessible by each person in the mine. If the average seam height of a mine is:

(1) less than 40 inches, caches must be located no more than 2,200 feet apart throughout a mine;

(2) 40 inches or more, but less than 51 inches, caches must be located no more than 3,300 feet apart throughout a mine;

(3) 51 inches or more, but less than 66 inches, caches must be located no more than 4,400 feet apart throughout a mine; and

(4) 66 inches or more, caches must be located no more than 5,700 feet apart throughout a mine.

An operator must submit for approval a plan addressing the requirements of this subsection (c-5) to the Mining Board on or before May 1, 2007.

(d) The Mining Board must require all operators to provide additional SCSR devices in the primary and alternate escapeways to ensure safe evacuation if the Mining Board determines that the SCSR devices required under subsections (a), (b), (c), and (c-5) are not adequate to provide enough oxygen for all persons to safely evacuate the mine under mine emergency conditions for all persons underground through both primary and alternate escapeways. The Mining Board must determine the time needed for safe evacuation under emergency conditions from each of those locations at 1,000 foot intervals. If the Mining Board determines that additional SCSR devices are needed under this subsection (d), the mine operator must submit a SCSR storage plan to the Mining Board for approval. The mine operator must include in the SCSR storage plan the location, quantity, and type of additional SCSR devices, including, but not limited to, SCSR devices required under subsections (a), (b), (c), and (c-5) of this Section, each of which must provide protection for a period of one hour or longer, that are stored in the primary and alternate escapeways. The SCSR storage plan must also show how each storage location in the primary and alternate escapeways was determined. The Mining Board must require the mine operator to demonstrate that the location, quantity, and type of the additional SCSRs provide protection to all persons to safely evacuate the mine. The SCSR storage plan must be kept current by the mine operator and made available for inspection by an authorized representative of the Mining Board and by the miners' representative.

(e) (Blank).

(f) An operator must provide luminescent direction signs

leading to each cache and rescue chamber in a mine, and a luminescent sign with the word "SELF-RESCUER" or "SELF-RESCUERS" must be conspicuously posted at each cache and rescue chamber.

(g) Intrinsically safe, battery-powered strobe lights that have been approved by the Department must be affixed to each cache and rescue chamber and must be capable of automatic activation in the event of an emergency; however, until such time as the Department approves intrinsically safe, battery-powered strobe lights, reflective tape or any other illuminated material approved by the Department must be affixed to each cache and rescue chamber in a mine.

(h) The Mining Board must adopt and impose a plan for the daily inspection of SCSR devices required under subsections (a), (b), and (c) of this Section in order to ensure that the devices perform their designated functions each working day. Additional SCSR devices required under subsections (c-5) and (d) must be inspected every 90 days to ensure that the devices perform their designated functions, in addition to meeting all federal Mine Safety and Health Administration requirements.

(i) Any person who, without the authorization of the operator or the Mining Board, knowingly removes or attempts to remove any self-contained self-rescue device, battery-powered strobe light, reflective tape, or any other illuminated material approved by the Department from a mine or mine site with the intent to permanently deprive the operator of the device, light, reflective tape, or illuminated material or who knowingly tampers with or attempts to tamper with the device, light, reflective tape, or illuminated material is guilty of a Class 4 felony.

(j) (Blank).

(k) (Blank).

(Source: P.A. 94-1041, eff. 7-24-06; 94-1101, eff. 2-9-07.)

(225 ILCS 705/11.09)

Sec. 11.09. Rescue chambers.

(a) Rescue chambers must be provided and located within 3,000 feet of each working section of a mine, in accordance with a plan submitted by an operator and approved by the Mining Board.

(b) An operator must submit a plan for approval concerning the construction and maintenance of rescue chambers required under this Section to the Mining Board on or before May 1, 2007.

(Source: P.A. 94-1041, eff. 7-24-06; 94-1101, eff. 2-9-07.)

(225 ILCS 705/11.10)

Sec. 11.10. Materials for barricade. Each working section of a mine must have an emergency sled or wagon located no more than 1,000 feet from the working faces of the mine with the following materials and amounts in constant supply:

(1) 8 timbers of suitable length or roof jacks of equal capability;

(2) 200 linear feet of brattice cloth of adequate height to the coal seam;

(3) 2 hand saws;

(4) 20 1 x 6 brattice boards at least 12 feet long each;
(5) 10 pounds of 10d nails;
(6) 10 pounds of 16d nails;
(7) 10 pounds of spads;
(8) 25 cap boards;
(9) 20 header boards;
(10) 2 axes;
(11) 2 claw hammers;
(12) one sledge hammer;
(13) one shovel;
(14) 10 bags of wood fiber plaster or 5 bags of cement or the equivalent;
(15) 4 sets of rubber gloves; and
(16) 5 gallons of sealed, distilled drinking water.
(Source: P.A. 94-1041, eff. 7-24-06.)

(225 ILCS 705/11.11)
Sec. 11.11. Rulemaking. The Mining Board shall adopt all rules necessary for the administration of this Article.
(Source: P.A. 94-1041, eff. 7-24-06.)

(225 ILCS 705/Art. 14 heading)

ARTICLE 14.
BUILDINGS ON SURFACE.

(225 ILCS 705/14.01) (from Ch. 96 1/2, par. 1401)
Sec. 14.01. All buildings and structures erected, after the effective date of this Act, over a shaft, slope, or drift mouth within 100 feet of the opening shall be of metal, rock, clay, cement, clay or cement products, or any combination thereof. All fan houses, tops of air and escape shafts, and fan drifts, shall be constructed of the above materials, or a combination of them. Wood may be used only for floors, windows, doors and frames in the construction of such structures.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/14.02) (from Ch. 96 1/2, par. 1402)
Sec. 14.02. No oils or similarly flammable materials shall be stored within 100 feet of any hoisting or escapement shaft.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/14.03) (from Ch. 96 1/2, par. 1403)
Sec. 14.03. All explosive materials shall be stored in a fireproof magazine located on the surface not less than 500 feet from all other buildings in connection with the mine, and such magazine shall be so placed as not to jeopardize the free and safe exit of men from the mine in case of an explosion at the magazine.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/14.04) (from Ch. 96 1/2, par. 1404)

Sec. 14.04. Any building constructed after the effective date of this Act for the purpose of housing the hoisting engine or boilers, shall be of fireproof construction and not closer than 60 feet to the shaft or other opening. (Source: Laws 1953, p. 701.)

(225 ILCS 705/Art. 19 heading)

ARTICLE 19.

ESCAPEMENTS.

(225 ILCS 705/19.01) (from Ch. 96 1/2, par. 1901)

Sec. 19.01. Every coal mine in this State, whether worked by shaft, slope or drift, shall be provided and maintained, in addition to the hoisting shaft or other place of delivery, with an escapement shaft or opening to the surface; or an underground communicating passageway with a contiguous mine, so that there shall be at least two distinct and available means of egress to all persons employed in coal mines. (Source: Laws 1953, p. 701.)

(225 ILCS 705/19.02) (from Ch. 96 1/2, par. 1902)

Sec. 19.02. In mines sunk after July 1, 1911, the first escapement shaft shall be separated from the main shaft by such extent of natural strata as may be agreed upon by the State Mine Inspector of the district and the owner of the property, but the distance between the main shaft and the escapement shaft shall not be less than 500 feet nor more than 2,000 feet; except that in mines employing 10 men or less the distance between the hoisting shaft and the escapement shaft shall not be less than 250 feet.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/19.03) (from Ch. 96 1/2, par. 1903)

Sec. 19.03. It is unlawful to employ underground, at any one time, more men than, in the judgment of the State mine inspector, are necessary to complete speedily the connections with the escapement shaft or adjacent mine; and said number must not exceed 20 men at any one time for any purpose in said mine until such escapement or connection is completed. (Source: Laws 1953, p. 701.)

(225 ILCS 705/19.04) (from Ch. 96 1/2, par. 1904)

Sec. 19.04. The time allowed for completing such escapement shaft or making such connections with an adjacent mine, as is required by the terms of this Act, shall be 3 months for shafts 200 feet or less in depth, and 6 months for shafts less than 500 feet and more than 200 feet, and 9 months

for all other mines, slopes or drifts, or connections with adjacent mines. The time to date in all cases from the hoisting of coal from the hoisting shaft. Provided, that in mines employing 10 men or less, the time for completing the escapement shaft shall not be more than 6 months from the time of hoisting coal.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/19.05) (from Ch. 96 1/2, par. 1905)
Sec. 19.05. The escapement shaft at every mine opened after the passage of this Act shall be equipped with a substantial stairway, set at an angle not greater than forty-five degrees, which shall be provided with hand rails and with platforms or landings at least 2 feet wide and 4 feet long at each turn of the stairway. However, circular escapement shafts may be equipped with a substantial spiral stairway equipped with hand rails, and set at an angle not greater than 45 degrees, and platforms or landings are not required except at the top and bottom of such spiral stairways. Subject to the approval of the Mining Board, at any underground mine constructed with 3 or more shafts all of which are within a radius of 400 feet and containing 2 or more hoisting systems, one of which has an independent auxiliary power source, such mine may be equipped with a substantial ladder system instead of the substantial stairway as required by this Section. Such ladder system shall have intermittent platforms at intervals not exceeding 20 feet. Such platforms shall be at least 2 feet wide and 4 feet long with adequate handrails. Each section thereof shall be staggered and be provided with backguards extending from a point not more than 7 feet from the bottom of each section of the ladder to the top of that section.
(Source: P.A. 81-378.)

(225 ILCS 705/19.06) (from Ch. 96 1/2, par. 1906)
Sec. 19.06. In all coal mines more than 200 feet in depth, and opened on or after July 1, 1919, the escapement shaft shall be equipped with both a cage and stairway. However, if the coal mine is equipped with a stairway in the main shaft, no stairway shall be required in the escapement shaft. Subject to the approval of the Mining Board, if a mine has 3 shafts as described in Section 19.05 of this Act, a ladder system as described in Section 19.05 may be used in place of a substantial stairway.
(Source: P.A. 81-378.)

(225 ILCS 705/19.07) (from Ch. 96 1/2, par. 1907)
Sec. 19.07. If any escapement shaft, on July 1, 1911, is equipped with a cage for hoisting men, such shaft, cage and all equipment used in connection therewith must conform to the requirements of this Act in reference to the hoisting and lowering of men.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/19.08) (from Ch. 96 1/2, par. 1908)

Sec. 19.08. Where an escapement way is connected to a compartment in which coal is hoisted in such manner that men using the escapement way are endangered by falling coal or by themselves falling into such hoisting compartment, the State mine inspector shall have power to order suitable protection against such dangers.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/19.09) (from Ch. 96 1/2, par. 1909)

Sec. 19.09. The escapement shaft or opening or communication with a contiguous mine shall be constructed in connection with every seam of coal working in such mine, and all passageways communicating with the escapement shaft or place of exit from the main hauling ways to said place of exit shall be maintained free of obstruction not less than 5 feet in height, or the height of the coal seam, and not less than 5 feet in width, or of sufficient width to permit the passage of men with stretchers. Such passageways must be so graded and drained that it will be impossible for water to accumulate in any depression or dip of the same in quantities sufficient to obstruct the free and safe passage of men. No passageway to an escapement shaft shall pass through a stable. At all points where the passageway to the escapement shaft or other place of exit is intersected by other roadways or entries, conspicuous signboards shall be placed indicating the direction it is necessary to take in order to reach such place of exit. New shafts and partitions therein shall be fireproof. Buntons and guides may be of wood.

(Source: Laws 1955, p. 2012.)

(225 ILCS 705/19.10) (from Ch. 96 1/2, par. 1910)

Sec. 19.10. Mine openings at isolated locations, where there is danger of fire entering the mine, shall have adequate protection against surface fires entering the mine.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/19.11) (from Ch. 96 1/2, par. 1911)

Sec. 19.11. Travelable passageways; obstructions; ventilation of escape ways. There shall be at least two travelable passageways, to be designated as escape ways, from each working section to the surface whether the mine openings are shafts, slopes, or drifts. At least one of these passageways must be equipped with a lifeline cord. Escape ways shall be kept in safe condition for travel and reasonably free from standing water and other obstructions. One of the designated escape ways may be the haulage road. One of the escape ways shall be ventilated with intake air. At mines now operating with only one free passageway to the surface, immediate action shall be taken to provide a second passageway. The return air passageway to the surface must be marked with reflectors or other appropriate signage, as approved by the Department.

(Source: P.A. 94-1041, eff. 7-24-06.)

(225 ILCS 705/19.12) (from Ch. 96 1/2, par. 1912)

Sec. 19.12. If a designated escape way is a slope of not less than 20 degrees nor more than 45 degrees, it shall be equipped with a stairway or adequate walkway with cleats. If the slope is more than 45 degrees, stairways shall be installed.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/19.13) (from Ch. 96 1/2, par. 1913)

Sec. 19.13. If upon examination any obstructions to the free passage of men are found in the escape ways or shafts leading thereto or shafts and passage ways leading thereto, their location and nature shall be stated in the examiner's report. The obstructions shall be promptly removed.

(Source: P.A. 79-460.)

(225 ILCS 705/19.14) (from Ch. 96 1/2, par. 1914)

Sec. 19.14. When operators of adjacent mines have, by agreement, established underground communications between said mines as an escapement outlet for the men employed in both, the intervening doors shall remain unlocked and ready at all times for immediate use.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/19.15) (from Ch. 96 1/2, par. 1915)

Sec. 19.15. When such communication has once been established between contiguous mines, the operator of either shall not close the same without the consent of the operator of the contiguous mine and of the State Mine Inspector for the district. When either operator desires to abandon mining operations, the expense and duty of maintaining such communication shall devolve upon the party continuing the operations and using the same.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/Art. 20 heading)

ARTICLE 20.

PERMISSIBLE EXPLOSIVES AND REGULATIONS FOR BREAKING DOWN COAL.

(225 ILCS 705/20.01) (from Ch. 96 1/2, par. 2001)

Sec. 20.01. Black blasting powder shall not be used to break down coal on shift.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/20.02) (from Ch. 96 1/2, par. 2002)

Sec. 20.02. The breaking down of coal with compressed air, or by some mechanical or chemical-mechanical device which does not emit spark or flame, while men are in a mine, is permitted.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/20.03) (from Ch. 96 1/2, par. 2003)

Sec. 20.03. All "permissible explosives" for use in breaking down coal in the State of Illinois shall conform to the following specifications:

(a) All permissible explosives offered for sale in the State of Illinois shall have printed on each cartridge and individual package the name of the manufacturer, the registered trade mark, brand, grade and a statement that it conforms in strength to that grade and brand established by the United States Bureau of Mines.

(b) Each shipping case shall have marked on it the total weight of explosives contained therein, and the average weight, length and diameter of each stick contained therein.

(c) Each shipping case containing permissible explosives shall be marked "Permissible Explosives."

(d) Each ingredient of a permissible explosive shall not vary more than the permitted variation established by the United States Bureau of Mines.

Source: Laws 1953, p. 701.)

(225 ILCS 705/20.04) (from Ch. 96 1/2, par. 2004)

Sec. 20.04. State Mine Inspectors, and the accredited representatives of the coal operators and coal miners shall have authority to sample explosives used for blasting purposes in coal mines in the State of Illinois or kept on hand for sale or intended for shipment for use in such mines, and for such purposes they may enter upon the premises of any person, firm or corporation.

(Source: P.A. 96-328, eff. 8-11-09.)

(225 ILCS 705/20.05) (from Ch. 96 1/2, par. 2005)

Sec. 20.05. If the State Mine Inspector or the accredited representatives of the coal operators or coal miners shall desire to have said sample tested for content, they shall send the same to the United States Bureau of Mines for that purpose.

(Source: P.A. 96-328, eff. 8-11-09.)

(225 ILCS 705/20.06) (from Ch. 96 1/2, par. 2006)

Sec. 20.06. When such samples are intended to be tested for content, they must be taken at the mill or warehouse of the manufacturer or manufacturer's agent, or in the railroad car or other conveyance for shipment at said mill or warehouse or the magazine at the mine, and said samples shall be taken in accordance with the rules established by the United States Bureau of Mines.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/20.07) (from Ch. 96 1/2, par. 2007)

Sec. 20.07. Explosives shall be stored in magazines constructed in accordance with plans that shall be approved by the State Mine Inspector of the district in which the mine is located.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/20.08) (from Ch. 96 1/2, par. 2008)

Sec. 20.08. Every magazine shall be provided with a wooden floor which shall be kept free from grit and dirt. If more than one kind of explosive is kept in the same magazine, the magazine shall be divided into rooms by partitions and the different kinds of explosives shall be kept in different rooms, but no detonators, or blasting caps, or any device containing fulminating composition shall be kept in the same magazine with any explosive. All detonators, blasting caps or any device containing fulminating composition shall be kept separate in a safe and dry receptacle apart from any other explosive.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/20.09) (from Ch. 96 1/2, par. 2009)

Sec. 20.09. Any person, firm or corporation changing any stamp, brand, or specification denoting the contents of any package or cartridge shall be subject to the penalties provided for herein.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/20.10) (from Ch. 96 1/2, par. 2010)

Sec. 20.10. The area surrounding magazines for not less than 25 feet in all directions shall be kept free of rubbish, dry grass, or other materials of a combustible nature.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/20.11) (from Ch. 96 1/2, par. 2011)

Sec. 20.11. If the magazines are illuminated electrically, the lamps shall be of explosion-proof type, installed and wired so as to present minimum fire and contact hazards.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/20.12) (from Ch. 96 1/2, par. 2012)

Sec. 20.12. Only non-metallic tools shall be used for opening containers. Extraneous materials shall not be stored in an explosives or detonator magazine.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/20.13) (from Ch. 96 1/2, par. 2013)

Sec. 20.13. Smoking, carrying smokers' articles, or open flame is prohibited in or near any magazine.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/20.14) (from Ch. 96 1/2, par. 2014)

Sec. 20.14. Individual containers used to carry permissible explosives or detonators shall be constructed of substantial non-conductive material. When explosives or detonators are transported underground by locomotive, rope, or shuttle car, they shall be in covered cars or in special containers. The bodies and covers of special cars and the containers shall be constructed of non-conductive material. Explosives or detonators shall not be carried in the same car with tools.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/20.15) (from Ch. 96 1/2, par. 2015)

Sec. 20.15. If explosives and detonators are hauled in the same explosives car or in the same special container, they shall be separated by at least a 4 inch, substantially fastened, hardwood partition or the equivalent. When quantities of explosives and detonators are transported in special cars or in special containers in cars (not carried by individual workers or man trips), they shall be hauled on a special trip not connected to any other trip and shall not be hauled into or out of a mine within five minutes preceding or following a man trip or any other trip.
(Source: P.A. 81-992.)

(225 ILCS 705/20.16) (from Ch. 96 1/2, par. 2016)

Sec. 20.16. Explosives and detonators kept near the working faces shall be stored in separate closed containers of substantial, non-conductive material, located not less than 15 feet from rail or power lines. Explosives and detonators shall be kept in their containers until removed for use at the working faces.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/20.17) (from Ch. 96 1/2, par. 2017)

Sec. 20.17. Underground section boxes or magazines shall be of substantial construction and placed in a crosscut or idle room neck at least 10 feet from roadways or trolley wires and in a reasonably dry and well-rock-dusted place.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/20.18) (from Ch. 96 1/2, par. 2018)

Sec. 20.18. When section boxes or magazines are used, the explosives and detonators shall be kept in separate boxes or magazines.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/20.19) (from Ch. 96 1/2, par. 2019)

Sec. 20.19. Not more than a 48-hour supply of explosives, including any surplus remaining from the previous day, shall be stored underground in boxes or magazines.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/20.20) (from Ch. 96 1/2, par. 2020)

Sec. 20.20. No miner or other person shall alter or change any drill hole, by increasing its depth, diameter or otherwise, after the same shall have been approved by the driller and shooter or shot firer.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/20.21) (from Ch. 96 1/2, par. 2021)

Sec. 20.21. No driller and shooter or shot firer, whether voluntarily, or by command or request of any person, shall fire any unlawful shot, or any shot which in his judgment, from his inspection thereof is not a workmanlike, proper and practical shot.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/20.22) (from Ch. 96 1/2, par. 2022)

Sec. 20.22. No person or persons shall order, command or induce by threat or otherwise, any driller and shooter or shot firer to fire any unlawful shot, or any shot which in his judgment, after due inspection, is not a workmanlike, proper and practical shot.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/20.23) (from Ch. 96 1/2, par. 2023)

Sec. 20.23. No person shall drill or shoot a dead hole as hereinafter defined. A "dead hole" is a hole where the width of the shot at the point measured at right angles to the line

of the hole is so great that the heel is not of sufficient strength to at least balance the resistance at the point. The heel means that part of the shot which lies outside of the explosive.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/20.24) (from Ch. 96 1/2, par. 2024)
Sec. 20.24. Only wooden tamping bars or metal bars tipped with 5 inches of copper shall be used when charging holes.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/20.25) (from Ch. 96 1/2, par. 2025)
Sec. 20.25. Leg wires of electric detonators shall be kept shunted or the ends twisted together until ready to connect to the firing cable.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/20.26) (from Ch. 96 1/2, par. 2026)
Sec. 20.26. Adobe (mudcap) or other open, unconfined shots shall not be fired in any mine.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/20.27) (from Ch. 96 1/2, par. 2027)
Sec. 20.27. Blasting cables shall be short-circuited at the battery end until ready to attach to the blasting unit.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/20.28) (from Ch. 96 1/2, par. 2028)
Sec. 20.28. No person shall return to a missed shot, if lighted with fuse, until 8 hours have elapsed from the time of lighting the same. Where misfires occur with electric detonators, a waiting period of at least 5 minutes shall elapse before anyone returns to the shot. After such failure, the blasting cable shall be disconnected from the source of power and the battery end short-circuited before electric connections are examined.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/20.29) (from Ch. 96 1/2, par. 2029)
Sec. 20.29. Misfired explosives shall be removed only through the use of copper-tipped or wooden tools.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/20.30) (from Ch. 96 1/2, par. 2030)
Sec. 20.30. The handling of a misfired shot shall be under the direct supervision of the mine manager or a competent

person designated by him.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/20.31) (from Ch. 96 1/2, par. 2031)
Sec. 20.31. No worker shall have at any time in the mine more than 25 pounds of permissible explosives. Nothing in this section shall be construed to prevent the operator of any mine from taking into the mine, when miners are not therein, a sufficient quantity of explosives for the reasonable requirements of the mine for the next succeeding working day; except that in mechanical loading mines a sufficient quantity of explosives for the reasonable requirements of the mine for the next two working days may be stored in and for each location.
(Source: P.A. 81-992.)

(225 ILCS 705/20.32) (from Ch. 96 1/2, par. 2032)
Sec. 20.32. In solid shooting, the width of the shot at the point, in seams of coal 6 feet or less in height, shall not be greater than the height of the coal and in seams of coal more than 6 feet in thickness, the width of the shot at the point shall, in no case, be more than 6 feet.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/20.33) (from Ch. 96 1/2, par. 2033)
Sec. 20.33. In undercut coal, no hole shall be drilled "on the solid" for any part of its length.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/20.34) (from Ch. 96 1/2, par. 2034)
Sec. 20.34. In no case shall more than one kind of explosive be used in the same drill hole.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/20.35) (from Ch. 96 1/2, par. 2035)
Sec. 20.35. Every shot hole shall be tamped full from the explosive to the mouth of the hole, and no coal dust or any material that is inflammable or that may create a spark, whether the same is wet or dry, shall be used for tamping.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/20.36) (from Ch. 96 1/2, par. 2036)
Sec. 20.36. Before firing a shot, the person firing the same shall see that all persons are out of danger from the probable effect of such shot, and shall take measures to prevent any one approaching by shouting "fire" before lighting the same.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/20.37) (from Ch. 96 1/2, par. 2037)

Sec. 20.37. Not more than one shot shall be lighted at the same time in any working place unless the firing is done by electricity or by fuses of such length that the interval between the explosions of any two shots shall be not less than one minute, and in no case shall any shot or shots be fired or lighted which are termed depending or dependent shots, until after the expiration of 10 minutes from the successful firing of the relieving shot or shots. When successive shots are to be fired in any working place in which the roof is broken or faulty, the smoke shall be allowed to clear away and the roof examined and made secure between shots.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/20.38) (from Ch. 96 1/2, par. 2038)

Sec. 20.38. Where fuse is used in firing shots, the length of the fuse shall not be less than 3 1/2 feet from the outside end of the charge, and no shot shall be fired unless there is at least one foot of fuse protruding from the mouth of the hole.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/20.39) (from Ch. 96 1/2, par. 2039)

Sec. 20.39. "CARDOX" shall not be fired "on shift", and while men are in the mine.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/20.40) (from Ch. 96 1/2, par. 2040)

Sec. 20.40. If samples of permissible explosives when tested as provided for in this Article shall be found not to comply with the provisions herein, the person, firm or corporation guilty of violating the provisions of this Act shall be prosecuted in accordance with the provision hereof.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/20.41) (from Ch. 96 1/2, par. 2041)

Sec. 20.41. Any person, firm or corporation who shall sell for use in the coal mines in this State any permissible explosive not stamped as herein required, or who shall knowingly sell for use in coal mines in this State any permissible explosive which is untruthfully branded or stamped, and any person, firm or corporation being a manufacturer of permissive explosives, or the agent of any such manufacturer of permissible explosives, who shall sell for use in any coal mine in this State any permissible explosive which shall not conform to the requirements of this Act, shall be guilty of a Class B misdemeanor.

(Source: P.A. 77-2718.)

(225 ILCS 705/Art. 21 heading)

ARTICLE 21.
FIRE PREVENTION AND FIRE CONTROL.

(225 ILCS 705/21.01) (from Ch. 96 1/2, par. 2101)

Sec. 21.01. Each mine shall be provided with suitable fire-fighting equipment, adequate for the size of the mine, such as supplies of rockdust, water lines and hose, water or chemical trucks, or fire extinguishers, as approved by the State Mine Inspectors.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/21.02) (from Ch. 96 1/2, par. 2102)

Sec. 21.02. Clean dry sand, rockdust, or fire extinguishers suitable from a toxic and electrical shock standpoint, shall be provided and placed at substations, transformer stations and permanent pump stations, so as to be out of the smoke in case of a fire in the station.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/21.03) (from Ch. 96 1/2, par. 2103)

Sec. 21.03. All fire-fighting operations shall be under the direct supervision of the mine manager or his designated assistants.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/21.06) (from Ch. 96 1/2, par. 2106)

Sec. 21.06. All persons in underground workings of a gassy mine are prohibited from intentionally creating any arc, spark or open flame, except those that cannot be avoided in the normal performance of work.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/21.08) (from Ch. 96 1/2, par. 2108)

Sec. 21.08. Welding, cutting and soldering with arc or flame underground, in other than a fireproof enclosure is permitted but it shall be done under the direct supervision of competent personnel, who shall test for methane gas before and during such operations in gassy mines, and shall make a diligent search for fire after such operations in all mines. Rock dust or suitable fire extinguishers shall be immediately available during such welding, cutting or soldering.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/21.11) (from Ch. 96 1/2, par. 2111)

Sec. 21.11. Transformer stations, substations, motor-generator stations, and permanent pump rooms shall be of fireproof construction.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/Art. 24 heading)

ARTICLE 24.
ROCK DUST AND COAL DUST

(225 ILCS 705/24.01) (from Ch. 96 1/2, par. 2401)

Sec. 24.01. Coal dust and other combustible materials shall not be permitted to accumulate in dangerous quantities in active underground workings of a mine.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/24.02) (from Ch. 96 1/2, par. 2402)

Sec. 24.02. Where underground mining operations raise an excessive amount of dust into the air, water or water with a wetting agent added to it, or other effective methods, shall be used to allay the dust at its source.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/24.03) (from Ch. 96 1/2, par. 2403)

Sec. 24.03. All underground mines, except those mines or areas of mines in which the dust is too wet or too high in incombustible content to propagate an explosion, shall be rock-dusted to within 40 feet of all faces.

(Source: Laws 1955, p. 2012.)

(225 ILCS 705/24.04) (from Ch. 96 1/2, par. 2404)

Sec. 24.04. In mines partially rock-dusted or in mines that are required to start rock-dusting, haulage ways and parallel entries connected thereto by open crosscuts, shall be rock-dusted. Back entries shall be rock-dusted for at least 1,000 feet outby the junction with the first active entry. Inby this junction, the rooms, entries, and crosscuts, shall be rock-dusted. Rock-dusting shall be started at once and completed as herein provided, and the mine shall be rock-dusted as it develops and rock-dusting shall be maintained to the shaft bottom or entrance.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/24.05) (from Ch. 96 1/2, par. 2405)

Sec. 24.05. Where rock dust is applied, it shall be distributed upon the top, floor and sides of all open places and maintained in such quantity that the incombustible content of the combined coal dust, rock dust and other dust will not be less than 65%. Where methane is present in any ventilating current, the 65% of incombustible content of such combined dust shall be increased 1% for each 0.1% of methane.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/24.06) (from Ch. 96 1/2, par. 2406)

Sec. 24.06. All rock dust used shall meet the following specifications:

1. All of the dust shall pass through a 20 mesh sieve, and at least 70% shall pass through a 200 mesh sieve.

2. The dust shall not contain more than 5% combustible matter, nor more than 5% free silica. The rock dust should be as light in color as possible.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/Art. 31 heading)

ARTICLE 31.

VENTILATION, MINE GASES AND GASSY MINE CLASSIFICATION.

(225 ILCS 705/31.01) (from Ch. 96 1/2, par. 3101)

Sec. 31.01. All active underground working places in a mine shall be ventilated by a current of air containing not less than 19.5% of oxygen, not more than 0.5% of carbon dioxide, and no harmful quantities of other noxious or poisonous gases. The volume and velocity of the current of air shall be sufficient to dilute so as to render harmless, and to carry away, flammable or harmful gases.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/31.02) (from Ch. 96 1/2, par. 3102)

Sec. 31.02. The quantity of air reaching the last open crosscut in any pair or set of entries shall not be less than 9,000 cubic feet a minute, except that the quantity of air reaching the last open crosscut in any pair or set of entries in pillar sections may be less than 9,000 cubic feet a minute if not less than 9,000 cubic feet of air a minute is being delivered to the intake end of the pillar line. No work shall be performed in any area that does not meet this standard except to correct this violation. In robbing areas where the air currents cannot be controlled and measurements of the air cannot be obtained, the air shall have perceptible movement.

(Source: P.A. 80-296.)

(225 ILCS 705/31.03) (from Ch. 96 1/2, par. 3103)

Sec. 31.03. In every mine the minimum quantity of air shall not be less than 150 cubic feet per minute for each person employed, measured at the foot of the downcast and of the upcast. However, in any mine wherein explosive gas is being generated in such quantities that it can be detected by an approved safety lamp, the minimum quantity of air shall not be less than 200 cubic feet per minute for each person employed therein. The State Mine Inspector shall have power by order in writing to require these quantities to be increased.

(Source: P.A. 89-657, eff. 8-14-96.)

(225 ILCS 705/31.04) (from Ch. 96 1/2, par. 3104)

Sec. 31.04. If the air at an underground working face in a mine, when tested at a point not less than 12 inches from the roof, face or rib contains more than 1.0% of methane as determined by permissible methane detector, a permissible flame safety lamp, air analysis, or other recognized means of accurately detecting such gas, changes or adjustments shall be made at once in the ventilation in such a mine so that such air shall not contain more than 1.0% of methane.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/31.05) (from Ch. 96 1/2, par. 3105)

Sec. 31.05. If a split of air returning from active underground working places in a mine contains more than 1.0% of methane as determined by a permissible methane detector, a permissible flame safety lamp, air analysis, or other recognized means of accurately detecting such gas, changes or adjustments shall be made at once in the ventilation in such mine so that such returning air shall not contain more than 1.0% of methane.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/31.06) (from Ch. 96 1/2, par. 3106)

Sec. 31.06. If a split of air returning from active underground working places in a mine contains as much as 1.5% of methane as determined by a permissible methane detector, a permissible flame safety lamp, air analysis or other recognized means of accurately detecting such gas, the employees shall be withdrawn from the portion of the mine endangered thereby and all power shall be cut off from such portion of the mine until the quantity of methane in such split shall be less than 1.5%. However, in virgin territory in mines ventilated by exhaust fans, where methane is liberated in large amounts, if the quantity of air in a split ventilating the workings in such territory equals or exceeds twice the minimum volume of air prescribed in Section 31.02 and if only permissible electric equipment is used in such workings and the air in the split returning from such workings does not pass over trolley or other bare power wires, and if a certified person designated by the mine operator is continually testing the gas content of the air in such split during mining operations in such workings, it shall be necessary to withdraw the employees and cut off all power from the portion of the mine endangered by such methane only when the quantity thereof in the air returning from such workings exceeds 2%, as determined by a permissible methane detector, a permissible flame safety lamp, air analysis, or other recognized means of accurately detecting such gas.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/31.07) (from Ch. 96 1/2, par. 3107)

Sec. 31.07. The main current of air shall be so split or subdivided as to give a separate current of reasonably pure air to every 100 men at work, and the State Mine Inspector shall have authority to order, in writing, separate currents for smaller groups of men, if, in his judgment, special

conditions render it necessary.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/31.08) (from Ch. 96 1/2, par. 3108)
Sec. 31.08. Doors, curtains or brattices shall be placed at such places as may be designated by the mine manager, subject to the approval of the State Mine Inspector, to conduct into the working places an amount of air sufficient to render the working places reasonably free from deleterious air of every kind.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/31.09) (from Ch. 96 1/2, par. 3109)
Sec. 31.09. All possible care and diligence shall be exercised in the examination of working places, especially for the investigation and detection of explosive gases therein and, where found, such gas shall be removed by a special current of air produced by bratticing or from a pipe, before men are permitted to work in such places except those necessary to remove the gas.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/31.10) (from Ch. 96 1/2, par. 3110)
Sec. 31.10. If the State Mine Inspector finds methane with a permissible flame safety lamp, permissible methane detector, air analysis or other recognized means, in the amount of 0.25% or more, in any open workings of such mine when tested at a point not less than 12 inches from the roof, face or rib the mine shall be classified as gassy. Nothing in this Act shall preclude the reclassification of a mine that has been classified gassy if a subsequent examination, made by the State Mine Inspector in the method provided herein, shows the methane content to be less than 0.25%.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/31.11) (from Ch. 96 1/2, par. 3111)
Sec. 31.11. All doors used in guiding and directing the ventilating currents shall be hung and adjusted so as to close automatically.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/31.13) (from Ch. 96 1/2, par. 3113)
Sec. 31.13. At all doors through which 3 or more drivers are hauling coal on any one shift, an attendant shall be employed on said shift for the purpose of opening and closing the doors when trips of cars are passing to and from the workings. However, in case of specially dangerous conditions, the State Mine Inspector may require in writing that an attendant be placed at doors through which less than 3 drivers pass. Places for shelter shall be provided at such doorways to protect the attendants from being injured by the cars while

attending to their duties. Provided that, in any or all mines, where doors are constructed in such a manner as to open and close automatically, attendants and places for shelter shall not be required.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/31.14) (from Ch. 96 1/2, par. 3114)
Sec. 31.14. If the State Mine Inspector finds men working without the amount of air required by this Act he shall at once notify the mine manager to increase the amount of air in accordance with the requirements of this Act. Upon the failure or refusal of the manager to act promptly, and in all cases where men are endangered by such lack of air, the State Mine Inspector shall at once order the men affected out of the mine.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/31.15) (from Ch. 96 1/2, par. 3115)
Sec. 31.15. In all mines classified as gassy mines by the State Mine Inspector, it shall be compulsory to use electric lamps, and smoking shall be prohibited.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/31.16) (from Ch. 96 1/2, par. 3116)
Sec. 31.16. Ventilating fans at all operating mines shall be operated continuously.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/31.17) (from Ch. 96 1/2, par. 3117)
Sec. 31.17. A recording pressure gauge shall be attached to the ventilating fan at all times.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/31.18) (from Ch. 96 1/2, par. 3118)
Sec. 31.18. In all mines starting operation after July 1, 1947, the ventilating fan shall be installed on the surface in a fireproof building.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/31.19) (from Ch. 96 1/2, par. 3119)
Sec. 31.19. All ventilating fans shall have suitable automatic devices attached to them for the purpose of sounding an alarm when the fan stops. The alarm shall be placed so that it will be seen or heard by a responsible person.
(Source: Laws 1953, p. 701.)

(225 ILCS 705/31.20) (from Ch. 96 1/2, par. 3120)

Sec. 31.20. Ventilating fans shall be operated on a separate power circuit, independent of the mine circuit. (Source: Laws 1953, p. 701.)

(225 ILCS 705/31.21) (from Ch. 96 1/2, par. 3121)

Sec. 31.21. When the ventilating fan at any mine fails or stops, immediate action shall be taken to cut off the electric power and withdraw the workers from the face regions of the mine. In gassy mines if the ventilation is restored within a reasonable time, the face regions and other places where methane is likely to accumulate shall be re-examined by competent personnel, and if such region and places are found to be free from explosive gas the power may be restored and work resumed. If the ventilation is not restored within a reasonable time all underground employees shall be removed from the mine. In non-gassy mines if the ventilation is restored within a reasonable time the power may be turned on and work resumed without the necessity of re-examination. (Source: P.A. 81-992.)

(225 ILCS 705/31.22) (from Ch. 96 1/2, par. 3122)

Sec. 31.22. The ventilating fan shall be inspected daily. (Source: Laws 1953, p. 701.)

(225 ILCS 705/31.23) (from Ch. 96 1/2, par. 3123)

Sec. 31.23. Booster fans may not be used in mines except by special permission from the State Mining Board. (Source: Laws 1953, p. 701.)

(225 ILCS 705/31.24) (from Ch. 96 1/2, par. 3124)

Sec. 31.24. Blower fans with tubing may be used, if the following precautions are followed:

1. In gassy mines the blower shall be powered with a permissible unit and installed on the intake air side of the entrance to be ventilated, not less than 15 feet outby the ventilating cross-cut.

2. The volume of air in which the fan is placed shall not be less than 2 1/2 times the manufacturer's maximum rated capacity of the fan.

3. The fan and tubing shall be maintained in good order. The discharge end of the tubing shall be kept within 20 feet of the face, and not more than 300 feet of tubing shall be extended from the fan.

4. Working places ventilated by means of blower fans in gassy mines shall be examined for methane by competent personnel designated by the mine manager before the fan is operated at the beginning of the shift and after an interruption of 5 or more minutes of fan operation during the shift.

5. The fan and tubing shall be inspected at least twice during each working shift.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/31.25) (from Ch. 96 1/2, par. 3125)

Sec. 31.25. Doors shall be kept closed except when men or equipment are passing through the doorways. Motor crews and other persons who open doors shall see that the doors are closed before leaving them.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/31.26) (from Ch. 96 1/2, par. 3126)

Sec. 31.26. Permanent overcasts shall be constructed of incombustible material such as masonry, concrete, concrete blocks, or metal and shall be of ample area to pass the required quantity of air, and where necessary to securely timber to prevent falls from the roof.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/31.27) (from Ch. 96 1/2, par. 3127)

Sec. 31.27. Flame resisting brattice cloth shall be used in the construction of line brattice.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/31.28) (from Ch. 96 1/2, par. 3128)

Sec. 31.28. The entrances to abandoned workings shall be posted to warn persons against entering the territory.

(Source: Laws 1953, p. 701.)

(225 ILCS 705/31.29) (from Ch. 96 1/2, par. 3129)

Sec. 31.29. In a gassy mine, all workings which are abandoned after the effective date of this Act, or the date such mine was classified a gassy mine, whichever is later, shall be sealed or ventilated. If such workings are sealed, the sealing shall be done in a substantial manner with incombustible material; however, some other type of material may be used provided prior approval has been obtained from the Mining Board. One or more of the seals of every sealed area shall be fitted with a pipe and cap or valve to permit the sampling of gases and the measuring of hydrostatic pressure behind such seals. For the purposes of this Section, workings within a panel shall not be deemed to be abandoned until such panel is abandoned.

(Source: Laws 1955, p. 2012.)

(225 ILCS 705/31.30) (from Ch. 96 1/2, par. 3130)

Sec. 31.30. In gassy mines worked by the so-called "enclosed panel system" where rooms are driven off of both sides of the panel entries and ventilated by one side of the panel as the intake airway and the other side as the return, the following shall govern the method of working this type of panel: When the top end or inby end of the panel begins to

squeeze, work or more as the result of extraction of coal and the area cannot be examined, men working in the said panel and rooms shall be removed until movement has abated and the presence of gas cannot be detected with a permissible flame safety lamp. However, if in such panels fire, barrier or cutoff pillars are left in the center of the panel of adequate thickness and the entries have been sealed in line with the pillars with adequate roof support on the inby side of the seals isolating the worked out area from the live works, then mining operations may be resumed. This shall not apply to panels worked with rooms on the intake side only, or panels with bleeder entry system whereby the gas released in the squeezed area will not contaminate the ventilating air current used to ventilate active workings within the panel. (Source: Laws 1953, p. 701.)

(225 ILCS 705/31.31) (from Ch. 96 1/2, par. 3131)

Sec. 31.31. In a gassy mine, air that has passed through an abandoned panel which is inaccessible for inspection, or air that has passed through a similar abandoned area which is inaccessible for inspection, or air which has been used to ventilate a pillar line, or air which has been used to ventilate an area from which the pillars have been removed, shall not be used to ventilate any active face area in such mine; but if this Section cannot be complied with in such mine on the effective date of this Act, such mine may continue to be operated after such date as it was operated immediately prior to such date, for a reasonable time until future mine development and ventilation of such mine can be changed to comply with this Section. In no event shall such air be used to ventilate any area in such mine in which men work or travel if such air contains more than 1% of methane. (Source: Laws 1953, p. 701.)

(225 ILCS 705/31.32) (from Ch. 96 1/2, par. 3132)

Sec. 31.32. No person shall obstruct or cause any obstruction in any air current, or leave open any door or other means provided to control the air current, or perform any act that will interfere with the air current of the mine, without permission from the Mine Manager.
(Source: Laws 1953, p. 701.)

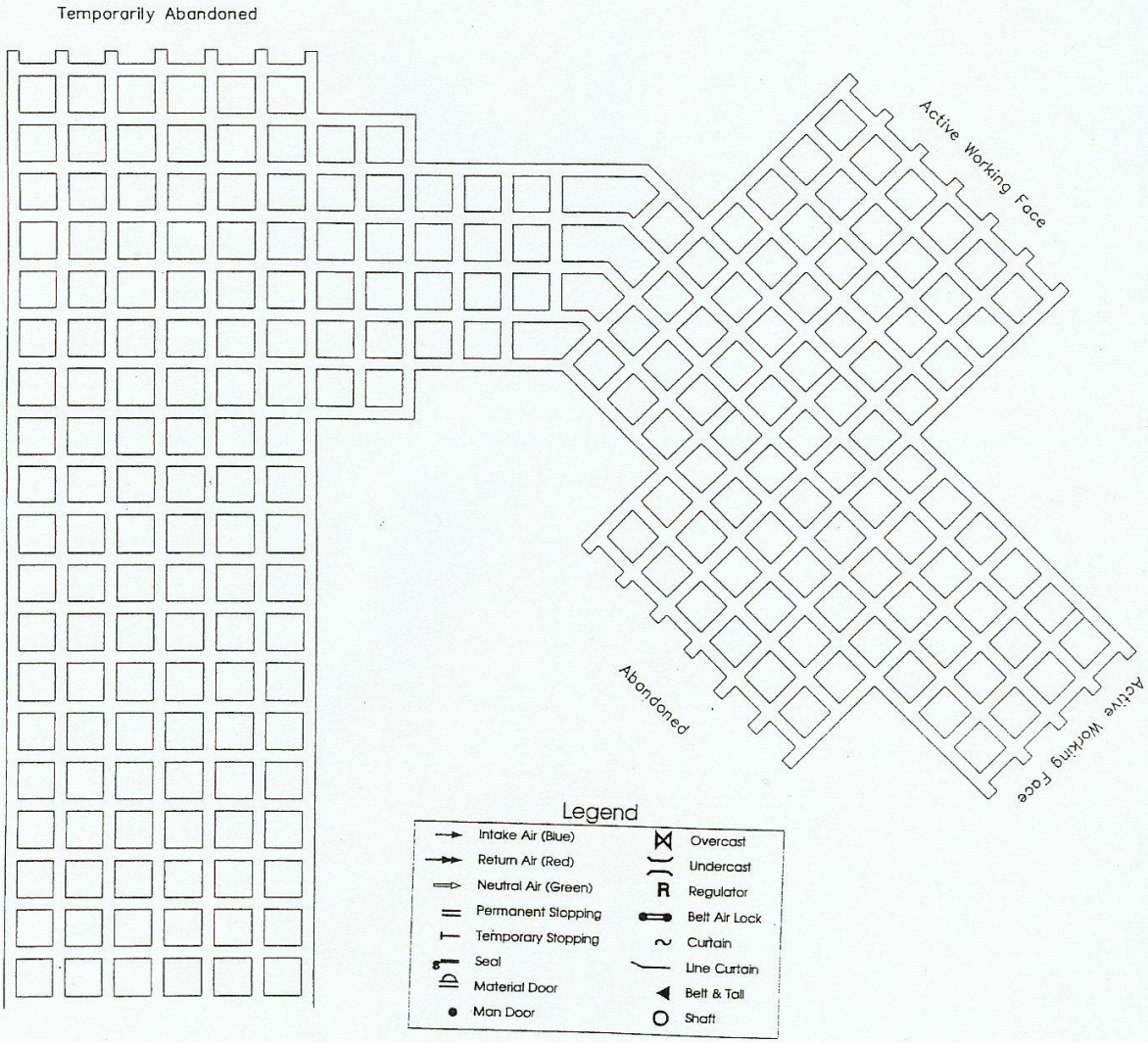
Temporary Mine Manager Practice Map

Return Entries are red

Intake Entries are Blue

Neutral Entries are blue

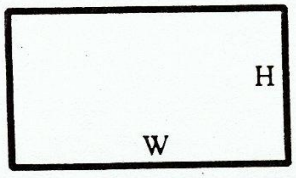
Bring Intake air up the right side and Return on the Left



COAL MINE VENTILATION EQUATIONS FOR FINDING AREA(S)

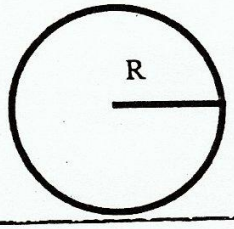
FOR A RECTANGULAR ENTRY

$$A = W \times H$$



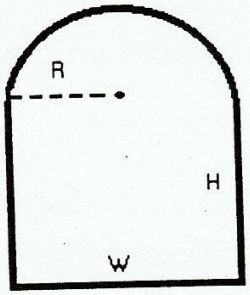
FOR A CIRCULAR ENTRY OR SHAFT

$$A = \pi \times R^2$$



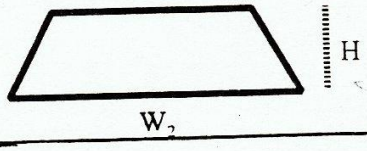
FOR AN ARCHED ENTRY

$$A = \frac{\pi \times R^2}{2} + W \times H$$



FOR A TRAPEZOID ENTRY

$$A = \frac{W_1 + W_2}{2} \times H$$



FOR FINDING QUANTITIES

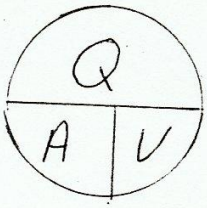
$$Q = A \times V$$

DEFINITIONS

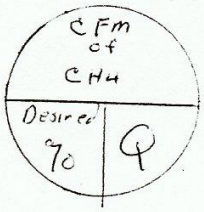
A	=	AREA
H	=	HEIGHT
W	=	WIDTH
π	=	PI (3.1416)
R	=	RADIUS
D	=	DIAMETER
SQ FT	=	SQUARE FEET
V	=	VELOCITY
CFM	=	CUBIC FEET PER MINUTE
Q	=	QUANTITY

Ventilation Formula

$$Q = A V$$



Dilution of CH_4



DIESEL REGULATIONS

The quantity of ventilating air maintained in the last open crosscut where multiple diesel units are operating in a working section shall be at least 100 percent of the air quantity specified on the approval plate of the first, diesel unit (the unit requiring the highest air quantity on its approval plate), plus 75 percent of the approved plate air quantity of the second diesel unit (next highest air quantity), plus 50 percent of the approval plate air quantity of each additional diesel unit operating in the split of air.

GAS CHART

	METHANE	CARBON MONOXIDE	HYDROGEN SULFIDE	CARBON DIOXIDE	NITROGEN	OXYGEN
Chemical Symbol	CH_4	CO	H_2S	CO_2	N_2	O_2
Specific Gravity	0.555	0.967	1.191	1.529	0.967	1.105
Incidence in air (%) *Trace amounts only	*	*	*	0.03	78.10	20.95
Is it Combustible?	YES	YES	YES	NO	NO	NO
Does it support combustion?	NO	NO	NO	NO	NO	YES
Is it poisonous?	NO	YES	YES	NO	NO	NO
How is it detected?	Safety Lamp or Methane Detector	CO Detector or Chemical Analysis	H_2S Detector or Chemical Analysis and Odor	Chemical Analysis and Safety Lamp	Chemical Analysis and Safety Lamp	Chemical Analysis and Safety Lamp
Explosive range (%) in air	5 TO 15 %	12.5 TO 73 %	4.3 TO 46 %	NONE	NONE	NONE
Ignition temperature (^{0}F)	1100 to 1380 ^{0}F	1100 ^{0}F	700 ^{0}F	NONE	NONE	NONE
Origin	Occluded in Coal and Clay Veins: Decomposition of Vegetable matter in water	Incomplete Combustion: Mine Fires; Explosions and Blasting	Rarely found: Old pipe lines in poorly venerated places	Complete Combustion: Small quantity found naturally in air	Found naturally in air, frees Nitrogen	Found naturally in air
What effect does it have on life?	Causes death by suffocation if breaching in high concentrations: Effect passes off quickly in fresh air	0.10% in air causes complete collapse. Excludes Oxygen from the blood	0.07% causes death in one hour: Very poisonous: Destroys olfactory (sense of smell) nerves	Causes death by suffocation: Excludes Oxygen from the blood: Labored breathing	Causes death by suffocation: Excludes Oxygen from the blood: Labored breathing	Necessary for life