

**ARTICLE II**  
**BOARDS OF EXAMINERS; EXAMINATION**  
**AND CERTIFICATION; DUTIES OF MINE**  
**FOREMEN, ASSISTANT MINE FOREMEN,**  
**MINE EXAMINERS, MINE ELECTRICIANS,**  
**MINERS, MACHINE OPERATORS, AND SHOT-**  
**FIRERS; GENERAL MINING REQUIREMENTS**

**Section 201. Boards of examiners**

On petition of the mine inspector of any mine inspection district, the court of common pleas in any county in said district shall appoint an examining board of three persons, consisting of a mine inspector, a miner, and an operator or superintendent, all of whom shall be citizens of this Commonwealth. The miner shall have had at least ten years practical experience in the bituminous coal mines of this Commonwealth, and be in actual practice as a miner. The persons so appointed, and after the board has been duly organized, shall take and subscribe before an officer authorized to administer the same, the following oath, namely:

"We, the undersigned, do solemnly swear (or affirm) that we will perform the duties of examiners of applicants for certificates of qualification as mine foremen, assistant mine foremen, mine examiners, mine electricians and miners; that we will not divulge

or make known to any person any question prepared for the examiners, or in any manner assist any applicant to pass the examination, but will be governed by the evidence of the qualifications of the applicants to fill said positions, and not by any consideration of personal favor; and that we will certify all whom we may find qualified in accordance with this act, and none other."

### **Section 202. Districts for boards of examiners**

The secretary shall each year determine the districts in which the boards of examiners shall meet for the purpose of holding examinations, and at least two weeks' notice of the time and place where the examinations are to be held shall be given.

### **Section 203. Preparation of examinations**

(a) The secretary shall select from the members of the examining boards a committee of six, comprising two mine inspectors, two operators or superintendents, and two miners, who shall meet at such time and place as the secretary may designate, to prepare the questions and answers to be used by all the examining boards in the bituminous region of the Commonwealth.

(b) The committee so selected shall distribute the questions and answers in sealed packages through the

office of the secretary to the chairmen of the examining boards selected to hold the examinations, and, at the commencement of each session, the chairman of each board shall open the package containing the questions for that particular session in the presence of the board.

(c) The committee is hereby authorized to engage the services of a clerk, whose compensation and mileage shall be the same as that of the members of the board.

(d) The secretary may, at any time, convene the committee for the purpose of preparing questions and answers for any special examination that may be held, and for such examination the questions and answers shall be distributed to the boards in the usual way.

#### **Section 204. Compensation of boards of examiners**

Each board member, with the exception of the mine inspector members, shall receive thirty dollars (\$30) a day for each day actually employed, not exceeding fifteen days in all, and traveling expenses at the prevailing State rate for each mile necessarily traveled in going from his home to the place of meeting and return, by the shortest practicable route. The committee of six, with the exception of the mine inspector members, shall receive compensation at the rate of thirty dollars (\$30) a day and traveling expenses at the prevailing State rate, while preparing

the questions and answers. Each member shall also be reimbursed for all other necessary expenses incurred in the discharge of his duties. Each board of examiners is hereby authorized to employ the services of a clerk, whose compensation and rate of mileage shall be the same as that of members of the board. The clerk of each board shall, on final adjournment, send to the secretary properly attested vouchers for compensation and expenses of each member of the board, and also a voucher covering his own compensation and expenses, which vouchers shall be approved by the chairman and the secretary of the board. The secretary shall then approve said vouchers and transmit them to the Auditor General who shall issue warrants on the State Treasurer for their payment.

### **Section 205. Designation of boards for examination**

The secretary shall designate the boards of examiners before whom applicants, for certification as mine foremen, assistant mine foremen, mine examiners, mine electricians and miners, residing in the various mine inspection districts, shall appear. All persons who desire to appear for examination shall notify the chairman of the board of their intention to appear, if possible, not less than ten days prior to the date set for the examination. The boards shall inquire into the character and qualifications of the applicants who present themselves for examination.

## **Section 206. Qualifications for certification**

(a) Applicants for certificates of qualification as mine foremen and mine electricians, shall be citizens of the United States, of good moral character and of known temperate habits, at least twenty-three years of age, and shall have had at least five years practical experience after eighteen years of age, as miners or mining engineers or men of general work with at least three years' experience in working sections (a working section for the purposes of this act shall be deemed to be the area from the working face extending back one thousand feet) in underground bituminous coal mines: Provided, That graduates with a bachelors degree in civil engineering, electrical engineering or mining engineering, or an associate degree in the mining engineering course of a recognized institution of learning may, after examination, be granted certificates of qualification by an examining board as mine foremen and mine electricians, if possessed of an aggregate of not less than three years practical experience as miners or men of general work or mining engineers, in underground bituminous coal mines in the working section.

(a.1) Applicants for certificates of qualification as assistant mine foremen shall be citizens of the United States, of good moral character and of known temperate habits, and shall have had at least four years' practical experience, with at least three years'

experience in working sections, after eighteen years of age, as miners or mining engineers or men of general work, in underground bituminous coal mines: Provided, That graduates with a bachelors degree in civil engineering, electrical engineering or mining engineering, or an associate degree in the mining engineering course of a recognized institution of learning may, after examination, be granted certificates of qualification by examining board as assistant mine foremen, if possessed of an aggregate of not less than three years practical experience as miners or mining engineers or men of general work, in underground bituminous coal mines in working sections.

(a.2) Applicants for certificates of qualification as mine examiners shall be citizens of the United States, of good moral character and of known temperate habits, and shall have had at least three years' practical experience after eighteen years of age, as miners or mining engineers or men of general work, in underground bituminous coal mines in working sections.

(a.3) All applicants shall be able to read and write the English language intelligently, and shall furnish the board with certificates as to their character and temperate habits, and a notarized statement from previous employers setting forth the length of service and type of work performed in the different mines.

(b) Certificates of qualification as mine foremen shall be granted to persons who have given to the examining board satisfactory evidence of their ability to perform the duties of mine foremen and have received training by persons approved by the department in determining the presence of explosive and noxious gases, and in the use and mechanics of all gas detection devices, and who shall have received an average of at least eighty per cent in the examination.

(c) Certificates of qualification as assistant mine foremen shall be granted to persons who have given to the examining board satisfactory evidence of their ability to perform the duties of assistant mine foremen and have received training by persons approved by the department in determining the presence of explosive and noxious gases, and in the use and mechanics of all gas detection devices, and who shall have received an average of at least seventy per cent in the examination.

(d) Certificates of qualification as mine examiners shall be granted to persons who have given to the examining board satisfactory evidence of their ability to perform the duties of mine examiners and have received training by persons approved by the department in determining the presence of explosive and noxious gases, and in the use and mechanics of all gas detection devices, and who shall have received an

average of at least seventy-five per cent in the mine examiners examination.

(e) Certificates of qualification as mine electrician shall be granted to persons who have given to the examining board satisfactory evidence of their ability to perform the duties of mine electrician and have received training by persons approved by the department in determining the presence of explosive and noxious gases, and in the use and mechanics of all gas detection devices, and who shall have received an average of seventy-five per cent in the mine electrician's examination.

(f) Certificates of qualification or service heretofore granted shall have equal value with certificates of qualification granted under this act; provided, however, those certificates heretofore granted for second grade mine foremen or second grade assistant mine foremen will not entitle the holders to act in gassy mines.

(g) All applicants who have satisfactorily passed a written examination shall also satisfactorily pass an oral examination, and after being certified but before assuming their duties as mine foremen, mine electricians, assistant mine foremen or mine examiners, shall accompany a certified mine foreman or a certified assistant mine foreman for not less than two weeks for training purposes in accordance with a



training program submitted by the operator and approved by the department: Provided, however, That any applicant who has been granted a prior certificate need not undergo this training. The record of such training shall be maintained at the mine.

### **Section 207. Fees for examination**

Before the examination for certificates of qualification for mine foremen, mine examiners and mine electricians, each applicant shall pay a fee of two dollars (\$2), and each successful applicant shall pay an additional fee of three dollars (\$3) before receiving a certificate. The money thus received from applicants shall be transmitted to the secretary to be deposited in the State Treasury. In case of the loss or destruction of a certificate, the secretary shall, upon presentation of satisfactory evidence of the loss or destruction, issue a copy of the certificate on the payment of the sum of one dollar (\$1).

### **Section 208. Issuance of certificates**

Each examining board, or at least two members thereof, shall certify to the secretary, on forms furnished by him, every person whose examination shall disclose his fitness for the duties of mine foremen, assistant mine foremen, mine examiners, and mine electricians, as above classified, and the secretary shall then prepare appropriate certificates of

qualification for the successful applicants and send them to the chairman of the board for distribution. Each certificate shall contain the full name, age, and place of birth of applicant, and also the length and nature of his previous service in or about the mines.

### **Section 209. Records of examinations**

Each examining board shall send to the secretary the answers and all other papers of the applicants, together with the tally sheets and a list of the questions and answers as prepared by the committee of six, which shall be filed in the department as public documents for a period of not less than eight years.

### **Section 210. Unlawful to use noncertified persons**

(a) It shall be unlawful for any operator, manager or superintendent, to employ as mine foreman in a bituminous coal mine, or as assistant mine foreman in a bituminous coal mine, any person who has not obtained the proper certificate of qualification required by this act: Provided, That certificates of qualification heretofore granted shall have equal value with certificates of qualification granted under this act except as provided in section 206(f) of this act. It shall also be unlawful for any operator, manager, superintendent, or mine foreman, to employ as mine examiner in a bituminous coal mine any person who has not obtained the proper certificate of qualification

under this act: Provided, That certificates of qualification as mine examiner heretofore granted shall have equal value with certificates of qualification granted under this act: Provided, however, That in an emergency, which shall be a condition which could not have been foreseen and which requires immediate action, the mine foreman may appoint a competent person or persons with no less than three years' experience in underground bituminous coal mines to act as assistant mine foreman or mine examiners, for not more than one week, but this authority shall not be exercised by the mine foremen so long as certified assistant mine foremen or certified mine examiners are available in the mine who are willing to accept the assignment. In other situations, if a certified person is not available, a mine examiner may be appointed to act as assistant mine foreman, but only until an assistant mine foreman, who is willing to accept the assignment becomes available, for a period or periods not exceeding one hundred twenty working production days within a twelve-month period or thirty days after the next examination, whichever is longer.

(b) Nothing in this article shall prevent a mine foreman from acting as assistant mine foreman in any mine or an assistant mine foreman from acting as a mine examiner.

(c) Foremen trainees, where used, shall not direct the working forces in matters involving directly or

indirectly the safety of employees nor make tests or examinations required to be made by certified persons.

### **Section 211. Certification of miners**

No person shall be employed or engaged as a miner in any bituminous coal mine in this Commonwealth, except as hereinafter provided for, without first having obtained a certificate of competency and qualification: Provided, however, That any miner holding such certificate may have a maximum of two persons working for him and under his direction as noncertified miners for the purpose of learning the business of mining and such noncertified miner or noncertified miners shall be permitted to work under the direction of such miner without a certificate. Other noncertified miners may be employed or engaged as miners as provided in sections 220 and 225 of this act. For the purposes of this act, in order to determine who shall be required to possess certificates, the term "miner" shall mean only underground workers in bituminous coal mines who cut, drill, blast or load coal or rock at the face of an entry, room, pillar, or other working place, or workers who do general work; also timbermen and trackmen whose duties require them to set timbers and lay or repair tracks at the working faces, and motormen, and shuttle car operators, except as hereinafter provided.

## **Section 212. Qualifications for certification as miners**

Miners shall be examined and granted certificates by the district board of examiners or the mine inspector in the district under such rules and regulations as the secretary shall prescribe.

(a) No person shall be qualified to take the examination unless he produces evidence of having had not less than one year's practical experience in the bituminous coal mines of this Commonwealth as a miner or who has served as a noncertified miner for a period of not less than one year. A certificate shall not be granted unless the applicant appears in person before the board or mine inspector and answers orally, intelligently and correctly, at least eight practical questions propounded to him.

(b) All persons possessing certificates of qualification issued by the Commonwealth of Pennsylvania entitling them to act as mine foremen, assistant mine foremen, mine examiners or mine electricians, shall be eligible to engage at any time as miners in bituminous coal mines of this Commonwealth.

(c) Supervisory and technically trained employees of the operator whose work contributes only indirectly to mine operations, employees who are not performing

the work of a miner as that term is defined in this act, and noncertified miners, shall not be required to possess a miner's certificate.

### **Section 213. Fees for miners' certificates**

Each successful applicant for examination shall pay to the board of examiners a fee of one dollar (\$1). All fees collected by a miners' examining board or the mine inspector shall be promptly transmitted to the department, and by it paid into the State Treasury through the Department of Revenue. In case of the loss or destruction of a certificate, the secretary shall, upon presentation of satisfactory evidence of the loss or destruction, issue a copy of the certificate to the original possessor on the payment of the sum of fifty cents (50).

### **Section 214. Issuance of miners' certificates**

The form and manner of issuing such certificates shall be designated by the secretary. Certificates granted by a board, or the mine inspector in the district, shall entitle the holder thereof to be employed as, and do the work of, a miner in the bituminous coal mines of the Commonwealth. A certificate granted by a board or the mine inspector in the district shall not be transferable and a transfer shall be deemed a violation of this act.

### **Section 215. Unlawful to use noncertified miners**

No person shall be employed as a miner, as the term is defined for the purpose of this act, other than as a noncertified miner as provided in sections 220 and 225 of this act, in any bituminous coal mine in this Commonwealth, without first having obtained a certificate of competency and qualification as provided for in this act, except as hereinbefore stated; nor shall any person, firm or corporation, or his or its agent, employ as a miner, other than as a noncertified miner as provided in sections 220 and 225 of this act, any person who does not hold such certificate, except as aforesaid.

### **Section 216. Penalty for forged certificates**

If any person shall forge or counterfeit a certificate of qualification or knowingly make or cause to be made any false statement in any certificate issued under this act or any previous act, or in any copy thereof, or shall make use of such forged or false certificate, or copy thereof, or shall make use of any false declaration, representation or statement, in any such certificate, or copy thereof, or any document containing the same, he shall be deemed guilty of a misdemeanor.

## **Section 217. Certification of mining machine operators and shot-firers**

It shall be unlawful to employ as mining machine operators or shot-firers in any gassy bituminous coal mine, any person who has not given evidence to the secretary as to his fitness and competency to handle and use an approved safety lamp, and his ability to determine the presence or absence of explosive gas, and other dangerous conditions. The manner of determining such fitness and competency shall be prescribed by the secretary and he shall issue a certificate to those found competent, the form of which shall also be prescribed by the secretary, and the cost of such examination and certification shall be borne by the candidates: Provided, That persons possessing certificates entitling them to act as officials in gassy mines shall be eligible to act as mining machine operators or shot-firers: Provided, however, That in an emergency the mine foreman may designate, temporarily, a competent person or persons, to act as mining machine operators or shot-firers; but this authority shall not be exercised by the mine foreman so long as certified mining machine operators or certified shot-firers are available in the area affected.



## **Section 218. Employment of mine foremen**

In order to secure efficient management and proper ventilation of the mines, to promote the health and safety of the persons employed therein, and to protect and preserve the property connected therewith, the operator or the superintendent shall employ a competent and practical mine foreman for every mine, who shall be under the supervision and control of the operator or the superintendent: Provided, however, That in non-gassy mines employing less than five persons working underground in any twenty-four hour period, the operator shall designate a competent man not necessarily certified as a mine foreman, who shall have the full responsibilities of a certified mine foreman under this act. The operator of such mine shall be held as fully responsible as the man appointed by him to act as mine foreman. The mine foreman shall have full charge of all the inside workings and the persons employed therein, subject, however, to the supervision and control of the operator or the superintendent, in order that all the provisions of this act so far as they relate to his duties shall be complied with, and the regulations prescribed for each class of workmen under his charge carried out in the strictest manner possible. In gassy mines the mine foreman must possess a first grade mine foreman's certificate. In non-gassy mines where five or more persons work underground in any twenty-four hour period, the mine foreman must possess either a first grade mine

foreman's certificate, a first grade assistant mine foreman's certificate or a second grade mine foreman's certificate.

### **Section 219. Employment of mine electricians**

At every mine where electricity is used underground there shall be employed a qualified mine electrician, who shall have full charge of the electrical apparatus in the mine, but shall be subject to the authority of the mine foreman. In a gassy mine, a certified mine electrician shall be employed. It shall be the duty of the mine electrician to assist the mine foreman in carrying out all the provisions of the bituminous mining laws bearing on the use and installation of electricity inside bituminous coal mines, and the equipment powered thereby, and he shall be subject to the same penalties as the mine foreman for any violation of these laws.

### **Section 220. Employment of assistant mine foreman**

When the mine workings become so extensive that the mine foreman is unable personally to carry out the requirements of this act pertaining to his duties, he shall have the right to employ a sufficient number of competent persons to act as his assistants, who shall be under his instructions and the operator's or the superintendent's instructions in carrying out the

provisions of this act. In a gassy mine the mine foreman's assistants must possess first grade assistant mine foreman's certificates. If the mine is non-gassy, the mine foreman's assistants must possess either first grade assistant mine foreman's certificates or second grade assistant mine foreman's certificates.

In case of the necessary temporary absence of the mine foreman, he may deputize his work, for the time being, to an assistant mine foreman, who shall perform all the duties of the mine foreman.

Any assistant mine foreman may supervise and direct the work of a maximum of two noncertified miners and he shall instruct such person or persons how safely and properly to perform his or their work.

### **Section 221. Mine foreman; ventilation**

(a) The mine foreman shall devote the whole of his time to his duties in the mine when the mine is in operation, and shall keep a careful watch over the ventilating apparatus, the ventilation, airways, travelingways, and shall see that all stoppings along airways are properly built.

(b) He shall also see that proper cut-throughs are made in the pillars of all rooms and of all entries, and that they are closed when necessary or when required by the mine inspector, so that the ventilating current

can be conducted in sufficient quantity through the last cut-through to the face of each room and entry. He shall not permit any room or entry to be turned in advance of the ventilating current or in advance of the last cut-through in the entry, excepting room necks, which may, with the consent of the mine inspector, be turned by entrymen driving entries.

(c) The mine foreman or his assistant shall measure the air current at or near the main inlet and outlet airway at least once each week, and also in the last cut-through in the last room and in the entry beyond the last room turned in each entry. In mechanical mines, measurements shall be taken in the last cut-through in the last room and in the entry beyond the last room at least once each twenty-four hours. A record shall be made of daily measurements in the assistant mine foreman's daily report book. Said measurements shall be taken on days when the men are at work, and for making said measurements an anemometer shall be provided and kept in good condition by the superintendent of the mine.

(d) In case of accident to a ventilating fan or its machinery, or if the fan stoppage is a planned interruption whereby the ventilation of the mine is interrupted, the mine foreman shall order the power to be disconnected from the affected portions and withdraw the men immediately from the face areas. In mines employing the use of multiple fans equipped

with self-closing doors which operate automatically when the fan is stopped, such action need not be taken provided the minimum requirements are met by other fans of the system. If the fan has been stopped for a period of time in excess of fifteen minutes in a gassy mine, and thirty minutes in a non-gassy mine, the mine foreman shall order the men withdrawn from the mine. If the mine foreman shall deem it necessary, he may withdraw the men from a gassy mine in less than the said fifteen minutes and from a non-gassy mine in less than the said thirty minutes. He shall not allow the men to return to their work until the ventilation has been restored, and the mine has been thoroughly examined by certified personnel and reported safe. A record shall be made of said examination.

(e) The mine foreman shall notify the superintendent, in writing, whenever in his opinion the mine is becoming dangerous through the lack of ample ventilation at the face of entries, rooms, and other portions of the mine caused by the undue length of entries and airways, or from any other cause, resulting in the accumulation of gas or coal dust, or both, in various portions of the mine. The superintendent shall thoroughly investigate the mine foreman's report and, if substantiated, order necessary work done to put the affected area in safe operating condition. It shall be the duty of the superintendent to immediately notify the mine inspector in the district of such condition.

(f) The mine foreman shall see that every mine liberating explosive gas is kept free of standing gas, however, any accumulation of explosive gas or noxious gases in the worked-out or abandoned portions of any mine shall be removed as soon as possible after its discovery, if it is practicable to remove it. No person who may be endangered by the presence of said explosive gas or noxious gases shall be allowed in that portion of the mine until said gases have been removed. The mine foreman shall direct and see that all dangerous places and the entrance or entrances to worked-out and abandoned places in all mines are properly fenced off across the openings, so that no person can enter, and that danger signals are posted upon said fencing to warn persons of the existing danger.

(g) When operations are temporarily suspended in a mine, the mine foreman shall see that danger signals are placed across the mine entrances, which signals shall be sufficient warning for unauthorized persons not to enter the mine. If the circulation of air through the mine be stopped, each entrance to said mine shall be fenced off in such a manner as will ordinarily prevent persons from entering said mine, and a danger signal shall be displayed upon said fence at each entrance and maintained in good condition. The mine foreman shall see that all danger signals used in the mine are in good condition and if any become defective, he shall notify the superintendent.

## **Section 222. Mine foreman; safety of working places**

(a) The mine foreman or his assistant shall direct and see that every working place is properly secured and shall see that no person is directed or permitted to work in an unsafe place, unless it be for the purpose of making it safe. He shall also see that workmen are provided with sufficient roof support materials delivered to their working place or places. When timbers are used for roof support, they shall be cut square on both ends and as near as practicable to proper length.

(b) Every workman in need of roof support materials shall notify the mine foreman or the assistant mine foreman of the fact at least one day in advance, stating the roof support materials required. In case of emergency roof support materials may be ordered immediately upon the discovery of danger. If for any reason the necessary roof support materials cannot be supplied when required, the mine foreman or assistant mine foreman shall instruct the workmen to vacate the place until the material needed is supplied.

(c) The mine foreman or his assistant shall direct and see that as the miners advance in their excavation, all dangerous and doubtful pieces of coal, slate and rock are taken down, or at once carefully secured against

falling on the workmen. Any workman who neglects to carry out, or disobeys, the instructions of the mine foreman or his assistant, in regard to securing his working place, shall be suspended or discharged by the mine foreman, and if such negligence or disobedience results in serious injury or loss of life to any person, the mine foreman shall give the name of said workman to the mine inspector for prosecution in accordance with the requirements of this act.

(d) The mine foreman shall give prompt attention to the removal of all dangers reported to him by his assistants, the mine examiner, or by any other person working in the mine, and in case it is impracticable to remove the danger at once, he shall notify every person whose safety is menaced thereby to remain away from the portion where the dangerous conditions exist.

(e) The mine foreman, his assistant, or the mine examiner, shall, once each week, travel and examine all the air courses and roads and all the openings that give access to old workings or falls, and make a record with ink in the book provided for that purpose of the condition of all places.

(f) It shall be the duty of the mine foreman to see that approved safety lamps are used, when and where required by this act. No approved safety lamp shall be entrusted to any person, for use in a mine, until said



person has given satisfactory evidence to the mine foreman that he understands the proper use thereof and the danger of tampering with the same. The transportation of tools into and out of the mine shall be under the direction of the mine foreman or his assistant.

(g) Instructions shall be given the men by the mine foreman, assistant mine foreman, or mine examiner, or other authorized person as to when, where, and how roof supports shall be placed, so as to avoid accidents from falls and also in a general way how to mine coal with safety to themselves and others. In addition thereto, the mine foreman or the assistant mine foreman shall give special care and attention to the men drawing pillars, particularly when falls are thereby being made.

(h) The mine foreman shall see that the roof and sides of all designated passageways over or through which men travel or are transported to the working areas shall be examined by a competent person or persons within three hours immediately preceding the beginning of the first coal-producing shift on each day.

### **Section 223. Mine foreman; shooting**

(a) The mine foreman shall direct that the coal is properly mined before it is blasted, shot or broken.

"Properly mined" shall mean that the coal shall be undercut, centercut, overcut, or sheared by pick or machine, and in any case the cutting shall be as deep as the holes are laid. In gassy mines, when the coal seam is five feet six inches or more in thickness, "properly mined" shall mean that in all entries less than ten feet wide, wherein the coal is undercut, or overcut, it shall be sheared on one side as deep as the cutting before any holes are charged or fired; or in lieu of shearing, the coal shall be blasted in sections by placing the first hole near the center of the coal seam.

(b) The mine foreman or the assistant mine foreman under instructions from the mine foreman shall direct that the holes for blasting shall be properly placed, and shall designate the angle and depth of holes, which shall not be deeper than the undercutting, centercutting, overcutting, or shearing, the maximum quantity of explosives required for each hole, and the method of charging and tamping.

(c) In a gassy mine the mine foreman shall employ a sufficient number of competent and legally qualified persons or act as shot-firers.

## **Section 224. Mine foreman; drainage**

(a) The mine foreman shall see that the water is drained out of the working places before the men

enter, and that the working places are kept as free from water as practicable during working hours.

(b) Whenever any working place in the mine approaches within fifty feet of abandoned workings, in such mine as shown by surveys certified by a registered engineer or surveyor, or within two hundred feet of any other abandoned workings of such mine, which cannot be inspected and which may contain dangerous accumulations of water or gas, or within two hundred feet of any workings of an adjacent mine, the mine foreman shall see that a borehole or boreholes shall be drilled to a distance of at least twenty feet in advance of the face of such working place. Such boreholes shall be drilled sufficiently close to each other to insure that the advancing face will not accidentally hole through into such workings. Boreholes shall also be drilled not more than eight feet apart in the rib of such working place to a distance of at least twenty feet and at an angle of forty-five degrees. Such rib holes shall be drilled in one or both ribs of such working place as may be necessary for adequate protection of persons working in such place. No water or gas from any portion of an abandoned mine, or from any idle portion of an active mine, and no borehole from the surface shall be tapped except under the immediate instruction and direction of the mine foreman with the use of approved safety lamps. It shall be unlawful to work or employ men to work in any portion of a bituminous coal mine in which a body

of water is dammed or held back at a higher elevation in the same mine by natural or artificial means, unless permission to do so is given in writing by the secretary.

### **Section 225. Mine foreman; employment of competent persons**

The mine foreman under rules and regulations approved by the secretary covering a training period for each occupation, shall see that no person is employed to work in any mine until he has given satisfactory proof that he can do the work allotted to him without endangering the lives of his co-employees, unless said person is put to work with a certified miner.

### **Section 226. Mine foreman; inspections and reports**

(a) In all mines the mine foreman shall employ a sufficient number of assistants to insure a visit to each working place during each shift either by himself or by his assistants, while the employees are at work, and in all mines or portions of mines in which mine examiners are not regularly employed, the mine foreman shall, if in the judgment of the mine inspector the roof conditions require extraordinary supervision, employ a sufficient number of assistants to insure two visits to each working place during each shift either by

himself or his assistants while the employees are at work in such mines or portions of mines, and in all mines, the interval of time between visits shall be arranged so as to secure the most efficient and effective supervision.

(b) The mine foreman shall each day enter plainly and sign with ink in a book provided for that purpose a report of the condition of the mine, which report shall clearly state any danger that may have come under his observation during the day, or any danger reported to him by his assistants or the mine examiners. The report shall also state whether or not there is a proper supply of material on hand for the safe working of the mine, and whether or not the requirements of the law are complied with. He shall also, once each week, enter plainly with ink, in said book, a true report of all weekly air measurements required by this act, designating the place, the area of each cut-through and entry separately, the velocity of the air in each cut-through and entry, the quantity of the air in each cut-through and entry, and the number of men employed in each separate split or air, with the date when measurements were taken. Said book shall at all times be kept in the mine office at the mine, for examination by the mine inspector, any person working in the mine, or by authorized representatives of the employees of the mine, in the presence of the superintendent or the mine foreman.

The mine foreman shall also, each day, read carefully, and countersign with ink, all reports entered in the record book of the mine examiners. Assistant mine foremen may be designated to countersign with ink, all reports entered in the record book of the mine examiners where there are two or more portals.

(c) When assistant mine foremen are employed, their duty shall be to assist the mine foreman in complying with the provisions of this act, and they shall be liable to the same penalties as the mine foreman for any violation of this act in parts or portions of the mine under their jurisdiction. At the end of each shift each assistant mine foreman shall make a report in a book provided for that purpose, giving the general condition as to safety of the working places visited by him, and shall make a note of any unusual occurrence observed by him during the day. The mine foreman shall read carefully the daily report of each assistant mine foreman and shall sign the report with ink daily. Where more than one portal is being used for the entrance of workmen into a mine, the mine foreman may designate an assistant, who holds a certificate of first grade mine foreman in a gassy mine or a first grade assistant or a second grade mine foreman in a non-gassy mine, to sign the assistant mine foreman's daily report book at each portal other than the main portal.

(d) It shall be the duty of the mine foreman or assistant mine foreman, or an authorized person designated by the mine foreman, to examine daily in a general way all electrical equipment and other machinery under his jurisdiction to see that it is in a safe operating condition, and make a report in the assistant mine foreman's daily report book. It shall be the duty of the mine electrician to make and sign a written report, once each week, in a record book provided for that purpose, stating the condition of electrical equipment and other machinery in the mine. This report shall be counter-signed by the mine foreman.

(e) The mine foreman shall report daily to the superintendent all injuries that have occurred in or about the mines, giving the age and occupation of the injured persons, together with facts as to the families or dependents affected.

(f) It shall be the duty of the mine foreman to report immediately all violations of this act to the mine inspector.

### **Section 227. Employment of mine examiners**

Nothing in this article shall prevent a first grade mine foreman or a first grade assistant mine foreman from acting as mine examiners, or a regularly employed

mine examiner from acting in an emergency as a first grade assistant mine foreman.

The mine foreman shall employ a sufficient number of mine examiners in order that each mine can be examined in accordance with the provisions of this act. The mine foreman or the assistant mine foreman shall see that the mine examiner has left his mark in places examined or reported as examined.

### **Section 228. Duties of mine examiners**

(a) In a gassy mine, within three hours immediately preceding the beginning of a coal-producing shift, and before any workmen in such shift, other than those who may be designated to make the examinations prescribed in this section, enter the underground areas of such mine, certified persons designated by the mine foreman of such mine to do so shall make an examination, as prescribed in this section, of such areas. Each person designated to act as such a mine examiner shall be directed to examine a definite underground area of such mine, and in making his examination, such mine examiner shall inspect every active working place and places immediately adjacent thereto in such area and make tests therein with an approved safety lamp for accumulations of methane and oxygen-deficiency in the air therein. While performing the duties of a mine examiner, the mine examiner may use an approved electric cap lamp or



flashlight provided it is turned out while making an examination for gas. The mine examiner shall examine seals and doors to determine whether they are functioning properly; inspect and test the roof, face, and rib conditions in the working places; inspect active roadways, every unfenced roadway, 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. Such mine examiner shall place his initials and the date at or near the face of each place he examines. If such mine examiner in making his examination, finds a condition which he considers to be dangerous to persons who may enter or be in such area, he shall indicate such dangerous place by posting a "danger" sign conspicuously at a point which persons entering such dangerous place would be required to pass. No person, other than Federal or State mine inspectors, or the mine foreman or his assistant, or persons authorized by the mine foreman or his assistant to enter such place for the purpose of eliminating the dangerous condition therein, shall enter such place while such sign is posted.

A suitable record book shall be kept at the mine office, on the surface, of every mine wherein mine examiners are employed, and immediately after the examination of such mine or any portion thereof by a mine examiner, whose duty it is to make such examination,

he shall enter in said book, with ink, a record of such examination, and sign same. This record shall show the time taken in making the examination, and also clearly state the nature and location of any danger that may have been discovered in any room or entry or other place in the mine, and if any danger or dangers have been discovered, the mine examiners shall immediately report the location thereof to the mine foreman. No person shall enter the mine until the mine examiners return to the mine office on the surface, or to a station location in the intake entry of the mine (where a record book as provided for in this section shall be kept in a fire-proof vault and signed by the person making the examination), and report to the mine foreman or the assistant mine foreman, by telephone or otherwise, and a written report made thereof by the person receiving the report, that the mine is in safe condition for the men to enter. When a station is located in any mine, it shall be the duty of the mine examiners to sign also the report entered in the record book in the mine office on the surface. The record books of the mine examiners shall at all times during working hours be accessible to the mine inspector, any person working in said mine and authorized representatives of the employees of the mine.

A second examination by the same or other mine examiner shall be made during working hours of every working place where men are employed, and a report

of said examination shall be made in the mine examiner report book in the same manner as the first examination. No person on a non-coal producing shift (other than a certified person designated under this paragraph) shall enter any underground area in a gassy mine, unless such area, which shall include all places on that particular split or air, has been examined as prescribed in this subsection within three hours immediately preceding his entrance into such area.

(b) In non-gassy mines, a pre-shift examination shall be made each day during which coal is produced, and a report of said examination shall be made in a report book provided for that purpose. Such examination shall be made within three hours immediately preceding the beginning of the first coal-producing shift on such day.

## **Section 229. Management of the mine**

The right to hire and discharge employees, the management of the mine, and the direction of the working forces, are vested exclusively in the operator; and no person or persons, association or associations, organization or organizations, corporation or corporations, shall interfere with or attempt to interfere with, abridge or attempt to abridge, in any manner whatsoever, such right, provided that this does not invalidate any existing or future contract.

## **Section 230. Mine supplies; countersign reports**

(a) It shall be the duty of every superintendent, on behalf and at the expense of the operator, to keep on hand at each mine at all times a sufficient quantity of all materials and supplies required to preserve the health and safety of the employees, as ordered by the mine foreman and required by this act. If, for any reason, the superintendent cannot procure the necessary materials or supplies as aforesaid, he shall at once notify the mine foreman, whose duty it shall be to withdraw the men from the mine, or portion of mine, until such materials or supplies are received.

(b) The superintendent shall, at least once every week, read, examine carefully, and countersign all reports entered in the mine record book by the mine foreman, and if he finds on such examination that the law is being violated in any particular, he shall order the mine foreman to stop said violation forthwith, and shall see that his order is complied with.

## **Section 231. General responsibility of superintendent**

The superintendent shall not obstruct the mine foreman or other officials in the fulfillment of any of their duties as required by this act, but he shall direct, provide the means, and see to it that the mine foreman and all the other employees under him comply with

the law in all its provisions. He shall give immediate attention to any violation of the law called to his attention by the mine inspector. The superintendent shall be responsible for all the outside workings and all the persons there employed. At any mine where a superintendent is not employed, the duties that are herein prescribed for the superintendent shall devolve upon the mine foreman, in addition to his regular duties.

### **Section 232. Danger signals**

The superintendent of every mine shall provide a sufficient number of danger signals, upon request of the mine foreman, which the mine foreman or the assistant mine foreman shall distribute in the mine at places convenient for the use of the mine examiners and other officials in the fulfillment of their duties. Danger signals in all mines shall be uniform, and of a design approved by the secretary. All danger signals shall be kept in good condition, and no defective signal shall be used in any mine.

### **Section 233. Rules and notices**

The superintendent shall keep on hand at the mine a supply of the printed rules and notices and record books required by this act, which shall be furnished through the mine inspector on request of the superintendent in writing. The operator shall

reimburse the Commonwealth for the cost of such rules, notices and record books. The superintendent shall see that said rules and notices and record books are delivered to the proper persons at the mine, and that they are properly cared for, and he shall also see that the rules and notices are posted in conspicuous places at or near the entrance to the mine and kept in such condition that they will always be legible.

### **Section 234. Withdrawal of certification**

If the mine foreman, the assistant mine foreman, mine examiner, or the mine electrician, neglects his duties or incapacitates himself by drunkenness, or is incapacitated by any other cause preventing the proper performance of his duties, and information thereof shall be brought to the knowledge of the superintendent, it shall be the duty of the superintendent to make a thorough investigation of the case; and if he finds evidence to sustain the charge he shall suspend said individual and shall inform the mine inspector, who shall inform the court of common pleas of the county wherein the mine is located or a judge thereof, by petition; and said court, or judge when the court is not in session, shall issue a citation in the name of the Commonwealth to the said mine foreman, assistant mine foreman, mine examiner, or mine electrician, to appear, at not less than five days' notice, upon a day fixed, before said court or a judge thereof, at which time the court shall proceed to

inquire into and investigate the allegations. If the court finds the allegations to be true, it shall notify the department of such finding, and instruct said department to withdraw the certificate of said delinquent: Provided, however, That he shall have the right to appear before a board of examiners and be re-examined, and if he can satisfy the board of his fitness, and passes a satisfactory examination, he shall be given another certificate of qualification. When the court orders the certificate of a mine foreman, an assistant mine foreman, mine examiner, or mine electrician, to be withdrawn, the mine inspector shall notify the operators of the district of the fact.

### **Section 235. Contents of maps and plans**

The operator or the superintendent of any bituminous coal mine shall make, or cause to be made under the Direction or Supervision of a registered mining engineer or registered surveyor, an accurate map of the mine, on a scale of not less than two hundred feet to the inch, which map shall show the following:

(1) All the openings, excavations, shafts, slopes, drifts, tunnels, planes, main entries, cross entries and rooms and the name or number of each; and the blueprint in the office of the mine shall show by arrows the direction of the air currents in said mine, each split to be numbered and suitably designated.

(2) An accurate delineation of the boundary lines between said mines and all adjoining mines or coal lands, and the relation and proximity of the workings of said mine to all adjoining mines or coal lands.

(3) The elevation above or below mean tide at Sandy Hook of the top and bottom of each shaft and slope, of all drifts, tunnels, planes, and of the faces of entries, as found at each semiannual survey, and in rooms and entries adjacent to boundary lines between such mine and any adjoining mine or mines at points not more than three hundred feet apart; also the number of last survey station and the date of such survey on the entries, as they are represented on the map; the location of streams, rivers, lakes, dams, or any other bodies of water on the surface, with their elevations accurately and plainly marked; the location and elevation of any body of water dammed in the mine, or held back in any portion of the mine, giving the true area of said body of water; the location of all boreholes penetrating the coal strata; and the location of all oil and gas wells and oil and gas pipe lines: Provided, however, That for the purpose of this section the owner or owners of the oil and gas wells and the oil and gas pipe lines shall furnish, at his, their or its own expense, to the operator of the mine one which said wells are located or lines are constructed, a survey showing the location thereof, and within sixty days after the construction or location of wells and pipe lines hereafter made.



### **Section 236. Information as to adjoining mine**

When the workings of a mine are within one thousand feet of the boundary lines between such mine and any adjoining mine or mines, application shall be made by the operator or the superintendent to the mine inspector in the district for information as to the proximity of the workings of such adjoining mine or mines and if the workings of such adjoining mine or mines are, at their nearest point, within one thousand feet of such boundary line, the mine inspector shall so notify the said operator or the said superintendent, who shall have such portion of the workings of said adjoining mine or mines surveyed and shown on the map of the mine first mentioned. For the sole purpose of making the survey herein required, the engineer or surveyor of any mine shall have the right of entry into any adjoining mine, on the written authority of the mine inspector in the district.

### **Section 237. Availability of map**

A true copy of said map shall be kept in the mine office at the mine, for the use of the mine officials and the mine inspector in the district, and for the inspection, in the presence of the superintendent or the mine foreman, of any person working in said mine, or of authorized representatives of the employees of the mine, whenever said person or representative shall

fear that any working place is becoming dangerous by reason of its proximity to other workings that may contain dangerous accumulations of water or noxious gases.

### **Section 238. Revision of map**

At least once every six months the operator or the superintendent of every mine shall cause to be shown accurately on the original map of said mine, and on the copy of the map in the mine office, all the excavations made therein during the time that has elapsed since such excavations were last shown thereon.

### **Section 239. Furnishing copies of maps**

A copy of this map shall be furnished every six months to the mine inspector in the district in which the mine is located. When more than one seam of coal is being worked in any mine, the mine inspector in the district shall be provided with a separate copy of the original map of the complete workings of each seam as provided for in this act. The copies of the maps of the several mines, as hereinbefore required to be furnished to the mine inspector in the district, shall remain in the care of the mine inspector in the district in which said mines are situated, as official records pertaining strictly to the office of said mine inspector, to be transferred by him to his successor in office, and

in no case shall any copy thereof be made or any information therefrom be given to any person without the consent of the operator, except as provided for in this act: Provided further, That when one mine is working a seam of coal under another mine that is working an overlying seam, and the two mines are operated by different operators, such operators shall exchange with each other copies of their respective mine maps, showing such portions of their respective mines as may be directly above or below the other mine.

#### **Section 240. Duties upon abandonment of mine**

Whenever a mine is to be abandoned for a period of one year or more, the operator or the superintendent shall notify the mine inspector in the district at once and shall, within sixty days thereafter, extend the said mine inspector's map to show clearly all worked-out or abandoned territory with all property and boundary lines and elevations as required in this act. The owner or the operator of such abandoned mine shall also, within sixty days after its abandonment, send to the department a tracing or print of said complete original map which shall be kept in the department as a public document. The registered mining engineer or the registered surveyor shall certify that said tracing or print is a true and correct copy of the original map of said mine, and that the original map is a true,

complete, and correct map and survey of all the excavations made in such abandoned mine.

### **Section 241. Survey by mine inspector**

If the mine inspector in the district shall have reasonable cause to believe that any map of any mine, furnished to him in pursuance of the provisions of this act, is inaccurate or imperfect, he is hereby authorized to have made a survey and a new map of said mine. The cost of said survey and map shall be recoverable from the operator as other debts are recoverable by law: Provided, however, That if the map, claimed by the mine inspector in the district to be inaccurate or imperfect, shall be found sufficiently accurate to serve the purpose for which it is intended, then the Commonwealth shall be liable for the expense incurred in making said survey and map, which expense shall be paid by the State Treasurer, upon warrant of the Auditor General, issued upon the presentation of a voucher approved by the secretary.

### **Section 242. Ventilation requirements**

(a) The operator or the superintendent of every mine shall provide and maintain ample means of ventilation to furnish a constant and adequate supply of pure air for the employees. The quantity 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.

(b) The quantity of air reaching the last open crosscut in any pair or set of entries shall not be less than six thousand cubic feet per minute. All active underground working places in a mine shall be ventilated by a current of air containing not less than nineteen and five tenths per cent of oxygen, not more than five tenths per cent of carbon dioxide, and no harmful quantities of other noxious or poisonous gases.

(c) Where belt conveyors are installed, main stoppings and regulators shall be so arranged as to reduce the quantity of air traveling in the belt conveyor entry to a minimum for effective ventilation and to provide an intake air split as an escapeway from the face area to the main air current.

This provision does not apply to approved mobile belt conveyors when such are considered part of the equipment required for face mining operations, provided doors are installed in all stoppings between the two belt conveyor entries to provide an escape way in cases of fire, smoke, or any other emergency, providing the application submitted by the operator has the approval of a Commission of Mine Inspectors designated by the Secretary of the Department of Environmental Protection.

(d) If the air at a working face in a mine, when tested at a point not less than twelve inches from the roof, face, and rib, contains explosive gas, as detected by an approved flame safety lamp, changes or adjustments shall be made at once in the ventilation in such mine so that such air shall not contain a detectable quantity of explosive gas.

(e) If a split of air returning from active underground working places in a mine contains explosive gas, as detected by an approved flame safety lamp, changes or adjustments shall be made at once in the ventilation in such mine so that such returning air shall not contain a detectable amount of explosive gas. This does not apply to bleeder returns.

(f) Not more than seventy persons shall be permitted to work in the same continuous air current. The return air from each split shall be conducted into the return airway, which shall lead to the main outlet.

(g) In non-gassy mines, the requirements of this section may be modified or relaxed during the times that no men are in the mine, if written permission therefore is obtained from the mine inspector in the district.

## **Section 243. Crosscuts and stoppings**

(a) The distance driven to establish ventilation connections between entries or rooms shall not exceed two hundred linear feet. Where adequate ventilation is provided, the entry or room may be driven in conjunction with the new air connection: Provided, that the distance to either face does not exceed two hundred linear feet when the new air connection is established. In no case shall any place be driven a total of more than two hundred linear feet unless ventilation connections have been established, except as herein provided. Where adequate ventilation can be provided the mine inspector in the district may give written permission to authorize a greater distance.

(b) Crosscuts between intakes and return air courses shall be closed, except the one nearest the face, crosscuts between rooms shall be closed, where necessary, or when required by the mine inspector in the district, to provide adequate ventilation at the working face.

(c) Where practicable, an air connection shall be provided at or near the face of each entry or room before the place is abandoned.

(d) Entries or rooms shall not be started off an entry beyond the last open crosscut: Provided, however, That room necks and entries not to exceed eighteen

feet in depth (unless permission is obtained from the mine inspector in the district to drive a greater distance) may be turned off an entry beyond the last open crosscut if such room necks or entries are kept free of accumulations of methane by use of line brattice or other adequate means.

(e) On entries other than panel or room entries, all permanent stoppings in crosscuts between intake and return airways shall be built of solid, substantial, incombustible material such as, but not limited to, concrete, concrete blocks, bricks, steel or tile: Provided, however, That where physical conditions exist because of heaving or caving which make the use of concrete, concrete blocks, brick, steel or tile impracticable, timber laid longitudinally "skin to skin" or an approved substitute may be used. Temporary stoppings may be erected in cut-throughs near the working face.

(f) Stoppings shall be reasonably airtight.

#### **Section 244. Doors, overcasts, and undercasts**

(a) The ventilation shall be so arranged by means of air locks, overcasts, or undercasts that the passage of trips or persons along the entries will not cause interruptions of the air current. In face areas where it is impracticable to install air locks, single doors may be used with the permission of the mine inspector in



the district. Air locks shall be ventilated sufficiently to prevent accumulations of methane therein.

(b) Doors controlling ventilations 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. It shall be unlawful to knowingly leave a door or a check-curtain open.

(c) All doors controlling ventilation shall be hung in such a manner as to be self-closing.

(d) Overcasts and undercasts shall be constructed tightly of incombustible material, such as masonry, concrete, concrete blocks, or fire resistant prefabricated material of sufficient strength to withstand possible falls from the roof; they shall be of ample area to pass the required quantity of air and shall be kept clear of obstructions.

### **Section 245. Line brattice**

(a) Substantially constructed line brattice shall be used from the last open crosscut of an entry or room when necessary, or when required by the mine inspector in the district, to provide adequate ventilation for the workmen and to remove gases and explosive fumes. When damaged by falls or otherwise, they shall be repaired promptly.

(b) The space between the line brattice and the rib shall be large enough to permit the flow of a sufficient volume of air to keep the working face clear of flammable and noxious gases.

(c) Brattice cloth used underground shall be of approved flame-resistant material.

### **Section 246. Auxiliary blowers and fans**

The operator of any mine who desires to use therein any auxiliary blowers or exhaust fans shall submit through the mine inspector in the district to the secretary a ventilation plan showing the use proposed to be made of such auxiliary blowers or exhaust fans. Thereupon, the secretary shall review the plan and either—

(1) Approve it, in which case an appropriate permit shall be issued; or

(2) Request additional information; or

(3) Disapprove the plan, setting forth in writing his reasons for such disapproval.

The secretary must approve or disapprove the said plan within sixty days after its initial submission to him for approval by the operator. In approving such

plan, the secretary shall require that said auxiliary blowers or exhaust fans shall be powered by approved motors when installed underground, operated continuously while any work is being performed in the area being ventilated thereby and be so placed that recirculation of the air is not possible.

### **Section 247. Unused and abandoned parts of the mine**

In a gassy mine all workings which are abandoned after the effective date of this act, or the dates such mine became a gassy mine, whichever is later, shall be ventilated. Return air may be used to ventilate such areas. The plan of ventilation of abandoned and unused parts of the mine shall be approved by the mine inspector in the district.

### **Section 248. Sewage dumping prohibited**

If any person shall construct or cause to be constructed for use after the effective date of this act, any sewer or other method of drainage from any building or dwelling house for the carrying of sewage, offal, refuse or other offensive matter, into any portion of any operating or abandoned mine, such person shall be guilty of a misdemeanor, and, upon conviction thereof, shall be sentenced to a fine not exceeding one thousand dollars (\$1,000), and undergo an

imprisonment not exceeding one year, either or both, at the discretion of the court.

## **Section 249. Fans**

The ventilation of mines which extend more than two hundred feet underground, and which are opened after the effective date of this act, shall be produced by a mechanically operated fan or mechanically operated fans. Ventilation by means of a furnace is prohibited in any mine. The fan or fans shall be kept in continuous operation, unless written permission to do otherwise be granted by the mine inspector in the district. All main fans installed after the effective date of this act shall be located on the surface in fireproof housing offset not less than fifteen feet from the nearest side of the mine opening, equipped with fireproof air ducts provided with explosion doors or a weakwall, and operated from a separate power circuit. In lieu of the requirements for the location of fans and pressure-relief facilities, a fan may be directly in front of, or over, a mine opening: Provided, however, That such opening is not in direct line with possible forces coming out of the mine if an explosion occurs: And provided further, That there is another opening having a weakwall stopping or explosion doors that would be in direct line with forces coming out of the mine. All main fans shall be provided with pressure-recording gauges, or water gauges. A record of the charts shall be kept for one year. A daily inspection shall be made

of all main fans and machinery connected therewith by a competent person and a record kept of the same in a book prescribed for this purpose. Approved facilities shall be provided at point or points under observation while men are in the mine, which shall give warning of an interruption to a fan. Where such facilities are not provided, an attendant shall be constantly kept on duty while men are in the mine.

### **Section 250. Measurement of methane**

When requested by the mine inspector in the district, the mine foreman or the superintendent shall once each week direct and see that the methane content of the ventilating current or currents is determined by analyses, or by an instrument capable of accuracy to one-tenth of one per cent. The samples or the determinations shall be taken on the return end of the air circuit or circuits just beyond the last working place, unless otherwise directed by the mine inspector in the district, and a correct report of these determinations shall be promptly furnished to the mine inspector in the district. Said determinations, or samples, shall be taken on days when the men are at work and recorded in a book provided for that purpose.

## **Section 251. Control of coal dust; rock dusting**

(a) In all mines, dangerous accumulations of fine, dry, coal dust shall be removed from the mine or neutralized by the application of rock dust, and all dry and dusty operating sections and haulageways and the back entries for at least one thousand feet outby the first active working place in each operating section shall be kept watered down or rock dusted, or dust allayed by such other methods as may be approved by the department. All mines or locations in mines that are too wet or too high in incombustible content to initiate or propagate a coal dust ignition are not required to be rock dusted during the time any of these conditions prevail. Coal dust and other dust in suspension in unusual quantities shall be allayed by sprinkling or other dust allaying or collecting devices.

(b) In all dry and dusty mines, or sections thereof, rock dust shall be applied and maintained upon the roof, floor and sides of all operating sections, haulageways and parallel entries connected thereto by open crosscuts. Back entries shall be rock dusted for at least one thousand feet out by the junction with the first active working place. Rock dust shall be so applied to include the last open crosscut of rooms and entries, and to within forty feet of the faces except in mines where mining is done by continuous-type mining machinery, in which case, the distances from the face that rock dust shall be applied shall be the

mining distance for one shift: Provided, That the active working place is kept from damp to wet: And further provided, That after coal production on any shifts has ceased, an application of rock dust is made in the exposed area to within forty feet of the face before additional mining is performed in said area. Rock dust shall be maintained in such quantity that the incombustible content of the mine dust shall not be less than sixty-five per cent.

(c) Rock dust shall not contain more than five per cent by volume of quartz or free silica particles and shall be pulverized so that one hundred per cent will pass through a twenty mesh screen and seventy per cent or more will pass through a two hundred mesh screen.

(d) The superintendent shall see that a representative sample of dust is gathered at each sampling point from the roof, sides, and floor of all entries by a competent person once each two months, while the mine is in operation, and tested to determine if any part of the mine requires redusting; and a record shall be kept in a book provided for that purpose through the department, in the same manner as is provided for the record books of the mine officials, showing the location at which samples have been taken and the results of the analyses or tests. The distance between sampling points on haulageways, travelingways, and airways shall not exceed two thousand feet; but in

developing entries, and in entries producing coal from rooms or pillars, and their parallel entries, the distance between sampling points shall not exceed five hundred feet.

**Section 252. Employees; instruction of; examination of working areas; duties**

It shall be the duty of the mine foreman or his assistant to ascertain that all workmen are trained in the proper methods of testing roof, face and ribs. The mine foreman shall designate the tool or tools to be used for testing. Face workers and other employees whose work exposes them to hazards or falls of roof and coal shall thoroughly test the roof, face and ribs, before starting to work or before starting a machine, and frequently thereafter. A miner shall examine his place to see whether the mine examiner has left the date marks indicating his examination thereof and if said marks cannot be found, it shall be the duty of the miner to notify the mine foreman or his assistant of the fact. The required test may be made by any competent person for a crew. If roof, face or rib conditions are found to be unsafe, they shall be corrected by taking down loose material, or shall be securely supported, before work is started. If roof, face or rib conditions are found to be unsafe, and the unsafe condition cannot be corrected by normal taking down or supporting practices, the place shall be vacated and guarded or a danger sign erected to prevent



unauthorized entrance, and the official in charge promptly notified. Only men capable of correcting the dangerous condition may be delegated to do such work. The officials in charge shall examine for unsafe conditions, the roof, faces, ribs, and timbers or supports of all working places each time they visit a place. Unsafe conditions found by them shall be corrected promptly. All employees shall notify the mine foreman or his assistant of any unsafe condition in the mine when said conditions are known to them.

### **Section 253. Roof support**

(a) The roof in all underground areas shall be supported as necessary for the protection of the employees and equipment. Minimum timbering, or other roof support methods, suitable to the roof conditions of each mine or part of a mine shall be adopted by the operator and complied with. The mine

inspector in the district shall be notified of the adoption of such a plan of roof support and shall review the said plan, and either—

- (1) Approve it, or
- (2) Request additional information, or
- (3) Disapprove the plan, setting forth in writing his reason for such disapproval.

The mine inspector in the district shall approve or disapprove the said plan within sixty days after its initial submission to him for approval by the operator. Workmen whose work involves roof support shall be informed of approved roof support plans, and if required by the mine inspector in the district, such plans shall be posted.

Additional roof supports shall be used when and where necessary. Safety posts, approved jacks or temporary crossbars shall be set close to the face when necessary for safety before other operations are begun and as needed thereafter. Where roof supports are required at the working faces, persons shall not advance beyond supported roof, except those who are assigned to install supports or make examinations. Recovery of roof supports shall not be done except by experienced persons and only where adequate temporary support is provided.

(b) Should a mine operator propose use of roof bolts in lieu of conventional timbering, he shall discuss his proposed plan with the mine inspector in the district. If roof bolts are to be used in a first mining area, the mine inspector in the district and the operator or his representative shall arrange for a test area. Roof bolts shall be installed in conjunction with conventional timbering as the working places advance. After these places have advanced a predetermined distance, all entrances shall be fenced off and approved danger signals displayed on same fences. The conventional timbering shall then be removed. Observation of the test area shall be made by the mine inspector in the district and the operator or his representative. If they are satisfied that the roof bolting is successful, an application together with a copy of the roof bolting plan shall be sent to the secretary requesting a permit. Whereupon the secretary shall either approve or reject the proposed roof bolting plan within sixty days after its initial submission to him. If the request for the permit is rejected the secretary shall give his reasons therefore in writing to the operator.

(c) Should a mine operator propose the use of roof bolts in lieu of the previously adopted roof support plan in pillar recovery areas, a plan shall be proposed to the mine inspector in the district whereby the working places shall be roof bolted in conjunction

with the previously adopted roof support plan during the observation period.

Observation of this pillar recovery area shall be made by the mine inspector in the district and the operator or his representative. If they are in agreement that the roof bolting is successful, an application shall be made in accordance with subsection (b) of this section.

### **Section 254. Authorized explosives**

Permissible explosives, approved breaking devices, or approved blasting devices only shall be used in blasting or dislodging coal or other material in underground coal mines. The secretary, when satisfied by tests that any approved coal breaking device, or approved blasting device, has deteriorated from the standard established by the testing station of the Federal Bureau of Mines, and thereby becomes dangerous, may prohibit the use thereof, either absolutely or subject to conditions.

### **Section 255. Surface magazines for explosives**

Separate surface magazines shall be provided for storage of explosives, detonators and blasting heater elements. Surface magazines shall be constructed of incombustible materials, be reasonably bullet proof and with no metal or sparking material exposed inside the magazine. Surface magazines shall be provided

with doors constructed of at least three-eighths inch steel plate lined with a two-inch thickness of wood or the equivalent, properly screened ventilators, and with no openings except for entrances and ventilation, and shall be kept locked securely when unattended. The area for a distance of at least twenty-five feet in all directions shall be kept free of materials of a combustible nature; suitable warning signs shall be erected, so located that a bullet passing directly through the face of the sign will not strike the magazine. The location of magazines shall be not less than two hundred feet from any mine openings, occupied buildings or public roads unless barricaded. If magazines are illuminated electrically, the lamps shall be of vapor-proof type properly installed and wired. Smoking or open lights shall be prohibited in or near any magazine.

### **Section 256. Underground storage of explosives**

Explosives and detonators stored underground shall be kept in section boxes or magazines of substantial construction with no metal exposed on the inside, and be located at least twenty-five feet from roadways and power wires in a well rock-dusted location protected from falls of roof. If not kept in separate boxes or magazines not less than five feet apart, they may be kept in the same box or magazine if separated by at least a four-inch hardwood partition or the equivalent. Not more than a forty-eight hour supply of explosives

or detonators shall be stored underground in section boxes or magazines. These boxes or magazines shall be kept at least three hundred feet from the faces, and out of the direct line of blasting, and in every case they shall be installed outby the last permanent stopping and on intake air.

### **Section 257. Preparation of shots; blasting practices; multiple shooting**

(a) Only competent and experienced persons designated by a mine foreman shall be permitted to handle explosives and to do blasting. Only electric detonators of proper strength fired with approved shot firing units shall be used and drillholes shall be solidly stemmed with at least twenty-four inches of incombustible material, or at least one-half of the length of the hole shall be solidly stemmed if the hole is less than four feet in depth unless other approved stemming devices or methods are used: Provided, That with permission of the mine inspector in the district, cushion or air blasting may be used. Drillholes shall be of ample size and shall not be drilled beyond the limits of the cut, and as far as practicable, cuttings and dust shall be cleaned from the holes before the charge is inserted. Charges of explosives exceeding one and one-half pounds shall be used only if drillholes are six feet or more in depth. Ample warning shall be given before shots are fired, and care shall be taken to determine that all persons are in the clear before firing.

Men shall be removed from adjoining places and other places when there is danger of shots blowing through. No shots shall be fired in any place known to liberate explosive gas until such place has been properly examined by a competent person who is designated by the mine foreman for that purpose, and no shots shall be fired in any place where gas can be detected by an approved flame safety lamp in accordance with the provisions of this act. After firing any shot, or shots, the person firing the same shall make a careful examination of the working face before leaving the place, or before performing any other work in the place.

(b) The operator of a mine who desires to engage in multiple shooting shall submit to the mine inspector in the district a plan indicating the manner and details in which he proposes to engage in multiple shooting. Thereupon, the mine inspector in the district shall review the plan and submit the plan with his recommendations to the secretary.

The secretary must approve or disapprove the said plan within sixty days after its initial submission to him. Upon approval, an appropriate permit shall be issued. If the request for the permit is rejected, the secretary shall give his reasons therefore in writing to the operator.

(c) While boreholes are being charged, electrical equipment shall not be operated in the working place and only work in connection with roof support and general safety shall be performed. Shots shall be fired promptly after charging.

(d) Mudcaps (adobes) or any other unconfined shots shall not be permitted in any bituminous coal mine. No solid shooting shall be permitted without written permission of the secretary. Where solid shooting is practiced, blasting holes shall be stemmed the full length of the hole.

(e) Blasting cables shall be well insulated and shall be at least one hundred twenty-five feet in length to permit persons authorized to fire shots to get in a safe place out of the line of blasting. Shooting cables shall be kept away from power wires and all other sources of electric current, connected to the leg wires by the person who fires the shot, staggered as to length or well separated at the detonator leg wires, and shunted at the battery end until ready to connect to the blasting unit. Detonator leg wires shall be kept shunted until ready to connect to the blasting cable.

### **Section 258. Other blasting devices**

(a) The provisions governing the handling, storage, transportation and use of permissible explosives shall



apply to all other blasting devices employing a heater element when used underground.

(b) Where compressed air is used for blasting or dislodging coal the air lines shall be grounded at the compressor, and if practical, at other low-resistant ground connections along the lines. They shall not be connected in any way to rails, water lines, or other electric return conductors and shall be adequately insulated and protected where they cross electric wires, underneath track or at places where equipment passes over or under. Steel, copper, or other air lines connected therewith shall not be handled or repaired when air pressure is in the line. Shutoff valves shall be installed every one thousand feet in all compressed-air blasting lines and at all points where branch lines leave the main line. Blowdown valves shall not be less than fifty feet from the face and in a safe place out of the line of blasting.

(c) When misfires occur with any other blasting or dislodging devices, they shall be handled under the supervision of the mine foreman, his assistant or a competent person designated by them.

(d) Airlines shall be examined periodically for kinks or other weaknesses and replaced immediately when defects are found.

(e) When blowdown valves are opened to discharge the tube, they shall remain open until time to place the tube in the next borehole, except where shear-strip or shear-pin tubes are used.

## **Section 259. Transportation of explosives**

(a) Individual containers used to carry permissible explosives or detonators shall be constructed of substantial, nonconductive materials approved by the secretary, kept closed and maintained in good condition. When explosives or detonators are transported underground in cars moved by means of locomotives, ropes or other motive power, they shall be in cars having a substantial covering or in special substantially built covered containers used specifically for transporting detonators or explosives. Explosives or detonators shall not be hauled into or out of the mine within five minutes preceding or following a mantrip.

(b) Where explosives and detonators are transported underground by belts, they shall be handled in the following manner: In the original and unopened cases, if constructed of nonconductive material, or in special closed cases constructed of nonconductive material; overhead clearance requirements shall be a minimum of eighteen inches; stop controls shall be provided at loading and unloading points, and a competent person shall supervise the loading and unloading.

(c) Neither explosives nor detonators shall be transported on flight or shaking conveyors, mechanical loading machines, locomotives, scrapers, cutting machines, drill trucks or any self-propelled mobile equipment.

(d) If explosives and detonators are transported in the same explosives car or in the same special container, they shall be separated by at least four inches of hardwood partition or the equivalent; the bodies of such cars or containers shall be constructed or lined with nonconductive material.

(e) No hand loader shall carry into or shall have delivered to him any larger quantity of explosives or detonators than he may reasonably expect to use in any one shift.

### **Section 260. Unlawful to employ noncertified shot-firers**

It shall be unlawful to employ as shot-firers in any gassy bituminous coal mine, any person who has not given evidence to the secretary as to his fitness and competency to handle and use an approved safety lamp, and his ability to determine the presence, or absence, of explosive gas and other dangerous conditions. The manner of determining such fitness and competency shall be prescribed by the secretary;

he shall issue a certificate to those found competent, the form of which shall also be prescribed by the secretary and the cost of such examination and certification shall be borne by the candidates: Provided, That persons possessing certificates to act as mine foremen, assistant mine foremen and mine examiners in gassy bituminous coal mines shall be eligible to act as shot-firers: Provided, however, That in an emergency the mine foreman may designate, temporarily, a competent person or persons to act as shot-firers, but this authority shall not be exercised by the mine foreman so long as other certified personnel are available in the area affected.

### **Section 261. Electrical shot-firing**

Electricity from any grounded circuit shall not be used for firing shots.

### **Section 262. General shot-firing rules**

(a) When gas is ignited by a blast, or a fire occurs, the person having charge of the place where the said gas is ignited, or a fire occurs, shall immediately extinguish it, if possible, and if unable to do so he shall immediately notify the mine foreman or his assistant of the fact, and warn other persons in the vicinity who might be endangered.

- (b) When a miner or shot-firer is about to fire a blast, he shall notify all persons who may be endangered thereby, and shall give sufficient alarm so that any person approaching may be warned of the danger.
- (c) All charging and tamping tools shall be constructed of non-sparking materials.
- (d) Immediately after the firing of a shot, the firing leads shall be disconnected from the supply or source of electricity and shunted.
- (e) No firing machine or battery shall be connected to the shot-firing leads until all other steps preparatory to the firing of a shot have been completed, and all persons have moved to a place of safety, and no person other than the shot-firer shall make such connection.
- (f) Any person firing shots shall keep the firing machine or battery in his possession at all times while blasting.
- (g) Frequent tests shall be made of all blasting devices to insure that their capacity has not been decreased by use or accident.
- (h) The shot-firer shall turn the approved electric cap lamp out when making an examination for gas.

(i) The shot-firer shall examine the place for gas and other dangers before and after firing each shot or blast. The examination following a shot or blast shall not apply to those areas where stumps are being shot solely for the purpose of inducing falls.

(j) In a non-gassy mine, whenever a miner or shot-firer shall open a box containing powder or other explosives, or while in any manner handling the same, he shall first place his lamp not less than five feet from such explosives and in such a position that the air current cannot convey sparks to the explosives, and he shall not smoke while handling explosives.

### **Section 263. Hoisting equipment; duties of operator or superintendent; hoisting operations**

(a) The operator or superintendent of every bituminous coal mine worked by shaft shall provide and maintain a metal tube, telephone or other means of communication from the top to the bottom and intermediate landings of such shaft, a standard means of signaling; an effective safety catch, bridle chains, automatic stopping device, and automatic overwind; a sufficient cover on every cage used for lowering or hoisting persons; an effective safety gate at the top of the cage shaft, and intermediate landings controlled by the cage, and an adequate brake on the drum of every machine used to lower or hoist persons in such shaft. Such operator shall have the machinery used for

lowering and hoisting persons into or out of the mine kept in safe condition, and a cage hoist equipped with a reliable indicator. Cages and elevators shall be inspected once in each twenty-four hours by a competent person of the company or a manufacturer's representative; a safety catch test made every two months, a record kept thereof, and a copy sent to the mine inspector. Where a hoisting engineer is required, he shall be readily available at all times when men are in the mine. The hoisting engineer shall operate the empty cage up and down the shaft at least one round trip at the beginning of each shift, after material has been lowered or hoisted, and after the hoist has been idle for one hour or more before hoisting or lowering men. However, this shall not apply to elevators used exclusively for hoisting or lowering men. There shall be cut out around the side of the hoisting shaft, or driven through the solid strata at the bottom thereof, a travelingway not less than five feet high and three feet wide to enable a person to pass the shaft in going from one side of it to the other without passing over or under the cage or other hoisting apparatus. Positive stop blocks or derails shall be placed near the top and bottom and at all intermediate landings of slopes and surface inclines and at approaches to all shaft landings. A waiting station with sufficient room, ample clearance from moving equipment, and adequate seating facilities shall be provided where men are required to wait for man-trips or man-cages, and the men shall remain in such station until the man-

trip or man-cage is available. No hoisting engineer shall be required for automatically operated cages, elevators, or platforms.

(b) When hoisting or lowering of men occurs during darkness, at any mine operated by shaft, the mine foreman shall provide and maintain at the shaft mouth a light of stationary character sufficient to show the landing and all surrounding objects distinctly and sufficient light of a stationary character shall be located at the bottom of the shaft so that persons coming to the bottom may clearly discern the cages, elevators, and other objects contiguous thereto. The mine foreman shall require that no cages or elevators on which men are riding shall be lifted or lowered at a rate of speed greater than nine hundred feet per minute, and that no mine cars, either empty or loaded, shall be hoisted or lowered on cages while men are being lowered or hoisted, and no cage having an unstable self-dump platform, shall be used for the carrying of workmen unless the same is provided with some device by which it may be securely locked when men are being hoisted or lowered into the mine.

(c) In shafts where coal is hoisted and employees lowered into or hoisted from the mine, the ropes, links, and chains, shall be of ample strength, with a factor of safety of not less than five to one of the maximum load. In shafts used exclusively for lowering or hoisting employees and material, the factor of safety



of ropes, links, and chains shall not be less than ten to one of the maximum load. All such ropes, links, and chains shall be carefully examined, at least once every twenty-four hours, by a competent person delegated for that purpose by the superintendent; and any defect therein found, by which life and limb may be endangered, shall be reported at once in writing to the superintendent, who shall immediately proceed to remedy the defect; and until that is accomplished he shall prohibit any person from being lowered into or hoisted from the mine by the defective apparatus. The person making said examination shall keep a daily record of each inspection, in ink, in a book kept at the mine office for that purpose, and he shall send a copy thereof each day to the superintendent.

(d) The operator or the superintendent shall provide every cage, used for lowering or hoisting persons, with handrails at sides or overhead, or additional suitable devices and with bar, or gate at ends; however, this shall not apply to elevators used exclusively for lowering and hoisting men. The ropes shall be securely attached to the sides of the drum of every machine that is used for lowering and hoisting persons or material into and out of the mine, and the flanges shall have a clearance of not less than four inches when the whole of the rope is wound on the drum.

(e) In all shafts and slopes, where persons, coal and other materials are hoisted by machinery, a system of

signaling approved by the mine inspector in the district, shall be in effect. The following code of signals shall be used:

One signal, to hoist car or cage;

One signal, to stop car or cage when in motion;

Two signals, to lower car or cage;

Three signals, to hoist persons. The engineer shall signal back when ready, after which the person shall get on the car or cage, and then one signal shall be given to hoist.

Four signals, to turn on steam to the pumps.

#### **Section 264. Duties of bottom man**

At every shaft or slope where persons are lowered into or hoisted from the mine, a bottom man, who shall be over twenty-one years of age, shall be designated by the mine foreman. The bottom man shall be on duty when men are being hoisted or lowered at the beginning and end of each shift. The bottom man shall personally attend to the signals and see that the provisions of this act in respect to hoisting persons in shafts or slopes are complied with. The bottom man shall not allow any tools to be placed on the same cage with persons, or on either cage when they are being hoisted out of the mine, except for the purpose of repairing the shaft or machinery therein. The men shall place their tools in containers or cars provided for that purpose, which containers or cars shall be

hoisted before or after the men have been hoisted. The bottom man shall see that no driver or other person ascends the shaft with any horse or mule. The bottom man shall immediately inform the mine foreman of any violation. The bottom man shall not attempt to withdraw the car until the cage comes to a rest; and when, putting the full car on the cage, he shall see that the springs or catches are properly adjusted so as to keep the car in its proper place, before giving the signal to the engineer. No bottom man shall be required for automatically operated cages, elevators or platforms.

#### **Section 265. Number of persons to be hoisted**

No greater number of persons shall be lowered or hoisted at any one time, in any shaft or slope, than is permitted by the mine inspector in the district, and whenever the said number of persons returning from work shall arrive at the bottom of the shaft or slope, in which persons are regularly hoisted or lowered, they shall be promptly furnished with an empty cage, car, or elevator, and be hoisted to the surface, and in cases of emergency a less number than the permitted number shall be promptly hoisted. A notice of the number allowed to be lowered or hoisted at any one time shall be kept posted by the operator or superintendent in conspicuous places at the top and bottom of the shaft. This notice shall be signed by the mine inspector in the district. The cage or cages or

other safe means of egress shall be available at all times for the persons employed in any mine that has no second outlet available.

### **Section 266. Duties of top man**

(a) At every shaft or slope where persons are lowered into or hoisted from the mine, a top man or trip rider who shall be over twenty-one years of age shall be designated by the superintendent. He shall be on duty when men are being hoisted or lowered at the beginning and end of each shift. The top man or trip rider shall personally attend to the signals, and see that the provisions of this act in respect to lowering and hoisting persons in shafts or slopes are complied with. No top man shall be required for automatically operated cages, elevators, or platforms.

(b) Any person crowding or pushing to get on or off the cage, elevator, or car, thereby endangering life, shall be reported by any person to the superintendent who, in turn, shall report the incident to the mine inspector for appropriate action.

(c) The top man shall not allow any tools to be placed on the same cage with persons, or on either cage, when persons are being lowered into the mine, except for the purpose of repairing the shaft or the machinery therein. The men shall place their tools in containers or cars provided for that purpose, which

containers or cars shall be lowered before or after the men have been lowered. He shall also see that no driver or other person descends the shaft with any horse or mule.

(d) The top man of a slope or incline plane shall close the safety block or other device as soon as the cars have reached the landing, in order to prevent any loose or runaway cars from descending the slope or incline plane, and in no case shall said safety block or other device be withdrawn until the cars are coupled to the rope or chain and the proper signal given. He shall carefully inspect each day all the machinery in and about the headframe and the rope used, and shall promptly report to the superintendent any defect discovered, and shall securely attach the cars to the rope before lowering them down the incline. He shall ring the alarm bell in case of accident, and when necessary, immediately set free to act the drop logs or safety switch.

(e) The top man of a shaft shall see that the springs or keeps for the cage to rest upon are kept in good working order, and when taking off the full car he shall see that no coal or other material falls down the shaft.

## **Section 267. Use of competent engineers**

No operator or superintendent of any bituminous coal mine worked by shaft, slope, or incline, shall place in charge of any engine used for lowering or hoisting persons employed in such mine any but competent engineers who are at least twenty-one years of age; and no engineer in charge of such machinery shall allow any person, except as may be designated for this purpose by the operator or superintendent, to interfere with any part of the machinery; and no person shall interfere with or intimidate the engineer in the discharge of his duties. When workmen are being lowered or raised, the engineer shall take special precautions to keep the engine well under control. No person shall ride on a loaded cage or car in any shaft, slope, or incline: Provided, however, That this shall not prevent any trip rider from riding during the performance of his authorized duties.

## **Section 268. Clearances and shelter holes**

(a) Track switches, except room and entry development switches, shall be provided with properly installed throws, bridle bars and guard rails; switch throws and stands, where possible, shall be placed on the clearance side. Haulage roads shall have a continuous unobstructed clearance of at least thirty inches from the widest extension of regular coal transportation equipment on the clearance side. On

haulage roads where trolley lines are used, the clearance shall be on the side opposite the trolley lines except where trolley lines are guarded or are installed at least six and one-half feet above the rail. The clearance space on all haulage roads shall be kept free of loose rock, coal, supplies or other materials, provided that not more than thirty inches need be kept free of such obstructions. Ample clearance shall be provided at all points where supplies are loaded or unloaded along haulage roads or conveyors.

(b) After the effective date of this act, shelter holes shall be provided on the clearance side along designated travelingways which are also used as haulage entries, other than belt conveyor haulage entries. This shall not apply to face area or room haulageways. Such shelter holes shall be spaced not more than eighty feet apart. Shelter holes made after the effective date of this act shall be at least five feet in depth, not more than four feet in width, level with the roadway and at least four feet in height. Room necks and crosscuts may be used as shelter holes even though their width exceeds four feet, and they shall be kept clear for a depth of at least six feet. Shelter holes shall be kept clear of refuse and other obstructions. Shelter holes shall be provided at switch throws, except at room switches. Shelter holes shall be provided at manually operated permanent doors.

## **Section 269. Underground equipment; use and maintenance**

(a) No steam locomotive shall be used in mines where men are actually employed in the extraction of coal, but this shall not prevent operations of a steam locomotive through any tunnel, haulway, or part of a mine that is not in actual operation and producing coal.

(b) Underground equipment powered by internal combustion engines using petroleum products, alcohol, or any other compound shall not be used in a coal mine unless such equipment has been approved by the secretary for underground use in bituminous coal mines.

(c) Locomotives, mine cars, supply cars, shuttle cars, and all other haulage equipment shall be maintained in a safe operating condition. An audible warning device and headlights shall be provided on each locomotive and each shuttle car. Rerailing devices shall be provided on all locomotives. Operators of haulage equipment shall sound a warning on approaching curves, intersections, doors, curtains, manway crossings, or any other location where persons are likely to travel.



## **Section 270. Operation of haulage equipment**

(a) Motormen, brakemen, and trip riders shall use care in handling locomotives and cars. It shall be their duty to see that all the trip is coupled before starting. It shall be their duty to see that there is a conspicuous light, or other device approved by the secretary, properly maintained, on the front and rear of each trip or train of cars when in motion: Provided, however, That trip lights need not be used on cars being shifted to and from loading machines, on cars being handled at loading heads during gathering operations, at working faces, or on trips being pulled by animals. No persons shall ride on locomotives or empty cars unless granted permission by the mine foreman. No person other than those necessary to operate a trip or car shall ride on any loaded car or on the outside of any car. Motorman shall see that safety devices are placed on the last car of any trip being hauled upgrade, as designated by the mine foreman and approved by the mine inspector in the district.

(b) No motorman, trip rider or brakeman shall get on or off cars, trips, or locomotives while they are in motion, except that a trip rider or brakeman may get on or off the rear end of a slowly moving trip or the stirrup of a slowly moving locomotive to throw a switch, to apply braking devices, align a derail, or open or close a door.

(c) Flying or running switches, and riding on the front bumper of a car is prohibited. Back poling shall be permitted only to the nearest turning point or when going up extremely steep grades and then only cautiously and at slow speed. The operator of a shuttle car shall face in the direction of travel except during the loading operation when he may face the loading machine.

(d) A system of signals, methods or devices shall be used to provide protection for trips, locomotives, and other equipment, coming out onto tracks used by other equipment. Where a dispatcher is employed to control trips, traffic under his jurisdiction shall move only at his direction.

(e) Motormen shall inspect locomotives and report any mechanical defects found to the proper mine official before a locomotive is put in operation.

(f) When a motorman or brakeman has occasion to leave a trip, he shall see that it is left in a safe place, secure from cars, locomotives, or other dangers, and where it will not endanger the operators of other trips or other persons.

(g) Gathering service locomotives shall employ a brakeman, except where trips are consolidated on partings or sidetracks.

(h) When a driver has occasion to leave his trip, he shall see that it is left in a safe place, secure from cars or other dangers, and where it will not endanger the drivers of other trips or other persons.

He shall take care while taking his trip down grade to have the brakes, sprags or skids so adjusted that he can keep the cars under control, and prevent them from running over himself or others.

He shall not leave any cars standing where they may materially obstruct the ventilating current, except in case of accident, which he shall promptly report to the mine foreman or his assistant.

He shall not allow any person to ride on loaded mine cars. He shall not allow any person to drive his horses or mules in his stead. When it is his duty to open a door for the purpose of passing his trip through, he shall see that the door is immediately closed thereafter.

### **Section 271. Duties of trip rider and hooker-on on rope haulage**

(a) The trip rider shall see that all hitchings are safe for use, and that all the trip is coupled before starting, and should he at any time see any material defect in the rope, link, or chain, he shall immediately remedy said defect, or if he is unable to do so, he shall detain the trip and report the matter to the mine foreman or

his assistant. He shall not allow any person to ride on the full trip. He shall not allow any person to ride on the empty trip, except by authority of the mine foreman, and the speed shall not exceed six miles an hour when men are being transported.

(b) The hooker-on at the bottom of any slope shall see that cars are properly coupled to a rope or chain, and that the safety catch or other device is properly attached to the rear car, before giving the signal to the engineer. He shall not allow any person to ride up the slope on the full trips, other than the trip rider.

### **Section 272. Transportation of men**

(a) The speed of mantrips shall be governed by the mine foreman and mantrips shall be operated at safe speeds consistent with the condition of roads and type of equipment used. Each mantrip shall be under the charge of a competent person designated by the mine foreman or his assistant. It shall be operated independently of any loaded trip of coal or other heavy material, but may transport tools, small machine parts and supplies. When mine cars are used for mantrips on steep grades, a locomotive shall be used on each end of the trip.

(b) Cars on the mantrip shall not be overloaded, and sufficient cars in good mechanical condition shall be provided. "Drop-bottom" cars shall not be used for

mantrips unless they are provided with a secure supplementary locking device. No person shall ride under the trolley wire unless suitable covered man cars are used. Men shall not load or unload before the cars in which they are to ride, or are riding, come to a full stop. Men shall proceed in an orderly manner to and from mantrips.

(c) When belts are used for transporting men, a minimum overhead clearance of eighteen inches shall be maintained between the belt and the roof or crossbars, projecting equipment, cap pieces, overhead cables, wiring, and other objects. Where the height of the coal seam permits, the overhead clearance shall not be less than twenty-four inches. The belt speed shall not exceed two hundred and fifty feet per minute where the minimum overhead clearance is eighteen inches, or three hundred feet per minute where the minimum overhead clearance is twenty-four inches. Men shall ride not less than six feet apart. Where men are transported, control lines shall be installed the full length of the belt with control switches placed along the belt line at intervals not exceeding two hundred feet. Emergency switches shall be wired in such a manner so that, when the belt is stopped, it cannot be started by any other switch except the one that was de-energized.

(d) An assistant mine foreman or some other person designated by the mine foreman shall supervise the

loading and unloading of belts and mantrips. Adequate clearance and proper illumination shall be provided where men board or leave conveyor belts.

(e) Adequate precautions shall be taken so that moving trips and standing cars are subject to proper control by derauling or braking devices.

### **Section 273. Conveyor belts; construction and operation of conveyor equipment underground**

(a) It shall be unlawful to operate any conveyor belt in any bituminous coal mine unless such conveyor belt is efficiently insulated by flame resistant material: Provided, however, That an operator who, on April 4, 1956, had in use or on hand within the State of Pennsylvania a conveyor belt which is not fire resistant may use such conveyor belt in the same or any other mine of the same operator until replacement is necessary.

(b) All conveyor entries shall be provided with a minimum width and height of not less than four feet for travel; but in conveyor entries in which track is installed, the minimum amount of clearance width shall not be less than two and one-half feet, which clearance width shall be continuous throughout the entry. In lieu of maintaining four feet of height in conveyor entries, a minimum height of three feet and a minimum width of four feet may be maintained,

provided the operator furnishes a mode of conveyance for men and material other than on the conveyor. All such travel space and clearance space shall be kept free of all forms of obstruction under foot, and free from electric wires and electric cables. A space of not less than four feet in width shall be provided for travel from the immediate entrance of each working place to the face thereof, which space shall be kept free of all forms of obstruction under foot and free from electric wires and electric cables.

(c) At all points where men must of necessity cross conveyors, the conveyor at the point where the crossing is made shall be so arranged that men can cross safely and conveniently without coming in contact with the conveyor.

(d) Conveyors shall be equipped with an automatic control that will stop the driving motor in case of slipping on the drive pulley, and the control shall be tested each operating shift to ascertain that it is in good operating condition.

(e) All electric wires or electric cables in completed portions of conveyor entries shall be carried on insulators, and all electric cables constantly kept in rooms or pillars or other working places shall be carried on suitable supports to within seventy feet of the face of each working place.

(f) Control lines shall be installed the full length of the belt where men are not transported.

### **Section 274. Blowtorches and fuel**

(a) Blowtorches may be used by competent persons in underground machine shops which are ventilated by a separate split of air provided (1) suitable precautions are taken against ignition of combustible gases, coal dust, or combustible materials, (2) means are provided for prompt extinguishment of fires accidentally started, and (3) fuel is properly controlled. Blowtorches must be maintained at all times in good operating condition and leakproof.

(b) Fuel for blowtorches, in quantities not exceeding one day's supply, shall be transported from the surface in proper safety cans, leakproof and sturdy. In transferring fuel to the torch, a funnel or flexible nozzle shall be used to avoid spillage, and neither the supply can nor the torch shall be opened within twenty-five feet of any open light or other device containing or apt to contain fire, arcs, or sparks.

### **Section 275. Oxygen and gas containers**

(a) A substantial insulated container provided with a cover and specially designed for safe transportation of the cylinders shall be used in transporting oxygen and gas tanks or cylinders in all bituminous coal mines.



(b) All oxygen and gas tanks or cylinders shall be clearly identified.

### **Section 276. Transportation of oxygen and gas**

(a) Transportation of oxygen and gas tanks or cylinders shall be permitted on self-propelled machinery or belt conveyors specially equipped for safe holding of the containers in transportation. In no instance shall such transportation be permitted in conjunction with any man-trip.

(b) Empty oxygen and gas tanks or cylinders shall be marked “empty” and shall be removed from the mine promptly in proper containers. The valve protection caps shall be placed on all tanks or cylinders for which caps are provided when not in use and when being transported. No oxygen or gas tanks or cylinders shall be transported with the hoses and gauges attached thereto.

### **Section 277. Storage of oxygen and gas**

(a) All oxygen and gas tanks or cylinders shall be properly secured and protected against possible damage when stored in and about bituminous coal mines. When oxygen and gas tanks or cylinders are stored in underground shops or surface structures they shall be protected from damage by falling material and

secured in an upright position. Not more than one week's supply of oxygen or gas shall be stored in any underground or surface shop. This quantity shall be determined in agreement with the mine inspector in the district.

(b) The valves on oxygen and gas tanks or cylinders shall be closed. The hoses shall be removed when not in actual use, except in a properly ventilated and protected underground machine stop or surface structures. Valves on empty tanks or cylinders shall be kept closed.

### **Section 278. Use of oxygen and gas**

(a) Oxygen and gas tanks or cylinders and their contents must be used solely for their intended purposes.

(b) The person or persons assigned to use and work with oxygen or gas shall be properly trained and skilled in its use and shall be fully conversant with the danger of its misuse. Any persons using oxygen or gas in and about bituminous coal mines shall be provided with goggles or shields and the clothing of such person shall be reasonably free of oil and grease.

(c) Only a safe type of spark-lighter shall be used for lighting torches. The use of matches, cigarette lighters,

electric arcs or hot metal to light or relight a torch is prohibited.

(d) The oxygen or gas hose lines, gauges and the like shall be maintained in a safe operating condition. Defective tanks, cylinders, gauges, hose lines, torches and the like shall be taken out of service upon discovery and shall not be put into use until corrected and made safe.

(e) No more than one unit consisting of one gas tank and one oxygen tank shall be permitted in any one working section at one time. When not in use, this unit shall be removed to a point outby the last open crosscut and kept away from power wires and electric equipment.

(f) Neither oxygen nor gas shall be used under direct pressure from tanks or cylinders but must be used under reduced pressure not exceeding pressures recommended by the manufacturer of said oxygen or gas.

(g) Oxygen or gas cutting, burning, or welding shall be done in fresh intake air only in working sections. The area where the work is to be done shall be examined by a certified mine official before, during, and after the welding or burning to assure that no fire or other danger exists. In the event the equipment to be repaired cannot be removed from the face area to

outby the last open crosscut, the following shall be complied with—

(1) Fresh intake air shall be established to a point inby where the cutting or welding is to be performed.

(2) An approved flame safety lamp shall be used by a certified mine official for gas detection during the cutting and welding operation.

(3) No persons shall be permitted inby the point in the working section where cutting or welding operations are being performed.

(h) When oxygen or gas cutting, burning or welding is being done, a suitable fire extinguisher shall be kept on hand and ready for use. In dry or dusty locations, a water line and tap under pressure or an adequate supply of rock dust shall be available in the area where such work is performed. Neither oxygen nor gas shall be used near oil, grease or fine coal dust unless such oil, grease or fine coal dust is adequately cleaned or made inert by the use of rock dust or the area where such work is to be done is thoroughly wetted.

(i) Oxygen or gas cutting, burning or welding shall be done in intake air only. Under ground shops, where oxygen gas burning is being done, shall be on a separate split of air.

(j) Tests for leaks on hose valves or gauges shall be made only with a soft brush and soapy water or soap suds.

(k) An efficient and proper type torch-tip cleaner shall be kept on hand and used to maintain each torch in a safe operating condition. A suitable wrench designed for oxygen and gas tanks shall be in the possession of the person authorized to use the equipment.

(l) The practice known as “manifolding cylinders” shall be permitted if the installation is solidly grounded and operation thereof is in accordance with recognized safe procedures.

(m) Oxygen and gas tanks or cylinders shall be protected from power lines or energized electrical machinery or equipment and such tanks or cylinders shall be kept away from the place where the cutting is being done in order to prevent damage or accident and to prevent heat from affecting such tanks or cylinders.

**Section 279. Duties of persons subject to this act; rules and regulations of operators**

It shall be the duty of the operator, superintendent, mine foreman, assistant mine foreman, mine

examiners and other officials to comply with and to see that others comply with the provisions of this act.

It shall be the duty of all employees and checkweighmen to comply with this act and to cooperate with management and the department in carrying out the provisions hereof.

Reasonable rules and regulations of an operator for the protection of employees and preservation of property that are in harmony with the provisions of this act and other applicable laws shall be complied with.

### **Section 280. Reclassification from non-gassy to gassy mine**

The operator of a non-gassy mine which becomes classified as a gassy mine under the provisions of this act, shall immediately comply with all the provisions of this act which pertain to a gassy mine, except as provided for in Article III., section 329, subsection (c) of this act.

### **Section 281. Protective clothing**

(a) Welders and Helpers shall use proper shields or goggles to protect their eyes. All employees shall have approved goggles or eye shields and use same where there is a hazard from flying particles, or other eye hazards.

(b) Employees engaged in haulage operations and all other persons employed around moving equipment on the surface and underground shall wear snug-fitting clothing.

(c) Protective gloves shall be worn when material which may injure hands is handled, but gloves with gauntlet cuffs shall not be worn around moving equipment.

(d) All persons shall wear protective hats while underground and also while on the surface where falling objects may cause injury.

(e) Protective footwear shall be worn by employees, officials and others while on duty in and around a bituminous coal mine.

## **Section 282. Checking systems**

Each bituminous coal mine shall have a check-in and check-out system that will provide positive identification upon the person of every individual underground. An accurate record of the men in the mine, which shall consist of a written record, a check board, or a time clock record, shall be kept on the surface in a place that will not be affected in the event of an emergency. Said record shall bear a number or name identical to the identification check carried by,

or fastened to the belt of, all persons going underground.

**Section 283. No act permitted endangering security of mine; search for intoxicants, matches, etc.**

(a) No miner, workman or other person shall knowingly injure any shaft, lamp, instrument, air course, or brattice, or obstruct or throw open airways, or carry open lights in the places worked by safety lights, or disturb any part of the machinery or appliances, open a door closed for directing ventilation and not close it again, or enter any part of a mine against caution. No unauthorized person shall deface, pull down, or destroy any notice boards, mine maps, or record books.

(b) Open lights, smoking, and smokers' articles including matches, are prohibited in bituminous coal mines where electric or safety lamps are used. No person shall at any time enter such mines with or carry therein any matches, pipes, cigars, cigarettes, or any device for making lights or fire not authorized or approved. In all such mines the operator may search, or cause to be searched, any person, including his clothing and material belongings, entering or about to enter the mine, or inside the mine, to prevent such person from taking or carrying therein any of the above mentioned articles.



(c) No person in any stage of intoxication shall enter into or loiter about any mine, neither shall he have in his possession any intoxicants while in or about the mine premises.

#### **Section 284. Responsibility for care and maintenance of face equipment**

Mine operators shall maintain face equipment in safe operating condition. Equipment operators shall exercise reasonable care in the operation of the equipment entrusted to them, and shall promptly report defects known to them.

#### **Section 285. Control of dust and other inhalation hazards**

Men exposed for short periods to gas, dust, fume, and mist inhalation hazards shall wear approved respiratory equipment. When exposure is for prolonged periods, dust shall be controlled by the use of approved dust collectors, or by water or other approved methods.

#### **Section 286. Safeguards for mechanical equipment**

(a) The cutting devices of mining machines shall be locked securely by mechanical means or electrical interlocks while such machines are parked or being

trammed. Loading machines shall not be trammed with loading arms in motion except when loading materials.

(b) Belt, chain or rope drives and the moving parts of machinery which are within seven feet of the floor, ground or platform level, unless isolated, shall be guarded adequately. Repair pits shall be kept covered or guarded at all times when not in use. Machinery shall not be lubricated or repaired while in motion, except where safe remote lubricating devices are used. Machinery shall not be started until the person lubricating or repairing it has given a clear signal. Guards which have been removed shall be replaced before the machinery is again put into use. Provision shall be made to prevent accumulations of spilled lubricants.

(c) Mechanically operated grinding wheels shall be equipped with safety washers; substantial retaining hoods, covering two-thirds of the circumference of the wheel; and goggles or eye shields shall be used. Where stationary grinders are used, a tool rest shall be provided and the clearance between the wheel and tool rest shall not exceed one thirty-second of an inch.

### **Section 287. First aid equipment**

In every bituminous coal mine where men are employed underground, and in every active section

thereof, it shall be the duty of the operator or superintendent thereof, to keep always on hand properly constructed stretchers, woolen and waterproof blankets, and all requisites for use in case of emergency. No first aid material shall be removed or diverted, without authorization, except in case of accident in or about the mine. It shall be the duty of the operator or superintendent to have adequate ambulance service available promptly in event of injury to any employee.

### **Section 288. Minimum fire protection**

It shall be the responsibility of the operator or superintendent to provide and maintain minimum fire-fighting equipment. It shall also be the responsibility of the operator or superintendent to have sufficient trained personnel to operate the fire-fighting equipment safely and effectively.

(a) For the purposes of this act, fires in and about bituminous coal mines shall be classified as follows:

(1) Class A fires shall be all those not included within the definitions of Class B or Class C fires, and shall include those in solid combustible materials, such as coal, wood, rubber, textiles, paper and rubbish.

(2) Class B fires shall be those in flammable liquids, including lubricating oils, paint, varnish, grease and lacquer.

(3) Class C fires shall be those in live electrical equipment, including oil-filled transformers, generators, motors, switch panels, circuit breakers and insulated electrical conductors.

(b) The following schedule of comparative efficiency ratings of hand-type fire-fighting facilities shall be used in determining compliance with the provisions of this act. Except as provided hereinafter, the letter shall indicate the acceptability of the facility according to fire classification, and the number shall indicate the quantity of the facility which shall be required in order to constitute an acceptable fire extinguishing unit for the indicated classification:

Facility	Size			
Fire pail (water)	12 quarts	A-5		
Pump tank (water)	2 ½ gallons	A-1		
Gas pressure (water)	2 ½ gallons	A-1		
Loaded steam	1 gallon	A-2	B-4	C-4
Loaded steam	1 ¾ gallons	A-1	B-2	C-2
Loaded steam	2 ½ gallons	A-1	B-1	C-1
Soda Acid	1 ½ gallons	A-2		
Soda Acid	2 ½ gallons	A-1		
Foam	1 ½ gallons	A-2	B-2	

Foam	2 ½ gallons	A-1	B-1
Liquid carbon dioxide	5 pounds	B-2	C-2
Liquid carbon dioxide	10 pounds	B-2	C-1
Liquid carbon dioxide	15 pounds	B-1	C-1
Dry Chemical	4 pounds	B-2	C-2
Dry Chemical	10 pounds	B-2	C-1
Dry Chemical	15 pounds	B-1	C-1
Carbon Tetrachloride	1 quart	B-2	C-2
Carbon Tetrachloride	2 quarts	B-2	C-2
Carbon Tetrachloride	1 gallon	B-2	C-1
Carbon Tetrachloride	2 gallons	B-2	C-1
Sand Pails	12 quarts	B-5	
Rock Dust	80 pounds	A-3	B-3 C-3

(c)(1) Fire-fighting facilities which are acceptable for use only in Class A fires shall not be used in Class B or Class C fires.

(2) Fire-fighting facilities which are acceptable for use in both Class A and Class B fires shall not be used in Class C fires.

(3) Fire-fighting facilities which are acceptable for use only in Class B fires shall not be used in Class C fires but may, in an emergency, be used in Class A fires.

(4) Fire-fighting facilities which are acceptable for use in both Class B and Class C fires may, in an emergency, be used in Class A fires.

(5) Loaded steam fire-fighting facilities shall not be used in Class C fires when high voltage will be encountered.

(6) Carbon tetrachloride fire-fighting facilities shall not be used where dangerous concentration of fumes and gases will pass over workmen, nor shall they be used unless the operator of the facilities is provided with approved respiratory equipment or unless there is available a ready means of escape for the operator.

(7) All chemical fire extinguishing facilities purchased after the effective date of this act for use in and about bituminous coal mines must be of a kind approved by the Underwriters' Laboratories, Inc. or by Factory Mutual Laboratories and must bear or carry an appropriate label evidencing such approval. All chemical fire extinguishing units must be examined every six months.

(d) Fire extinguishing facilities shall be maintained in good operating condition.

(e) At every mine there shall be available for emergency use the following materials: 5 tons of rock dust, 1,000 board feet of brattice boards, 3 rolls of brattice cloth, 2 hand saws, 25 pounds 8d nails, 25

pounds 10d nails, 25 bags of wood fiber plaster or 10 bags of cement.

(f) The following requirements shall apply to mines where the underground production is in excess of three hundred tons per shift. In all other mines, fire protection standards shall be specified by the mine inspector in the district:

(1) Two Class C fire extinguishing units and two hundred forty pounds of rock dust or dry sand shall be located within six hundred feet of any point where any mining machine, loading machine, or other self-propelled electrical equipment, except a locomotive, is being operated, unless there is carried on each such machine or item of equipment one Class C fire extinguishing unit.

(2) Whenever practicable one Class C chemical fire extinguishing unit shall be provided on each locomotive.

(3) One Class C fire extinguishing unit or two hundred forty pounds of rock dust or dry sand, or one barrel of water and three pails, shall be provided at each belt drive and tailpiece and at intervals of three hundred feet along the belt, unless such belt line is protected by a pipeline paralleling the belt, containing water under pressure, and with outlet valves and sufficient hose so that water will

reach any point along the belt line. For the purpose of determining compliance with this provision, the joints of an articulator belt system shall not be considered drives or tailpieces.

(4) One Class C fire extinguishing unit and two hundred forty pounds of rock dust or dry sand shall be provided at each electrical installation, including permanent pumping stations, battery charging stations and substations, and in shops.

(5) Two Class B fire extinguishing units and two hundred forty pounds of rock dust or dry sand shall be provided at each underground oil storage station. At least two hundred forty pounds of rock dust or dry sand shall be provided at each working section where twenty-five or more gallons of oil are stored.

(6) Unless water lines, equipped with outlet valves at intervals of not more than five hundred feet and capable of delivering fifty gallons of water per minute at a nozzle pressure of fifty pounds per square inch, are installed along main and secondary haulage roads and extend to the working sections, and unless one thousand feet of fire hose with fittings suitable for connection with such water lines are available, two water tank cars, each having a capacity of at least one thousand gallons and equipped with a high pressure pump and not less than three hundred feet of fire hose with nozzles, or



two portable chemical cars containing or carrying equivalent protection, shall be provided: Provided, That a high pressure rock dusting machine fitted with at least two hundred fifty feet of hose, with at least sixty, eighty pound sacks of rock dust in good condition near it at all times, may be substituted for one water tank car or chemical car. These facilities shall be stationed at strategic locations and ready for use at all times. Where two or more adjacent mines are connected by track one of the two water tanks or chemical cars required for each mine may be a common unit.

(7) One Class C extinguishing unit or two hundred forty pounds of rock dust or dry sand shall be provided at each wooden door through which power lines pass.

(8) Unless water is piped to the faces of working places at such a pressure and volume that a hose will deliver at least fifty gallons of water a minute at a nozzle pressure of fifty pounds per square inch, one Class A fire extinguishing unit or two hundred forty pounds of rock dust or dry sand, or a barrel of water and three pails, shall be provided within six hundred feet of each working face. One such fire prevention unit may serve for more than one working face provided it is within the six hundred foot limit.

(g) Fire control standards which are substantially equal to, or superior to, although not the same as the standards set forth in this act shall be considered in compliance.

### **Section 289. Stables in mines**

It shall be unlawful to provide a stable inside of any bituminous coal mine.

### **Section 290. Mine openings or outlets; roadways, hoisting equipment at shaft outlets; sinking of shafts; limitation of section**

(a) It shall be unlawful for the operator, superintendent or mine foreman of any mine to employ any person to work therein, unless there are at least two openings or outlets to the surface from every seam of coal actually being worked, and available from every entry thereof, which openings or outlets shall have distinct means of ingress and egress available at all times for the use of the employees. The distance between two shafts shall not be less than two hundred feet, and the distance between the openings to the surface of slopes shall not be less than one hundred fifty feet, and the distance between drafts shall not be less than fifty feet: Provided, That the distance between said openings shall apply only to mines opened after the passage of this act: And provided further, That the distances specified may be less with

the written consent of the mine inspector in the district. The passageways between said two shafts shall at all times be maintained in safe and available condition for the employees to travel therein, and the pillars in entries between said shafts shall not be removed without the consent of the mine inspector in the district, in writing, to the superintendent.

(b) The foregoing requirements shall not apply to the openings of a new mine, or to the openings of a new entry of a mine, that is being worked for the purpose of making connection between said two outlets, as long as not more than twenty persons are employed at any one time in making the connection or driving the second opening; nor shall said requirements apply to any mine in which the second opening has been rendered unavailable, by reason of the final robbing or removing of pillars, as long as not more than twenty persons are employed therein at any one time.

(c) Safe means of egress shall be available at all times for the persons employed in any mine that has no second outlet available.

(d) Every gassy mine shall have at least four main entries, two of which shall lead from the main opening and two from the second opening into the body of the mine: Provided, That every new gassy mine, projected to open up a large acreage with main entries five thousand feet or more in length shall have at least five

main entries, two of which shall lead from the main opening and two from the second opening into the body of the mine and the fifth which may be connected with an opening to the surface or with the intake airway at or near the main intake opening shall be used exclusively as a travelingway for the employees.

(e) Every non-gassy mine shall have at least two main entries, one of which shall lead from the main opening and one from the second opening into the body of the mine: Provided, That in every new non-gassy mine projected to open up a large acreage with main entries five thousand feet or more in length, the operator shall either haul the employees into and out of the mine at the beginning and end of each shift, or provide at least three main entries, one of which shall lead from the main opening and one from the second opening into the body of the mine, and one, which may be connected with an opening to the surface or with the intake airway at or near the main intake opening, shall be used exclusively as a travelingway for the employees.

(f) Should any mine opened as a non-gassy mine become a gassy mine, and having less than five main entries that have reached five thousand feet or more in length, and are to be extended two thousand feet or more, the superintendent shall have a new opening of ample dimensions made from the surface, if the mine

inspector in the district deems such additional opening necessary for the proper ventilation of the mine or the safety of the miners. The main entries and the travelingway shall be extended from this opening to the face of the workings: Provided, however, That should the mine inspector in the district be of the opinion that any mine is in need of an additional opening from the surface into the interior of the mine for the proper ventilation thereof or the safety of those employed therein, regardless of the number or length of main openings of the mine, he shall so notify the secretary, who may require the making of an additional opening.

(g) The intake and return entries shall be kept reasonably drained and reasonably free from refuse and obstructions of all kinds, so that persons may safely travel therein throughout their whole length, and have a safe means of egress from workings in case of emergency. Said entries shall be separated by pillars of coal of sufficient strength.

When the main entry of a non-gassy mine or both main entries of a gassy mine, used for intake air are also used for mechanical haulage, a separate travelingway leading into the body of the mine shall be provided for the use of the employees in going to and from their work, or the employees shall be hauled into and out of the mine at the beginning and end of each shift. In all mines where the coal seam is less

than three and one-half feet in height, such travelingway shall be at least four and one-half feet in height in all mines where the coal seam is four feet in height, such travelingway shall be at least five feet in height; and the width shall not be less than six feet. All such travelingways shall be reasonably drained, kept reasonably free from refuse of all kinds, and free from smoke, noxious gases, and electric wires, unless said wires are so placed and protected as not to endanger life, and are kept in safe condition.

(h) In every slope with workings on both sides, an overpass or an underpass not less than five feet wide and five feet high shall be provided as a passageway for the use of employees to cross from one side of the slope to the other. Said overpass or underpass shall connect with available passageways leading to the workings on both sides of said slope. The intervening strata between the slope and the overpass or underpass shall be of sufficient strength at all points to insure safety to the employees: Provided, however, That if it is impracticable to drive an overpass or an underpass in the solid, an overpass or an underpass, if substantially built with masonry or other incombustible material, will be deemed sufficient.

(i) If the opening or outlet other than the main opening is a shaft not more than one hundred feet in depth, and is used by employees for the purpose of ingress to or egress from the mine, it shall be kept

available and in safe condition, free from steam, dangerous gases and all obstructions; and shall be fitted with safe and convenient stairways, with steps of an average tread of ten inches and a rise of nine inches, not less than two feet in width and not to exceed an angle of forty-five degrees, with landings not less than twenty-four inches in width and four feet in length, at easy and convenient distances. These stairways shall be made safe by having hand rails of suitable material placed on one side, or on both sides when requested by the mine inspector in the district, and shall be inspected every twenty-four hours by a competent person employed for that purpose. Water that may come from the surface or from the strata in the shaft shall be conducted away so it will not fall on the stairways or on persons while descending or ascending them.

(j) When a mine is operated by a shaft more than one hundred feet in depth, the persons employed therein shall be lowered and hoisted by means of machinery, unless the second opening is a drift or a slope. When the employees are lowered into or hoisted from the mine at the main shaft opening, the second opening, if a shaft, shall be supplied with a stairway, constructed in the manner hereinbefore designated in this act, or with suitable machinery for safely lowering and hoisting persons in case of an emergency.

(k) At any mine where one of the openings hereinbefore required is a slope, and is used as a means of ingress and egress by the employees, and where the angle of descent of said slope exceeds fifteen degrees, and its length from the mouth of the opening exceeds one thousand feet, the employees shall be lowered into and hoisted from the mine, at the beginning and end of each shift, at a speed not to exceed six miles per hour; and at every such mine where the angle of descent of said slope averages from five to fifteen degrees, and where its length exceeds three thousand feet, the employees shall be lowered into and hoisted from the mine, at the beginning and end of each shift, at a speed not to exceed six miles per hour: Provided, however, That when a separate travelingway is provided at any such slope, the owner or operator may, at his, their, or its option, be exempt from the requirements of this section, if the angle of said travelingway does not exceed twenty degrees.

(1) The operator, superintendent, or contractor shall erect over every shaft that is being sunk, or shall hereafter be sunk, a safe and substantial structure to sustain sheaves or pulleys, ropes and loads, at a height of not less than twenty feet above the tipping place, and the top of such shaft and landing platform shall be arranged in such a manner that no material can fall into the shaft while the bucket is being emptied. The said structure shall be erected as soon as substantial foundation is



obtained. The requirements listed herein may be waived by the department in proper cases.

(2) If provisions are made to land the bucket on a truck, the said truck and platform shall be so constructed that material cannot fall into the shaft.

(3) Men or materials shall not be raised or lowered in shafts that are being sunk, except in a bucket or on a cage, and said bucket or cage must be connected with the rope by a safety hook, clevis or other safe attachment. The rope shall be fastened to the side of the drum, and not less than three coils of rope shall always remain on the drum.

(4) It shall be the duty of the person in charge of shaft sinking for the contractor or operator or superintendent to see that the sides of all shafts are properly secured for safety, and that no loose rock or material is allowed to remain on any timber on top, or on any timber in the shaft after each blast. The person in charge shall see that the shaft is examined for explosive gas and other dangers before each shift, and before the men descend after each blast, and also that the place is safe. In sinking shafts all blasts must be exploded by electric battery or by an ungrounded source of electrical energy. Provisions must also be made for the proper ventilation of shafts while being sunk, and in all sinking shafts and in all shafts that are being

repaired, safety belts shall be provided by the operator or contractor and used by all persons working above the floor of the shaft, unless a substantial scaffold is erected that effectively closes the shaft opening immediately below the point where work is being done.

(5) An efficient brake shall be attached to every drum of an engine used for sinking shafts, and all machinery, ropes, and chains connected therewith shall be examined once every twelve hours.

(6) Not more than four persons shall be lowered or hoisted in a bucket in any shaft at one time, and no person shall ride on a loaded bucket.

### **Section 291. Mining close to abandoned workings**

The superintendent shall not permit the mining of coal within fifty feet of an abandoned mine or any abandoned portion of any mine containing a dangerous accumulation of water, until said danger has been removed by driving a passageway to tap and drain off said water, as provided in this act. The superintendent shall not permit the mining of coal in any seam the entire distance to a property boundary line, not including boundaries around reservations or along crop lines, when, on the adjoining property there are mine workings in said seam within three thousand feet of said boundary line, but shall leave a barrier

pillar, from the operation to the property boundary line, of not less than ten feet plus two feet for every foot or part of a foot of thickness of the bed measured from the roof to the floor, plus five feet for each one hundred feet or part of one hundred feet of cover over the bed at the boundary line; and, where the coal on one side of the property boundary line shall have been mined prior to the effective date of this act closer to the property boundary line than hereinbefore permitted, then the barrier pillar to be left in the mine approaching the boundary line shall be at least equal, when added to that already left in the adjoining mine, to that hereinbefore required on both sides of said property boundary line: Provided, That if, in the opinion of the mine inspector in the district or the superintendent of either mining property, the barrier pillar, as hereinbefore required, is deemed insufficient, then after due notice to the operator or operators of the mining property adjoining a barrier pillar of unmined coal, one-half of which shall be on each side of the property boundary line, except as provided above in this section, shall be left, of such thickness as in the judgment of the mine inspector in the district and of the superintendent or owner of either mining property is deemed necessary to afford safety and protection: And provided further, That if it shall be agreed by the mine inspector in the district and superintendents of such adjoining coal mining properties that such property boundary line is so located that there is no danger to property or lives in mining coal in either or

both sides of the property boundary line up to said property boundary line, then in such cases mining to the property boundary line shall be lawful, if all danger from accumulated water and gas shall have first been removed by driving a passageway to tap and drain off any accumulations of water and gas, as provided for in this act. If any of the parties in interest fails to agree on the carrying out of any of the provisions of this section, any one of said parties may appeal to the secretary who shall determine the matter.

### **Section 292. Lubrication and storage of flammable lubricants**

The oiling or greasing of any cars inside of any mine is strictly prohibited, unless the place where said oil or grease is used is thoroughly cleaned at least once every day to prevent the accumulation of waste oil or grease. Not more than two days' supply of flammable oil or lubricant shall be stored in any portion of a mine unless it is kept in a fireproof building or a structure cut out of solid rock. Oil or grease stored in the face area shall be kept in approved containers, away from power wires and electric equipment. Accumulations of spilled oil or grease shall be rendered harmless. Excessive accumulations shall be removed from the mine. Closed metal containers shall be provided for storage of oily rags or waste until removed for disposal. If any flammable oil or lubricants are stored underground all reasonable safety practices shall be

observed in order to minimize any dangers of fire therefrom.

**Section 293. Approved lighting devices in gassy mines**

(a) It shall be unlawful to use open lights in gassy mines and only approved electric cap lamps, approved flash lights, approved safety lamps and other approved lighting equipment shall be used in such gassy mines.

(b) All approved safety lamps used for examining mines shall be in the care of the mine foreman or some other competent person or persons appointed by the mine foreman, whose duty it shall be to clean, fill, trim, examine, light, test and deliver them locked and in a safe condition to the men when entering the mine, and to receive the lamps from the men when returning from work.

(c) At any mine wherein explosive gas has been liberated before or after the passage of this act in sufficient quantities to be detected by an approved safety lamp, a sufficient number of approved safety lamps shall be kept in good condition for use in case of emergency.

(d) No approved safety lamp shall be entrusted to any person for use in a mine until said person has given satisfactory evidence to the mine foreman that

he understands the proper use thereof and the danger of tampering with the same.

(e) It shall be the duty of every person who knows that his approved lamp is injured or defective to return it immediately to a certified official.

(f) Persons whose regular duties require them to inspect working places in a non-gassy mine for dangers shall have in their possession, and shall use, when underground, an approved safety lamp.

#### **Section 294. Unauthorized entering of mine a misdemeanor**

Any person who enters a mine without authorization from the superintendent thereof shall be guilty of a misdemeanor and upon conviction thereof shall be sentenced to pay a fine not exceeding five hundred dollars (\$500) or to undergo imprisonment not to exceed one year, or both: Provided, however, That this section shall not be applicable to any person who enters a mine in the performance of any duty imposed upon him by this act.

#### **Section 295. Passing by or removing danger signals**

No employee or other person shall, except those specifically authorized in this act, pass by any danger

signal into any mine, or into any portion of any mine, or remove such danger signal before the mine or portion thereof has been examined and reported to be safe. Nor shall any employee or any other person pass by any danger signal placed at the entrance to a working place, or any other place in the mine, or remove such danger signal without permission from the mine foreman, the assistant mine foreman, or the mine examiner.

### **Section 296. Miners to remain in working places**

Each miner shall remain during working hours in the working place assigned to him by the mine foreman or the assistant mine foreman, and shall not leave his working place for another working place without the permission of the mine foreman, assistant mine foreman or mine examiner, and he shall not wander about the hauling roads or enter abandoned or idle workings.

### **Section 297. Openings abandoned after the effective date of this act**

(a) Every shaft permanently abandoned after the effective date of this act shall be filled for its entire depth. The fill from the bottom of the coal seam to a height of fifty feet shall be incombustible material.

(b) Every slope, drift, or tunnel permanently abandoned after the effective date of this act, shall be filled for a distance of twenty-five feet with incombustible material.

(c) All drillholes and boreholes, permanently abandoned after the effective date of this act, shall be effectively plugged or sealed.

(d) Every shaft, slope, drift, or tunnel, temporarily abandoned after the effective date of this act, which may be used for future mining purposes, shall be properly sealed or fenced.

### **Section 298. Opening for drainage on other lands**

(a) If any person, firm or corporation is or shall hereafter be seized in his or their own right of coal lands, or shall hold such lands under lease, and shall have opened or shall desire to open a coal mine on said land, and it shall not be practicable to drain or ventilate such mines or to comply with the requirements of this act as to ways of ingress and egress or travelingways, by means of openings on lands owned or held under lease by him, them, or it, and the same can be done by means of openings on adjacent lands, he, they or it may apply by petition to the court of quarter sessions of the proper county, after ten days' notice to the owner or owners, their agents or attorneys setting forth the facts under oath or



affirmation, particularly describing the place or places where such opening or openings can be made, and the pillars of coal or other material necessary for the support of such passageway and the right of way necessary to any public road as may be needed in connection with such opening, and that he or they cannot agree with the owner or owners of the land as to the amount to be paid for the privilege of making such opening or openings; whereupon the said court shall appoint three disinterested and competent citizens of the county, to view the ground designated and lay out, from the point or points mentioned in such petition, a passage or passages not more than eighty feet in area, by either drift, shaft, or slope, or by a combination of any of said methods, by any practicable and convenient route, to the coal of such person, firm or corporation, preferring in all cases an opening through the coal strata where the same is practicable. The said viewers shall at the same time assess the damages to be paid by the petitioner or petitioners to the owner or owners of such lands, for the coal or other valuable material necessary to support the said passage, as well as for a right of way not exceeding fifteen feet in width, from any such opening to any public road, to enable persons to gain entrance to the mine through such opening, or to provide therefrom upon the surface a watercourse of suitable dimensions to a natural water stream, to enable the operator to discharge the water from said mine, if such right of way shall be desired by the

petition or petitioners, which damages shall be fully paid before such opening is made. The proceedings shall be recorded in the road docket of the proper county, and the pay of the viewers shall be the same as in road cases. If exceptions be filed, they shall be disposed of by the court as speedily as possible, and both parties shall have the right to take depositions as in road cases. If, however, the petitioner desires to make such openings or roads or waterways before the final disposition of such exceptions, he shall have the right to do so by giving bond, to be approved by the court, securing the damages as provided by law in the case of lateral railroads.

(b) It shall be compulsory upon the part of the mine owner or operator to exercise the powers granted by the provisions of the last preceding subsection, for the procuring of a right of way on the surface from the opening of a coal mine to a public road or public roads upon the request in writing of fifty miners employed in the mine or mines of such owner or operator: Provided, however, That with such request satisfactory security be deposited with the mine owner or operator by said petitioners, said petitioners being coal miners, to fully and sufficiently pay all costs, damages, and expenses caused by such proceedings and in paying for such right of way.

(c) In any mine or mines, or portions thereof, wherein water may have been allowed to accumulate

in large and dangerous quantities, putting in danger the adjoining or adjacent mines and the lives of the miners working therein, and when such can be tapped and set free and flow by its own gravity to any point of drainage, it shall be lawful for any operator or person having mines so endangered, with the approval of the mine inspector in the district, to proceed to remove the said danger by driving a drift, or drifts, protected by boreholes, as provided for by this act, and in removing said danger it shall be lawful to drive across property lines if needful. It shall also be unlawful for any person to dam, or in any way obstruct, the flow of any stream from said mine or portions thereof, when so set free, on any part of its passage to point of drainage.

(d) From and after the passage of this act, it shall be lawful for any person or persons, company or companies, now or hereafter to be incorporated in this Commonwealth, to drive headings and construct entryways, tramways, and mine tracks, with one or more tracks, under the surface, partly under and partly over the surface, through or over any intervening lands, not exceeding one mile in length, to or from any coal, and connect the same with any entryways, headings, tramways, or railroads, belonging to any individual or individuals, company or companies, now or hereafter to be incorporated in this Commonwealth, and also with any highway or public improvement: Provided, That the parties interested shall be subject to the same proceedings required in subsection (a) of this

section: And provided, further, That no such entryway, heading, tramway, mine track, or railroad, shall be constructed through or over such intervening lands where the same would injure or interfere with the existing mining operations of any other person or company, or where the same would endanger the safety of the employees therein.

### **Section 299. Ladders in and about mines**

Permanently installed ladders in and about bituminous coal mines that are more than ten feet in length and that are set on an angle of sixty degrees or more with the horizontal, shall be provided with substantial backguards and all ladders shall be maintained in good repair. Backguards need not be provided on the river side of river calls.

#### **Section 299.1. Employment of Persons Under Eighteen Years of Age**

(a) No person under the age of eighteen years shall be employed or permitted to be inside any bituminous coal mine for the purpose of employment therein, or be employed or permitted to be in or about the outside structures or workings of a bituminous coal mine for the purpose of employment.

(b) This prohibition shall not affect the employment of a person, of suitable age, in an office or in the

performance of clerical work, at a bituminous coal mine.

### **Section 299.2. Inside structures to be of incombustible materials**

All buildings or structures in any bituminous coal mine shall be constructed of incombustible materials.

### **Section 299.3. Tipple and cleaning plant**

(a) In dusty locations, electric motors, switches and controls shall be of dust-tight construction, or enclosed with reasonably dust-tight housings or enclosures. Open-type motors, switches or controls in use at the effective date of this act in tipples and cleaning plants in dusty locations may be continued in use until such dust-tight equipment can be procured, or until they can be provided with reasonably dust-tight housings or enclosures.

(b) Structures shall be kept free of excessive coal dust accumulations.

(c) Where coal is dumped at or near air intake openings, reasonable provisions shall be made to prevent dust from entering the mine.

(d) Where repairs are being made to the plant, proper scaffolding and proper overhead protection shall be provided for workmen wherever necessary.

(e) Welding shall not be done in dusty atmospheres and dusty locations shall be well cleaned, and fire-fighting apparatus shall be available at the location during welding.

(f) Stairways, elevated platforms and runways shall be equipped with handrails, and, when required to be used at night, shall be illuminated. Railroad car trimmer platforms are excepted from such handrail requirement. Elevated platforms, and floor openings, shall be provided with toe-boards, and they shall be kept clear of refuse and ice and maintained in good repair.

#### **Section 299.4. Housekeeping**

Good housekeeping shall be practiced in and around mine buildings and yards. Such practices include cleanliness, orderly storage of materials and the removal of possible sources of injury, such as stumbling hazards, protruding nails and broken glass.

### **Section 299.5. Storage of flammable liquids in lamp house**

Naphtha or other flammable liquids in lamp houses shall be kept in a suitable approved container or dispenser not to exceed ten gallon capacity.

### **Section 299.6. Smoking in and around surface structures**

Smoking in or about surface structures shall be restricted to places where it will not cause fire or an explosion.

### **Section 299.7. Wash houses**

When the clothing or wearing apparel of the employees in any bituminous coal mine becomes wet, by reason of working in wet places therein, it shall be the duty of the operator or superintendent of said mine, at the request in writing of the mine inspector in the district, who shall make such request upon the petition of any ten employees working in the aforesaid wet places, to provide a suitable building, convenient to the principal entrance of such mine, for the use of the persons employed in wet places therein, for the purpose of washing themselves and changing their clothes when entering the mine and returning therefrom. The said buildings shall be maintained in good order and be properly lighted and heated, and

shall be provided with hot and cold running water and facilities for such persons to wash, and the cost of providing and maintaining such conveniences and facilities shall be defrayed by the owner or operator of said mine. Any operator, superintendent, or mine inspector who shall neglect or fail to comply with the provisions of this section, or any person who shall maliciously injure or destroy, or cause to be injured or destroyed, the said building, or any part thereof, or any of the appliances or fittings used therein, or do any act tending to the injury or destruction thereof, shall be deemed guilty of a misdemeanor. At any bituminous coal mine opened after the passage of this act at which twenty-five or more persons are employed a washhouse as hereinbefore described is to be provided.

## **ARTICLE II-A DIESEL-POWERED EQUIPMENT**

### **Section 201-A. Underground use**

(a) Underground use of inby and outby diesel-powered equipment, including mobile equipment, stationary equipment and equipment of all horsepower ratings, may only be approved, operated and maintained as provided in this article, except for emergency fire-fighting equipment to be used specifically for that purpose.



(b) All diesel-powered equipment shall be attended while in operation with the engine running in underground mines. For purposes of this subsection, “attended” shall mean an equipment operator is within sight or sound of the diesel-powered equipment.

(c) Inby and outby diesel-powered equipment may be used in underground mines if the inby or outby diesel-powered equipment uses an engine approved or certified by MSHA, as applicable, for inby or outby use that, when tested at the maximum fuel-air ratio, does not require an MSHA approval plate ventilation rate exceeding 150 c.f.m. per rated horsepower.

#### **Section 202-A. Diesel-powered equipment package**

(a) All diesel-powered equipment shall be approved by the department as a complete diesel-powered equipment package which shall be subject to all of the requirements, standards and procedures set forth in this article.

(b) Diesel engines shall be certified or approved, as applicable, by MSHA and maintained in accordance with MSHA certification or approval and department approval.

## **Section 203-A. Exhaust emissions control**

(a)(1) Underground diesel-powered equipment shall include an exhaust emissions control and conditioning system that has been laboratory tested with the diesel engine, except as provided in paragraph (3), using the ISO 8178-1 test and has resulted in diesel particulate matter emissions that do not exceed an average concentration of 0.12 mg over m to the third power when diluted by fifty per cent of the MSHA approval plate ventilation rate for that diesel engine.

(2) The exhaust emissions control and conditioning system shall be required to successfully complete a single series of laboratory tests conducted at a laboratory accepted by the secretary for each diesel engine, except as provided in paragraph (3).

(3) An exhaust emissions control and conditioning system may be approved for multiple diesel engine applications through a single series of laboratory tests, known as the ISO 8178-1 test, only if data is provided to the advisory committee that reliably verifies that the exhaust emissions control and conditioning system will meet, for each diesel engine, the in-laboratory diesel particulate matter standard established by this subsection. Data provided to satisfy this provision shall include diesel particulate matter production rates for the

specified engine as measured during the ISO 8178-1 test, if available. If ISO 8178-1 test data for diesel particulate matter production is not available for a specified engine, comparable data may be provided to the advisory committee that reliably verifies that the exhaust emissions control and conditioning system will meet, for the specified diesel engine, the in-laboratory diesel particulate matter standard established by this subsection. This standard shall only be used for in-laboratory testing for approval of diesel-powered equipment for use underground.

(b) The exhaust emissions control and conditioning system shall include the following:

(1) A diesel particulate matter (DPM) filter capable of an average of ninety-five per cent or greater reduction of DPM emissions.

(2) An oxidation catalyst or other gaseous emissions control device capable of reducing undiluted carbon monoxide emissions to 100 ppm or less under all conditions of operation at normal engine operating temperature range.

(3) An engine surface temperature control capable of maintaining significant external surface temperatures below three hundred two degrees Fahrenheit.

- (4) A heat exchanger capable of reducing the exhaust gas temperature below three hundred two degrees Fahrenheit.
- (5) An automatic engine shutdown system that will shut off the engine before the exhaust gas temperature reaches three hundred two degrees Fahrenheit and, if waterjacketed components are used, before the engine coolant temperature reaches two hundred twelve degrees Fahrenheit. A warning shall be provided to alert the equipment operator prior to engine shutdown.
- (6) A spark arrestor system.
- (7) A flame arrestor system.
- (8) A sampling port for measurement of undiluted and untreated exhaust gases as they leave the engine.
- (9) A sampling port for measurement of treated undiluted exhaust gases before they enter the mine atmosphere.
- (10) For inby diesel equipment, any additional requirements of MSHA regulations at 30 CFR Pt. 36 (relating to mobile diesel-powered transportation equipment for gassy noncoal mines and tunnels).

(c) On-board engine performance and maintenance diagnostics systems shall be capable of continuously monitoring and giving readouts for paragraphs (1), (2), (3), (4), (5), (6), (7) and (8) of this subsection. The diagnostics system shall identify levels that exceed the engine and/or component manufacturer's recommendation or the applicable MSHA or bureau requirements as to the following:

- (1) Engine speed.
- (2) Operating hour meter.
- (3) Total intake restriction.
- (4) Total exhaust back pressure.
- (5) Cooled exhaust gas temperature.
- (6) Coolant temperature.
- (7) Engine oil pressure.
- (8) Engine oil temperature.

(d) The DPEP shall include a quality control plan for assuring that the diesel fuel used shall be a low volatile hydrocarbon fuel classified as ASTM D975 fuel with a cetane index of at least 45, a maximum aromatic content of thirty-five per cent, a sulfur mass

of less than five hundredths of one per cent and a flash point of one hundred degrees Fahrenheit or greater at standard temperature and pressure.

### **Section 204-A. Ventilation**

(a) Minimum quantities of air where diesel-powered equipment is operated shall be maintained pursuant to this section.

(b) Each specific model of diesel-powered equipment shall be approved by the department before it is taken underground. The department shall require an approval plate that must be attached to each piece of the diesel-powered equipment. The approval plate shall specify the minimum ventilating air quantity for the specific piece of diesel-powered equipment. The minimum ventilating air quantity shall be determined by the bureau based on the amount of air necessary at all times to maintain the exhaust emissions at levels not exceeding the exposure limits established in section 219-A.

(c) The minimum quantities of air in any split where any individual unit of diesel-powered equipment is being operated shall be at least that specified on the approval plate for that equipment. Air quantity measurements to determine compliance with this requirement shall be made at the individual unit of diesel-powered equipment.

(d) Where multiple units are operated, the minimum quantity shall be at least one hundred per cent of the highest approval plate air quantity plus seventy-five per cent of the next highest quantity plus fifty per cent of the approval plate quantity of each additional unit operating in that split. Air quantity measurements to determine compliance with this requirement shall be made at the most downwind unit of diesel-powered equipment that is being operated in that air split.

(e) The minimum quantities of air in any split where any diesel-powered equipment is operated shall be in accordance with the minimum air quantities required in subsections (a) and (b) and shall be specified in the mine diesel ventilation plan.

### **Section 205-A. Fuel storage facilities**

(a) A mobile underground diesel fuel storage facility shall be any facility designed and constructed to provide for the temporary storage of diesel fuel transportation units or the dispensing of diesel fuel.

(b) Diesel-powered equipment shall be used underground only with low volatile hydrocarbon fuel classified as ASTM D975 diesel fuel with a cetane index of at least 45, a maximum aromatic content of thirty-five per cent, a sulfur mass of less than five hundredths of one per cent and a flash point of one

hundred degrees Fahrenheit or greater at standard temperature and pressure.

(c) Underground diesel fuel storage facilities shall meet the following general requirements:

(1) Fixed underground diesel fuel storage facilities are prohibited.

(2) No more than five hundred gallons of diesel fuel shall be stored in each mobile underground diesel fuel storage facility.

(d) Mobile underground diesel fuel storage facilities shall be located as follows:

(1) At least one hundred feet from shafts, slopes, shops and explosives magazines;

(2) At least twenty-five feet from trolley wires, haulage ways, power cables and electric equipment not necessary for the operation of the storage facilities; and

(3) In an area that is as dry as practicable.

(e)(1) Mobile underground diesel fuel storage facilities shall meet the construction requirements and safety precautions enumerated in this subsection.



(2) Mobile underground diesel fuel storage facilities shall meet all of the following:

(i) Be constructed of noncombustible materials and provided with a means for automatic enclosure.

(ii) Be ventilated directly into the return air course using noncombustible materials.

(iii) Be equipped with an automatic fire suppression system complying with section 209-A.

(iv) Be equipped with at least two portable twenty-pound multipurpose dry-chemical type fire extinguishers.

(v) Be marked with conspicuous signs designating combustible liquid storage.

(vi) Be included in the pre-shift examination.

(3) Welding or cutting other than that performed in accordance with paragraph (4) shall not be done within fifty feet of a diesel fuel storage facility.

(4) When it is necessary to weld, cut or solder pipelines, cylinders, tanks or containers that may

have contained diesel fuel, the following requirements shall apply:

(i) Cutting or welding shall not be performed on or within containers or tanks that have contained combustible or flammable materials until such containers or tanks have been thoroughly purged and cleaned or inerted and a vent or opening is provided to allow for sufficient release of any buildup pressure before heat is applied.

(ii) Diesel fuel shall not be allowed to enter pipelines or containers that have been welded, soldered, brazed or cut until the metal has cooled to ambient temperature.

#### **Section 206-A. Transfer of diesel fuel**

(a) Diesel fuel shall be transferred as provided in this section.

(b) When diesel fuel is transferred by means of a pump and a hose equipped with a nozzle containing a self-closing valve, a powered pump may be used only if:

(1) The hose is equipped with a nozzle containing a self-closing valve without a latch-open device; and

- (2) The pump is equipped with an accessible emergency shutoff switch.
- (c) Diesel fuel shall not be transferred using compressed gas.
  - (d) Diesel fuel shall not be transferred to the fuel tank of diesel-powered equipment while the equipment's engine is running.
  - (e) Diesel fuel piping systems shall be designed and operated as dry systems.
  - (f) All piping, valves and fittings shall meet the following:
    - (1) Be capable of withstanding working pressures and stresses.
    - (2) Be capable of withstanding four times the static pressures.
    - (3) Be compatible with diesel fuel.
    - (4) Be maintained in a manner that prevents leakage.

(g) Vertical pipelines shall have manual shutoff valves installed at the surface filling point and at the underground discharge point.

(h) Unburied diesel fuel pipelines shall not exceed three hundred feet in length and shall have shutoff valves located at each end of the unburied pipeline.

(i) Horizontal pipelines shall not be used to distribute fuel throughout the mine.

(j) Diesel fuel piping systems shall be used only to transport fuel from the surface directly to a single underground diesel fuel transfer point.

(k) When boreholes are used, the diesel fuel piping system shall not be located in a borehole with electric power cables.

(l) Diesel fuel pipelines located in any shaft shall be included as part of the required examination of the shaft.

(m) Diesel fuel piping systems located in entries shall not be located on the same side of the entry as electric cables or power lines.

(n) Diesel fuel pipelines shall not be located in any trolley-haulage entry, except that they may cross the

entry perpendicular if buried or otherwise protected from damage and sealed.

(o) Diesel fuel piping systems shall be protected to prevent physical damage.

### **Section 207-A. Containers**

(a) Containers for the transport of diesel fuel shall meet the requirements of this section.

(b) Diesel fuel shall be transported only in containers specifically designed for the transport of diesel fuel.

(c) No more than one safety can, conspicuously marked, shall be transported on a vehicle at any time.

(d) Containers other than safety cans used to transport diesel fuel shall be provided with the following:

(1) Devices for venting.

(2) Self-closing caps.

(3) Vent pipes at least as large as the fill or withdrawal connection, whichever is larger, but not less than one and one-fourth inch nominal inside diameter.

(4) Liquid-tight connections for all container openings that are identified by conspicuous markings and closed when not in use.

(5) Shutoff valves located within one inch of the tank shell on each connection through which liquid can normally flow.

(e) When tanks are provided with openings for manual gauging, liquid-tight caps or covers shall be provided and shall be kept closed when not open for gauging.

(f) Containers used for the transport of diesel fuel shall not exceed a capacity of five hundred gallons.

(g) Containers, other than safety cans, used for the transport of diesel fuel shall be permanently fixed to the transportation unit.

(h) Diesel fuel transportation units shall be transported individually and not with any other cars, except that two diesel fuel transportation units up to a maximum of five hundred gallons each may be transported together.

(i) Diesel fuel shall not be transported on conveyor belts.

(j) When transporting diesel fuel in containers other than safety cans, a fire extinguisher shall be provided on each end of the transportation unit. The fire extinguishers shall be multipurpose type dry-chemical fire extinguishers containing a nominal weight of twenty pounds.

(k) Diesel fuel transportation units shall have a fire suppression system that meets the requirements of section 208-A.

(l) In mines where trolley wire is used, diesel fuel transportation units shall be provided with insulating material to protect the units from energized trolley wire, and the distance between the diesel fuel transportation unit and the trolley wire shall not be less than twelve inches, or the trolley wire shall be de-energized when diesel fuel transportation units are transported through the area.

(m) Unattended diesel fuel transportation units shall be parked only in mobile underground diesel fuel storage facilities.

(n) Safety cans shall be used for emergency fueling only.

(o) Safety cans shall be clearly marked, have a maximum capacity of five gallons and be constructed

of metal and equipped with a nozzle and self-closing valves.

**Section 208-A. Fire suppression for equipment and transportation**

(a) Fire suppression systems for diesel-powered equipment and fuel transportation units shall meet the requirements of this section.

(b) The system must be an automatic multipurpose dry-powder type fire suppression system suitable for the intended application and listed or approved by a nationally recognized independent testing laboratory. Installation requirements are as follows:

(1) The system shall be installed in accordance with the manufacturer's specifications and the limitations of the listing or approval.

(2) The system shall be installed in a protected location or guarded to minimize physical damage from routine operations.

(3) Suppressant agent distribution tubing or piping of the system shall be secured and protected against damage, including pinching, crimping, stretching, abrasion and corrosion.



(4) Discharge nozzles of the system shall be positioned and aimed for maximum fire suppression effectiveness in the protected areas. Nozzles shall also be protected against the entrance of foreign materials such as mud, coal dust or rock dust that could prevent proper discharge of suppressant agent.

(c) The fire suppression system shall provide automatic fire detection and suppression for all of the following:

(1) The engine, transmission, hydraulic pumps and tanks, fuel tanks, exposed brake units, air compressors and battery areas, as applicable, on all diesel-powered equipment.

(2) Fuel containers and electric panels or controls used during fuel transfer operations on fuel transportation units.

(d) The fire suppression system shall include a system fault and fire alarm annunciator that can be seen and heard by the equipment operator.

(e) The fire suppression system shall provide for automatic engine shutdown. Engine shutdown and discharge of suppressant agent may be delayed for a maximum of fifteen seconds after the fire alarm annunciator alerts the operator.

(f) At least two manual actuators shall be provided with at least one manual actuator at each end of the equipment. If the equipment is provided with an operator's compartment, one of the mechanical actuators shall be located in the compartment within easy reach of the operator. For stationary equipment, the two manual actuators shall be located with at least one actuator on the stationary equipment and at least one actuator a safe distance away from the equipment and in intake air.

#### **Section 209-A. Fire suppression for storage areas**

(a) Fire suppression systems for diesel fuel storage areas shall meet the requirements of this section.

(b) The system shall be an automatic multipurpose dry-powder type fire suppression system or other system of equal capability, suitable for the intended application and listed or approved by a nationally recognized independent testing laboratory. The system shall meet the following installation requirements:

(1) The system shall be installed in accordance with the manufacturer's specifications and the limitations of the listing or approval.

(2) The system shall be installed in a protected location or guarded to minimize physical damage from routine operations.

(3) Suppressant agent distribution tubing or piping of the system shall be secured and protected against damage, including pinching, crimping, stretching, abrasion and corrosion.

(4) Discharge nozzles of the system shall be positioned and aimed for maximum fire suppression effectiveness in the protected areas. Nozzles must also be protected against the entrance of foreign materials such as mud, coal dust and rock dust that could prevent proper discharge of suppressant agent.

(c) The fire suppressant system shall provide automatic fire detection and suppression for the fuel storage tanks, containers, safety cans, pumps, electrical panels and control equipment in fuel storage areas.

(d) Audible and visual alarms to warn of fire or system faults shall be provided at the protected area and at a surface location that is always staffed when persons are underground. A means shall also be provided for warning all endangered persons in the event of fire.

(e) Fire suppression systems shall include two manual actuators with at least one located within the fuel storage facility and at least one located a safe distance away from the storage facility and in intake air.

(f) The fire suppression system shall remain operative in the event of electrical system failure.

(g) If electrically operated, the detection and actuation circuits shall be monitored and provided with status indicators showing power and circuit continuity. If not electrically operated, a means shall be provided to indicate the functional readiness status of the system.

(h) Fire suppression devices shall be visually inspected at least once each week by a person qualified to make such inspection.

(i) Each fire suppression device shall be tested and maintained.

(j) A record shall be maintained of the inspection required by this paragraph. The record of the weekly inspections shall be maintained at an appropriate location for each fire suppression device.

(k) All miners normally assigned to the active workings of a mine shall be instructed about any

hazards inherent to the operation of all fire suppression devices installed and, where appropriate, the safeguards available for each device.

### **Section 210-A. Use of certain starting aids prohibited**

The use of volatile or chemical starting aids is prohibited.

### **Section 211-A. Fueling**

(a) Fueling of diesel-powered equipment shall not be conducted in the intake escapeway unless the mine design and entry configuration make it necessary. In those cases where fueling in the intake escapeway is necessary, the mine operator shall submit a plan for approval to the department outlining the special safety precautions that will be taken to insure the protection of miners. Such plan shall specify a fixed location where fueling will be conducted in the intake escapeway and all other safety precautions that will be taken, which shall include an examination of the area for spillage or fire by a qualified person.

(b) Diesel fuel and other combustible materials shall be cleaned up and not be permitted to accumulate anywhere in an underground mine or on diesel-powered or electric equipment located therein.

(c) At least one person specially trained in the cleanup and disposal of diesel fuel spills shall be on duty at the mine when diesel-powered equipment or mobile fuel transportation equipment is being used or when any fueling of diesel-powered equipment is being conducted.

### **Section 212-A. Fire and safety training**

(a) All underground employees at the mine shall receive special instruction related to fighting fires involving diesel fuel. This training may be included in annual refresher training under MSHA regulations at 30 CFR Pt. 48 (relating to training and retraining of miners) or included in the fire drills required under MSHA regulations at 30 CFR s 75.1101-23 (relating to program of instruction; location and use of fire fighting equipment; location of escapeways, exits and routes of travel; evacuation procedures; fire drills).

(b) All miners shall be trained in precautions for safe and healthful handling and disposal of diesel-powered equipment filters. All used intake air filters, exhaust diesel particulate matter filters and engine oil filters shall be placed in their original containers or other suitable enclosed containers and removed from the underground mine to the surface. Arrangements will be made for safe handling and disposal of these filters within a timely manner after they have reached the surface.

## **Section 213-A. Maintenance**

(a) Diesel-powered equipment shall be maintained in an approved and safe condition as described in this article or removed from service. Failure of the mine operator to comply with the maintenance requirements of this subsection may result in revocation of the department's approval of the complete diesel-powered equipment package, provided appropriate notification has been given to the mine operator and the procedures of this section have been taken. Upon receiving such notice, the mine operator shall have thirty days to submit a plan to achieve and maintain compliance. Such plan shall be evaluated by the department, and, upon approval, the mine operator shall implement the plan. The department shall monitor the mine operator's compliance. If the department then determines that the mine operator is unable or unwilling to comply, the department shall revoke the mine operator's approval.

(b) To acquire and maintain approval of a complete diesel-powered equipment package, the mine operator shall comply with the following requirements:

- (1) All service, maintenance and repairs of approved complete diesel-powered equipment packages shall be performed by mechanics who are

trained and qualified in accordance with section 222-A.

(2) Service and maintenance of approved complete diesel-powered equipment packages shall be performed according to:

- (i) The specified routine maintenance schedule;
- (ii) On-board performance and maintenance diagnostics readings;
- (iii) Emissions test results; and
- (iv) Component manufacturer's recommendations.

### **Section 214-A. Records**

(a) A record shall be made of all emissions tests, preoperational examinations and maintenance and repairs of complete diesel-powered equipment packages. The records made pursuant to this section shall meet the requirements of this section.

(b) The person performing the emissions test, examination, maintenance or repair shall certify by date, time, engine hour reading and signature that the emissions test, examination, maintenance or repair was made.



(c) Records of emissions tests and examinations shall include the specific results of such tests and examinations.

(d) Records of maintenance and repairs shall include the work that was performed, any fluids or oil added, parts replaced or adjustments made and the results of any subsequently required emissions testing.

(e) Records of preoperational examinations shall be retained for the previous one hundred-hour maintenance cycle.

(f) Records of emissions tests, one hundred-hour maintenance tests and repairs shall be countersigned once each week by the certified mine electrician and mine foreman.

(g) All records, except as specified in subsection (e), required by this section shall be retained for at least one year at a surface location at the mine and made available for inspection by the department's district mine inspector and by miners and their representatives.

## **Section 215-A. Duties of operator**

(a) Prior to using a piece of diesel-powered equipment during a shift, the equipment operator shall conduct an examination as follows:

- (1) Check the exhaust emissions control and conditioning system components to determine that the components are in place and not damaged or leaking.
- (2) Assure that the equipment is clean and free of accumulations of combustibles.
- (3) Assure that the machine is loaded safely.
- (4) Check for external physical damage.
- (5) Check for loose or missing connections.
- (6) Check engine oil level.
- (7) Check transmission oil level.
- (8) Check other fluid levels, if applicable.
- (9) Check for hydraulic, coolant and oil leaks.
- (10) Check fan, water pump and other belts.

(11) Check the fan for damage.

(12) Check guards.

(13) Check the fuel level.

(14) Check for fuel leaks.

(15) Comply with recordkeeping requirements pursuant to section 214-A.

(b) After the engine is started and warmed up, the equipment operator shall conduct an examination as follows:

(1) Check all on-board engine performance and maintenance diagnostics system gauges for proper operation and in-range readings. The equipment operator shall immediately shut down the engine and notify the operator if the on-board readings indicate any of the following:

(i) Intake restriction at full engine speed is greater than the manufacturer's recommendation.

(ii) Exhaust restriction at full engine speed is greater than the manufacturer's recommendation.

(iii) Coolant temperature is at or near two hundred twelve degrees Fahrenheit.

- (iv) Low engine oil pressure.
  - (v) High engine oil temperature.
- (2) Check safety features, including, but not limited to, the throttle, brakes, steering, lights and horn.
- (3) Comply with recordkeeping requirements pursuant to section 214-A.

### **Section 216-A. Scheduled maintenance**

At intervals not exceeding one hundred hours of engine operation, a qualified mechanic shall perform the following maintenance and make all necessary adjustments or repairs or remove the equipment from service:

- (1) Wash or steam-clean the equipment.
- (2) Check for and remove any accumulations of coal, coal dust or other combustible materials.
- (3) Check the equipment for damaged or missing components or other visible defects.
- (4) Conduct electrical and safety component inspections.

- (5) Replace engine oil and oil filter.
- (6) Check the transmission oil level and add oil, if necessary.
- (7) Check hydraulic oil level and add oil, if necessary.
- (8) Check the engine coolant level and add coolant, if necessary.
- (9) Check all other fluid levels and add fluid, if necessary.
- (10) Check for oil, coolant and other fluid leaks.
- (11) Inspect the cooling fan, radiator and shroud. Remove any obstructions and make necessary repairs.
- (12) Check all belts. Tighten or replace, if necessary.
- (13) Check the battery and service as necessary.
- (14) Check the automatic fire suppression system.
- (15) Check the portable fire extinguisher.
- (16) Check the lights.

(17) Check the warning devices.

(18) With the engine operating, check and replace or repair the following:

(i) Oil pressure.

(ii) Intake air restriction at full engine speed.

(iii) Exhaust gas restriction at full engine speed.

(iv) Exhaust flame arrestor.

(v) All gauges and controls.

(19) Conduct repeatable loaded engine operating test in accordance with section 218-A.

(20) Evaluate and interpret the results of all of the above tests and examinations and make all necessary repairs or remove equipment from service.

(21) Comply with recordkeeping requirements pursuant to section 214-A

### **Section 217-A. Emissions monitoring and control**

(a) Emissions for diesel-powered equipment shall be monitored and controlled as provided in this section.

(b) When any diesel-powered machine first enters service at a mine, baseline emission values shall be determined by a qualified mechanic. The qualified mechanic shall:

- (1) Verify that the seal on the engine fuel injector is in place and that the proper fuel pump is on the equipment.
- (2) Install a new clean intake air cleaner, measure and record the intake restriction pressure.
- (3) Check the level of engine oil.
- (4) Change the engine lubrication oil if not fresh.
- (5) Check the level of the transmission fluid.
- (6) Flush the exhaust system and install a new diesel particulate filter, measure and record the exhaust back pressure.
- (7) Test the brakes.
- (8) Place the equipment into an intake entry.
- (9) Set the brakes and chock the wheels.

(10) Install the portable carbon monoxide (CO) sampling device into the untreated exhaust gas coupling provided in the operator's cab.

(11) Start the engine and allow it to warm up to operating temperature.

(12) For mobile equipment, shift into second gear and put the engine at full throttle, or for stationary equipment, induce a load and put the engine at full throttle.

(13) Start the CO sampler and measure and record CO levels every minute for five minutes.

(14) Comply with recordkeeping requirements pursuant to section 214-A.

### **Section 218-A. Diagnostic testing**

At intervals not exceeding once every one hundred hours of engine operation, a qualified mechanic shall perform equipment maintenance diagnostic testing of each piece of diesel-powered equipment in the mine. The qualified mechanic shall:

(1) Verify the identification numbers on the equipment;

(2) Check the level of the engine lubricating oil;



- (3) Check the level of the transmission fluid;
- (4) Set the brakes and chock the wheels;
- (5) Install the portable CO sampling device into the untreated exhaust port coupling provided in the operator's cab;
- (6) Start the engine and allow it to warm up to operating temperature;
- (7) Check the intake restriction and the exhaust back pressure at high idle speed;
- (8) If the intake restriction is more than the manufacturer's maximum recommended intake restriction, replace the intake filter with a clean one;
- (9) If the exhaust back pressure is more than the manufacturer's maximum recommended exhaust back pressure, replace the diesel particulate filter with a clean one and/or clean out the heat exchanger;
- (10) For mobile equipment, shift into second gear and put the engine at full throttle, or for stationary equipment, induce a load and put engine at full throttle;

(11) Start the CO sampler and record CO levels every minute for five minutes;

(12) Install the portable CO sampling device into the treated exhaust port coupling provided in the operator's cab and repeat steps (10) and (11);

(13) If the average CO reading for untreated exhaust gas is greater than twice the baseline established under section 217-A(b) or if the average CO reading for treated exhaust gas is greater than 100 ppm, the equipment has failed and must be serviced and retested before it is returned to regular service; and

(14) Comply with recordkeeping requirements pursuant to section 214-A.

### **Section 219-A. Exhaust gas monitoring and control**

(a) In monitoring and controlling exhaust gases, the ambient concentration of exhaust gases in the mine atmosphere shall not exceed 35 ppm ceiling for carbon monoxide (CO), 25 ppm ceiling for nitric oxide (NO) and 3 ppm ceiling for nitrogen dioxide (NO<sub>2</sub>). The concentration of these exhaust gases shall be measured at the equipment operator's or equipment attendant's position and in by the last piece of diesel-powered equipment operating in the same split of air. Measurements shall be made weekly or more often if

necessary by a qualified person and shall be conducted pursuant to the requirements of this section.

(b) Measurement of exhaust gases shall be made with a sampling instrument no less precise than detector tubes.

(c) If the concentration of any of the gases listed in subsection (a) is seventy-five per cent or more of its exposure limit, changes to the use of the diesel equipment, the mine ventilation or other modifications to the mining process shall be made.

(d) If the concentration of any of the gases listed in subsection (a) exceeds the exposure limit, the diesel equipment operating in that split shall be removed from service immediately and corrective action taken. After corrective action has been taken by the mine operator, the diesel equipment may be returned to service in its regular operating mode for emissions testing purposes only, and emissions testing shall be conducted immediately to assure that the concentration does not exceed seventy-five per cent of the exposure limit. Corrective action must be taken until the concentration does not exceed seventy-five per cent of the exposure limit before the diesel equipment can be returned to full operation.

(e) In addition to the other maintenance requirements set forth in this article, the mine operator shall comply with the following requirements:

(1) Repair or adjustment of the fuel injection system shall only be performed by qualified mechanics authorized by the engine manufacturer.

(2) Complete testing of the emissions system in accordance with section 218-A shall be conducted prior to any piece of diesel-powered equipment being put into service, after any repair or adjustment to the fuel delivery system, engine timing or exhaust emissions control and conditioning system.

(3) Service and maintenance of the intake air filter, exhaust particulate filter and the exhaust system shall be performed at specific time intervals based on the component manufacturer's recommendation, compliance with the engine or emissions control operation specifications and, as needed, based on the on-board diagnostics and/or emissions test results. Accurate records shall be maintained of all such service and maintenance.

### **Section 220-A. Training and general requirements**

(a) All training course instructors and all training plans required by this section and sections 221-A and 222-A shall be approved by the department.

Operator training and qualification shall meet the requirements of this section.

(b) Training shall be conducted in the basics of the operation of a diesel engine, Federal and State regulations governing their use, company rules for safe operation, specific features of each piece of equipment and the ability to recognize problems and shall be provided to each equipment operator and the mine health and safety committee if one exists. This training shall be designed to bring every operator to a level of good understanding of diesel equipment operation. Each operator will be qualified by attending a minimum eight-hour course, including classroom training on diesel fundamentals and equipment-specific hands-on training on the job.

(c) Upon successful completion of both training sessions, the operator shall be issued a Certificate of Qualification that qualifies him or her to operate a specific type of diesel-powered equipment. An operator may be qualified to operate more than one type of equipment by completing additional equipment-specific training covering differences specific to each additional type of equipment.

(d) Refresher training, separate from that required by MSHA regulations at 30 CFR Pt. 48 (relating to the training and retraining of miners), shall be required annually.

(e) The minimum eight-hour training required by subsection (b) shall include instruction in the following classroom subjects:

(1) Engine fundamentals, which shall include an introduction to the function of a diesel engine and recognition of all major components and their functions.

(2) Diesel regulations, which shall include an introduction to Federal and State regulations governing the use of diesel equipment.

(3) Diesel emissions, which shall include an introduction to diesel emissions and their adverse health effects.

(4) Factors that affect diesel emissions, which shall include a detailed presentation of engine faults and diesel fuel quality and their effect on emissions and the preventive actions that can be taken to minimize emissions levels.

(5) Emissions control devices, which shall include a detailed presentation of the different emissions control devices employed to reduce emissions and details about actions the operator must take to keep the devices in working order.

(6) Diagnostic techniques, which shall include a presentation of techniques that can be employed by the operator to assure the equipment is in safe operating condition and instruction about how to recognize and diagnose certain engine faults that may cause increases in emissions.

(7) The preoperational inspection, which shall include a presentation of the purpose, benefits and requirements of the preoperational inspection.

(8) Ventilation, which shall include an introduction to special ventilation requirements for areas where diesel-powered equipment will operate.

(9) Fire suppression system, which shall include an introduction to the fire suppression system and its function and when and how to activate the fire suppression manually.

(10) Operating rules, which shall include a detailed presentation of the driving rules, safe driving speeds, traffic control devices and equipment limitations.

(11) Emergency procedures, which shall include discussion of emergency situations, such as fire, diesel fuel spills, component failure, loss of ventilation air and emergency escape procedures and discussion of the potential use of the diesel-

powered vehicle as an emergency escape vehicle in case of a mine emergency situation.

(12) Recordkeeping and reporting procedures, which shall include a presentation on required recordkeeping and reporting procedures for problems or unsafe conditions, high emissions level and preoperational inspections made by the equipment operator.

(f) A new Certificate of Qualification shall be issued annually after the equipment operator has received the annual refresher training.

### **Section 221-A. Equipment-specific training**

Equipment-specific hands-on orientation training shall be given in an area of the mine where the equipment will be operated. This orientation shall be specific to the type and make of the diesel machine and shall be presented in small groups. The following subjects shall be included in the training:

(1) Equipment layout, which shall include familiarization with the layout of the equipment, the operator's compartments and the controls.

(2) Preoperation inspection, which shall include familiarization with the preoperation inspection procedure and review of specific details of the



inspection and location of the components to be inspected.

(3) Equipment limitations, which shall include instruction relating to equipment performance, speeds, capacities and blind areas.

(4) Operating areas, which shall include instruction relating to areas in which the equipment may be operated.

(5) Operation, which shall include familiarization with the controls, gauges and warning devices and safe operating limits of all indicating gauges.

(6) Refueling procedure, which shall include familiarization with fuel handling, permissible refueling areas, spill prevention, cleanup and potential hazards from diesel fuel.

(7) Emergency devices, which shall include instruction relating to the location and use of the fire extinguisher and fire suppression devices.

(8) Driving practice, which shall include supervised operation of the equipment.

## **Section 222-A. Diesel mechanic training**

(a) Diesel mechanic training and qualification shall meet the requirements of this section.

(b) Diesel mechanics shall be trained and qualified to perform maintenance, repairs and testing of the features of diesel equipment certified by MSHA and the department.

(c) To be qualified, a diesel mechanic must successfully complete a minimum of sixteen hours of a training program approved by the department regarding the general function, operation, maintenance and testing of emissions control and conditioning components. The diesel mechanic must be qualified to perform these tasks on the specific machines used at the mine or mines where they are employed. Additional engine-specific training shall be provided to diesel mechanics in accordance with a plan approved by the department.

(d) Annual retraining programs for diesel mechanics shall be required and approved by the department. The annual retraining shall include refresher training as well as new procedure and new technology training as necessary. Such training shall be separate from refresher training pursuant to MSHA regulations at 30 CFR Pt. 48 (relating to training and retraining of miners) and electrical training required by MSHA.

(e) The minimum sixteen-hour diesel mechanic training programs shall be submitted for approval to the department and shall include training in the following minimum subject requirements:

- (1) Federal and State requirements regulating the use of diesel equipment.
- (2) Company policies and rules related to the use of diesel equipment.
- (3) Emissions control system design and component technical training.
- (4) On-board engine performance and maintenance diagnostics system design and component technical training.
- (5) Service and maintenance procedures and requirements for the emissions control systems.
- (6) Emissions testing procedures and evaluation and interpretation of test results.
- (7) Troubleshooting procedures for the emissions control systems.
- (8) Fire protection systems test and maintenance.

(9) Fire and ignition sources and their control and elimination.

(10) Fuel system maintenance and safe fueling procedures.

(11) Intake air system design and components technical training and maintenance procedures.

(12) Engine shutdown device tests and maintenance.

(13) Special instructions regarding components, such as the fuel injection system, that shall only be repaired and adjusted by a qualified mechanic who has received special training and is authorized to make such repairs or adjustments by the component manufacturer.

(14) Instruction on recordkeeping requirements for maintenance procedures and emissions testing.

(15) Other subjects determined by the department to be necessary to address specific health and safety needs.

## **Section 223-A. Operation of diesel-powered equipment**

(a) In addition to other requirements of this article, diesel-powered equipment shall be operated pursuant to the standards set forth in this section.

(b) All diesel-powered equipment shall be attended while in operation with the engine running in underground mines.

(c) Unnecessary idling of diesel-powered equipment shall be prohibited.

(d) All roadways where diesel-powered equipment is operated shall be maintained as free as practicable from bottom irregularities, debris and wet or muddy conditions that will affect control of the equipment.

(e) Operating speeds shall be consistent with conditions of roadways, grades, clearances, visibility and traffic and type of equipment used.

(f) Equipment operators shall have full control of the mobile equipment while it is in motion.

(g) Traffic rules, including speed, signals and warning signs, shall be standardized at each mine and posted.

(h) All diesel-powered equipment shall be maintained in a safe and healthful operating condition. Equipment in an unsafe or unhealthful condition or not maintained in accordance with the engine or emissions control operating specifications shall be removed from service immediately and shall not be returned to service until all necessary corrective actions have been taken.

### **Section 224-A. Technical Advisory Committee on Diesel-Powered Equipment**

(a) There is hereby created a Technical Advisory Committee on Diesel-Powered Equipment for the purpose of advising the secretary regarding implementation of this article and evaluation of alternative technology or methods for meeting the requirements for diesel-powered equipment as set forth in this article. Any alternative technology or methods recommended by the advisory committee and/or approved by the secretary shall not reduce or compromise the level of health and safety protection afforded by this article.

(b) The advisory committee shall consist of two members who shall be residents of this Commonwealth and appointed by the Governor. The Governor shall appoint one member to represent the viewpoint of the coal operators in this Commonwealth within thirty days from receipt of a list containing one

or more nominees submitted by the major trade association representing coal operators in this Commonwealth and shall also appoint one member to represent the viewpoint of the working miners in this Commonwealth within thirty days from receipt of a list containing one or more nominees submitted by the highest ranking official within the major employee organization representing coal miners in this Commonwealth.

(c) Members of the advisory committee shall be appointed for a term of three years. If renominated and reappointed, a member may serve up to three successive three-year terms.

(d) Members of the advisory committee shall be compensated on a per diem basis of one hundred fifty dollars (\$150) per day plus all reasonable expenses incurred while performing their official duties.

(e) The advisory committee shall meet at least twice during each calendar year or more often as may be necessary.

(f) All actions of the advisory committee shall require the participation of both members which shall constitute a quorum.

(g) Upon application of a coal miner, coal mine operator, diesel-related technology manufacturer or on

its own motion, the advisory committee shall consider requests for the use of alternative diesel-related health and safety technologies with general underground mining industry application that are consistent with this article. Approval of an application made under this subsection shall make the alternative technology or method available for use by any coal operator in this Commonwealth but shall not be construed to require that a coal mine operator use such approved alternative technology or method. Upon receipt of an application, the advisory committee shall conduct an investigation, which investigation shall include consultation with a representative or representatives of the major trade association representing coal operators in this Commonwealth and with a representative or representatives of the major employee organization representing coal miners in this Commonwealth.

(h) Upon application of a coal mine operator, the advisory committee shall consider site-specific requests for use of alternative diesel-related health and safety technologies. The committee's recommendations on applications submitted under this subsection shall be on a mine-by-mine basis. Upon receipt of a site-specific application, the advisory committee shall conduct an investigation, which investigation shall include consultation with the mine operator and the authorized representatives of the miners at the mine. Authorized representatives of the miners shall include a mine health and safety



committee elected by miners at the mine, a person or persons employed by an employee organization representing miners at the mine, or a person or persons authorized as the representative or representatives of miners of the mine in accordance with MSHA regulations at 30 CFR Pt. 40 (relating to representative of miners). Where there is no authorized representative of the miners, the advisory committee shall consult with a reasonable number of miners at the mine.

(i)(1) Within one hundred eighty days of receipt of an application for use of alternative technologies or methods, the advisory committee shall complete its investigation and make a recommendation to the secretary. The time period may be extended with the consent of the applicant.

(2) The advisory committee shall forward to the secretary three possible recommendations:

(i) a unanimous recommendation to approve the application for use of alternative technologies or methods;

(ii) a unanimous recommendation to reject the application for use of alternative technologies or methods; or

(iii) a divided recommendation where one member of the advisory committee recommends approval of the application for use of alternative technologies or methods and one member of the advisory committee recommends rejection of the application for use of alternative technologies or methods.

(3) In the event recommendations described in subparagraphs (i) and (ii) of paragraph (2) are forwarded to the secretary by the advisory committee, the secretary shall have thirty days in which to render a final decision adopting or rejecting the advisory committee's recommendation and the application. In the event of a divided recommendation as described in subparagraph (iii) of paragraph (2), the secretary shall convene, within thirty days, a meeting with the members of the advisory committee to discuss the reasons for the divided recommendation and to determine whether additional information and further discussion might result in a unanimous recommendation by the advisory committee. The secretary shall render a decision on the application within thirty days from the date of the meeting with the advisory committee.

(4) The advisory committee members shall only recommend approval of an application made under this section if, at the conclusion of the investigation,

the committee members have made a determination that the use of the alternative technology or method shall not reduce or compromise the level of health and safety protection afforded by this article.

(5) Any advisory committee recommendation to the secretary for approval of an application made under this section for use of alternative technologies or methods shall be made in writing and shall include the results of its investigation and specific conditions of use for the alternative technology or method.

(6) An advisory committee decision to reject an application made under this section for use of alternative technologies or methods shall be made in writing to the secretary and shall outline in detail the basis for the rejection.

(7) In the event of a divided vote as described in subparagraph (iii) of paragraph (2), each member of the committee shall submit a detailed report to the secretary within fourteen days of the committee's vote outlining the member's position for or against the application.

(j) Within thirty days of receipt of an advisory committee's unanimous recommendation to approve an application made under this section, the secretary shall approve or reject, without modification except as

unanimously approved by the advisory committee, the advisory committee's recommendations, including all recommended conditions of use. Any alternative technologies or methods approved by the secretary shall not reduce or compromise the level of health and safety protection afforded by this article. The time period for the secretary's decision may be extended with the consent of the applicant.

(k) The secretary shall establish, based on recommendations made by the advisory committee, conditions of use for the use of diesel-powered equipment in shaft and slope construction operations at coal mines. All conditions of use proposed by the advisory committee shall be considered by the secretary and shall be adopted or rejected by the secretary without modification, except as approved by the advisory committee.

(l) In performing its functions, the advisory committee shall have access to the services of the department. The secretary shall make clerical support and assistance available to enable the advisory committee to carry out its duties. Upon the request of both members of the advisory committee, the secretary may draft proposed conditions of use and reports or perform investigations.

(m) Any action taken by the secretary to either approve or reject the use of an alternative technology

or method under subsection (g), (h) or (j) shall be final and binding and not subject to further review except where a decision by the secretary may be deemed to be an abuse of discretion or contrary to law. If any party affected by a decision of the secretary believes that the decision is an abuse of discretion or contrary to law, that party may file a petition for review with the Commonwealth Court in accordance with Pa.R.A.P. Ch. 15 (relating to judicial review of governmental determinations). The court, in finding that any decision made by the secretary is an abuse of discretion or contrary to law, shall vacate and, if appropriate, remand the case.

(n) The powers and duties of the advisory committee shall be limited to the matters regarding the use of diesel-powered equipment in underground coal mines.

(o) Funding for the operation of the advisory committee and to implement the provisions of this article is to be derived from the general government appropriation of the department.